



Province of the
EASTERN CAPE
TRANSPORT

TENDER NO: SCMU10-24/25-0011

FOR

**UPGRADING OF ROAD DR08044 FROM THE MSENGENI
JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO
THE MTOKWANE VILLAGE (KM 14+400)**

VOLUME 3

COMPULSORY BRIEFING: 19 September 2024 AT 10H00

TENDER CLOSING: 07 October 2024 AT 11H00

Eastern Cape Department of Transport
32 Cowan Close
Stellenbosch Park Building
Schornville
King William's Town
5601

Name of Tenderer:

.....

CRS No.

CSD No.



An efficient, safe, sustainable, affordable and accessible transport system

PROVINCE OF THE EASTERN CAPE

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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**UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE
KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)**

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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

T1.1 TENDER NOTICE AND INVITATION TO TENDER
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A. TENDER INVITATION:

The Department of Transport of the Province of Eastern Cape hereby invites tenders from experienced civil engineering Contractors for:

Contract No. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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 PROJECTS 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 with a 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.

Tender documents will be available as of Friday **06 September 2024** from the DoT Website (www.ectransport.gov.za) and Department of National Treasury eTender Publication website (www.etenders.gov.za).

A compulsory clarification meeting with representatives of the Employer will take place at TRC HALL, WILLOWVALE on **19 September 2024 at 10h00**. 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 **27 September 2024**.

Tenderers are required to download any addenda issued by the Employer from the Eastern Cape Department of Transport Website www.ectransport.gov.za only. Addenda will only be issued seven (7) days before the

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

Tender Closing date and it is the Tenderers responsibility to check the addenda issued on the departmental website and eTender portal. 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.

Completed tender documents (Volume 3 and any supporting documentation), placed in a sealed envelope and clearly marked **"CONTRACT NO.: SCMU10-24/25-0011 UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)"** must be deposited in the Tender Box, located on the Ground Floor at the Department of Transport, 32 Cowan Close, Stellenbosch Park, Schornville, King William's Town, not later than **11h00 on Monday 07 October 2024**, when tenders will be opened in public.

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

Tenderer must have completed at least two similar surfaced road upgrading projects to the value of at least **R 150 000 000.00** each in the past **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 D 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.**

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) or Professional Construction Project Manager (Pr CPM) 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 E** of the Returnable Schedules. Copies of CV's of the key personnel (as per example on Form E) and certificates of qualifications and professional registration must be attached, in order to qualify for this tender.

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

Maximum points on price	-	90 points
Maximum points for specific goals	-	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) (To be completed by the organ of state)	Number of points claimed (90/10 system)
Historically Disadvantaged Individuals		
Black ownership	5	% ownership as per CIPC / CSD
Locality:-		
(a) Preferred address on the CSD in the Eastern Cape not changed in the last 3 years.	5	
b) Alternative address on the CSD in the Eastern Cape not changed in the last 3 years	3	
(c) Outside Eastern Cape no satellite office in Eastern Cape: (i) including preferred address on CSD less than 3 years. (ii) Alternative address on CSD less than 3 years	2	

➤ **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 **90 days**.

E. TENDER SUBMISSIONS:

The completed tender document as well as any supporting documentation shall be placed in a sealed envelope clearly marked **"TENDER NO: SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)"** and deposited in the Tender Box at the Department of Transport, 32 Cowan Close, Stellenbosch Park, Schornville, King William's Town, not later than **11h00 on Monday 07 October 2024** when tenders will be opened in public.

SCM RELATED ENQUIRIES

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

Name: Ms A Mntu
Cell No: 067 411 2177
Email Address: abongile.mntu@ectransport.gov.za

TECHNICAL ENQUIRES

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

Name: Mr S Gebengana
Cell No.: 071 687 0710
Email Address: simlindile.gebengana@ectransport.gov.za

FOR COMPLAINTS, FRAUD, & TENDER ABUSE:

Call: 0800 701 701

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 employer is the Department of Transport, Province of the Eastern Cape
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: <u>THE TENDER</u> PART T1: TENDERING PROCEDURES T1.1: Tender Notice and Invitation to Tender.....(White) T1.2: Tender Data.....(Pink) PART T2: RETURNABLE DOCUMENTS T2.1: List of Returnable Documents.....(Yellow) T2.2: Returnable Schedules.....(Yellow) <u>THE CONTRACT</u>

No	Clause	Wording
		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 7: Environmental, Materials & Geotechnical
3	F.1.4	The Employer's agent is Mariswe acting through a Director, Executive Manager or Lead Engineer, authorised thereto in writing: Name: Mr Riaan Viviers Address: Aintree Park, 1 Loch Road Kenilworth 7708 Tel: 021 761 6999 E-mail: riaanv@mariswe.com 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 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

No	Clause	Wording
		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	ELIGIBILITY
	F2.1.1	<i>Delete the clause and replace with the following:</i> 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.
	F2.1.3	<i>Add the following after F.2.1.2:</i> 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 eligibility 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. 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;

No	Clause	Wording
		f. A completed returnable schedule SBD 4: BIDDER'S DISCLOSURE 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 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; h. 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. i. 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; j. 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; k. 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; l. The tenderer has not abused the Employer's Supply Chain Management System; m. The tenderer has not failed to perform on any previous contract with the Employer; n. The tenderer's tax matters with SARS are in order. o. 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 projects to the value of at least <u>R 150 000 000.00</u> each in the last 10 years. 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.

No	Clause	Wording
		Failure to comply with the requirements or to complete Form D (A) will render the tender non-responsive.
10	F.2.1.4.4	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 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

No	Clause	Wording
		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.
15	F2.6	Addenda Tenderers are required to download any addenda issued by the Employer from the Eastern Cape Department of Transport Website www.ectransport.gov.za only. Addenda will only be issued seven (7) days before the Tender Closing date and it is the Tenderers responsibility to check the addenda issued in the departmental website and eTender portal. 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 19 September 2024 at 10h00. The venue for the compulsory clarification meeting will be the TRC HALL, WILLOWVALE. 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.

No	Clause	Wording
		Failure to sign the attendance register of the compulsory clarification briefing will be rendered non-responsive.
17	F.2.8	Seek clarification <i>Delete the clause and replace with the following:</i> Request clarification of the tender documents, if necessary, by notifying the Employer before 27 September 2024 The tenderer declares that it has: - Inspected the Specifications and read and fully understood the Conditions of Contract. - 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. - 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. - 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. - 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: 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 <u>will not</u> be followed.
23	F.2.13.9	<i>Add the following to F.2.13.9 at the end of the first sentence:</i> Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
24	F.2.13.10	The Employer shall formally issue the Tender Documents as per F.1.2 (excluding Volumes 1 and 2) and supporting documentation electronically via download from the Eastern Cape Department of Transport website www.ectransport.gov.za and Department of National Treasury eTender Publication website www.etenders.gov.za . The use of electronic tender documents, supporting documentation and addenda shall be subject to the following:

No	Clause	Wording
		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 <i>Add the following to F.2.15.1 after the last sentence:</i> 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	<i>Add the following to F.2.16.1 at the end of the first sentence:</i> The tender offer validity period is 90 days.
27	F.2.17	Clarification of tender offer after submission <i>Add the following to F.2.17 at the end of the third sentence:</i> 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 <i>Add the following:</i> 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 <i>Add the follow to F.3.1.1:</i> The Employer will respond to requests for clarification received up to 27 September 2024.
31	F.3.2	Issue Addenda <i>Delete the first sentence and replace with the following:</i> If necessary, issue addenda that may amend or amplify the tender documents to each tenderer not later than Monday 30 September 2024.

No	Clause	Wording								
		<i>Add the following to F.3.2 at the end of the paragraph:</i> Addenda issued by the Employer (if any) shall be available for download on the Eastern Cape Department of Transport website www.ectransport.gov.za only. Addenda will only be issued seven (7) days before the Tender Closing date and it is the Tenderer's responsibility to check the addenda issued in the departmental website and eTender portal. Please note, ONLY addenda critical to the evaluation will be issued.								
32	F.3.4	Opening of tender submissions <i>Add the following to F.3.4.2 at the end of the paragraph:</i> 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 <i>Add the following after clause F.3.9.2:</i> 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 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><td></td><td>Maximum number of tender evaluation points</td></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>		Maximum number of tender evaluation points	Price Component (N_{FO})	90	Preferential Component (N_p)	10	Total evaluation points (T_{EV})	100
	Maximum number of tender evaluation points									
Price Component (N_{FO})	90									
Preferential Component (N_p)	10									
Total evaluation points (T_{EV})	100									
35	F.3.11.7	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):								

No	Clause	Wording																														
		$A = [1 - [P - P_m] / P_m]$ Where P is the comparative offer of the tender offer under consideration and P_m 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).																														
36	F.3.11.8	Scoring preferences (max-10 points) <table border="1"> <thead> <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) (To be completed by the organ of state)</th><th>Number of points claimed (90/10 system) (To be completed by the tenderer)</th></tr> </thead> <tbody> <tr> <td colspan="3">Historically Disadvantaged Individuals</td></tr> <tr> <td>Black ownership</td><td>5</td><td>% ownership as per CIPC / CSD</td></tr> <tr> <td colspan="3">Locality:-</td></tr> <tr> <td>(a) Preferred address in the Eastern Cape in the last 3</td><td>5</td><td></td></tr> <tr> <td>b) Alternative address in the Eastern Cape in the last 3 years</td><td>3</td><td></td></tr> <tr> <td>(c) Outside Eastern Cape no satellite office in Eastern Cape:</td><td>2</td><td></td></tr> <tr> <td>(i) including preferred address less than 3 years</td><td></td><td></td></tr> <tr> <td>(ii) Alternative address less than 3 years</td><td></td><td></td></tr> </tbody> </table> ➤ Historically Disadvantaged Individual (HDI): Black Ownership (max= 5 points) 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. $SGP = \frac{\%BOE (CIPC / CSD)}{100} \times MHDI (Max = 5)$ SGP= Specific goals points MHDI= Maximum points for Historical disadvantaged individuals BOE = Black Ownership Equity	PREFERENTIAL SPECIFIC GOALS POINTS TABLE			The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Historically Disadvantaged Individuals			Black ownership	5	% ownership as per CIPC / CSD	Locality:-			(a) Preferred address in the Eastern Cape in the last 3	5		b) Alternative address in the Eastern Cape in the last 3 years	3		(c) Outside Eastern Cape no satellite office in Eastern Cape:	2		(i) including preferred address less than 3 years			(ii) Alternative address less than 3 years		
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No	Clause	Wording
		➤ 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. 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.
37	F.3.11.10	<i>Add the following after F.3.11.9:</i> 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; h) the Form of Offer is duly completed and signed (Note: Any correction must be signed by the authorised signatory);

No	Clause	Wording
		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; 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. <i>Add the following:</i> “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 <i>Add the following after the first sentence:</i> The number of paper copies of the signed contract to be provided by the employer is one (1).
		<u>ADDITIONAL CONDITIONS OF TENDER CLAUSES:</u>
	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. SCMU10-24/25-0011

**UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE
KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)**

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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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	BIDDER'S DISCLOSURE	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 ☐

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. SCMU10-24/25-0011

**UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE
KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)**

T2.2: RETURNABLE SCHEDULES
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SBD 1: INVITATION TO BID AND TERMS AND CONDITIONS FOR BIDDING

PART A: INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE Eastern Cape Department of Transport					
BID NUMBER:	SCMU10-24/25-0011	CLOSING DATE:	07/10/2024	CLOSING TIME:	11H00
DESCRIPTION	UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
Eastern Cape Department of Transport					
32 Cowan Close, Flemming Street					
Room C1, Stellenbosch Park Building					
Schornville, King Williams Town, 5601					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Mr P Nqikashe		CONTACT PERSON	Mr C Boshoff	
TELEPHONE NUMBER	067 419 8001		TELEPHONE NUMBER	082 854 3795	
FACSIMILE NUMBER	N/A		FACSIMILE NUMBER	N/A	
E-MAIL ADDRESS	philasande.nqikashe@ectransport.gov.za		E-MAIL ADDRESS	clive.boshoff@ectransport.gov.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.					

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 TRC Hall in Willowvale town.
2. In the tender briefing venue, you are required to sign the attendance register. The briefing will start at 10h00, 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 "SCMU10-24/25-0011 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 **SCMU10-24/25-0011** 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)

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**, where 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. SCMU10-24/25-0011
UPGRADING OF ROAD DR08044 FROM THE MSENENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)**

NAME OF TENDERER:

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

Page 1 of 2

(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 five (10) years to the value of at least R 90 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 ($\geq$) 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.2.1.4.5 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.2.1.4.5 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.2.1.4.5 OF T1.2: TENDER DATA**.
4. 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	KEY POSITION	SACPCMP Reg No	SACPCMP Category	List only applicable information relevant to the type and duration of experience required (Start with latest experience)				VALUE OF PROJECT	POSITION HELD	CONTACT PERSON AND FIRM	CONTACT NO.	CURRENTLY EMPLOYMENT BE TENDERER (YES or NO)	NO. OF YEARS EXPERIENCE (for defined type of works)
	CONSTRUCTION HEALTH AND SAFETY OFFICER			PROJECT END DATE AND DURATION ON PROJECT	DESCRIPTION OF PROJECT								

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: BIDDER'S DISCLOSURE
 - SBD 6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

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 DR08044 FROM THE MSENENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)				
Contract Number:		SCMU10-24/25-0011				
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

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

- authorizes the Employer to verify Tax Compliance status from the South African Revenue Services or the Centralised Suppliers Database (CSD);
- 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;
- 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;
- 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
- 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: BIDDER'S DISCLOSURE

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.

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

SBD 4

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, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND 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**
(delete whichever is not applicable for this tender).

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 SPECIFIC GOALS	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:

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

Where

P_s = Points scored for price of bid under consideration

P_t = Price of bid under consideration

P_{min} = Price of lowest acceptable bid

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1 In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- 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) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)
Historically Disadvantaged Individuals		
Black ownership	5	
Locality:-		
(a) Preferred address on the CSD in the Eastern Cape not changed in the last 3 years.	5	
b) Alternative address on the CSD in the Eastern Cape not changed in the last 3 years	3	
(c) Outside Eastern Cape no satellite office in Eastern Cape:	2	
(i) including preferred address on CSD less than 3 years.		
(ii) Alternative address on CSD less than 3 years		

DECLARATION WITH REGARD TO COMPANY/FIRM

Name of company/firm.....

Company registration number:

TYPE OF COMPANY/ FIRM

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

ANNEXURE C: LOCAL CONTENT

FORM A3.6: LOCAL CONTENT DECLARATION: SUMMARY SCHEDULE (ANNEXURE C)

CONTRACT APPOINTMENT OF CIVIL ENGINEERING CONTRACTOR FOR THE UPGRADING OF ROAD DR08125 FROM N2 TO SIPETU HOSPITAL, BETWEEN KM 10 AND KM 24 (14KM) PHASE 4A

C1	Tender No.:								Note: VAT to be excluded from all calculations
C2	Tender Description:								
C3	Designated Product(s):								
C4	Tender Authority:								
C5	Tendering Entity Name:								
C6	Tender Exchange Rate:	Pula	P	EU	€	GBP	£		

Tender Item No.'s	List of Items	Calculation of Local Content						Tender Summary			
		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)

(C20) Total Tender Value R

(C21) Total Exempt Imported Content R

(C22) Total Tender value net of exempt imported content R

(C23) Total Imported Content R

(C24) Total Local

Content
(C25) Average Local Content % of tender

...%

Signature of tenderer from Annex B (SATS 1286.2011)

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.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

**UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE
(KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)**

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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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:

SCMU10-24/25-0011:

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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:** **Department of Transport
Province of the Eastern Cape
32 Cowan Close
Stellenbosch Park Building
Schornville
King William's Town
5601**

Name and signature
of witness

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:**

**Department of Transport
Province of the Eastern Cape
32 Cowan Close
Stellenbosch Park Building
Schornville
King William's Town
5601**

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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

C1.2: CONTRACT DATA (PART 1 OF 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 Twenty Four (26) 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 name the Employer is THE DEPARTMENT OF TRANSPORT, EASTERN CAPE, represented by the Head of Department 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 Mariswe
5	1.1.1.26	The Pricing Strategy is a Re-measurement Contract.
6	1.1.1.35	<i>Add the following new sub-clause:</i> ““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: 32 Cowan Close Stellenbosch Park Building Schornville King Williams Town 5601 Postal address: Private Bag X0023 Bisho 5605 E-mail address: clive.boshoff@ectransport.gov.za Tel number: 082 854 3795

No.	Clause	Description
8	1.2.1.2	The address of the Employer's Agents are: <u>During Tender Stage:</u> Physical address: Mariswe[Pty] Ltd Aintre Park, Block E 1 Loch Close, Off Donscaster Road Kenilworth 7708 E-mail address: riaanv@mariswe.com Telephone number: 021 761 6999 <u>During Construction Stage:</u> Physical address: Mariswe[Pty] Ltd Aintre Park, Block E 1 Loch Close, Off Donscaster Road Kenilworth 7708 E-mail address: riaanv@mariswe.com Telephone number: 021 761 6999
9	1.3.7	<i>Add the following new subclause:</i> "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	<i>Add the following:</i> "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. Form of Offer and Acceptance and Schedule of Deviations. 2. Contract Data. 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	<i>Add the following:</i> "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	<i>Add the following new subclause:</i> "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	<i>Add the following new subclause:</i> "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: - NEMA Authorisations for the project; - MPRDA authorisations for the project; - DAFF permits for the project; - DWS authorisations for the project; and - 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."

No.	Clause	Description
16	4.12.2	<i>Add the following:</i> “Employer's minimum requirements for approval of the Construction Manager: 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. <i>Add the following:</i> “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	<i>Add the following new subclause:</i> “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.”

No.	Clause	Description
20	5.8.1	The non-working days are Sundays. 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	<i>In the third line, after the word "progress", insert "or alter the order".</i>
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	<i>In the fifth line, after the word "shall", insert "with the approval of the Employer".</i>
27	6.6.1.2	<i>After all references to the word "sums", insert "excluding VAT"</i>
28	6.8.1	<i>Add the following:</i> "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.

No.	Clause	Description
		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: 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	6.10.19	<i>Add the following subsubclause:</i> "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	<i>Add the following:</i> "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% up to a maximum of R 10 000 000.00 (Excluding VAT). <i>Add the following:</i> "A retention money guarantee in lieu of retention is not permitted."
35	6.10.4	<i>In the third sentence replace "28 days of receipt" with "30 days of confirmed receipt".</i>
36	6.11	<i>Replace all references to "15 per cent" with "20 per cent".</i> <i>Replace last paragraph after "6.11.1.6 Daywork, with the following:</i> "then the Value related portion of General Items shall be adjusted by such sums (if any)."
37	7.2.1	<i>Add the following at the end of the paragraph:</i> “,subject to approval of the Employer’s Agent”.
38	8.2.1	<i>Add the following:</i> "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 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.

No.	Clause	Description
		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	<i>Add the following to the end of Clause 8.2.2.3</i> "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).
45	10.7.1	The determination of disputes shall be by arbitration.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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

PART 2 : DATA PROVIDED BY THE CONTRACTOR

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

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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: THE DEPARTMENT OF TRANSPORT, EASTERN CAPE

"Contractor" means:

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

"Works" means: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

"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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE
(KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENENI JUNCTION AT THE KAWANGCULU VILLAGE
(KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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 ✓) <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <td style="width: 25%; text-align: center; padding: 5px;">CR 5.1(a)</td> <td style="width: 25%;"></td> <td style="width: 25%; text-align: center; padding: 5px;">CR 5.1 (b)</td> <td style="width: 25%;"></td> <td style="width: 25%; text-align: center; padding: 5px;">CR 5.1 (c – s)</td> <td style="width: 25%;"></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 45%; padding: 10px; vertical-align: top;"> 17. Result of the Application (Please Tick ✓) </td> <td style="width: 15%; text-align: center; padding: 10px;"> Approved </td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center; padding: 10px;"> Declined </td> <td style="width: 10%;"></td> </tr> </table> 18. Reason for Declining the Application: 19. Signature of Supervisor 20. Signature of Revoking Officer / Inspector						CR 5.1(a)		CR 5.1 (b)		CR 5.1 (c – s)		17. Result of the Application (Please Tick ✓)	Approved		Declined	
CR 5.1(a)		CR 5.1 (b)		CR 5.1 (c – s)												
17. Result of the Application (Please Tick ✓)	Approved		Declined													

Construction Regulations 2014

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

30 DAYS PRIOR TO COMMENCEMENT OF WORK ON SITE

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU
VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

THE CONTRACT
PART 2 (OF 4) : PRICING DATA

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

C2. PRICING DATA

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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 mark up amount. This means that the Tenderer is required to insert Quantity, Rate and Amount.

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

C2.2 PRICING SCHEDULE

PROVINCE OF THE EASTERN CAPE
DEPARTMENT OF TRANSPORT
TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

THE CONTRACT
PART 3 (OF 4) : SCOPE OF WORKS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3 : SCOPE OF WORK

SECTION A: STANDARD AMENDMENTS ISSUED BY COLTO

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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.

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3 : SCOPE OF WORK

SECTION B: PROJECT SPECIFICATION AMENDMENTS TO THE STANDARD SPECIFICATIONS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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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 subject to the 6000 Series."

B1115 GENERAL CONDITIONS OF CONTRACT

Replace clause 1115 with the following:

"The General Conditions of Contract that govern this contract are the General Conditions of Contract for Construction Works, Third Edition (2015) published by the South African Institution of Civil Engineering, also referred to as GCC 2015.

Each definition in the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities 1998 and in the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities 1998 that has an equivalent definition in the GCC 2015, shall be re-interpreted in terms of the GCC 2015, and, where applicable, shall be replaced by the equivalent definition from GCC 2015. A guide in this regard is shown in Tables B1115A and B1115B below."

Tables B1115A: COLTO GCC to GCC 2015

Reference to a Clause that refers to, or defines, a contractual term in either the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities 1998 (COLTO GCC 1998) for the Standard Specifications for Road and Bridge Works for State Road Authorities 1998.		Equivalent reference to a Clause that refers to, or defines, a contractual term in General Conditions of Contract for Construction, 3 rd edition (2015) (GCC 2015), applicable to this Contract	
COLTO GCC Clause No	Referenced COLTO GCC defined term	GCC 2015 Clause No	GCC 2015 defined term
1(1)(b)	Appendix	1.1.1.8	Contract Data
1(1)(f)	Constructional Plant	1.1.1.6	Construction Equipment
1(1)(n)	Engineer	1.1.1.16	Employer's Agent
1(1)(o)	Engineer's Representative	1.1.1.17	Employer's Agent Representative
1(1)(p)	Letter of Acceptance	1.1.1.20	Form of Offer and Acceptance
4(3)	Letter of Acceptance, (written proof) of delivery of	-	Confirmation of Receipt (pro-forma appearing with the Form of Offer and Acceptance in GCC 2015)
1(1)(q)	Permanent Works	1.1.1.22	Permanent Works
1(1)(q)	Permanent Works	1.1.1.23	Plant
1(1)(s)	Project Specifications	1.1.1.28	Scope of Work
1(1)(t)	Schedule of Quantities	1.1.1.2	Bill of Quantities
1(1)(t)	Schedule of Quantities	1.1.1.25	Pricing Data
1(1)(w)	Special Conditions	1.1.1.8	Contract Data
1(1)(x)	Specifications	1.1.1.28	Scope of Work
1(1)(x)	Specifications	1.1.1.30	Site Information

Tables B1115B: COLTO STANDARD SPECIFICATION TO GCC 2015

COLTO Standard Specifications		Reference to COLTO General Conditions of Contract 1998 shown in the Standard Specifications for Road and Bridge Works for State Road Authorities 1998.		Equivalent reference in General Conditions of Contract for Construction, 3 rd edition (2015), applicable to this Contract	
Clause No	Clause No	Description or Reference		Clause No	Description or Reference amended to
1115		Definition of GCC; special conditions of contract			Definition GCC 2015 in the Contract Data
1202	15	Construction Programme		5.6	Programme
1204		General reference to GCC			Applicable to GCC 2015
1206	14	Setting out of works			Not defined – see SANS 1921
1209 (a)		General reference to GCC			Applicable to GCC 2015
1209 (e)	52	Valuation of material brought onto site		6.10.2	Valuation of material brought onto site
1210	54	Certificate of practical completion		5.14.2	Issue Certificate of Practical Completion
1212 (1)	49	CPA on alternative designs		6.8	Adjustment in rates and/or prices
1215	45	Extension of time for completion due to abnormal rainfall		5.12.2	Some reasons for extension of Time
1217	35	Care of the works		8.2	Care of the works
1303 (ii)		General reference to GCC			Applicable to GCC 2015
1303 (iii)	49	Price adjustment Item 13.01 (a)		6.8	Adjustment in rates and/or prices
1303 (iii)	49	Price adjustment Item 13.01 (b)		6.8	Adjustment in rates and/or prices
1303 (iii)	53	Variations exceeding 20%			Not applicable to this contract
1303	12	Payment Item 13.01 (c)		5.3	Commencement of Works
1303	45	Payment Item 13.01 (c)		5.12	Extension of time for Practical Completion
1403 (c) (ii)	40 (1)	Variation for rented accommodation		6.4.1	Valuation of variations
1505	40	Variation for temporary drainage		6.4	Valuation of variations
Item 15.08	48	Payment of Provisional Sum		6.6	Provisional sums and prime cost sums
Item 15.09	48	Payment of Provisional Sum		6.6	Provisional sums and prime cost sums
Item 15.11	48	Payment of Provisional Sum		6.6	Provisional sums and prime cost sums
Note (2)	40	Payment for prospecting for materials		6.6	Provisional sums and prime cost sums
3204 (b) (iii)	40	Payment for oversize material		6.4	Valuation of variations
3303 (b)	2	Engineer's decisions, with reference to materials classification		3.2	Functions of the Employer's Agent

COLTO Standard Specifications	Reference to COLTO General Conditions of Contract 1998 shown in the Standard Specifications for Road and Bridge Works for State Road Authorities 1998.		Equivalent reference in General Conditions of Contract for Construction, 3 rd edition (2015), applicable to this Contract	
Clause No	Clause No	Description or Reference	Clause No	Description or Reference amended to
Item 44.06		General reference to GCC, PC Sums	6.6.2	General reference to GCC 2015, Prime Cost Sums
5803 (c)	40	Variation, for landscaping	6.3	Variations
5805 (d)	40	Variation, for grassing	6.3	Variations
Item 58.10	48	Payment for Extra Work	6.6	Provisional sums and prime cost sums
8103 (c)	40	Variation, for testing material	6.3	Variations
Item 81.02		General reference to GCC, Provisional Sums	6.6	General reference to GCC 2015, Provisional Sums and prime cost sums
Item 81.03	22	Clearance of site on completion, with reference to core drilling	5.15.1	Clearance of Site on completion

SAICE General Conditions of Contract 2015: subclause 1.1 Definitions

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:

"Any omission of pay items from the Pricing Schedules with regard to additional or extra over payment for work in restricted areas should be regarded as deliberate and any additional cost incurred shall be included in the bulk rates tendered. (Refer also to clause B1209(j))."

Add the following 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.

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 Pricing Schedules including items 13.01(a) to (c) (when calculated to include themselves), all daywork 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. No overhaul will be paid.

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 TESTING SPECIFICATIONS

In December 2016 the THM1 ceased to exist and was replaced by SANS 3001. All site Laboratories are required to perform testing according to the SANS 3001 test methods.

The Table to follow gives a breakdown of the TMH1 test method vs the SANS 3001 test method.

- Most of the methods are similar to the traditional TMH1 with minor changes and amendments. The moisture determination is intended for use throughout the SANS 3001 methods.
- Minor amendments have been made to rationalise apparatus dimensions such as mould sizes. The changes to some of the sieve sizes appear to be significant but all are less than 7 % and do not affect the outcome as they give a slightly altered position on the grading curve.
- The MDD is different primarily because scalping of the sample on the 37.5 mm sieve is given as the reference method for preparing the sample, although the procedure for crushing the coarse material to pass the 20 mm sieve is also given.
- Concrete tests are omitted from this list as they are currently being reviewed by the SABS concrete subcommittee SC59A.

TMH1	SANS 3001	Description	Status	Apparatus	Sample	Procedure	Comments
GRAVELS - GR							
A1(a) & A5	GR1	Wet sieve and preparation of fines	Published Dec 2008	Sieve sizes rationalised	Similar	Similar, with < 0.075 mm incorporated	Sieve sizes e.g., 4,75 mm to 5 mm
A1 (b)	GR2	Dry sieve	Published Mar 2009	Sieve sizes rationalised	Similar	Dry only < 5 mm – sieve to 0.425 mm	0.075 mm fraction not determined
A6	GR3	Hydrometer	With SABS	Similar	Similar	Different – close to ASTM & BS	While the principles remain the same the test is more complicated
	GR5	Preparation of air-dried fines	With SABS				New
A2 & A3	GR10	Atterberg limits & linear shrinkage	Published Nov 2008	Similar	Similar	One point liquid limit, plastic limit and linear shrinkage	Reintroduces LS from old TMH1
A2 & A3	GR11	Liquid limit only – refers to GR10 for plastic limit and linear shrinkage	Published Nov 2008	Similar	Similar	Two point liquid limit only	Method same but splitting up LL methods
A2 & A3	GR12		Published Nov 2008	Similar	Similar	Flow curve liquid limit only	
-	GR20	Moisture content	Published Nov 2008	Instead of describing moisture content method in each test method – provides generic for all situations			New
A7	GR30	Maximum dry density	Published Jun 2010	Similar	Allows for scalped > 37.5 (ref) or crushed < 20	Similar with greater detail of moisture content points	Differs in sample preparation of > 20 mm
	GR31	Maximum dry density (MDD) of stabilised material – laboratory mixed	Published Aug 2010	Similar to A7	Modified preparation	Similar to A7	Uses GR30 with modifications to allow for stabilisation

TMH1	SANS 3001	Description	Status	Apparatus	Sample	Procedure	Comments
A10(a)	GR35	Sand replacement field density	Draft	Similar	Similar	Similar	Minor amendments
A8	GR40	California Bearing Ratio (CBR)	Published Jun 2010	Similar	Scalped > 37.5	Similar – C effort 5 layers x 11 blows	Differs in sample preparation of > 20 mm
A9	GR41	CBR of Lime treated material	Draft	Similar	Similar	Similar to GR40	Uses GR40 with modifications to allow for stabilisation
A14	GR50	Preparation, compaction and curing of laboratory stabilised	Published Aug 2010	Similar	Similar to GR31 with curing details added	Similar to GR30	Principal difference is that curing details have been added
A14	GR51	Sample, preparation, compaction & curing of laboratory stabilised	Published Aug 2010	Similar	Similar	Similar but allows two MDD methods	Prescribes curing methods and provides alternative MDD methods
-	GR52	Sample and preparation of field cores	Published Aug 2010				New
A14	GR53	Unconfined Compressive Strength (UCS)	Published Aug 2010	Similar	Similar	Similar	
A16T	GR54	Indirect Tensile Strength (ITS)	Published Aug 2010	Similar	Similar	Similar	
A19	GR55	Wet-dry brushing by hand	With SABS	Similar	Similar	Similar	Same procedure but with greater detail provided
-	GR56	Wet-dry brushing by mechanised brushing	Draft				New
-	GR57	ICL or ICC of stabilised materials	Draft	Similar	Similar	Similar	Same procedure but with greater detail provided
A15(d)	GR58	Cement or lime content – back titration	Draft	Similar	Similar	Similar	
AGGREGATES – AG							
B4	AG1	Particle size analysis	Published Feb 2009	Sieve sizes rationalised	Similar	Similar	
B18(a)	AG2	Average least dimension (ALD) direct measurement	Published Feb 2009	Similar	Similar	Similar	
B18(b)T	AG3	ALD by computation	Published Feb 2009	-	-	Complex calculation	Old nomogram replaced with calculation procedure
B3	AG4	Flakiness index	Published Feb 2009	Similar	Similar	Similar	
B19	AG5	Sand Equivalent	Draft	Similar	Similar	Similar	
B1 & B2	AG10	Aggregate crushing value (ACV) & 10% FACT	With SABS	Similar	Similar	Similar	Procedure combines tests and determines loads for second and third points differently

TMH1	SANS 3001	Description	Status	Apparatus	Sample	Procedure	Comments
SABS 5848	AG11	Polished Stone Value (PSV)	Draft	Similar	Similar	Similar	New
SABS 5839	AG12	MgSO ₄ Soundness	Draft	Similar	Similar	Similar	Procedure similar but detail significantly revised
-	AG13	Venter test	With SABS				New - Based on COLTO 8107 (e)
-	AG14	Ethylene glycol durability	Draft				New
-	AG15	Ethylene glycol plus 10 % FACT	Draft				New
-	AG16	Durability mill index	With SABS				New
B14	AG20	Apparent and bulk density and water absorption > 5 mm	Published Sept 2011	Similar	Similar	Similar	
B15	AG21	Apparent and bulk density and water absorption < 5 mm	Published Sept 2011	Similar	Similar	Similar	Similar but permits alternative calculation of bulk density
-	AG22	Apparent density crushed stone base	With SABS				New - Based on COLTO 8108 (b)
SABS 5844	AG23	Particle and relative densities	Draft	Similar	Similar	Similar	
B17T	AG30	Water-soluble sulphates	Draft				Different - Use BS 1377-3:5
A22T	AG31	Acid-soluble sulphates	Draft				Different - Use BS 1377-3:5
A20 & A21T	AG32	pH and electrical conductivity	Draft	Similar	Sample < 2 mm instead of 6.7 mm	Similar	
B6	AG40	Organic impurities	Note 1				
B12	AG41	Soluble deleterious impurities	Note 1				
	AG42	Detection of sugar	Note 1				
	AG43	Shell content	Note 1				
	AG44	Deleterious clay content (Methylene blue)	Note 1				
Note: 1. Depends on SC59A subcommittee of SABS for Concrete							
NUCLEAR DENSITY GAUGES - NG							
-	NG1	Admin, handling and maintenance	Draft				New
-	NG2	Validation of standard calibration blocks	Draft				New
-	NG3	Calibration of a nuclear gauge	Draft				New

TMH1	SANS 3001	Description	Status	Apparatus	Sample	Procedure	Comments
-	NG4	Verification of a nuclear gauge	Draft				New
A10(b)	NG5	Determination of in situ density	Draft	Similar	-	Different	
BITUMEN – BT							
-	BT10	Ball penetration test for seals	With SABS				New
-	BT11	Texture depth test for seals	With SABS				New
-	B T12	Marvil water permeability test	With SABS				New – replaces COLTO 8109 (d)
TMH2	BT20	Certification of a binder distributor	Published Nov 2010				Replaces TMH2
TMH2	BT21	Validation of a binder distributor dip stick	Published Nov 2010				Replaces TMH2
TMH2	BT22	Power and road speed indicator tests for BD	Published Nov 2010				Replaces TMH2
TMH2	BT23	Pump system performance of a binder distributor	Published Nov 2010				Replaces TMH2
TMH2	BT24	Measurement of transverse distribution (Bucket test)	Published Nov 2010				Replaces TMH2
ASPHALT – AS							
Appendix to C2	AS1	Making of asphalt briquettes	With SABS	Similar with specified compaction block	Similar	Similar	Similar but with a number of small variations
C2	AS2	Determination of Marshall stability, flow and quotient	Published Nov 2011	Similar	Similar	Similar	Similar but with a number of small variations
C3	AS10	Bulk density and void content (Marshall)	Published Nov 2011	Similar	Similar	Similar	Similar but with a number of small variations
C4	AS11	Maximum voidless density and absorbed binder (Rice's)	Published Nov 2011	Similar	Similar	Similar	Similar but with a number of small variations
C7(b)	AS20	Binder content – extraction with organic solvent	Published Nov 2011	Similar	Similar	Similar	Similar but with a number of small variations
-	AS21	Binder content – ignition method					
C8T	AS22	Bitumen content of slurry	Draft	Similar	Similar	Similar	
C11	AS23	Moisture content in asphalt mix	Draft	Similar	Similar	Similar	

TMH1	SANS 3001	Description	Status	Apparatus	Sample	Procedure	Comments
PROCEDURES – PR							
-	PR1	Uncertainty of measurement, repeatability, reproducibility and bias	Published Dec 2008				New
-	PR2	Repeat, check or duplicate tests	With SABS				New
-	PR3	Proficiency - Round robin tests	-				New
-	PR5	Computation of SM ¹ , CSR ² , GM ³ and FM ⁴	Published Feb 2009				New - Computations extracted from a number of methods
-	PR10	Checking, handling & maintenance of sieves	Published Feb 2009				New

Notes

1. SM = Soil-mortar percentages (coarse sand, fine sand, coarse fine sand, medium fine sand, fine fine sand, silt and clay).
2. CSR = CSR - Coarse sand ratio (coarse sand fraction: soil fraction (minus 2 mm)).
3. GM = Grading modulus
4. FM = Fineness modulus

B1161 SABS SPECIFICATIONS

Where reference is made in this specification or the standard specifications to SABS specifications, the latest published national standard shall be applicable. Use:

[https://www.sabs.co.za/content/uploads/files/SABS%20Catalogue%20February%202012%20\(abridged\).pdf](https://www.sabs.co.za/content/uploads/files/SABS%20Catalogue%20February%202012%20(abridged).pdf)

for the most up-to-date versions of the various standards.

B1162 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
4,75	5
2,36	2
1,18	1

B1163 COMPACTION

In December 2016 the THM1 ceased to exist and was replaced by SANS 3001. All site Laboratories are required to perform testing according to the SANS 3001 test methods.

Therefore, the standard for compaction efforts changed 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 tender documentation or the standard specifications or wherever there is conflict between the tender documentation and the standard specifications, the SANS 3001 specification and terminology shall govern.”

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following to the second paragraph:

"All the known services inside the limits of the works are indicated in this clause or drawings issued to the Contractor by the Employer's Agent. The Contractor shall however, immediately inform the Employer's Agent's representative of any underground service which is not indicated in this section 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:

"Table B1202/1 lists all known services on the site. Those requiring removal, re-alignment or temporary replacement have been identified. However, 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:
 - (1) The number of services and their locations; and
 - (2) 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: KNOWN SERVICES

PHASE 3 – km 0.00 – km 14.40

LIST OF KNOWN SERVICES						
Start (m)	End (m)	Length (m)	Position	Service type	Clearance	Action
0.08	3	0.26	ACROSS	ELECTRICAL CABLE	6.29m	No Action
0.37			ACROSS	ELECTRICAL CABLE	8.59m	No Action
0.8			RHS	UNKNOWN MH		No Action
0.99			RHS	PIPE MARKER		No Action
1.51			ACROSS	ELECTRICAL CABLE	6.90m	No Action
1.56			RHS	UNKNOWN MH		No Action
1.85			RHS	PIPE MARKER		No Action
2.12			ACROSS	ELECTRICAL CABLE	8.00m	No Action
2.2			ACROSS	ELECTRICAL CABLE	7.20m	No Action
2.29			ACROSS	ELECTRICAL CABLE	6.84m	No Action
2.43			ACROSS	ELECTRICAL CABLE	7.18m	No Action
2.62			ACROSS	ELECTRICAL CABLE	6.47m	No Action
2.68			ACROSS	ELECTRICAL CABLE	5.22m	No Action
2.74			ACROSS	ELECTRICAL CABLE	7.26m	No Action
2.74			LHS	ELECTRICAL CABLE		No Action
2.77			RHS	PIPE MARKER		No Action
2.92			RHS	PIPE MARKER		No Action
3.01			ACROSS	ELECTRICAL CABLE	8.40m	No Action
3.33			ACROSS	ELECTRICAL CABLE	5.90m	No Action
3.36			RHS	PIPE MARKER		No Action
3.49			RHS	PIPE MARKER		No Action
3.5			RHS	TELEPHONE POLE		No Action
3.58			ACROSS	ELECTRICAL CABLE	6.19m	No Action
3.62			ACROSS	ELECTRICAL CABLE	7.00m	No Action
3.59			RHS	PIPE MARKER		No Action
3.86			ACROSS	ELECTRICAL CABLE	6.26m	No Action
3.91			ACROSS	ELECTRICAL CABLE	7.77m	No Action
3.91			RHS	PIPE MARKER		No Action
3.99			RHS	PIPE MARKER		No Action
4.06			ACROSS	ELECTRICAL CABLE	6.07m	No Action
4.24			RHS	TELEPHONE POLE		No Action
4.29			RHS	UNKNOWN MH		No Action
4.29			RHS	PIPE MARKER		No Action
4.43			RHS	PIPE MARKER		No Action
4.53			RHS	UNKNOWN MH		RELOCATE
4.53			RHS	PIPE MARKER		No Action
4.66			RHS	PIPE MARKER		No Action
4.7			ACROSS	ELECTRICAL CABLE	8.23m	No Action
4.79			ACROSS	ELECTRICAL CABLE	7.00m	No Action
4.79			RHS	PIPE MARKER		No Action
4.79			RHS	UNKNOWN MH		No Action
4.86			ACROSS	ELECTRICAL CABLE	7.29m	No Action
5.09			ACROSS	ELECTRICAL CABLE	7.26m	RELOCATE

SCMU10-24/25-0011: UPGRADE OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

5.36	5.53	0.17	LHS	ELECTRICAL CABLE		RELOCATE
5.48			LHS	TELEPHONE POLE		No Action
5.52			LHS	ANTENNA POLE		RELOCATE
5.71			ACROSS	ELECTRICAL CABLE	7.52m	RELOCATE
5.88			ACROSS	ELECTRICAL CABLE	5.78m	No Action
5.9			LHS	PIPE MARKER		RELOCATE
5.91			LHS	TELEPHONE POLE		RELOCATE
6.02			LHS	PIPE MARKER		RELOCATE
6.12			LHS	UNKNOWN MH		RELOCATE
6.2			LHS	UNKNOWN MH		No Action
6.2			ACROSS	ELECTRICAL CABLE	6.62m	No Action
6.24			LHS	PIPE MARKER		No Action
6.24			RHS	PIPE MARKER		No Action
6.44			ACROSS	ELECTRICAL CABLE	8.19m	No Action
7.7			ACROSS	ELECTRICAL CABLE	8.90m	RELOCATE
7.86			LHS	UNKNOWN MH		RELOCATE
8.1			LHS	UNKNOWN MH		RELOCATE
8.13			ACROSS	ELECTRICAL CABLE	6.90m	No Action
8.17			RHS	UNKNOWN MH		No Action
8.27			ACROSS	ELECTRICAL CABLE	7.05m	No Action
8.3			ACROSS	ELECTRICAL CABLE	6.96m	No Action
8.31			RHS	PIPE MARKER		No Action
8.54			ACROSS	ELECTRICAL CABLE	5.63m	RELOCATE AND RAISE OH SERVICE
9.28			ACROSS	ELECTRICAL CABLE	15.25m	No Action
10.71			ACROSS	ELECTRICAL CABLE	10.05m	No Action
10.92			LHS	PIPE MARKER		No Action
10.96	11.06	0.1	RHS	ELECTRICAL CABLE		RELOCATE
10.98			LHS	UNKNOWN MH		No Action
11.14			RHS	PIPE MARKER		No Action
11.23			ACROSS	ELECTRICAL CABLE	8.69m	No Action
11.29			ACROSS	ELECTRICAL CABLE	6.64mM	No Action
11.32			LHS	UNKNOWN MH		RELOCATE
11.33			LHS	PIPE MARKER		RELOCATE
11.56			LHS	UNKNOWN MH		No Action
11.59			LHS	PIPE MARKER		No Action
11.59			LHS	UNKNOWN MH		No Action
11.6			LHS	TELEPHONE POLE		No Action
11.62			ACROSS	ELECTRICAL CABLE	7.00m	RELOCATE
11.73			LHS	PIPE MARKER		No Action
11.73			ACROSS	ELECTRICAL CABLE	4.61m	RELOCATE AND RAISE OH SERVICE
11.73			RHS	PIPE MARKER		No Action
11.88			RHS	TELEPHONE POLE		No Action
11.89			RHS	PIPE MARKER		No Action
12.04			RHS	UNKNOWN MH		No Action
12.1			ACROSS	ELECTRICAL CABLE	5.19m	OH SERVICE TO BE RAISED
12.12			ACROSS	ELECTRICAL CABLE	6.09m	No Action
12.33			ACROSS	ELECTRICAL CABLE	8.05m	No Action
12.4			ACROSS	ELECTRICAL CABLE	8.39m	No Action

12.54		RHS	UNKNOWN MH		No Action
12.7		RHS	PIPE MARKER		No Action
12.81		ACROSS	ELECTRICAL CABLE	6.69m	No Action
12.82		ACROSS	ELECTRICAL CABLE	6.27m	No Action
12.89		ACROSS	ELECTRICAL CABLE	5.53m	RELOCATE AND RAISE OH SERVICE
12.94		ACROSS	ELECTRICAL CABLE	6.48m	No Action
13.04		RHS	UNKNOWN MH		RELOCATE
13.11		RHS	PIPE MARKER		No Action
13.21		ACROSS	ELECTRICAL CABLE	5.45m	OH SERVICE TO BE RAISED
13.3		RHS	UNKNOWN MH		RELOCATE
13.34		LHS	PIPE MARKER		No Action
13.34		RHS	PIPE MARKER		No Action
14.22		LHS	PIPE MARKER		No Action
14.3		LHS	UNKNOWN MH		No Action
14.42		LHS	PIPE MARKER		RELOCATE

For further details and positions of these services refer to Volume 4 (Book of Drawings).

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:

"The cost of alterations to services necessitated by the construction of the road 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 (watermains, 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."

B1203 ROAD INTERSECTIONS AND JUNCTIONS

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

Add the following subclause:

"(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, a thickened edge shall be constructed consisting of a trench 300 mm wide and 300 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) Submission of documentation required from the Contractor before commencement of the Works in terms of Clause 5.3.1 in the Contract Data. Contractors shall provide sufficient time for the approval of the Health and Safety plan. Any claims regarding the rejection of a health and safety file shall not be entertained. It will be expected from the Contractor to pro-actively conclude this activity.
- (ii) Approval of the Construction Works Permit. A period of two (2) months has been estimated for the period from Contract Commencement Date to the commencement of the Works instruction date.
- (iii) Contractor survey of known survey control points as indicated by the Employer's Agent, setting out of new survey control points where required, survey of the existing ground levels at ten (10) m intervals and submission of the survey data to the Employer's Agent.
- (iv) Agreeing road prism cross sectional areas with the Employer's Agent for the purpose of determining mass earthwork quantities.
- (v) All special non-working days defined in the Contract Data (C1.2).
- (vi) The expected delays defined in clause B1215: Extension of time resulting from abnormal climatic conditions as a terminal float.
- (vii) Physical conditions and artificial obstructions and their effects.
- (viii) Construction of new residential structures and relocation of graves for existing households and graves within the proposed road reserve.
- (ix) Dealing with, altering and installing services including submission of notifications to the relevant service providers as required.
- (x) The accommodation and safeguarding of public traffic. Repair and alterations of existing road used as temporary deviation and construction of new temporary deviation.
- (xi) The time needed for preparation and approval of the various mix designs specified in the relevant construction sections of the Scope of Works.
- (xii) Social facilitation and payment of affected individuals which are affected by the road re-alignment.
- (xiii) Fulfilment of Employer's contract participation goals:
 - (1) Employment and development of Targeted subcontractors.
 - (2) Employment of Targeted labours.
 - (3) Engagement of Targeted suppliers
- (xiv) All training requirements specified.

- (xv) All other actions required in terms of this Contract.
- (xvi) The following restricted working conditions:
 - (1) During the contractor's annual shutdown period between December and January (as determined by SAFCEC), the contractor shall maintain two-way traffic within the contract limits.
 - (2) Limitations in terms of weather conditions especially the restriction on surfacing work.
 - (3) Traffic accommodation by means of half width construction.
 - (4) Maximum length of half width construction shall be 2 km;
 - (5) Minimum spacing between two consecutive sections of half width construction = 2 km (no construction activities will be allowed in this section and traffic will flow uninterrupted)
 - (6) Maximum number of half width construction closures on the contract shall be four (4) closures.
 - (7) The Contractor's construction procedure shall make allowance that once the first half width of a section is completed the opposite half width shall commence, to ensure full width completion of a section before moving to a new section.
 - (8) **The Contractor shall programme the sequencing of the Works that the section between km 9.8 and km 10.0 commences first to generate and stockpile full material from the cutting for the follow-on sections of work. To enable the works to commence at this location a temporary deviation on the existing gravel road will be utilized which required various interventions from the Contractor.**

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."

Add the following paragraphs:

“(c) Additional programme requirements

In addition to the requirements of clauses B1204(a), and of clause 5.6 of the General Conditions of Contract, the programme of work shall include the following details:

- (i) A work breakdown structure that identifies all major activities.
- (ii) Scheduled start and end dates for each activity.
- (iii) Linkages between activities that clearly identify sequence, floats and critical path.
- (iv) Intended working hours (per day and working days per week) and resource allocations (plant and labour).
- (v) Production rates.
- (vi) Monthly cashflow projections.
- (vii) Key dates in respect of information required or due delivery.
- (viii) The contractor's payment weekends and special non-working days (end of year break as determined by SAFCEC).
- (ix) Detailed traffic accommodation proposal on which the programme is based.
- (x) A risk assessment schedule with mitigating plans of issues that could prevent the due completion date being met.

Should the Employer's Agent require an electronic version of the programme for review purposes, the Contractor shall supply the programme in a format compatible with the Employer's Agent's software.

(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 current programme. The contractor shall indicate what resources and programme changes he intends to implement in order to remedy any activity that has fallen behind. The Employer's Agent may demand from the contractor a major revision of the programme. Such a revision shall be submitted for comment within 14 days of the demand."

(e) Targeted subcontractor work packages

In compiling the programme of work the Contractor shall make due allowance for targeted subcontractor work packages, the procurement of targeted subcontractors and indicate clearly commencements dates for each work package."

(f) Hard rock quarry of crushed stone material

The hard-rock quarry shall be handed over to the Contractor on after receipt of the construction permit from the Department of Labour and instruction to commence the Works from the Employer's Agent."

B1205 WORKMANSHIP AND QUALITY CONTROL

Insert the following heading after the title:

“(a) General:

Insert the following as subclauses after the first paragraph:

(b) Quality Systems

The Contractor shall implement a quality assurance system that replicates an ISO 9002 and appoint a quality manager who shall ensure that members of the Contractor's staff comply with the requirements of the quality system. The quality system and the methods used to implement it shall be described in a quality plan produced by the Contractor. The quality manager shall be resident on site full time.

B1206 THE SETTING OUT OF WORK AND PROTECTION OF BEACONS

Add the following to the fourth paragraph:

The contractor shall submit to the Employer's Agent all setting-out information (including existing surveyed services) as well as proof of the checked setting-out information before work can commence.

Add the following at the end of the fourth paragraph:

“Road markings, particularly pointed islands and no overtaking lines are also elements of the road that require proper setting out. The Contractor shall prove to the Employer's Agent that critical reference points have been satisfactorily recorded for later reinstallation before any work commences that will obliterate the existing markings.”

Delete “and of clause 14 of the general conditions of contract” in the sixth paragraph.

Add the following paragraphs:

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

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

B1207 NOTICES SIGNS AND ADVERTISEMENTS

Delete the last 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 subitem B13.01(a) 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.”

B1208 MEASUREMENTS

(c) Measurement of completed work

In the first sentence of subsubclause (i) insert the following between the words “fill and pavement layers” and “for purposes of payment”:

“,as well as other items of work where applicable,”

In subsubclause (iii) insert the following between the words “measured at the specified” and “temperature”:

“application”

Add the following subsubclauses:

- “(v) Where trenches or foundation excavations are required below the level of mass excavations for the road prism, the depth of excavation of the trenches or foundations shall be measured along the centreline of the trench from the resultant ground level after completion of the mass excavation, unless the Employer’s Agent is satisfied that the excavation of the trenches or foundations from the original ground level or any lower level was unavoidable. Where trenches are excavated in accordance with the fill method in the completed or partly completed road prism, the depth of excavation shall be measured along the centreline of the trench from the levels at which the Employer’s Agent instructed the Contractor to commence trench excavations.
- (vi) All items of work which are paid per month shall be paid for the month, or part thereof, during which the item has to be provided in terms of the Contract Documentation and/or as ordered by the Employer’s Agent. Measurement of any monthly paid items which have not been completed by, or which still have to be provided after, the contractual time for completion of the Works, or of the relevant section of the Works, shall not be paid for unless otherwise approved by the Employer.”

B1209 PAYMENT

(b) Rates to be inclusive

Add the following to the first paragraph:

“VAT shall be excluded from the rates.”

Insert the following after “constructional plant” in lines six and seven of the first paragraph:

“(distinguishing between operational costs and hire costs)”.

(c) The meanings of certain phrases in payment clauses

(i) Procuring and furnishing (material)

Add the following:

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

Add the following subclauses:

“(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 of the General Conditions of Contract, the Contractor shall, at his own expense, submit to the Employer’s Agent three (3) 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 a separate item in the Pricing Schedules Summary.”

(j) Working in confined or restricted areas

Except where provided for in the specification and the Pricing Schedules no extra payment shall be made nor shall any claim for additional payment be considered for construction in confined or restricted areas. The omission of standard pay items from the Pricing Schedules shall be taken to be deliberate and any additional costs incurred shall be included in the bulk rate.

(k) Split quantities

Wherever in the Pricing Schedules allowance has been made to price items of work for which a product or material is uncertain and quantities split between pricing items, the Employer reserves the right to choose whichever is the most appropriate or combination thereof, regardless of any adverse effect on the Contractor's costs and no claims for additional compensation shall be entertained.

For example in this contract split quantities have been allowed for the tack application of the proposed 20 mm Cape Seal. The preferred product is hot applied polymer modified bitumen binder of Class S-E1. The use of 70% polymer modified cationic spray-grade emulsion of Class SC-E1(t) (70-73) shall only be allowed during periods when weather limitations prevents or limits the use of the hot applied product.”

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Amend the heading of this clause to read:

“CERTIFICATE OF PRACTICAL COMPLETION”

Replace the first paragraph with the following:

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

The notice to the Employer’s Agent, in terms of clause 5.14.1 of the General Conditions of Contract applying for a Certificate of Practical Completion, shall include the Contractor’s own list of what it considers to be the outstanding minor works that do not substantially affect the use of the Works. As justification that the issue of a Completion Certificate is warranted the Contractor shall take note that the following sections of the works are to be completed to the satisfaction of the Employer’s Agent:”

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

“(including road studs)”

Add the following paragraphs after item (h):

“In addition to the above itemised sections of the works and regardless of the degree of beneficial occupation by the Employer, the outstanding works contained in the lists produced by the Contractor and the Employer’s Agent shall be considered for practical completion only if the following criteria have been met:

- (i) The estimated cost to complete the listed outstanding work is less than 2% of the tendered value of work plus the cost of any variation or extra work orders, but excluding CPA and VAT.
- (ii) The written lists of outstanding items of work can be completed within 28 days of the lists having been issued.
- (iii) Any information in the Contractor’s possession, which is required by the Employer’s Agent and has been requested in writing, has been supplied.
- (iv) The Regional Manager of the Department of Mineral Resources (DMR) has issued written confirmation to the Contractor that they are satisfied with the final shaping to all quarries, borrow pits, stockpile areas, and spoil sites used or intended to be used under this contract. In the event this written confirmation is not obtained from DMR, acceptance by the Environmental Assessment Practitioner (EAP) will be sufficient for the issuing of the Certificate of Practical Completion.

If any of the listed criteria (i) through (iv) are not met at the date of the Contractor’s notice of application, the Employer’s Agent is to reject the application without providing any corresponding list of outstanding work. If an application is rejected, the Contractor shall rectify what has been identified as deficient before submitting a new notice of application.”

B1213 VARIATION FROM SPECIFIED NOMINAL RATES OF APPLICATION OR NOMINAL MIX PROPORTIONS

Amend the last line of the second paragraph to read as follows:

“materials, condition of the site and cement type (in order to comply with the durability requirements described in subclause B6404(h).”

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

Add the following to subclause (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 or stockpiling of material, will be temporarily expropriated by the Employer.

In all such cases the Contractor shall not be required to pay compensation to the owner of the land, nor will he give any undertaking or make any promises towards landowners in this regard.

- (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.

In terms of the Roads Ordinance any borrow pit and, where necessary, the access road to it, shall be temporary expropriated before it can be used.

- (v) any land within the newly proclaimed road reserve which the Contractor will require, with the approval of the Employer's Agent, will be expropriated by the Employer.

The Employer will enter into negotiations with landowners. Payment of compensation to the landowners shall be made by the Contractor upon the instruction of the Employer's Agent.”

Replace subsubclause (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 statements shall be handed to the Employer's Agent before the final certificate will be issued. Failing to obtain these written statements 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 statements 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 subsubclauses to subclause (e):

- “(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 adhesion to the terms of the agreements.

- (viii) Adherence to the principles of the environmental management plan and legal obligations.”

Add the following subclauses:

"(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) Cleaning of public roads

Where material is spilled on public roads during the haul of material, the road shall be cleaned immediately."

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."

Extension of time under this clause will be calculated using Method (i). (Rainfall Formula)

Add the following:

"The rainfall records at the nearest representative station at rainfall station no. 01032303 at Butterworth Prison are reproduced in the TABLE B1215/1, 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 X = 23 and Y = 10.

TABLE B1215/1: AVERAGE DELAY DUE TO RAINFALL

MONTH	Rn (mm)	Nn (Days)
January	93.7 (47)	6.3 (4.0)
February	37.9	4.4
March	39.1	3.7
April	39.3	4.2
May	24.8	1.9
June	15.5	1.2
July	27.6	2.1
August	17.8	2.0
September	20.5	2.5
October	38.8	3.7
November	74.9	5.5
December	60.7 (30)	4.9 (3)
TOTAL	490.6 (413.2)	42.4 (38.2)

Note: The figures shown in brackets are the average rainfall and days of rain expected in December/January but reduced to take into account the contractor's year-end break as determined by SAFCEC.

The full weather station record is included in Part C4: SITE INFORMATION of the Contract."

B1216 INFORMATION FURNISHED BY THE EMPLOYER

Add the following before the first paragraph:

"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 and/or structures. The Contractor shall also check all clearances given on the drawings and shall inform the Employer's Agent of any discrepancies".

Only the first and as-built set of construction drawings shall bear the signature of the Employer and the Employer's Agent for contractual purposes. Any drawings issued with a formal transmittal slip shall be considered contractual even if such drawings have not been signed by the Employer or the Employer's Agent".

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"

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 in the existing pavements 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 program 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. All water sources utilised shall be tested for suitability once the Contractor has established on site". Water for use on site other than municipal, shall be subject to the required permit from DWS. This shall include such extraction points as rivers, dams, streams, and boreholes. Use Table B1219 below to determine the suitability of water for construction purposes.

TABLE B1219: WATER CLASSIFICATION FOR CONSTRUCTION TESTING

Property	Unit	Water Quality Classification Code						Method
		H0	H1	H2	H3	H4	H5	
		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	
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	✓	✓	References: 1. Concrete Technology – Dr S Fulton (1989) 2. Materials Manual (PAWC)				
	Slurry & emulsion	✓	✓					
	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 value except in the case of the pH value for pure water, which must be 7.0

B1222 USE OF EXPLOSIVES

Add the following subclauses:

“(h) Definitions

- (i) **“Specified excavation or Payment line”** means the excavation profile given on the Drawings or determined by the Employer’s Agent for the Works, within which no unexcavated or loose material shall occur after the excavation is complete except as allowed within the specified tolerances. It is also the line to which payment for excavation will be made.
- (ii) **“Pre-splitting”** comprises drilling a line of closely spaced parallel holes of appropriate diameter, spaced not more than ten times the hole diameter or 600mm, whichever is the smaller and charging the holes with an appropriate amount (decoupled if necessary) and type of explosive to shear the rock, forming a surface along the line of drill holes.

Either all the holes in a presplit line shall be drilled, charged and detonated simultaneously prior to drilling the production holes for the excavation adjacent to the presplit line, or pre-splitting shall be accomplished by delaying detonation in the production holes to allow the presplit holes to fire first. The first line of production holes next to the presplit face shall be lightly charged to ensure that the presplit face is not damaged when the charges in the production holes are detonated.

- (iii) **“Smooth blasting”** comprises the drilling of a number of closely spaced parallel holes along the required excavation surface, with a suitable burden/spacing ratio, loading all the holes lightly with a uniform continuous charge of small diameter explosive and detonating all these charges simultaneously, after the detonation of the main production blast.
- (iv) **“Line Drilling”** comprises drilling a line of holes of appropriate diameter spaced not more than twice the hole diameter to form a surface of weakness along which the rock will break. Blasting is not permitted in the line drilled holes, and the first line of production holes next to the line drilled holes shall be lightly charged to avoid damage to the line drilled break surface.
- (v) **“Cushion Blasting”** comprises the separate removal of a protective zone of rock which has been purposely left within the specified limits of excavation for flat areas and shallow slopes. Drilling for cushion blasting shall consist of a regular pattern of holes at appropriate spacings and angles and to accurate depths.

The holes shall be lightly charged and detonated in relays to lift the rock progressively to form the final excavated surface without shattering the surrounding rock.

- (vi) **“Overbreak”** means any excavation area which extends beyond the payment line, irrespective of the reason for such excavation.

(i) General

A copy of all certificates issued to workmen to permit them to undertake blasting, and to the Contractor to cover the purchasing, storage and transport of explosives shall be handed to the Employer’s Agent before any blasting work is undertaken.

The Contractor shall submit to the Employer’s Agent at least 28 days before the commencement of any excavation work, full details of his proposed methods and sequence of excavation and programme for the use of explosives.

Within 2 weeks of receipt of the proposals, the Employer’s Agent shall indicate acceptance in part or in whole, in writing, to the Contractor. 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. If acceptance is withheld, 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, and any changes to the accepted methods shall be subject to the Employer’s Agent’s approval.

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

Where blasting is necessary every precaution including the use of blast mats, timber boarding or other means shall be exercised to protect the Works and persons, animals and property in the vicinity of the Site. The Contractor shall accept responsibility for all injury or damage occasioned by any blasting operations and shall make good such damage without any additional payment.

The Contractor shall, in particular, note the requirement that he must limit to the maximum extent practicable the spillage of material from surface excavations, whether by blasting or other means. To this end the Contractor shall take all necessary precautions including, if necessary, covering the rock prior to blasting with sufficient loose material to prevent the blasted material being thrown. If, however, during the course of excavation on a hillside, the Employer's Agent is of the opinion that insufficient precautions are being taken to minimise the spillage of material, he may instruct the Contractor to adopt further measures to reduce the spillage. No separate payment will be made for any such measures required.

Each separate blast shall be designed in accordance with modern blasting practice to break out the rock with the minimum explosive force. Full details of each blast shall be submitted to the Employer's Agent for scrutiny not later than 24 hours prior to the commencement of drilling for that blast, unless such blast is unchanged from the previous one. The details shall include the location, depth and area of blast holes, the type, strength, amount, column load and distribution of explosives to be used per hole, per delay and per blast, the sequence and pattern of delays, the maximum expected level of shockwaves on adjacent structures, and the description and purpose of any special methods to be adopted by the Contractor. The role and interaction of amplitude, resonant frequency, duration and precise electronic detonators is most important.

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

Should the Contractor excavate to dimensions in excess of those specified or instructed by the Employer's Agent, whether to remove damaged material or for reasons of safety or for his own convenience, he shall at his own expense and when required by the Employer's Agent, fill in the excess excavation with concrete or sprayed concrete of approved quality or with other material approved by the Employer's Agent, or carry out additional trimming to the satisfaction of the Employer's Agent.

The Contractor shall provide the Employer's Agent each day with a copy of the record for the previous day's excavations. Where applicable the following data shall be recorded for each working area together with other such data as the Employer's Agent may request:

- location of the excavation and position within the excavation,
- drilling pattern,
- type and amount of explosive used, including blasting pattern and delays used,
- details of rock support,
- surface area of classification of labour and plant,
- number and classification of labour and plant,
- unusual occurrences, rock falls, unstable or soft ground and inflows of water,
- progress, delays and reasons for delays,
- name and permit number of blaster,
- date, and
- distance of blasts to structures and existing services.

(j) Quality of Excavated Surface

Unless otherwise instructed by the Employer's Agent all blasting work shall be carried out using controlled blasting techniques to minimise any damage to the final profile.

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. No separate payment will be made for cushion blasting. The cost of using cushion blasting techniques shall be included in the rates for excavation.

The surface 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 further trials ordered by the Employer's Agent or any delays resulting there from.

The spacing of holes and explosive charges shall be adjusted so that a minimum of oversize material is produced (a maximum particle size of 600mm). The Employer's Agent shall have the right to order the Contractor to adjust his blasting pattern and/or carry out secondary blasting at his own cost, should he be of the opinion that the Contractor is not taking sufficient care to produce rock of the required size.

(k) Monitoring of Blasts

The Contractor shall supply and operate an approved tri-axial particle velocity meter equipped with a permanent paper trace output, which shall be used as and where directed by the Employer's Agent to monitor blasting work.

The paper trace output records shall show the time and location of each blast, the type and amount of explosive used, together with any other relevant data.

(l) Notification of Blasts

Prior to any blasting, 7 days' notice is to be given to the Employer's Agent, relevant authorities and the media. The Contractor shall further notify the Employer's Agent of the intention to blast at least 24 hours before that operation is carried out. The notification shall show the location of and the intended time of each blast and the name of the licensed blaster and shift foreman responsible.

The Contractor shall distribute written notification to all organisations on site, and relevant authorities, 24 hours prior to undertaking blasting. Any delay or postponement of any blasts shall be notified to all organisations immediately. The firing of explosives shall be restricted as detailed in Item B1222(s) of this specification.

(m) Blasting near Structures

The amount of explosives that may be detonated shall not result in a ground vibration with a peak particle velocity in excess of 25mm/sec at the nearest point of any part of Permanent Works. Further peak particle velocity restrictions in terms of nearby properties and services are indicated in clause B1233. Where circumstances dictate, such as when blasting near to partially cured concrete, the peak particle velocity permitted may be reduced by the Employer's Agent.

Blasting shall not be carried out within 10m of any Works, unless otherwise agreed to in writing by the Employer's Agent.

In each and every case where the Contractor wishes to blast within 50 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. Single-hole firing between firing holes at 8ms between firing holes is recommended. The Contractor is to investigate, make a photographic record and report on of every structure within a 500 metre radius of the blast as described in clause B1233.

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.

(n) Controlled Blasting

Controlled blasting methods shall comprise pre-splitting, smooth blasting, line drilling or cushion blasting techniques.

All charges shall be accurately made up and inserted into the holes at the correct spacing, and all holes shall be correctly stemmed and connected in the correct sequence, with detonators being correctly delayed.

If at any time the methods of drilling and blasting do not produce the desired results of a uniform profile and shear face without overbreak, all within the tolerances specified, the Contractor shall be required to undertake tests as until a technique is arrived at that will produce the desired results.

(o) Drilling

In all controlled blasting, drilling accuracy of perimeter holes is of prime importance and the Contractor shall take particular care and make use of sight lines and guide rails in surface work to control the alignment and depth of blast holes. Holes which are likely to protrude more than 100mm beyond the excavation profile, shall not be charged up, but shall be redrilled.

The blast pattern shall be accurately set out and holes shall be collared within 50mm of the required position. Holes which are overdrilled shall be fully stemmed to the required depth before charging up takes place.

The length of perimeter holes for any individual lift shall not exceed 10m or any lesser depth detailed on the drawings. All perimeter holes for surface blasting shall be drilled to a depth of 1m below the bottom of any production holes adjacent to the perimeter plane.

The drilling rig must be available for the full duration of the charging process and may only leave when the charging process is complete.

(p) Use of Explosives

Both cartridge and bulk explosives may be used where appropriate.

In controlled blasting the type, size, decoupling and charge concentration of perimeter and bulk charges shall be within established parameters unless otherwise proven acceptable by site trials.

The bottom charge of a pre-split hole shall not be larger than the line charges unless otherwise directed. The top charge of the pre-splitting hole shall be placed far enough below the collar to avoid overbreaking the final profile.

Adequate stemming shall be used to avoid blow-outs.

(q) Checking and Correcting the Excavated Profile

The excavated profile shall be checked for line, level and underbreak using methods approved by the Employer's Agent. No projections of rock shall protrude within the payment line, except as allowed within the specified tolerances.

The Contractor shall submit his proposals for removing any underbreak to the Employer's Agent for his consent prior to carrying out any such work of removal. Any work executed or delays, which are due to the Contractor having to re-excavate underbreak and then re-install support shall be carried out without additional payment, and no extension of time will be allowed for this work.

Some areas of the work have already been exposed to blasting and contractors are expected to do their own checks on the excavated profile prior to compiling their tender documentation. No further claims shall be entertained for corrective blasting or regarding fractured rock faces and an inability to drill any holes required for further blasting purposes.

(r) Accommodation and Protection of Existing Services and Infrastructure

In the event of the laid-down vibration parameters as detailed in (m) above being exceeded or in the event of a valid recording not being made available as stipulated above, the Employer's Agent reserves the right to ascertain by whatever means, whether damage was caused by the blast to the service or structure. All costs incurred in establishing such possible resultant damage and the repair thereof will be to the Contractor's account.

Cover blasting shall be used in the vicinity of overhead services (e.g. telephone and power lines) where overhead services may be damaged or affected by blasting activities. The cover blasting shall be such that it sufficiently protects overhead services to prevent any damage to such services.

(s) Blasting Restrictions

The Contractor shall ensure that the required preventative measures are put in place in order to reduce the amount of fly rock as well as the distance any fly rock may travel.

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 Thursday."

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 on the issuing of the instruction to commence work. 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 back to the District Roads Engineer.

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 Agent 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.

B1229 SABS CEMENT SPECIFICATIONS

Add the following:

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

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

Add the following clauses:

“B1230 MATERIALS

(a) General

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 comply with this specification.

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 materials are specified under trade names tenders must be based on these materials. Alternative materials may be submitted as alternative tenders and the Employer's Agent may, after receipt of tenders, approve the use of equivalent materials. The tender must be clearly marked as an alternative tender, failing which the tender may be rejected.

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's current published instructions. Agrément certified products shall be used and placed in accordance with its Agrément certification criteria.

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

Any materials excavated or present on the site or within the road reserve, or in borrow areas 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, unless otherwise indicated in the project specification.

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.

Materials to be included in the works shall not 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.

The Contractor shall satisfy himself that any quarry selected for use provides the necessary mined material in accordance with the specification.

(b) Banned materials

No tar fluid products shall be used in the construction works.

B1231 MIX DESIGNS

Before commencing with certain construction activities, the Contractor shall, except where specified otherwise in the relevant construction sections in the Scope of Works, apply the following procedures with regards to mix designs:

- Taking and submitting samples of the relevant materials.
- Undertake the required mix design(s) or allow the Employer's Agent to undertake them.
- Produce, where required, laboratory, production/plant and/or trial mix(es).
- Undertake the required adjustments to the mix design(s) and reproduce required laboratory, production/plant and/or trial mix(es).
- Complete trial section(s) where required.
- Await the Employer's Agent's approval of the mix design(s) and trial section(s).

B1232 PENALTIES FOR OVERLOADING OF CONSTRUCTION VEHICLES

The Contractor shall ensure that trucks used to haul construction materials are not overloaded and the legal axle loads are not exceeded. Before any construction materials can be transported, the Contractor must provide the Employer's Agent with the certified carrying capacity of each truck intended for the purpose of transporting the construction materials. The Contractor shall provide the Employer's Agent with a weighbridge ticket before discharging/off-loading the materials.

Any truck that is overloaded shall not be allowed to discharge/off-load its load and shall return to the depot/batching plant for adjustment of the load. In addition, a penalty shall be applied for the overload."

For the purposes of the calculation, the so called 5% grace shall not be used. The following example is provided:

Tare Weight of vehicle certified by a calibrated weighbridge	=	6 tons
Maximum carrying capacity certified by a calibrated weighbridge	=	8 tons
Gross vehicle mass	=	14 tons
Actual Load (Weighbridge ticket)	=	14.6 tons
Overload factor	=	0.6 tons

Contractors rate tendered under applicable payment item = R350/unit

$$\begin{aligned}\text{Penalty} &= 2 \times \text{R350/unit} \times 0.6 \times \text{distance hauled(km)} \\ &= \text{R 420.00} \times \text{distance hauled (km)}\end{aligned}$$

Penalty payments will be deducted from the front page of interim payment certificates.

B1233 PREVENTION OF DAMAGE TO NEARBY PROPERTIES AND SERVICES

Before commencing any construction work on the site of the Works which involves blasting, the use of vibratory or impact compaction equipment, pavement breakers, piling equipment, pneumatic drills and hammers and excavators or overhead cranes in the vicinity of any public or privately owned buildings the Contractor shall arrange with the property owner for an inspection, and, if permitted by such owner, a photographic survey, of all the items on the property that could be affected by the construction equipment and/or construction processes that the Contractor intends to use. Contractor to notify the Employer's Agent, in writing, if permission by the owner was not given for the Contractor to conduct the required inspection.

Written and photographic records must be made of any existing defects, cracks or any other potential weaknesses and the Contractor shall discuss with the property owner and record in writing what preventive and/or mitigation measures that will be taken to avoid or prevent any damage from occurring to the items on the property as a result of the construction work. The Contractor and the property owner should sign and date these records and a copy shall then be submitted to the Employer's Agent for comments if required and for record purposes.

The Contractor shall prepare a written and photographic record of any overhead services or other obstructions on or near the property boundaries such as power lines, telephone lines, fences, walls, signage etc. that could be affected by the construction activities, in particular by cranes, excavators and similar construction equipment that could encroach on the property. These records shall be given to the Contractor's safety officer and the relevant safety plans shall be amended to include preventative measures for any damage to property or any injuries to the Contractor's personnel and members of the public that could occur.

The Contractor shall note the presence of any underground pipelines which may be affected by the construction activities, in particular jointed pipes. The Contractor shall comply with the provisions of clause B1202 with respect to the location and protection of existing services. All vulnerable underground services shall be exposed by hand excavation so that their condition and potential vulnerability to heavy vibrations can be assessed. The Contractor shall discuss with the relevant service authority and record in writing what preventive and/or mitigation measures will be taken to prevent any damage to the vulnerable services that could occur due to the proposed compaction or blasting operations. The Contractor and the service authority owner should sign and date these proposed preventive and/or mitigation measures and a copy shall then be submitted to the Employer's Agent for comments if required and for record purposes.

All buildings that could be affected by excessive ground vibrations generated during the construction operations will be identified by the Contractor, or as indicated by the Employer's Agent, and categorised in accordance with the descriptions given in Table B1233/1.

The Contractor shall use suitable construction equipment and/or modify the working methods to ensure that the maximum peak particle velocities generated by the construction equipment, as measured on the ground surface with a triaxial seismograph vibration monitor placed at the corner of the building closest to the source of the vibration, or directly above the pipeline, do not exceed the values given in Table B1233/1.

TABLE B1233/1: PEAK PARTICLE VELOCITY LIMITS

STRUCTURE / PIPELINE TYPE AND CONDITION	MAXIMUM PEAK PARTICLE VELOCITY (PPV) (mm/sec measured at a frequency of 50 Hz)
Fragile buildings (old and / or poorly constructed)	2,5
Old or low quality houses	5,0
Well built houses	12,5
Concrete structures	12,5
Industrial buildings	12,5
Steel pipelines	15,0
uPVC pipelines	10,0
Asbestos cement / fibre cement pipelines	5,0

At the start of any work involving equipment that will generate ground vibrations all vulnerable structures must be monitored closely by the Contractor. If there are any signs that any damage is being caused by the ground vibrations the work shall be stopped immediately and the Employer's Agent shall be informed. The level of the ground vibrations generated at the closest corner of the affected building shall then be measured and checked against the allowable limits given in Table B1233/1. The Employer's Agent shall then decide if work may continue or if the Contractor must alter his working methods to reduce the ground vibration levels.

Any damage that may occur to buildings, structures, fencing, walls, services and anything else on the property that may be affected by the construction activities shall be repaired or rectified to the satisfaction of the owner at the Contractor's expense unless the Employer's Agent is satisfied that all the necessary and specified precautions were taken by the Contractor and the damage was unavoidable.

B1234 CONSTRUCTION VEHICLES AND EQUIPMENT

The Contractor shall submit a list of the construction vehicles and equipment to be used on the site of the Works to the Employer's Agent for review before the commencement of the Works.

The Contractor shall ensure that all construction vehicles and equipment used on the site of the Works and on public roads shall comply with all current legislation and regulations.

The Contractor shall also ensure that all construction vehicles and any equipment that may travel on roads used by the public are:

- Suitable for their intended purpose.
- Maintained in good working order.
- Inspected daily by the operator or driver - the inspection records shall be kept in the vehicle or item of equipment.
- Equipped with the following:
 - A flashing amber LED light / light bar of an approved design. The flashing light / light bar shall be mounted so that it is clearly visible in daylight from all directions. They shall be switched on continuously while the vehicles are on site, are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic.
 - A warning sign with the wording CONSTRUCTION VEHICLE in retro-reflective Class 3 red letters at least 200mm high on a retro-reflective Class 3 white background which shall be mounted in a visible position at the rear of every vehicle or any item of construction plant which may travel on roads used by the public.
 - An automatic acoustic reversing alarm.

The Contractor shall confirm to the Employer's Agent in writing that all the construction vehicles and mobile equipment to be used on the site of the Works comply with all the legal and other specified requirements before any vehicles and construction equipment will be permitted to commence operating on the site of the Works.

B1235 ROUTINE MAINTENANCE

In addition to the Contractor's maintenance responsibility stemming from his obligations under care of the Works, the Contractor shall also be responsible for all routine maintenance of the public roads within the site of the Works and other public roads being used as detours from the date of commencement of the works until the completion of the works. Furthermore the Employer may instruct the Contractor to conduct maintenance work on public roads (surfaced and unsurfaced), outside the site of the Works, as and when required. This routine maintenance responsibility shall include all the maintenance of all existing roads, road furniture, fixtures and the like and shall typically comprise grass cutting, rubbish removal, the clearing and repair of existing drainage systems, repair of existing guardrails and signs, patching, assistance with clearance at accident scenes and attending to any structural damage caused by traffic during the contract period.

In circumstances where another contractor has been appointed by the Employer to carry out routine maintenance activities over the same section of the road, the Contractor may be required to attend meetings with the routine maintenance contractor to coordinate maintenance activities.

The potential exists for an agreement to be reached whereby the routine maintenance contractor may continue to perform certain responsibilities such as the cutting of grass and the collection of rubbish, in which event the Contractor shall make allowance in his construction activities and works programme to accommodate the routine maintenance contractor and to provide reasonable access to allow him to carry out such work.

B1236 COMMUNITY / STAKEHOLDER LIAISON AND SOCIAL FACILITATION

(a) General

The initial community / stakeholder liaison required will normally be undertaken by the Employer and/or the Employer's Agent. The outcomes and agreements resulting from all such community / stakeholder liaison will be taken into account and included in the Contract Documentation. This process includes provisions provided for by the Employer in terms of the Contract for the establishment of a Project Liaison Committee (PLC) and the employment of a Project Liaison Officer (PLO) by the Contractor.

When the Contract has been awarded the Contractor shall undertake further community / stakeholder liaison to develop and manage relationships with all stakeholders, communities and individuals who are, or who may be, impacted by the Works. The stakeholder and community liaison shall be carried out in accordance with the Employer's social facilitation principles and processes where provided.

The Contractor shall also identify all other potential stakeholders in addition to those already identified in the Contract Documentation. Stakeholders include the road users who will be affected by the Works, pedestrians and non-motorised traffic that may need to traverse or cross the site of the Works as well as some or all of the following persons, parties or entities:

- Relevant Provincial departments.
- Relevant Municipal departments.
- Traditional authorities.
- Community interest groups.
- Organised youth representation.
- Organised women representation.
- Organised disabled people representation.
- Organised labour representation.
- Other structured community groups such religion, education, farming, etc.
- Transport industry forums, e.g. Bus and taxi organisations.
- Business sector forums.
- Road user forums.
- Ratepayers organisations.
- Environmental interest groups.
- Road safety interest groups.

- Ward committees.
- Any other recognised relevant and representative structure

As part of the community / stakeholder liaison process the Contractor shall:

- Listen to and record the stakeholder's concerns regarding how they may be affected by the Works and to inform them on what measures the Contractor can and will take to alleviate their concerns and mitigate any adverse effects of the Works that are identified.
- Inform and educate all affected parties about the safety risks associated with the Works in so far as the Works will impact on the local road users, residents and school children.

The Contractor shall analyse the influence of all stakeholders on the project and develop strategies to communicate with them and to manage competing expectations so that he can mitigate issues that would otherwise delay the project. All stakeholders shall be provided with relevant information about the Works via community meetings, newspaper advertisements, radio broadcasts, electronic communication media and information leaflets as appropriate.

Where a PLC has been established in terms of the Contract, the Contractor shall use the PLC as the official communication channel, with the assistance of the PLO where one has been appointed by the Contractor in terms of the Contract. The Contractor shall delegate someone to participate in the PLC meetings and to assist and/or hold the PLC accountable for the organisation of community meetings and the effective dissemination of relevant information to all stakeholders and affected communities.

The community / stakeholder liaison process may also include issues related to the employment of targeted labourers and targeted subcontractors / suppliers by the Contractor, in accordance with Sections E, G1 and G2 of Part 3: SCOPE OF WORKS of the Contract, selection requirements that may be specified in the Contract Documentation. All targeted labour and targeted subcontractor / supplier related matters, and any associated risks, are and shall remain the responsibility of the Contractor irrespective of the Employer's and/or Employer's Agent's role/assistance provided in establishing a PLC and/or providing a PLO.

(b) Project Liaison Committee (PLC)

A PLC shall be established as soon as possible after the award of the Contract. The PLC consists of representatives of project stakeholders and affected communities, as well as representatives of the Employer, Contractor and Employer's Agent.

The Contractor shall hold meetings with PLC on a regular basis (at least once per month but not more than twice a month) to discuss and record project related issues (such as programme and progress, expenditure, targeted labour, subcontractors and suppliers, and stakeholder / community issues). Minutes of meeting shall be included with the Contractor's monthly report for discussion and/or noting at the monthly site meeting.

The PLC is the official communication channel through which the Contractor, Employer and Employer's Agent communicates with project stakeholders and affected communities on project matters, as well as to communicate the impact that the project has or may have on project stakeholders and the affected communities.

The PLC is also the official communication channel through which project stakeholders and the affected communities communicates with the Contractor, Employer and Employer's Agent on the impact that the project has on them, or is anticipated to have on them, or on any other project matters.

- (i) Duties of the PLC during the construction stage of the project shall include:
- (1) Meet prior to the monthly site meeting, or as may be required, to discuss and resolve project matters, which are of interest or concern to project stakeholders and the affected communities, the Employer, the Employer's Agent and/or the Contractor.
 - (2) Assist the PLO in setting up and maintaining a Targeted Labour Register for the project based on the targeted labour criteria provided for in Section E Part 3: SCOPE OF WORKS of the Contract.
 - (3) Verify that the criteria and methodology(ies) applied by the Contractor to employ targeted labour were executed in a fair and transparent manner, and in accordance with Section E Part 3: SCOPE OF WORKS of the Contract.
 - (4) Verify that the criteria and methodology(ies) applied by the Contractor to employ targeted subcontractors / suppliers executed in a fair and transparent manner, and in accordance with Sections G1 and G2 Part 3: SCOPE OF WORKS of the Contract.

- (5) Verify that the conditions of employment and the conditions of subcontracting, in the employment of targeted labour and subcontracting of targeted subcontractors were applied in a fair and transparent manner and in accordance with Sections E, G1 and G2 Part 3: SCOPE OF WORKS of the Contract.
- (6) Make recommendations to the Contractor, Employer and Employer's Agent on the training needs for the provision of accredited provided for targeted labour and subcontractors in terms of the Contract.
- (7) Observe and verify that training programmes and support programmes for targeted labour and subcontractors, which the Contractor committed to, are implemented and executed as intended.
- (8) Inform the entities whom they represent of any project matters which the Contractor, Employer and Employer's Agent wishes to communicate with project stakeholders and the affected communities.
- (9) Inform the Contractor, Employer and Employer's Agent of any project matters that are impacting or may impact, either positively or negatively, entities whom they represent.
- (10) Inform the Contractor, Employer and Employer's Agent of stakeholder and/or community requests and/or needs which could possibly be addressed within the project's Scope of Work.
- (11) Inform the Contractor, Employer and Employer's Agent of any road safety concerns within the project's area(s) and advise the Contractor, Employer and Employer's Agent of possible mitigating measures and/or road safety programs that will be most feasible for acceptance by the affected communities to promote road safety.
- (12) Agree with the Contractor, Employer and Employer's Agent on a dispute resolution mechanism to resolve any disputes that may arise between the Contractor or Employer and the PLC, project stakeholders and/or affected communities.
- (13) Assist the Contractor, Employer and Employer's Agent to liaise with project stakeholders and the affected communities to resolve any disputes between the Contractor or Employer and project stakeholders and the affected communities, which occurred due to the project.

(c) Project Liaison Officer (PLO)

The PLC shall be required to nominate at least three (3) PLO candidates, taking into account the specified minimum requirements for appointment, to be interviewed by the Contractor.

The Contractor shall appoint a PLO as a member of the Contractor's management personnel on site. The Contractor shall be required to appoint the PLO in terms of the Contractor's normal employment conditions. The Contractor shall provide the Employer's Agent with the PLO's employment contract and conditions of employment when called upon to do so.

The main function of the PLO is to serve as a communication link between the Contractor, Employer and Employer's Agent and the PLC.

(i) Minimum requirements

The nomination and appointment of the PLO are based on the following minimum requirements:

- (1) Should have a Grade 12 with the ability to comprehensively read and write in English and relevant language spoken by the community.
- (2) Should have a basic understanding of construction and be able to communicate with contractors.
- (3) Must demonstrate or provide evidence of knowledge of the affected communities and forming good relations with the affected communities.
- (4) Must be reliable and accountable.
- (5) Must reside in the affected community.

(ii) Duties and responsibilities

The following duties and responsibilities are to be included in the PLO's employment contract with the Contractor:

- (1) Be available, Monday to Friday, on site between the normal working hours agreed upon with the Contractor.
- (2) Attend all PLC meetings to report on the day to day project, stakeholder and community matters that impact on the parties to the project.
- (3) Attend all monthly site meetings to report on the day to day project, stakeholder and community matters that impact on the parties to the project.

- (4) Attend any other meetings related to the project and in which any of the project stakeholders, affected communities, targeted labour and targeted subcontractors / suppliers are involved.
 - (5) Maintain a full-time presence on site to monitor and address the day to day project, stakeholder and community matters that impact on the parties to the project.
 - (6) Be well acquainted with the contractual requirements as it pertains to targeted labour employment and training requirements.
 - (7) Assist the PLC in setting up and maintaining a Targeted Labour Register for the project based on the targeted labour criteria provided for in Section E Part 3: SCOPE OF WORKS of the Contract.
 - (8) Coordinate the selection and employment of targeted labour based on the criteria provided for in Section E Part 3: SCOPE OF WORKS of the Contract.
 - (9) Ensure that each targeted labourer enters into an employment contract which adheres to current and relevant labour legislation.
 - (10) Ensure that each targeted labourer understands the conditions of his/her employment with an emphasis on the employment start date, end date and wages payable.
 - (11) Identify and inform the Contractor, Employer and Employer's Agent of any relevant training required by the targeted labour.
 - (12) Attend all disciplinary proceedings to ensure that hearings are fair and conducted in accordance to the current and relevant labour legislation.
 - (13) Be proactive in identifying PLC, project stakeholder, affected communities (including targeted labour and/or targeted subcontractor / supplier), requirements, disputes, unrest, strikes, etc. and bring it to the attention of the Contractor, Employer and Employer's Agent.
 - (14) Assist the Contractor, Employer and Employer's Agent to liaise with the PLC, project stakeholders and the affected communities to resolve any disputes, which occurs due to the project.
 - (15) Keep a daily written record of interviews and stakeholder / community liaison.
 - (16) Produce and submit a monthly report to the Contractor, Employer and Employer's Agent and PLC of project matters related to stakeholder / community liaison and targeted labour / subcontractor / supplier that impact on the parties to the project.
- (iii) Remuneration

Before the appointment of the PLO, the Contractor shall submit to the Employer's Agent, for approval, the proposed PLO remuneration including all employer contributions and other staff related costs incurred by the Contractor. Thereafter all increased costs related to remuneration increases including employer contributions and other staff related costs incurred by the Contractor requires approval from the Employer's Agent.

The PLO shall only be employed and paid for the period in which the duties of a PLO are required as agreed on by the Employer's Agent and the Contractor.

- (iv) Transport and communication for the PLO

The Contractor shall provide adequate transport and communication facility for the PLO to fulfil his/her duties and responsibilities in terms of the Contract.

B1237 TRAINING VENUE AND FACILITY

In terms of this Contract the Contractor shall be responsible for providing suitable training venue(s) and facilities to host:

- Accredited and targeted labour training and
- Accredited targeted subcontractor training.
- HIV/AIDS awareness training.

Provision of training venue(s) and facilities for accredited training shall include the following:

- a suitable venue with sufficient furniture, lighting and power,
- all necessary stationary and consumables,
- transport for trainees.

B1238 COMMUNITY BASED PROJECTS

In terms of this Contract, the Employer has made an allowance in the Pricing Schedules for community based projects. Community based projects are specific to infrastructure needs of the community which the Employer will review, adjudicate and recommend for approval. Due to the nature of community based projects, projects approved by the Employer will be located outside the site boundary.

It is the Employer's objective, that the Contractor make use of targeted subcontractor(s) for the construction of community based projects.

During the review and adjudication process, the Employer will request the Contractor to provide a quotation for the proposed community based projects.

Once a community based project has been approved by the Employer for implementation by the Contractor, the Employer's Agent shall issue the Contractor with a written instruction to implement said project. The instruction shall at minimum include the following:

- Community based project specific scope of works and site information;
- Community based project drawing(s) and/or works instruction; and
- Contractor's quotation (submitted during the review and adjudication process)

The terms, conditions and specification of the Contract shall apply to all community based projects unless otherwise amended in the community based project specific scope of works and site information, issued by the Employer's Agent.

B1239 SEQUENCING OF THE WORKS

It is a specific requirement of this Contract that the works shall commence on the section of road between km 9.8 and km 10.0 to generate fill material on stockpile for the follow-on sections of road. The Contractor will have access to the full segment and width of the road noting that traffic will be accommodated on a temporarily deviation on existing gravel roads.

B1240 MEASUREMENT AND PAYMENT

Provisions have been made in this section for Works associated with the following:

- Removal and reinstatement of existing services (i.e. Eskom, Telkom and Watermains) affected by the Works within the site boundaries.
- Payments to land owners for property expropriation and crop loss affected by the Works within the site boundaries.
- Relocation of graves affected by the Works within the site boundaries.
- Relocation of existing dwellings, houses and other community structures affected by the Works within the site boundaries.
- Community based projects approved by the Employer.
- Survey of adjacent properties as part of the prevention of damage to nearby properties and services
- Contractor's obligations in terms of community / stakeholder liaison.
- Providing for a Project Liaison Committee (PLC) for the duration of the contract period.
- Employment by the Contractor of a Project Liaison Officer for the duration of the contract period.
- Contractor's responsibility to provide suitable training venue(s) and facilities for accredited training and HIV/AIDS awareness training as approved by the Employer's Agent.

Item	Unit
B12.01 Relocation and reinstatement of Eskom overhead power lines and underground cables:	
(a) Direct payment to Eskom or its agents	prime cost (PC) sum
(b) Handling costs and profit in respect of subitem B12.01(a) above	percentage (%)

Expenditure under this item will be made in accordance with the general conditions of contract.

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

The tendered percentage is a percentage of the amount actually spent under subitem B12.01(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying Eskom or its appointed agent(s) for carrying out the work.

Item	Unit
B12.02 Relocation and reinstatement of Telkom over-head phone lines and or underground cables:	

- | | | |
|-----|---|---------------------|
| (a) | Direct payment to Telkom or its agents | prime cost (PC) sum |
| (b) | Handling costs and profit in respect of subitem B12.02(a) above | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under subitem B12.02(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying Telkom or its appointed agent(s) for carrying out the work.

Item	Unit
B12.03 Relocation and reinstatement of water lines belonging to the local authority, institutions or community:	

- | | | |
|-----|--|---------------------|
| (a) | Direct payment to watermains authority, its agent or the Contractor..... | prime cost (PC) sum |
| (b) | Handling costs and profit in respect of subitem B12.03(a) above | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under subitem B12.03(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 watermains authority, its appointed agent(s) or the Contractor for carrying out the work.

Item	Unit
B12.04 Land acquisition and crop loss reimbursement, including miscellaneous items:	

- | | | |
|-----|---|---------------------|
| (a) | Direct payment to land owners, communities and service providers..... | prime cost (PC) sum |
| (b) | Handling costs and profit in respect of subitem B12.04(a) above | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under subitem B12.04(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying land owners, communities and service providers for carry out the work.

Item	Unit
B12.05 Relocation of existing graves:	

- | | | |
|-----|---|---------------------|
| (a) | Direct payment to families and service providers | prime cost (PC) sum |
| (b) | Handling costs and profit in respect of subitem B12.05(a) above | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under subitem B12.05(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying families and service providers for carry out the work.

Item	Unit
B12.06 Relocation of existing dwellings, houses and other community structures:	

- | | | |
|-----|---|---------------------|
| (a) | Relocation costs..... | prime cost (PC) sum |
| (b) | Handling costs and profit in respect of subitem B12.06(a) above | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under subitem B12.06(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying owners, selected subcontractors or the Contractor for carry out the work.

Item	Unit
-------------	-------------

B12.07 Community based projects:

- | | |
|--|-----------------|
| (a) Cost of projects approved by the Employer and instructed by the Employer's Agent | provisional sum |
| (b) Handling costs and profit in respect of subitem B12.07(a) above | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under subitem B12.07(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying selected subcontractors for carry out the work.

B12.08 Survey and reporting of adjacent properties number (No.)

The unit of measurement shall be the number of properties adjacent to the Works that need to be surveyed and reported on by the Contractor, as agreed in advance with the Employer's Agent.

The tendered rate shall include full compensation for carrying out all the requirements given in clause B1233

B12.09 Community / stakeholder liaison and social facilitation:

- | | |
|---|-------|
| (a) Contractor's obligation in terms of community / stakeholder liaison | month |
|---|-------|

The unit of measurement for subitem B12.09(a) shall be the month (or part thereof) for the Contractor's obligations in terms of community / stakeholder liaison.

The tendered rate for subitem B12.09(a) shall include full compensation for the Contractor's on-going obligations in terms of community / stakeholder liaison, for the duration of the contract, as specified in subclause B1236(a) including informing stakeholders and affected communities of the Works procedures and of the accommodation arrangements for pedestrians and non-motorised traffic through or over the site of the Works, providing health and safety information to stakeholders and affected communities, arranging and attending meetings, providing meeting facilities and sandwiches, tea, coffee or soft drinks.

Payment of the monthly sum shall be made every month for the duration of the approved contract period regardless of the amount of stakeholder liaison required during that month.

- | | |
|--|-----------------|
| (b) Project Liaison Committee (PLC): | |
| (i) Payment of stipends to members of the PLC for attending meetings | provisional sum |
| (ii) Handling cost and profit in respect to subsubitem B12.09(b)(i) | percentage |

Expenditure under subitem B12.09(b) will be made in accordance with the general conditions of contract.

For subsubitem B12.09(b)(i) the provisional sum makes provision for the payment of stipends to approved members of the PLC for attending official meetings (at least once per month but not more than twice a month).

Payment of stipends are subject to providing signed attendance registers.

The tendered percentage for subsubitem B12.09(b)(ii) is a percentage of the amount actually spent under subsubitem B12.09(b)(ii), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying stipends to approved members of the PLC for attending official meetings.

- | | |
|--|-----------------|
| (c) Project Liaison Officer (PLO): | |
| (i) Salary, including employer contributions and other staff related costs | provisional sum |
| (ii) Transport and communication | provisional sum |

(iii) Handling cost and profit in respect to subsubitems B12.09(c)(i) and (ii)percentage

Expenditure under subitem B12.09(c) will be made in accordance with the general conditions of contract.

For subsubitem B12.09(c)(i) the provisional sum makes provision for the approved salary, including employer contributions and other staff related costs of the PLO employed and paid by the Contractor.

For subsubitem B12.09(c)(ii) the provisional sum makes provision for the approved transport and communication facility costs for the PLO to fulfil his/her duties and responsibilities in terms of the Contract.

The tendered percentage for subsubitem B12.09(c)(iii) is a percentage of the amount actually spent under subsubitems B12.09(c)(i) and (ii), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with paying salary, including employer contributions and other staff related costs, transport and communication facility of the PLO.

Item	Unit
 B12.10 Provision of training venue and facilitieslump sum	

The tendered lump shall include full compensation for the provision of a training venue and facilities for accredited training and HIV/AIDS awareness training as approved by the Employer's Agent, for all necessary lighting, power, furniture, stationery, consumables, provision of transport for the trainees and all other costs necessary to maintain the venue for the duration of the specified training.

Payment of the lump sum tendered under this item will be made in two (2) instalments, as follows:

The first instalment, 75% of the lump sum, shall be paid after the Contractor has met all his obligations regarding the provision of the training venue as specified.

The second and final instalment, 25% of the lump sum, shall be paid after the provision of all accredited training and HIV/AIDS awareness training as specified."

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:

"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.

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.

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 water extraction permits.

The Contractor shall provide all the security measures required for the Contractor's own facilities and equipment on the Site of the Works, including quarries, borrow pits, and for the traffic accommodation site facilities and equipment, as he deems necessary. The provision of security measures for the duration of the Works shall be included in the Contractor's General Obligations as defined subclause B1302(d)."

(c) Legal and Contractual Requirements and responsibilities to the public

Add the following paragraphs:

"Legislation imposes mutual obligations on the Employer and Contractor in the performance of their duties to society and to the built and natural environment. To assist the Contractor in understanding and assessing his obligations, and thus to make allowances for the cost of compliance with this legislation, the following additional specifications are included in the project specifications.

Section C of Part 3: SCOPE OF WORKS of the Contract, contains the Occupational Health and Safety Specification (OHSS). Its provisions regulate the Contractor's construction methods to ensure responsible conduct relevant to the project. Payment items under Section C makes allowance for the Contractor to price for OHS duties. The OHSS is a performance specification to ensure that the Employer and any bodies that enter into formal agreements with the Employer, i.e. Employer's Agents and Contractors, achieve an acceptable level of OHS performance. The Employer has a zero tolerance to non-compliance and the endangering of the lives of workers, and the public, thereby being placed at risk.

Section D of Part 3: SCOPE OF WORKS of the Contract, contains the HIV/AIDS Awareness Education Specification. 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 different strategies. Payment items under Section D makes allowance for Contractor's cost related to HIV/AIDS Awareness Education.

Section E of Part 3: SCOPE OF WORKS of the Contract, contains the Targeted Labour Participation and Development Specifications that must be complied with. The specification sets out the requirements relating to the Employer's participation goals in terms of the employment and development of targeted labour, in the performance of the Contract. Payment items under Section E makes allowance for Contractor's cost related development support and accredited training for selected targeted labour.

Section F of Part 3: SCOPE OF WORKS of the Contract, contains the Environmental Management Plan Implementation (EMPI) Specification. Its provisions regulate the Contractor's construction methods to ensure responsible conduct and treatment of the environment relevant to the project. Payment items under Section F makes allowance for Contractor's cost related to compliance with the requirements and obligations of the construction and mining environmental management plan.

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, namely:
 - (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 F 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.

Section G1 of Part 3: SCOPE OF WORKS of the Contract, contains the Targeted Subcontractor Participation and Development Specifications. The specification sets out the requirements relating to the Employer’s participation goals in terms of the employment and development of targeted subcontractors, in the performance of the Contract. Payment items under Section G1 makes allowance for Contractor’s cost related to Contractor’s obligations in terms of targeted subcontractor contract participation, procurement of targeted subcontractor(s), development support and accredited training for contracted targeted subcontractors, Contractor’s obligations in terms of submission of documents and cost variations due to targeted subcontractor work packages.

Section G2 of Part 3: SCOPE OF WORKS of the Contract, contains the Targeted Supplier Specifications. The specification sets out the requirements relating to the Employer’s participation goals in terms of the supply of materials, goods and services, in the performance of the Contract.

Section H of Part 3: SCOPE OF WORKS of the Contract, contains the Quality Assurance Framework for Road Works. This specification contains requirements applicable to the Contractor in terms of implementing and maintaining a Quality Policy for the Contract.”

Add the following subclause:

“(d) Site security

The Contractor is responsible for keeping unauthorised persons off the Site of the Works in accordance with the requirements of the Conditions of Contract. The Contractor shall therefore carefully assess the security measures of whatever nature that may be required at the location of the Employer’s Agent’s site

office and laboratory, the Contractor's offices, stores and workshops, the Site of the Works including quarries, borrow pits, stockpile sites and manufacturing yards as well as any traffic accommodation site facilities and equipment which may be placed on the approaches to / exits from the Site of the Works.

The Contractor shall then make all necessary arrangements to provide adequate security measures which will prevent access to the Site of the Works and to the Contractor's and Employer's Agent's site facilities by any unauthorised persons and will also prevent damage to, or theft of, any facilities, equipment, plant, materials and parts of the Works which have not yet been handed over to the Employer.

The security measures provided for the Employer's Agent's site offices and laboratories, and for the Engineer's site accommodation situated on or adjacent to the Site of the Works, shall include security fencing and gates, security lights and burglar alarm systems linked to an armed response company and a night watchman.

The security measures provided for the Employer's Agent's rented housing shall consist of an acceptable burglar alarm system linked to an armed response company.

(e) Monthly reporting

When submitting, any information required and interim certificates for payment, the Contractor shall use the Employer's standard forms and formats. No payment can be made before the Contractor is registered as a vendor on the Employer's system.

The Contractor shall submit payment certificates for all work rendered in the Employer's financial year within that specific year.

The Contractor is required to compile a formal monthly report, drafted in consultation with the Employer's Agent where necessary, consisting of the following items:

- (i) Expenditure and cash flow,
- (ii) Programme and progress/delays,
- (iii) Site rainfall records,
- (iv) Site instructions, drawings and variations orders issued,
- (v) Notice of claims and claims in terms of the Contract,
- (vi) Construction equipment (Contractor's and hired) on Site,
- (vii) Contractor's personnel on Site,
- (viii) Targeted enterprises (subcontractor/suppliers) employment and development,
- (ix) Targeted labour employment and development,
- (x) Employer's contract participation goals,
- (xi) Stakeholder/community liaison,
- (xii) OHS and Environmental,
- (xiii) Traffic safety, accidents and incidents,
- (xiv) Information required by the Contractor / Employer's Agent, and
- (xv) Structured training provided for in terms of the Contract.

and to submit these monthly reports to the Employer's Agent at least two (2) working days before each site meeting."

B1303 PAYMENT

Add the following introductory paragraphs immediately below the heading of this Clause:

"The Contractor's general obligations shall include the following:

- (i) Setting up, providing, insuring and maintaining the personnel, construction camps, staff accommodation, furniture, office equipment and stationery, other temporary structures, fencing and construction equipment on the site and their removal on completion of the contract.
- (ii) Providing transport to, from and on the Site of the Works for all Contractor's permanent and temporary personnel.
- (iii) Compliance with the requirements of the Conditions of Contract and with all the general requirements included in Section 1200 of these specifications.

- (iv) Compliance with all legislative and regulatory requirements.
- (v) Assessing, dealing with and/or insuring all risks associated with the Contractor's General Obligations and with the construction, maintenance and protection of the Works.
- (vi) The protection and/or safeguarding of private property and livestock.
- (vii) The provision of security for all of the Contractor's personnel, facilities and equipment on the Site of the Works, including quarries, borrow pits, stockpile areas and storage yards as well as for any traffic accommodation facilities and equipment that may be placed on the approaches to, or the exit from, the Site of the Works.
- (viii) All other general obligations, overhead costs, financing charges, insurance costs and all other general items which are not specifically included in, or covered by, these specifications.
- (ix) The preparation and submission of all designs and drawings prepared by the Contractor for the temporary works or any alternative design proposals."

Item	Unit
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B13.01 The contractor's general obligations:

Delete subitem (c) and replace with the following:

- "(c) Time-related obligations:
- (i) During start-up period (From Commencement of the Contract to Commencement of the Works)month
 - (ii) During construction period (From Commencement of the Works to Due Completion Date)..... month"

Delete all paragraphs of the payment description and replace with the following:

"The lump sums tendered under subitems (a) and (b), and the tendered rates per month for subsubitems (c)(i) and (c)(ii) shall together include full compensations for all the Contractor's costs, charges, overheads and profits in respect of all of the Contractor's general obligations.

The lump sum tendered under subitem B13.01(a) shall represent full compensation for the fixed part of the Contractor's general obligations, i.e. that part which is substantially fixed and is not a function of the value of the Works or of the time required for completion of the Contract.

Payment of the lump sum tendered under subitem B13.01(a) will be made in three instalments, as follows:

- (1) The first instalment, 50% of the lump sum, will be paid after the Contractor has completed the establishment of the construction camps, site offices, laboratories and housing, has provided the personnel, staff and equipment required to commence the Works in accordance with all the specified requirements and has made a substantial start with construction of the Works in accordance with the approved programme.
- (2) The second instalment, 35% of the lump sum, will be paid when the value of the Work done reaches one half of the tendered amount, excluding contingencies and price adjustments in terms of the General Conditions of Contract.
- (3) The third and final instalment, 15% of the lump sum, will be paid when the Works have been completed and taken over by the Employer.

The lump sum tendered under subitem B13.01(b) shall represent full compensation for that part of the Contractor's general obligations which is a function of only the value of the Works, but not of the period of completion of the Works.

Should the final value of the Works (excluding any contract price and special material adjustment payments made in terms of the General Conditions of Contract) increase or decrease in relation to the tendered amount (less any allowances, if any, in the tendered amount for contract price adjustment and special material adjustment payments), the lump sum for subitem B13.01(b) will be increased or decreased

accordingly pro rata. The adjusted lump sum will be the full settlement of any difference in value-related general obligations resulting from an increased or decreased value of the work.

The lump sum tendered in subitem B13.01(b) will be payable monthly in instalments in relation to the value of Work done up to the date that the payment certificate is prepared (excluding the value of any price adjustments made in terms of the General Conditions of Contract.

The tendered rate per month for subsubitem B13.01(c)(i) represents full compensation for that part of the contractor's general obligations, which are mainly a function of time, during the start-up period. The tendered rate will be paid monthly, pro rata for parts of a month, from the Commencement Date in terms of Clause 5.2 of GCC 2015 to the instruction to commencement carrying out the Works in terms of Clause 5.3 of GCC 2015.

The tendered rate per month for subsubitem B13.01(c)(ii) represents full compensation for that part of the contractor's general obligations, which are mainly a function of time, during the construction period. The tendered rate will be paid monthly, pro rata for parts of a month, from the instruction to commencement carrying out the Works in terms of Clause 5.3 of GCC 2015 to the Due Completion Date in terms of Clause 1.1.1.14 of GCC 2015.

The time for achieving Practical Completion as stated in the Contract Data is the sum of subsubitems B13.01(c)(i) & (ii).

The following conditions also apply to the time related payment made under subsubitem B13.01(c)(i):

- Any delay(s) within the start-up period, as a result of the Contractor's own actions shall cause the construction period to be reduced by the amount of start-up period time overrun.

The following conditions also apply to the time related payment made under subsubitem B13.01(c)(ii):

- Should the Works be certified as having been completed before the original contractual date for completion of the Works, the Contractor will be entitled to payments of the monthly time related amount for the unexpired original construction period specified for completion of the Works.
- Should the progress of the Contractor, calculated in terms of the value of the work done to date, be in arrears by more than 10% relative to the accepted cash flow estimate (suitably adjusted for any change in the scope of work and/or extension of time granted) then the payments in respect of this item may be limited to a total payment to date which is in the same ratio as the actual value of Work done relative to the estimated total value of all the Work that has to be done.

Should the combined value of subitems B13.01(a), (b), (c)(i) and (c)(ii) exceed **20%** of the tender sum (excluding; provisional and prime cost sums and its related % mark-up amount in the Pricing Schedules, total amount for Section B1800: Dayworks, allowances for contingencies and contract price adjustments and VAT), the Tenderer shall state his reasons in writing for tendering in this manner. The Tenderer's attention is drawn to Form F of Book 1 (Returnable Documents), to be completed by the Tenderer."

Add the following items:

"Item	Unit
B13.02 Contract sign boards	number (No)

The unit of measurement shall be the number of approved contract sign boards (usually two) provided and erected by the Contractor in the positions on site indicated by the Employer's Agent.

The tendered rate shall include full compensation for all costs associated with providing, erecting and the later removal of the contract sign boards when the Works have been completed.

B13.03 Site security measures:

- (a) Supply and installation of security measures..... lump sum
- (b) Provision of security guards / watchmen and an armed response service.....month

The lump sum tendered under subitem B13.03(a) shall include full compensation for the provision of all security measures required at the Contractor's construction camps, at the Employer's Agent's site offices, site laboratory and site accommodation as well as on the site of the Works.

The security measures to be provided shall be determined by the Contractor and shall be adequate to meet all the security requirements specified in subclause B1302(d).

The security measures provided shall include all the required security fencing and gates, guard houses, security lights, burglar alarm systems linked to an armed response and any other measures the Contractor feels is necessary.

The unit of measurement for subitem B13.03(b) is the month or part thereof that the services are provided for the duration of the construction period. Part of a month shall be calculated to two (2) decimal places.

The tendered rate for subitem B13.03(b) shall include full compensation for providing all security guards and watchmen required and for providing an armed response service linked to the burglar alarm system if required. These security services shall be provided for 24 hours a day for every day of the construction period.

B13.04 Monthly reporting.....month

The unit of measurement for item B13.04 is the month or part thereof that the Contractor compiles and submits to the Employer's Agent formal monthly reports for the duration of the construction period, as specified in subclause B1302(e).

The tendered rate for item B13.04 shall include full compensation for the Contractor's obligations in terms of subclause B1302(e), which requires the Contractor to compile and submit formal monthly report as specified to the Employer's Agent two (2) day prior to the monthly site meetings.

Failure to comply shall result in the non-payment under this item."

SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL
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B1402 OFFICES AND LABORATORIES

(a) General

Delete all the paragraphs and replace with following:

"The provision of new structures, and/or the refurbishment and alteration of existing permanent structures, shall be done with approved materials in a manner which will provide adequate lighting, ventilation, insulation, noise damping and fire protection.

Temporary and mobile structures shall be constructed from approved materials. The buildings shall have double walls filled with insulating material and lined on the inside with timber or other approved material. Ceilings shall be provided for both office and laboratory buildings. The clear height of all offices between floor and ceiling shall be 2.4m minimum.

Office buildings shall have timber floors or concrete floors covered with vinyl or ceramic floor tiles. Laboratory buildings shall have smooth, hard concrete floors. Each building shall be provided with a roofed veranda on one side, running for the full length of the building. The verandas shall be at least 1.5m wide and shall have a 100mm thick concrete floor.

Window areas of all buildings shall be at least equal to 25% of the floor area and at least 40% of the window area shall be able to be opened. All windows for the offices and laboratories shall be provided with approved burglar proofing and with adjustable venetian blinds or similar approved.

Each door shall be provided with a lock and two keys. All exterior doors shall be security doors of adequate strength fitted with a five lever security lock and/or a secure padlock and fitted with security gates on the inside.

Portable firefighting equipment shall be provided for all site offices and laboratory facilities in accordance with the requirements of the latest statutory regulations and specifically with the requirements specified in SANS 10400-T:2011 Part T: Fire Protection. Fire extinguishers shall be the all-purpose dry powder type manufactured in accordance with the requirements given in SANS 1910:2009 and shall be suitable for types A, B and C fires. The extinguishers shall contain not less than 9,0 kg of extinguishing 1-39 chemical and shall be installed, maintained and serviced by competent persons in accordance with the requirements specified in SANS 1475-1 and SANS 10105-1.

Office and laboratory buildings shall be painted with an approved paint after erection. The paintwork shall be maintained during the Contract Period.

All facilities shall include the provision of a single phase electricity supply and, if specified, a three phase electricity supply for the site laboratory.

Suitable description, designation or name boards as directed by the Employer's Agent with lettering 35mm in height shall be affixed to each of the Employer's Agent's site personnel offices.

All furniture, equipment and fittings provided by the Contractor shall be new unless otherwise agreed beforehand with the Employer's Agent."

(b) Offices

Delete all paragraphs and subsubclauses and replace with following:

"The various types of offices required shall be as referred to in Part 4: SITE INFORMATION of the Contract or as instructed by the Employer's Agent.

Unless otherwise specified in the Contract Document, the fittings, furniture and equipment shall confirm to the following requirements:

- (i) Office desks shall have a surface area of at least 1,5 m² and shall be provided with at least three drawers, one of which can be locked.

- (ii) General-purpose steel cabinets shall have at least 1,5 m² shelf area and a volume of 0,7 m³ each. Each cabinet shall have a lock with two keys.
- (iii) Steel filing cabinets shall each be fitted with four drawers on runners. Each cabinet shall be fitted with a lock and shall be 1,3 m high, 460 mm wide and 600 mm from front to back.
- (iv) Shelves shall be suitable for storing all the contract files and documents.
- (v) Electric power plug points shall be provided. Each office shall have at least two 15 ampere plug points.
- (vi) Lights shall be fluorescent tubes (double 80 watt or single 80 watt), fluorescent bulbs (11 watt) or the equivalent LED light fittings according to that which is required or specified.
- (vii) Drawing tables shall have either an inclined or a horizontal drawing surface as may be required and a smooth top built to the dimensions instructed by the Employer's Agent.
- (viii) Draughtsman's stools shall be fitted with a padded seat with an adjustable seat height.
- (ix) The conference table shall be large enough to seat twelve (12) persons and shall have a surface area of at least 4m².
- (x) Chairs shall be robust and comfortable.
- (xi) A complete telecommunication and electronic data transfer service with uncapped Wi-Fi connectivity to the internet shall be provided for the use of all the Employer's Agent's site staff. Where landlines are available the Employer's Agent shall be provided with a direct independent telephone line that is not connected to the Contractor's telephone exchange and which can accommodate the number of extensions requested by the Employer's Agent.
- (xii) The colour combination printer, copier, scanner machines shall be capable of printing on either A3 & A4 sized paper or only on A4 sized paper as provided for in the Pricing Schedule. As well as paper and toner for making up to 2000 A4 copies and 100 A3 per month.
- (xiii) Blinds shall be either adjustable venetian blinds to permit light to enter the room or opaque roller blinds as specified and/or requested by the Employer's Agent.
- (xiv) Notice boards and white boards shall be provided as specified or as required by the Employer's Agent.
- (xv) Bookcases shall have at least three shelves, each with a minimum length of 0,9 m.
- (xvi) Plan holders which shall be able to accommodate 30 AO – sized drawings hanging vertically and of a robust construction to withstand continuous use over the duration of the contract.
- (xvii) Where required by the Employer's Agent, the Contractor shall provide and install air-conditioning units and heaters. Air-conditioning units shall be of the wall mounted split unit inverter type capable of either cooling or heating a room. The capacity of the air-conditioning units shall be adequate for the particular room area as recommended by the supplier thereof. Heaters shall be of a space-heating type without exposed elements and shall have a capacity of not less than 1.5kW each.
- (xviii) Where required by the Employer's Agent, the following items shall be provided by the Contractor for his use:
 - (1) A rain gauge securely mounted on a pole in a position as indicated by the Employer's Agent.
 - (2) A minimum and maximum atmospheric temperature gauge.
 - (3) An approved digital thermometer capable of measuring surface temperatures from -10°C up to +350°C.

- (4) An approved mobile weather stations capable of measuring temperature, wind, chill, barometric pressure, UV levels, rainfall, wind direction and speed. The device shall also have on-board storage capabilities for at least 7 (seven) days and shall include a USB PC connection with software, allowing data to be downloaded electronically.
- (5) A three metre aluminium straight edge complete with two wedges 200mm long, tapering from 0 to 20 mm, calibrated in mm.
- (6) A measuring wheel with a circumference of 1,0 m and equipped with a distance recording device.
- (7) Approved first aid kits to be kept at the site office and/or laboratories and in the site staff vehicles."

(c) Laboratories

Delete all paragraphs and subsubclauses and replace with following:

"All or any of four types of laboratories may be required - soils laboratories, bituminous materials laboratories, chemical laboratories and concrete testing laboratories.

The actual sizes, layout and other details of the individual laboratory types shall be as referred to in Part 4: SITE INFORMATION of the Contract or as instructed by the Employer's Agent.

Storerooms shall be provided, installed and furnished in the laboratory building. The sides of the storerooms shall be fenced off from floor level to the ceiling with 50mm diamond-mesh wire. Each store shall have a security door or gate of adequate strength fitted with a five lever security lock and/or a secure padlock.

The requirements for the laboratory fittings, furniture and equipment shall be as follows:

- (i) The requirements for the laboratory furniture, the telecommunication and electronic data transfer service, printers, electricity plug points, window blinds, air-conditioners, heaters and lights provided for the laboratories shall be the same as those specified for the Employer's Agent's offices.
- (ii) Shelf space provided against walls shall be of robust construction capable of carrying the weight of material test samples and material testing equipment.
- (iii) All work-benches shall be robust and their upper surfaces shall be 920 mm above floor level and shall include a robust timber shelf, 700 mm wide, capable of holding material samples, installed 400 mm above floor level. Work-bench surfaces shall be either of hard, smooth wood that is free from warping or other defects or of 75 mm thick concrete with a smooth, steel-trowelled finish.
- (iv) High stools for use at work-benches shall be robust and, if of fixed height, shall be 800 mm high.
- (v) Where required, a 380 volt 3-phase electric power supply and three phase power points shall be positioned 1,2 m above floor level.
- (vi) Lights shall be fluorescent tubes (double 80 watt or single 80 watt), fluorescent bulbs (11 watt) or the equivalent LED light fittings according to that which is required or specified.
- (vii) Gas installations shall include all the necessary gas cylinders, regulators, tubing and taps.
- (viii) Concrete working floors shall be at least 125 mm thick and provided with a hard, smooth finish. The working areas shall be either entirely open or under a roof as may be required.
- (ix) Wash basins shall be as prescribed either of stainless steel or precast concrete with an area of at least 0,3 m² and a minimum depth of 0,3 m. They shall be provided with swan-neck type laboratory taps and drain pipes.
- (x) A supply of fresh clean potable water at a constant head of not less than 3 m at the taps shall be provided. Storage capacity in respect of the laboratory water supply shall be not less than 5 000 litres. In addition to the taps at the laboratory sinks, a standpipe shall be installed outside the laboratory on the concrete working floor, supplied with a tap fitted with a 30 m length of heavy duty, 20 mm internal diameter, reinforced plastic hose pipe.

- (xi) Extractor fans, where required, shall be so mounted as to operate noiselessly. They shall have a capacity of at least 0.15kW each. Extractor fans shall be spark proof.
- (xii) Fume cupboards shall be constructed in accordance with the details instructed by the Employer's Agent.
- (xiii) Where required, concrete footings and pedestals shall be constructed to the dimensions indicated by the Employer's Agent for installing certain testing equipment.
- (xiv) When required, watertight baths for curing concrete test cubes, beams and cylinders shall be provided. The baths shall be rectangular and located such that they are accessible from both longitudinal sides. The width shall not exceed 1,0 m and the depth shall not exceed 0,6 m. The baths shall be fitted with a circulating pump, a tap, a plug, a drain capable of completely emptying the tank and a thermostatically controlled heating device to control the water temperature."

(d) Car ports

Delete the paragraph and replace with the following:

"Car ports shall be so constructed as to protect vehicles parked in them at all times against the direct rays of the sun. The car ports shall have either a concrete floor or a layer of broken stone to alleviate dusty and muddy conditions. Each car port shall be at least 3 m wide, 6 m long and 2,5 m high. The roofs of all car ports shall be water proof."

Amend subclause 1402(e) to read "Areas around offices and laboratories".

(e) Areas around offices and laboratories

Delete the paragraph and replace with the following:

"The access and other roads around the offices and laboratories shall be treated to make them dust free, either with a layer of crushed stone or with an approved bituminous surfacing. They shall be well drained and kept trafficable and free from mud at all times. Footpaths shall be similarly treated to provide convenient, all weather access to all buildings. Security measures at offices and laboratories shall be in terms of subclause B1302(d). Floodlights to be controlled by a photocell for security purposes."

Delete subclause 1402(f) and replace with the following:

"(f) Ablution unit

An ablation unit with a clean potable hot and cold water supply and a water-borne sewerage system, including septic tanks if necessary, shall be provided for the Employer's Agent's facilities. The ablation unit shall be established in a position that is easily accessible to both the Employer's Agent's offices and the laboratory buildings. The ablation unit shall have separate rooms for males and females and each room shall have a floor area of at least 6m² and shall be equipped with:

- (i) Electric lighting,
- (ii) an opening window fitted with a blind,
- (iii) one vitreous enamel WC pan with a PVC seat and covers, a flush cistern and a toilet roll holder. The WC must be separate from the entrance/basin area and it shall have a lockable door,
- (iv) one vitreous enamel urinal with flush cistern in the male unit,
- (v) one vitreous enamel wash basin,
- (vi) a mirror and a paper towel dispenser and
- (vii) one covered wastepaper bin next to the WC and another bin next to the towel dispenser.

Where specified in the Contract Documentation a separate shower and change room complete with shower, hot and cold running water and drains shall also be provided."

Delete subclause 1402(g) and replace with the following:

“(g) Kitchen unit

The Contractor shall supply a kitchen unit with a clean potable hot and cold water supply for the Employer's Agent's offices with a minimum floor area of 6 m² and connected to the Employer's Agent's offices. The kitchen shall be equipped with:

- (i) electric lighting,
- (ii) a single-bowl stainless steel basin with draining board, mounted on a cupboard unit,
- (iii) hot and cold water supply, taps, a plug and a waste drain,
- (iv) a kitchen cupboard 1 m³ in volume with a melamine or similar counter top,
- (v) a fridge with a capacity of at least 0,3 m³ with a separate freezer compartment with a capacity of at least a further 0,1 m³,
- (vi) a microwave cooker, a kettle and a toaster,
- (vii) a cutlery set consisting of six knives, forks, dessert spoons and teaspoons, two kitchen knives, a cutting board, a can opener and a bottle opener and
- (viii) a crockery set consisting of six dinner plates, six side plates and six coffee mugs.”

Delete subclause 1402(h).

B1403 HOUSING

Delete all paragraphs and replace with the following:

“The provision of housing for the Employer's Agent's site staff and combined laboratory staff is not a requirement for this Contract.”

B1404 SERVICES

(b) Water, electricity and gas

Add the following:

“The power supply shall be regulated by a suitable voltage regulator 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. 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 of all repair or replacement costs of such damaged items.”

Add the following to the end of the fourth paragraph:

“An on-site motor-alternator shall supply electricity when power from a recognized power-supply authority is not available.”

B1405 GENERAL

Delete subclauses (a) to (f) and replace with following:

- “(a) Where not already provided in the Contract Documentation, the Employer's Agent shall furnish the Contractor with full details, in writing, regarding the number, type, layouts and furnishing of all site accommodation, laboratories and offices required for the use of the Employer's Agent's site personnel.
- (b) The Contractor shall not order or make any arrangements for the provision of any buildings, materials, equipment or fittings on the basis of what is specified or scheduled without written confirmation by the Employer's Agent. No buildings shall be rented, purchased, erected, refurbished or altered without the Employer's Agent's written approval of the exact position, layout and orientation of the buildings.
- (c) Buildings for staff accommodation, laboratories and offices may comprise one or more of the following:
- Rented existing permanent structures in residential, business, industrial or farming areas.
 - Temporary structures erected on property rented by the Contractor or provided by the Employer.
 - Mobile structures parked on property rented by the Contractor or provided by the Employer.
- (d) Existing permanent structures may require refurbishment and partitioning to suit the requirements of the Employer's Agent.
- (e) All buildings provided for the Employer's Agent's staff accommodation, laboratories and offices shall where possible be located in an area where landline and/or cellular telecommunication and internet connectivity is available. If any of these services are not available dedicated services to that effect shall be provided.
- (f) Unless otherwise agreed on, the buildings provided for the use of the Employer's Agent's personnel shall be erected in close proximity to the Contractor's construction camp. Should the Contractor decide to move the construction camp to a new site, the buildings erected for the use of the Employer's Agent shall be moved to the new site and re-erected if required by the Employer's Agent, or alternative buildings which meet the specified and the Employer's Agent's requirements shall be provided by the Contractor. No additional costs related to moving the Employer's Agent's site facilities shall be incurred by the Employer or by the Employer's Agent and all such costs shall be borne by the Contractor.
- (g) The Contractor may not proceed with the permanent Works before the specified site accommodation, laboratory and office buildings required by the Employer's Agent have been provided, serviced and furnished by the Contractor. All the site accommodation, laboratory and office buildings shall be provided as soon as possible, but not later than six weeks, after the Contractor has been given possession of the site of the.
- (h) If any further site facilities are required by the Employer's Agent during the Contract Period the Employer's Agent shall inform the Contractor of the additional requirements at least 30 calendar days before such additional facilities are required.
- (i) The Contractor shall be responsible for servicing the Employer's Agent's site facilities and for maintaining the facilities in a serviceable condition for the duration of the contract.
- (j) The ownership of all offices, laboratories, housing, sanitary facilities, laboratory equipment and other items provided by the Contractor shall revert to the Contractor when the Employer's Agent confirms in writing that he no longer requires them. The Contractor shall then remove them from the site or terminate the rental lease for any rented buildings.
- (k) The Contractor shall provide adequate security measures to prevent unauthorised entry to the Employer's Agent's offices, laboratories and site accommodation. Security shall be provided as specified in subclause B1302(d).
- (l) The Contractor shall ensure that all the provided site facilities and services comply with the applicable statutory and regulatory provisions in the area concerned.”

B1406 MEASUREMENT AND PAYMENT

Item	Unit
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B14.01 Office and laboratory accommodation:

Amend subitem (a) to read "Offices and conference room (internal floor space only)".

Amend subitem (e) to read "Ablution unit (equipped as specified)".

Amend subitem (e) unit "number (No)".

Amend subitem (f) to read "Store rooms inside the laboratory".

Add the following subitems:

“(g) Kitchen unit (equipped as specified)	number (No)
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“(h) Change room with shower	number (No)
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Delete the payment description paragraph and replace with the following:

“The unit of measurement for subitems B14.01(a), (b), (c), (d) and (f) shall be the square metre (m²) of each facility, measured according to the internal floor area. The tendered rates shall include full compensation for the construction or provision of these Employer's Agent's facilities all complete in accordance with the specifications given in the Contract Documentation. Where offices are provided in existing buildings the passageways, hallways and any other office space in excess of the Employer's Agent's requirements shall not be measured for payment.

The unit of measurement for subitems B14.01(e), (g) and (h) shall be the number of units provided. The tendered rates shall include full compensation for the construction or provision of these Employer's Agent's facilities all complete in accordance with the specifications given in the Contract Documentation.”

Item	Unit
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B14.02 Office and laboratory furniture:

Amend subitem (a) to read "Office Chairs".

Amend subitem (d) to read "Office desk with 3 drawers (at least one lockable drawer)"

Amend subitem (f) to read "Conference table (including 12 No. sturdy chairs)"

Item	Unit
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B14.03 Office and laboratory fittings installations and equipment

(a) Items measured by number:

Amend subsubitem (i) to read "220/250 volt power outlet plug point".

Amend subsubitem (ii) to read "400/231 volt 3-phase power outlet plug point".

Amend subsubitem (iii) to read "Double 80 watt fluorescent tube ceiling light complete with ballast and tubes".

Amend subsubitem (xi) to read "Air conditioning units with 2,2 kW minimum capacity, mounted and with own power connection".

Amend subsubitem (xviii) to read "UPS / Voltage stabilizer for use with a single computer".

Add the following subsubitems:

"(xix)	Plan holder	number (No)
(xx)	Floodlights complete with poles and 500 Watt minimum globes and photocell for security	number (No)
(xxi)	Rain gauge	number (No)
(xxii)	Minimum/maximum atmospheric temperature gauge.....	number (No)
(xxiii)	Digital thermometer	number (No)
(xxiv)	Mobile outdoor weather station.....	number (No)
(xxv)	3 m aluminium straight edge complete with two measuring wedges.....	number (No)
(xxvi)	Measuring wheel	number (No)
(xxvii)	First aid kit.....	number (No)
(xxviii)	Standpipe complete with 30 m of 19 mm dia. heavy duty hose pipe.....	number (No)

The tendered rate for subsubitem B14.03 (a)(xx) shall include for the operation of the lights from sunset to sunrise for the full duration of the Contract.

All equipment shall revert back to the Contractor on completion of the Contract."

(b) Prime-cost items and items measured and paid for in a lump sum:

Amend subsubitem (i) to read "Cell phones costs, including pro-rata rentals, for calls made in connection with contract administration".

Amend subsubitem (iii) to read "The provision of a direct independent telephone line for the Employer's Agent, including the monthly rental charges and the cost of business calls".

Amend subsubitem (v) to read "The provision of internet connectivity and WiFi data for Employer's Agent's site staff".

Add the following subsubitems:

"(ix)	Provision of computers, printers, related hardware, software and consumables	prime cost (PC) sum
(x)	Handling costs and profit in respect of subitem B14.03(b)(ix) above	percentage (%)

(c) Items measured by area:

Add the following subsubitem:

"(viii)	Softboard notice board	square metre (m ²)"
"(x)	White boards and pens	square meter (m ²)"

Item	Unit
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B14.10 Provision of photostat and scanner facilities

Amend item 14.10 to read " B14.10 Provision of photostat, printing and scanner facilities"

Replace the payment description paragraph with the following:

"The tendered rate per month shall include full compensation for providing and maintaining an approved combination printer, copier, scanner machine (capable of making A3 & A4 sized copies) and its use, including all accessories such as paper and toner for making up to 2000 A4 copies and 200 A3 per month."

Add the following items:

"Item	Unit
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B14.11 Office staff:

- | | | |
|-----|--------------------------------|-------|
| (a) | Secretary / receptionist | month |
| (b) | Technical assistance..... | month |

The unit of measurement for subitems (a) and (b) is the month or part thereof for the duration of the construction period.

The tendered rate shall include full compensation for providing the specified staff member and for all wages, employer contributions, accommodation, transport and other staff related costs incurred by the Contractor."

Add the following clause:

"1406 OFFICE STAFF

If specified in the Contract Documentation the Contractor, in consultation with the Employer's Agent, shall appoint an office secretary/receptionist and the requested number of technical assistants to provide a continuous service to the Employer's Agent's site personnel.

These staff shall be paid by the Contractor including the provision of transport and other all other costs and benefits to the same extent as the Contractor provides for his own employees of a similar grade.

The person selected as secretary/receptionist may have limited experience but must have the potential and be willing to receive training (both formal and informal) to develop into a competent secretary / receptionist within a successful probation period of two months after appointment, failing which the person shall be substituted.

The technical assistant/s shall be suitably educated with sufficient mathematical ability to perform the duties of a survey assistant, assistant laboratory technician or an assistant quantity surveyor. Where available the technical assistant/s may be student technicians who need to fulfil their practical training requirements.

The Employer's Agent shall be at liberty to accept or reject the staff offered.

Add the following new items:

"Item	Unit
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B14.12 Provision of semi-skilled labour for use by the Engineer

- | | | |
|-----|--|---------------------|
| (a) | Wages, salaries and allowances | prime cost (PC) sum |
| (b) | Handling costs and profit in respect of subitem B14.11(a)..... | percentage (%) |

Expenditure under this item will be in accordance with the general conditions of contract. Payment under subitem 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 Engineer'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 Engineer's semi-skilled labourers. The Contractor shall advise the Engineer 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 Engineer. Contract price adjustment will not apply to this item.

The tendered percentage is a percentage of the amount actually spent under subitemB14.11(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 Engineer's assistants.

Item	Unit
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B14.13 Two-way radio facilities

- (a) Provision of radios number (No.)
- (b) Maintenance of radios month

The unit of measurement shall be the number of two-way facilities fitted to the vehicles used by the Engineer's supervisory staff, or at the Engineer's site office, or Contractor's site camp.

The rate tendered shall include full compensation for the provision, fitting, licensing, maintaining and final removal of radio links between vehicles used by the Engineer's supervisory staff and the Contractor's camp site or Engineer's site office as the case may be.

Item	Unit
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B14.14 Emergency power supply to Engineer's offices

- (a) Power supply to engineer's offices, laboratory and kitchenhour (hr)
- (b) Handling costs and profit in respect of subitem B14.19(a).....percentage (%)

Expenditure under this item will be made once the contractor has provided emergency power to the engineer's offices, laboratory and kitchen. Should the power failure be as a result of the contractor no payment will be due. Payment for the emergency power supply will be made in the next monthly certificate.

The tendered percentage is a percentage of the amount actually spent under subitem B14.19(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with supplying power to the engineer."

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

It is a requirement of this specification that traffic is accommodated taking into account the provisions of the latest edition of the South African Road Traffic Signs Manual (SARTSM). The latest version for use in the accommodation of traffic is volume 2, chapter 13 of the June 1999 edition. Copies of this publication are available from Government Printers –Tel: (012) 334 4507/8/9 or (012) 334 4510 Fax: (012) 323 9574.

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

For this Contract the Employer's Agent has developed a preliminary temporary deviation plan for the purpose to quantifying payment items in the Pricing Schedules under Section 1500. The preliminary temporary deviation plan by no means absolve the Contractor of his traffic accommodation duties and requirements under this Contract. "

B1502 GENERAL REQUIREMENTS

Insert the following:

"The whole of the site will be handed over to the Contractor at the beginning of the contract. The sequence in which various parts of the site may be occupied by the Contractor for the execution of the different items of work shall be subject to the requirements of the contract documents regarding, inter alia, working hours and the number, spacing and length of the work areas which may be occupied at any particular time.

The Contractor shall programme his work taking due cognizance of restrictive conditions indicated in Clause B1204. The Contractor's tendered rates shall include full compensation for all possible additional costs which may arise from the above and no claims for extra payment as a result of this *modus operandi* will be considered. The Contractor shall in particular note that no additional compensation shall be made for work that could be considered as half-width construction.

(a) Safety

Replace the full stop at the end of the first paragraph and continue with the following:

"... flow of traffic, including the prohibition of his, and his subcontractor's, construction plant from disregarding the stop/go accommodation of traffic control facilities. Failure to comply with this requirement shall be taken as a penalty event in terms of B1502(l)."

Add the following paragraphs:

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

The Contractor shall within 7 (seven) working days after receipt of a 3rd party claim acknowledge receipt to the claimant. The Employer's Agent shall be copied on all correspondence regarding 3rd party claims. The Contractor shall at the monthly site meeting report on the status and outcome of the 3rd party claims.

The Contractor shall be fully responsible for all the traffic accommodation on site, including for work undertaken by subcontractors, e.g. at bridges etc.

Traffic shall be accommodated as indicated on the drawings unless an alternative tender incorporating an amended method of traffic accommodation has been accepted.

The Contractor may amend the agreed traffic accommodation scheme but only with the approval of the Employer's Agent in consultation with the provincial and municipal traffic authorities.

During the non-working hours, or when construction is not taking place on a certain section of road all obstructions to the traffic shall be removed and all signs no longer applicable to the situation shall be removed to an approved safe location or effectively covered.

No equipment or vehicles shall be stored or parked on the road side during non-working hours except if protected or demarcated and only if approved by the Employer's Agent.

When requested by the Employer's Agent, the Contractor shall provide lane closures for the purpose of road inspection. This must be done in advance of the actual programmed time for the work."

(f) 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 to the end of the second paragraph:

"The Contractor shall submit a CV of the candidate to the Employer's Agent for approval before the candidate is appointed as the traffic safety officer. This traffic safety officer may not be the same person as the construction health and 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 Health and Safety Officer. "

Insert the following as the opening phrase to subsubclause (i):

"make himself available to discuss road safety and traffic accommodation matters whenever required by the Employer's Agent and shall be responsible..."

Delete subsubclauses (ii) and (iii) and replace with the following:

- "(ii) Record on neat and dimensioned sketches and submit to the Employer's Agent the position and sign reference number, where applicable, of each sign, barricade, delineator, cone, amber flicker light, guardrail and permanent or temporary painted road marking feature. The position of each shall be adequately referenced to identifiable permanent features or other surveyed points on the site of the works.

These records shall also show the date and time at which the recorded traffic accommodation features are certified correct by the traffic safety officer, and shall be signed by the traffic safety officer before being submitted to the Employer's Agent.

The records shall similarly account for whatever changes are made in the field. Such changes shall record the position of flagmen and stop/go control men and their associated traffic accommodation equipment wherever they are used.

- (iii) Personally inspect the position and condition of each traffic accommodation feature on the whole site of works twice per workshift, whether day-time or nightwork, and at least twice a day/night during non-working hours, 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 middle of the next working shift. The above inspections must at least take place before the commencement of peak traffic periods. 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 with this report the daily labour returns of flagmen, stop/go, traffic signal control personnel employed and the traffic data recorded at each traffic control point."

Add the following subsubclauses:

- "(ix) The traffic safety officer shall be equipped with a cellular telephone and shall have a traffic safety vehicle and sufficient labour at his disposal 24 hours a day, including all prescribed non-working days, and shall not be utilised for other duties. He shall be directly answerable to the Contractor's site agent. The traffic safety officer shall have his own vehicle to carry out inspections and at least

one assistant to accompany him full time. Furthermore, the traffic safety vehicle shall be a truck with a capacity of at least 3 tons and shall be equipped with a high visibility rear panel in accordance with the requirements of the SARTSM.

The words TRAFFIC CONTROL shall be written on a warning sign in highly legible letters, not less than 150 mm high, and the sign shall be mounted on both the traffic safety officer's vehicle and the traffic safety vehicle at least 1,5 m above ground level. The proposed sign and letter dimensions shall be submitted to the Employer's Agent for his approval.

The vehicles shall also be equipped with an amber-coloured flashing light of the rotating parabolic reflector type with a minimum intensity of 100W. The warning light shall be switched on at all times and the sign shall be displayed when the vehicle is used on site.

The traffic safety officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the contract. The provision of the road safety vehicle, driver, 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 at the end of each work shift where applicable as instructed by the Employer's Agent and that the roads are safe for the travelling public.
- (xi) The traffic safety officer shall, in addition to the duties listed in paragraph 1502(i), also be responsible to arrange for the removal of stationary or broken down vehicles off the roadway in conjunction with the traffic authorities and implementing actions requested 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 officer shall record in a written report the details of the accident, record the position of all temporary road signs, barricades, delineators, flagmen and any other devices used for traffic accommodation. In addition, the report shall include a neat dimensional sketch, photographs, identifiable permanent features, and any other relevant information.
- (xiii) At least two (2) separate traffic safety officers and teams shall be employed when construction is carried out during the day and night."

Add the following subclauses:

“(j) Crossing the carriageway centreline

No vehicle or item of equipment shall be allowed to cross the centreline of a single carriageway unless the traffic accommodation and signage specifically allows for this and is approved by the Employer's Agent as safe.

(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. 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) Penalty events

Whenever the following events occur, the Contractor shall be subjected to penalty conditions expressed in the Appendix to Tender.

- (i) Non-compliance with accommodation of traffic specifications

Failure or refusal on the part of the Contractor to take the necessary steps to ensure the safety and convenience of the travelling public, accommodation of traffic, plant and personnel in accordance with these

specifications or as required by statutory authorities or ordered by the Employer's Agent, shall be sufficient cause for the Employer's Agent to apply penalties as follows:

A fixed penalty of **R10 000,00 per occurrence** shall be deducted for each and every occurrence of non-compliance with any of the requirements of section 1500 of the standard specifications and section B1500 of the project specifications.

In addition, a time-related penalty of **R1 000,00 per hour** over and above the fixed penalty shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within the allowable time after the Employer's Agent has given an instruction to this effect. The Employer's Agent's instruction shall state the allowable time, which shall be the time in hours for reinstatement of the defects. Should the Contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.

(m) Liaison with relevant Authorities

Where required the Contractor shall be responsible for acquiring the services of a municipal traffic officer and traffic vehicle (equipped with a blue light) to assist in the accommodation of traffic. The traffic officer and vehicle will be required when lanes are to be closed and/or where directed by the Employer's Agent.

If the road under construction forms part of an abnormal load route the Contractor shall liaise with the relevant provincial abnormal load office that issues permits to ensure that permits are not issued when construction restrictions do not allow passage of the abnormal load.

(n) Provision of safety equipment for the Employer's Agent

The Contractor shall provide the Employer's Agent with:

- (i) Approved removable amber rotating flashing lights for use on the Employer's Agent vehicles.
- (ii) 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).
- (iii) Magnetic signs with the words "CONSTRUCTION VEHICLE" for use on the Employer's Agent vehicles

(o) 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."

(p) 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 a reason for an extension of time in terms of the general conditions of contract.

(q) Other requirements

The following other requirements must be adhered to for the entire contract period:

- (i) The travelling public shall have the right of way on public roads and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road. The Contractor shall deal with deliberate courtesy and understanding in any discussions or disputes at all points of contact with the travelling public.
- (ii) The Contractor's tendered rates for the relevant items in the schedule of quantities shall include full compensation for all possible additional costs which may arise from the above and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered."

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

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

"The Contractor shall provide, erect and maintain the necessary traffic-control devices, road signs, channelisation devices, barricades, warning devices and road markings (hereinafter referred to as traffic-control devices) in accordance with these special provisions and as shown on the drawings and in the SARTSM and remove them when no longer required. It shall be incumbent upon the Contractor to see to it that the abovementioned traffic-control devices are present where required at all times and are functioning properly."

Replace the last sentence of the second paragraph with the following:

"Traffic-control facilities no longer required at the site of a deviation or a lane closure shall be moved for re-use. Traffic-control facilities lost or damaged by the Contractor shall be replaced at his own cost. "

Replace the third paragraph with the following:

"The type of construction, spacing and placement of traffic-control devices shall be in accordance with the SARTSM. The recommended arrangements of the traffic control devices illustrated and/or drawings issued by the Employer's Agent shall not be departed from without prior approval of the Employer's Agent. The arrangements expected to be most commonly used in the contract are given on the tender drawings.

The details shown for spacing and placement of traffic-control facilities may however, be revised at the discretion of the Employer's Agent where deemed necessary to accommodate local site geometry and traffic conditions."

(a) Traffic control devices

Add the following at the end of the last paragraph:

Signalised traffic control device system for day-time and night-time closures are specific for alternating single lane directional flow that requires 24 hours per day control as it is no possible to open the full width of the road or sufficient width to accommodate two-way traffic after the end of each day's work.

One (1) signalised traffic control device system consists of two (2) number signalised traffic control points.

At each signalised traffic control point the following specific equipment are to be provided for and maintained:

- An all-weather shelter of at least three (3) square metres capable of accommodating two operators, with a clear window, a stable door, two chairs;
- A portable chemical toilet that shall be regularly maintained;
- A two (2) phased signal system mounted on 3m high steel poles complete with all electrical wiring;
- A floodlight system of at least 2x400W metal halide floodlights, with electrical wiring, mounted onto a 9m high pole to light up the traffic control point and lighting along the road where the traffic will queue.
- A communication system that allows the operators at control point to communicate with each other;
- Sufficient continuous power supply to operate each traffic control point
- A portable STOP and GO-RY sign
- Plastic moveable barriers, fitted with STOP signs to both sides

At each signalised traffic control point the following personnel are required:

- 1 Flagmen (Operator) *1 – operating two (2) phased signal system and communication system;
- 1 Flagmen (Operator) *1 – operating STOP and GO-RY sign and plastic moveable barriers;
- 1 Flagmen *1 – at last speed reduction sign;
- 1 Flagmen *1 – at first speed reduction sign;
- 1 Flagmen *1 – roving at least 100m behind the last vehicle in the queue to indicate to the traffic to stop;
- 1 Security Guard – responsible for security during night-time period;
- 1 Cleaner – responsible for collection of litter during day-time period.

Note *1 – Each 24 hour operational cycle comprises of three (3) eight (8) hour shifts.

At each signalised traffic control point the two (2) phased signal system must be operational one (1) hour before sunset and one (1) after sunrise and during times of low visibility.

At each signalised traffic control point a portable STOP and GO-RY sign shall be used to signal traffic during periods that the 2 (two) phased signal system is not required.

At each signalised traffic control point, plastic moveable barriers, fitted with STOP signs to both sides, shall be use to prevent vehicles from utilising the closed road lanes. These barriers shall be moved to open and close the relevant lanes for road users.

Records of opening and closing of closures and traffic counts shall be kept and submitted daily to the traffic safety officer.

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:

"The Contractor shall be responsible for the protection and maintenance of all signs, and shall at his own cost replace any that have been damaged, lost, or stolen.

All temporary road signs required to remain in position for some time shall be pole mounted as shown on the drawings. All temporary road signs required to be moved more often shall be mounted on portable supports for the easy moving of signs to temporary positions. The only permitted method of ballasting the sign supports shall consist of durable sandbags filled with sand of adequate mass to prevent signs from being blown over by wind. The cost of the sandbags shall be included in the tendered rates for the various types of temporary road signs.

Temporary road signs and channelization devices shall be manufactured in accordance with the South African Road Traffic Signs Manual (Volume 2, Chapter 13) of June 1999 and arranged along the road as shown on the drawings and in the Manual.

The covering of permanent road signs, if applicable, shall be by utilizing a suitable and durable covering that shall be pulled over the sign in the form of a hood and fastened to the signposts. Plastic bags or other materials and fastened by means of adhesive tape shall not be permitted. The cost of covering of permanent road signs shall be included in the tendered rates of items B15.01 and B15.10.

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, channellisation devices and traffic cones to replace items that have become defective or missing.

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 use of drums as channelisation devices shall not be permitted.

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.

Delineators shall:

- (i) comply with the manufacturing and reflective requirements of the SARTSM and the blades shall be reversible with dimensions as indicated on the drawings;
- (ii) have smooth and round edges and be mounted on a post and base. All components shall be of durable plastic material;
- (iii) have the lower edge of the reflective part of the delineator mounted not lower than 250mm above the road surface;
- (iv) be capable of withstanding the movement of passing vehicles and gusting winds up to 60km/h in typical working conditions without falling over. To achieve this, the base shall be at least 0,18m² and ballasted by its own weight or with sandbags filled with sand;
- (v) together with its mounting be designed such that it will collapse in a safe manner under traffic impact.

Traffic cones manufactured in a fluorescent red-orange or red plastic material may be used only at short term lane deviations during daylight. Cones shall not be used on their own, but shall be interspersed with delineators at a ratio not exceeding 3:1. Cones used on all deviations shall be 750mm high. Lane closures which continue into the night time shall be demarcated by delineators only.

On section of road where the centreline has been obliterated, delineators shall be provided on both road edges at minimum 200m spacing on straight sections and at least 3 (three) visible on all curves.

Where work is not taking place in a section closed half width to traffic, the delineators shall be moved laterally back to the edge of the work area to provide a wider space for traffic."

(d) Barriers

Delete and replace paragraph with the following:

"Barriers manufactured from plastic and ballasted with sand or water, shall only be used to barricade work areas to close off sections of the Works from members of the public and non-motorised traffic. They shall not be used to prevent vehicular traffic from encroaching on or entering the work zone except at stop/go points where they may be used to supplement the stop/go sign or traffic signal which is operated by the flagmen (operator).

Where specified in the Contract Documentation, steel guardrails may be used as channelization devices provided they comply with the provisions of section 5400. They may not be affixed to drums or other moveable objects. Guardrails shall not be used for the purpose of preventing heavy vehicles from leaving the permitted lanes or deviations and the Contractor shall use approved vehicle restraining systems for this purpose.

Temporary road restraint systems which are erected for the purpose of preventing vehicles from leaving the permitted lanes or deviations shall be movable barriers manufactured from steel or concrete with an approved safety shape design (e.g. New Jersey, F-shape or single slope). The movable barriers shall be obtained from approved suppliers and placed between the trafficked lane/s and/or the construction areas. The movable barriers shall be obtained from approved suppliers and placed between the trafficked lane/s and/or the construction areas. They shall comply with the requirements of either of the following specifications:

- (i) The European Specification EN 1317 with containment level H1, or
- (ii) The American Federal Highways Administration Specification NCHRP Report 350 with containment level TL4.

When applying these specifications, the contractor must take cognisance of the barrier's working width. The vehicle restraint system selected shall have a working width rating to suit the available clear space behind the barrier to the nearest edge of the construction area or opposing traffic lane (in contraflow situations). No excavation, scaffolding, plant, material, equipment or personnel shall be permitted to be found, either temporarily or permanently, in the clear space behind a barrier if such space is within the barrier's working width. This space shall be clearly demarcated and kept clear at all times.

Before ordering and erecting any vehicle restraint systems the Contractor shall note his liabilities relating to the installation of temporary Works to provide protection to the permanent Works and safety to his personnel before he selects a vehicle restraint system appropriate to his chosen work methodology. All vehicle restraint systems shall be installed and connected in accordance with the manufacturer's instructions and shall be submitted to the Employer's Agent for review and comment. Where proprietary systems are used, the contractor's staff shall be trained in the installation, removal and maintenance of the barrier system.

The terminal sections of moveable barriers may be a proprietary type or may be contractor designed to attenuate head-on impacts of at least NCHRP Test Level 1 (50 km/h, 2 000 kg) or EN1317 Containment Level H1 (80 km/h, 1 500 kg).

Where specified, the vehicle restraint system selected shall have removable sections to permit crossing points for emergency vehicles. These sections must be fully integrated with the barrier system and provide a continuous safety restraint without compromising on the specified containment level or working width when closed. In the event of an emergency, these sections shall be easy to open with minimal personnel in under 10 minutes without the need for special tools and plant. The traffic safety officer and his staff shall be trained in opening and closing of the removable sections and shall be available to act when called upon. Removable barrier sections shall be located at a maximum spacing of 2km."

Barriers are to be used when there is a vertical face greater than 1m within 2m from the travelled roadway."

(e) Warning devices

Add the following:

"At night warning lights shall be placed at strategic places such as barricades, obstructions, etc. The warning lights shall be "Britax" flashing amber lights of at least 65 watts power or a similar approved type. It may be necessary to construct a special unit to house the flashing light and 12 V power sources in such a manner that it is vandal and theft proof and the height of the lights shall be between 1 m and 1,5 m above the ground. Torch-like flashing lights are not considered adequate. Warning boards as specified shall be mounted on all vehicles and plants.

All construction vehicles and plant used on the works shall be equipped with rotating amber flashing lights and warning boards as specified. All vehicles and plant before being allowed onto the site shall obtain a clearance permit from the Employer's Agent.

(i) Vehicle mounted flashing lights

Rotating lights shall have an amber lens of minimum height of 200mm and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted sections of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area, as the vehicles decelerate to enter a construction area, and as the vehicles accelerate to the general speed when entering the road from a construction area. Lights on plant shall operate continuously while the plant is working alongside sections of road open to public traffic within the work areas.

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 from all directions and operated continuously while the vehicles are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic within the work areas.

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 be removed from the site.

(ii) Sign mounted flashing lights

Two amber flashing lights shall be vertically mounted on top of the traffic signs at each end of each traffic accommodation section as shown on the drawings. The lights shall be operated during the hours of darkness.

(iii) Flashing Illuminated Arrow Board

The arrow board shall be made up of light sources mounted on a backing board. A single shaft arrow will be required that can be used for both left and right directions. The light sources must be of LED type to improve visibility if used also during day time. The arrow board shall be used at lane drops as described B1502.

(f) Road Markings

Add the following paragraphs:

“Temporary road marking shall be reinstated before the road is opened to full width traffic. Temporary road marking shall consist of heavy pre-marking, and/or retro-reflective road marking paint, and/or temporary road studs, as directed by the Employer’s Agent.

Temporary road studs shall be installed at double the spacing and shall be fixed to the road surface with the bitumen rubber crack sealant to allow for easy removal by application of gentle heat.

Temporary road marking lines for demarcation of temporary traffic lanes, on the final road surface shall not be allowed, except if approved by the Employer’s Agent. Should temporary road marking lines be approved, it shall consist of one of the following as directed by the Employer’s Agent:

- (i) Construction grade tape for temporary road marking which can be removed by applying gentle heat. The tape shall be foil backed, adhesive, reflective tape. The tape shall be capable of being easily removed from the road surface by the application of gentle heat.
- (ii) Removable road marking paint.”

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 payitems. Such road signs shall conform to the requirements of the SARTSM, or specification provided by the Employer’s Agent. Similarly, in order to ensure that the travelling public is kept fully informed and warned on matters relating to the accommodation of traffic, construction sign posting and the effect of the construction on the free flow of traffic through the site, the Employer’s Agent may arrange for advertising in the press and/or for other forms of publicity.

(h) Flagmen

Flagmen shall be provided where shown on the drawings or required by the specification. In addition to flagmen provided for at traffic control points as specified, flagmen shall be provided for, but not limited to, at the following positions:

- Points at which construction vehicles cross, enter and leave the road;
- Roving ahead and behind construction vehicles working alongside temporary deviations used to accommodate traffic due to construction in half widths;
- Roving for temporary and permanent road marking activities;
- Leading ends of road shoulder closures

At night time all flagmen shall be equipped with a suitably visible strobe, and a torch at each traffic control point as well as the traffic light operator.

No flagmen shall be on duty for a period of more than 10 hours per day. For flagmen at signalised traffic control points a 24 hour cycle shall require three (3) shifts of eight (8) hours each.

Flagmen shall be adequately trained in the standard flagging techniques as described in the SARTSM (refer to figure 13.23 of detail 13.23.1) and be provided with conspicuous clothing such as safety jackets utilizing retro-reflective and/or fluorescent panels in red, yellow and/or white.

Flagmen shall have in their possession, at all times, certification that they have attended and passed an accredited course in flagging techniques before being allowed onto the construction site.

Flags shall be made from bright red or red-orange material and shall be square with a minimum side length of 600mm. The flag shall be attached to a staff at least 1,0m in length.

In terms of lateral clearance and safety, flagmen shall stand on the shoulder of the lane of traffic that is being controlled and under no circumstances shall flagmen be permitted to stand within the traffic lane. In order to obtain maximum visual impact for the travelling public, flagmen shall stand-alone.

(i) 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.

B1504 Width and Length of temporary deviations

Replace “10m” and “5m” in the first paragraph with “7.2m” and “3.5m” respectively.

Replace the second paragraph with the following:

“Where the existing 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 signalised traffic control device system or STOP and GO-RY traffic control device system shall not exceed 2km.

The traffic shall be single direction controlled by STOP and GO/RV signs during day-time and temporary traffic signals at night as agreed by the Employer’s Agent.”

B1510 EXISTING ROADS USED AS DIVERSIONS

Add the following:

“The Contractor shall indemnify the Employer against all proceedings, claims, actions, damages and costs which may arise from or be related to damage to vehicles or property or injury to persons as a result of loose stones or aggregates on the road surface or as a result of bituminous applications during the construction of the works.

The Contractor shall arrange his activities so that construction traffic and equipment do not unnecessarily obstruct public traffic or force it to a complete standstill. The flow of public traffic shall always take precedence and the Contractor shall not stop or delay public traffic to make way for construction traffic.”

B1513 ACCOMMODATION OF TRAFFIC WHERE THE ROAD IS CONSTRUCTED IN HALF-WIDTHS

Delete the fourth paragraph and replace with the following:

“The maximum length under construction is limited to 2 km. The number of sections under construction at any time shall not exceed two (2), and spaces of at least 2 km in length in which the entire road width is open for traffic shall be provided between the construction areas to allow traffic to pass slow moving vehicles.”

Delete paragraphs 5 and 7 and replace paragraph 6 with the following paragraphs:

“Where the road is constructed in half widths, the traffic shall be controlled by means of one of the following traffic control devise systems as specified in clause B1503:

STOP and GO-RV traffic control system for when it is possible to provide 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.

Signalised traffic control device system for when it is not possible to provide 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.

The Contractor shall only work on one side of the road where traffic is accommodated as one-way traffic with traffic control device systems. Work on both sides of the road shall not be allowed where traffic is accommodated as one-way traffic with traffic control device systems.

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 Contractor shall submit to the Employer's Agent for approval his traffic accommodation plans and programme for accommodation of traffic where the road is constructed in half-widths using the specified traffic control device system(s). The programme must include the following information:

- Location of half-widths sections (start and end point and side of road);
- List of work activities to take place within half-widths sections;
- Type of traffic control device system to be used for accommodation of traffic;
- Duration of traffic control device in use for half-widths sections"

Add the following as a final paragraph to this clause:

"The Contractor shall programme the works in such a way to maintain two-way traffic within the contract limits during the contractor's annual shutdown period between December and January. The contractor shall further ensure that there is no vertical step between two opposing traffic lanes. The Contractor shall programme the works to allow that once the first half width of a section is completed the opposite half width shall commence, to ensure full width completion of a section before moving to a new section."

B1517 MEASUREMENT AND PAYMENT

Insert the following paragraph after the heading:

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

For this Contract, the tendered rate(s) for item MS6/B48.16 fog spray as enrichment treatment, under Schedule E MAINTENANCE AND SMALL WORKS (PHASE 1) of the Pricing Schedules, shall include full compensation for all required accommodation of traffic."

Item	Unit
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Amend item 15.01 to read as follows:

"B15.01 Accommodation of trafficmonth

The unit of measurement for item B15.01 shall be the month (or part thereof) that the accommodation of traffic is required on site during the construction period. No distinction will be made with respect to the type and/or number of detours, deviations or partial / half width road sections used to accommodate the traffic.

The tendered rate for item B15.01 shall include full compensation for complying with all the general obligations of the Contractor, including keeping motorists informed of the traffic accommodation arrangements and facilities, for the costs of placing, maintaining and relocating temporary signage and all other traffic control facilities as often as required for constructing the Works and for carrying out testing and inspections and for any other related costs that are not covered by, or included in, the other items provided for in SECTION 1500: ACCOMMODATION OF TRAFFIC of the schedule of quantities."

Item	Unit
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B15.03 Temporary traffic control facilities:

Amend subitem (a) to read as follows:

“(a)	Flagmen (Including Equipment, PPE and Training):	
(i)	At positions requiring 24 hour cycle control	24 hour man-day (24 h man-day)
(ii)	At positions required for equal or less than 10 hours per day ...	10 hour man-day (10 h man-day)"

Amend subitem (h) to read as follows:

“(h)	Delineators (TW 401 and TW402)	
(i)	Single (reflective size indicated)	number (No)
(ii)	Double sided blade (reflective size indicated)	number (No)"

Amend subitem (i) to read as follows:

“(i)	Movable barricade (TW411) (size indicated) / road sign (TR103/4) (size indicated) combination	number (No)"
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Add the following subitems:

“(n)	Road signs, TIN series (size indicated)	number (No)
(o)	Road signs, Information	square metre (m ²)
(p)	Other traffic control measures ordered by the Employer's Agent	
(i)	Provision of other traffic control measures.....	provisional sum (Prov sum)
(ii)	Handling costs and profit in respect of subitem B15.03(p)(i)	percentage (%)”

Delete the first and second paragraph of payment description (a) Flagmen and replace it with the following:

"The unit of measurement for subsubitem (a)(i) shall be a full 24 hour man-day (or part thereof) worked by flagmen. A 24 hour man-day shall be deemed to comprise of three (3) number of shifts of eight (8) hours per shift. Thus for each 24 hour man-day, three (3) flagmen are required.

The unit of measurement for subsubitem (a)(ii) shall be a day (or part thereof) worked by a flagman. A day is deemed as a 10 hour shift. Shifts less than 10 hours shall be measured pro-rata. Only the period that a flagman is operational shall be measured.

The tendered rate for subsubitems (a)(i) & (a)(ii) shall include full compensation for flagmen who are required to control traffic by way of flags or at traffic control device systems and shall include the provision of all equipment, PPE and training as specified in sub clause B1503(h). Flagmen(Operators) paid for under subitem B15.11(c) shall not be measured and paid for under subsubitems (a)(i) & (a)(ii)."

Delete the second paragraph of payment description (b), (c), (d), (e), (f) and (h) 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 as the last paragraph of payment description (b), (c), (d), (e), (f) and (h):

"The tendered rate for subitem (h) shall also include full compensation for the sign stand, 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 road sign TW 401/402 (Old DTG 50 J) will be allowed on this Contract. "

Add the following new payment descriptions:

- "(n) The unit of measurement shall be the number of each sign provide and completely erected. 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.
- (o) The unit of measurement shall be the square metre of sign face, measured on the face of each item provided and completely erected. 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.
- (p) Expenditure under this payment item, (e.g. media releases or other signs to deliver information to the public) shall be made in accordance with Conditions of Contract for the supply and installation of any additional signs or other traffic control measure ordered by the Employer's Agent in accordance with subclause B1503(g).

The tendered percentage is a percentage of the actual amount spent under subitem B15.03(p)(i) which shall include full compensation for the handling costs of the Contractor, and the profit in connection with providing other signs and traffic control measures ordered by the Employer's Agent."

Add the following at the end of the General payment description:

"However, allowance has been made in subitem (h) Delineators for double the quantity of delineators required to execute the works. Payment under this item will be made up to the maximum quantity scheduled."

Item	Unit
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B15.04 Relocation of traffic-control facilities

Replace the first paragraph with the following:

“Except for the movement of barriers no payment for this item shall be made under this Contract. All costs related to relocation of traffic control facilities shall be deemed to be included in the other items in this section.”

Item	Unit
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B15.08 Repairs, alterations and/or additions to existing roads used as temporary deviations

Replace the payment description with the following:

Payment items under the heading “REPAIR AND MAINTENANCE OF EXISTING ROADS WITH BITUMINOUS SURFACING USED AS TEMPORARY DEVIATIONS” have been provided for the Contractor to provide tendered rates for work activities associated with the repairs and maintenance of existing roads with bituminous surfacing used as temporary deviations

Item	Unit
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Amend item 15.09 as follows:

B15.09 Maintenance and repairs of the bituminous surfacing and pavement of newly constructed temporary deviations with bituminous surfacing constructed by the Contractor.....lump sum

Tendered lump sum shall include full compensation for the maintenance and repairs of the bituminous surfacing and pavement of temporary deviations with bituminous surfacing constructed by the Contractor for the duration of use. Refer to subclause B15.02(b) for design life of proposed pavement structure and surfacing of new temporary deviations.

Item	Unit
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Amend item 15.10 to read:

“B15.10 Constructing the road in half-widths for accommodation of traffickilometre (km)

The unit of measurement for constructing the road in half-widths for accommodation of traffic, shall be the kilometre measured along the centre line of the road which road is constructed in half-widths as specified in the contract documentation and/or instructed by the Employer’s Agent.

The tendered rate shall in full compensation for all additional costs of work resulting from constructing the road in half widths.

Payment of the measured distance along the centre line of the road which road is constructed in half-widths will be made in two instalments, as follows:

The first instalment, 50% of the measured distance along the centre line of the road, will be paid once the surfacing of the first half of the road constructed in half-widths has been completed.

The second and final instalment, 50% of the measured distance along the centre line of the road, will be paid once surfacing of the second and final half of the road constructed in half-widths has been completed.”

Item	Unit
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Amend item 15.11 to read as follows:

“B15.11 Signalised Traffic control device systems:

- | | |
|--|-------------|
| (a) Provision, first erection on site and final removal of signalised traffic control device system..... | number (No) |
|--|-------------|

The unit of measurement shall be the number of signalised traffic control devices systems provided, as described under subclause B1503(a), where a signalised traffic control device system is deemed to be two (2) signalised traffic control points, one at each end of a closure.

The tendered rate shall include full compensation for the provision, first erection on site and final removal of all shelters, toilets, phased signals, floodlights, communication system, continuous power supply, portable STOP and GO-RY signs and plastic movable barriers as described under subclause B1503(a).

75% of the rate offered will be payable when the traffic control devices have been provided on site ready for use and 25% when finally removed from the site.

- | | |
|--|-------------|
| (b) Re-use on site of signalised traffic control device systems..... | number (No) |
|--|-------------|

The unit of measurement shall be the number of signalised traffic control devices systems re-used on site, where a signalised traffic control device system is deemed to be two (2) signalised traffic control points, one at each end of a closure.

The tendered rate shall include full compensation for the de-establishment, moving and re-establishment of all shelters, toilets, phased signals, floodlights, communication system, continuous power supply, portable STOP and GO-RY signs and plastic movable barriers as described under subclause B1503(a) as required or directed by the Employer’s Agent.

Payment for B15.11(b) is only applicable if signalised traffic control device systems are relocated ≥ 2 km from its present position.

- | | |
|--|-----------------------|
| (c) Operating signalised traffic control device systems (including flagmen/operators, security and cleaners required in terms of subclause B1503(a)) | hundred hours (100 h) |
|--|-----------------------|

The unit of measurement shall the number of hundred hour units (or parts thereof) a signalised traffic control device system is operated, where a signalised traffic control device system is deemed to be two (2) signalised traffic control points, one at each end of a closure.

The tendered rate shall include full compensation for all costs necessary to operate and maintain all shelters, toilets, phased signals, floodlights, communication system, continuous power supply, portable STOP and GO-RY signs and plastic movable barriers as described under subclause B1503(a) and shall include for two (2) flagmen (operators), three (3) flagmen per eight (8) hour shift and one (1) security guard for night-time period and one (1) cleaner for day-time period per signalised traffic control point.”

Add the following items:

“Item	Unit
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B15.14 Amber flashing lights mounted on signs number (No)

The unit of measurement shall be the number of sets provided, where a set consists of two (2) amber flashing lights.

The tendered rate shall include full compensation to provide, erect, operate and maintain a set of two (2) amber flashing lights per sign at each end of the traffic accommodation sections. It shall also include the provision of power to operate the lights, replacing bulbs as required and keeping the lenses clean and visible.

Item	Unit
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B15.15 Provision of traffic safety equipment for use by the Employer's Agent:

- | | |
|---|-------------|
| (a) Amber/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 traffic safety equipment items provided to the Employer's Agent in terms of subclause B1502(n).

The tendered rates for the various traffic safety equipment items for use by the Employer's Agent shall include full compensation for provision and maintenance in good working order.

Item	Unit
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B15.16 Provision of traffic safety:

- | | |
|---|-------|
| (a) Traffic safety officer(s) (specify number)..... | month |
|---|-------|

The unit of measurement shall be the month (or part thereof) that the specified duties of the specified number of traffic safety officer(s) are performed on site, irrespective of the number of addition traffic officers employed in any 24 hour day in the performance of traffic safety.

The tendered rate shall include full compensation for the cost of the traffic safety officer(s) to conduct the duties as specified in subclause B1502(i) and Section C Occupational Health and Safety Specification and includes the provision of his own vehicle, fuel, vehicle maintenance and insurance and the cost of the cellular telephone and all other incidentals related to the performance of his duties.

- | | |
|--|-------|
| (b) Traffic safety vehicle(s) (specify number) | month |
|--|-------|

The unit of measurement shall be the month (or part thereof) that the specified number of traffic safety vehicle(s) are on site and in continuous use in the performance of traffic safety.

The tendered rate shall include full compensation the provision of the specified number of traffic safety vehicle(s), fuel, vehicle maintenance and insurance costs, drivers, labourers and all other incidentals related to the performance of the traffic safety duties.

Item	Unit
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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 Engineer.

The tendered percentage for subitem B15.17(b) shall include full compensation for the handling costs and profit of the Contractor in connection with subitemB15.17(a).

Item	Unit
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B15.18 Temporary barriers:

- | | |
|---|-------------|
| (a) Barrier sections provided, erected and removed from site | metre (m) |
| (b) Moving and re-erecting the vehicle restraint system at another location on site | metre (m) |
| (c) Terminal attenuator sections..... | number (No) |

The unit of measurement for subitem (a) shall be the linear metre of barrier provided by the Contractor, erected on site to make up vehicle restraining systems and removed from site.

The tendered rate shall include full compensation for providing the barrier sections on site, placing them, fastening them together as specified to form a vehicle restraint system of the required length and eventual

removal of site . The rate shall also include for full compensation for the cost of general maintenance of the barriers including resetting of the barriers in the event of displacement, cost of insurance to replace structurally damaged barriers and other overhead costs.

The quantity measured will be the number of metres erected on site for the approved duration of the contract. Any units stored on site and not being used on site for traffic accommodation purposes shall not be measured for payment.

The unit of measurement for subitem (b) shall be the linear metre of barrier already placed on the road which is dismantled, moved and re-erected to form a vehicle restraining system in another location on site.

The tendered rate shall include full compensation for dismantling and moving the barrier sections, including any associated terminal and removable sections, placing them in a new position and fastening them together as specified to form a vehicle restraint system of the required length in the new location as approved by the Engineer.

The unit of measurement for subitem (c) shall be the number of terminal attenuator sections erected at the ends of vehicle restraint systems. The tendered rate shall include full compensation for the provision and erection of each terminal attenuator section in accordance with the manufacturer's specifications."

Add the following clause:

"B1518 BLASTING OPERATIONS

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 (eg. 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 four days in the week.
- (c) The stoppage to the public traffic shall be minimised and limited to a maximum of four 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 **R10 000-00 for every hour**, or portion thereof, which the road is closed to traffic in excess of the four 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 Sub-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

B1601 SCOPE

Insert in the second line between "excavation" and "or stockpile" the following:

" ..., crushing and screening,"

B1602 DEFINITIONS

(a) Overhaul material

(iv) *Insert "selected layers" before "subbase" in the first line.*

Insert the following as a final paragraph

"Material procured from commercial sources shall not be regarded as overhaul material."

(b) Overhaul

Replace the subclause with:

"Regardless that the Standard Specification makes allowance for payment of restricted overhaul 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 overhauled distance.

(c) Haul distance

Add the following to this subclause:

"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 and this specification shall be deemed to have replaced the 'free-haul' distance in all other sections of the standard specifications."

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 (m³km)".	

Delete the first paragraph of the first set of notes and replace it with the following:

"Only ordinary overhaul for haul in excess of 1.0 km will apply to all types of fill and layerwork materials. No restricted overhaul will be applicable on this contract."

SECTION 1700: CLEARING AND GRUBBING

B1701 SCOPE

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 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 topsoiling 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

(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 pay items:

"Item	Unit
B17.07 Removal and temporary stockpiling of topsoil:	
(a) In windrows alongside the work area.....	cubic metre (m ³)
(b) In temporary stockpiles after loading material into trucks including 1,0km freehaul	cubic metre (m ³)
(c) In windrows on the edges of borrow pits or spoil areas.....	cubic metre (m ³)

The unit of measurement for items (a) to (c) shall be the cubic metre of topsoil removed to windrow or temporary stockpile. The volume of topsoil removed shall be measured in cut, calculated from the difference in cross-sections of the natural ground level before the commencement of clearing to cross-sections taken after the removal of the topsoil.

The Contractor shall constantly liaise and agree with the Employer’s Agent as to the depth of topsoil to be removed. Where, in the opinion of the Employer’s Agent, material that would normally be classed as topsoil has also been excavated, the excavation shall be backfilled and compacted with selected material at the Contractor’ expense. Should material that is deemed by the Employer’s Agent not to be topsoil, be removed and stockpiled together with material classed as topsoil, the Contractor shall be responsible for the removal of this unsuitable soil from the stockpile and the replacement of the quantity of topsoil contaminated by the unsuitable material at his cost. The quantity of topsoil to be replaced shall be determined by the Employer’s Agent.

The rates tendered shall include for the excavation of the topsoil and where required, the loading and hauling thereof to temporary stockpile as well as the maintenance of the stockpile until re-use of the material. The rates tendered shall also include for all supervision required to ensure that only topsoil is removed.

Item	Unit
B17.08 Demolish and remove existing miscellaneous structures to approved spoil areas:	
(a) Plain concrete	cubic metre (m³)
(b) Reinforced concrete	cubic metre (m³)
(c) Brickwork and stone pitching	cubic metre (m³)

The unit of measurement for subitems (a), (b) and (c) shall be the cubic metre, prior to being demolished and removed, of plain concrete, reinforced concrete, brickwork and stone pitching

The tendered rates shall include full compensation for all demolition to a specified maximum size of 300 mm and for loading, transporting and disposing of the products of demolition, including a free haul of 1,0 km.

Payment shall distinguish between plain and reinforced concrete. For the purpose of this item, reinforced concrete shall be defined as concrete containing at least 0,2% of steel reinforcement measured by volume.”

SECTION B1800: DAYWORKS

"B1801 SCOPE

This section covers the listing of daywork items in accordance with the General Conditions of Contract clause 6.5 or as may be amended in the Contract Data, for the use in determining payment for work which cannot be quantified in specific units in the Pricing Schedules, or work ordered by the Employer's Agent during the construction period which was not foreseen at tender stage and for which no applicable rate exists in the Pricing Schedules.

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 appropriate for payment purposes.

An instruction regarding all work to be carried out under daywork in terms of clause 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.

The Contractor shall provide the Employer's Agent with a daily report that records the actual duration, numbers and type of personnel and material, equipment and vehicles used each day for approval of the dayworks.

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) 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) 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) |

Item	Unit
-------------	-------------

B18.02 Materials

- | | |
|---|-----------------|
| (a) Procurement of materials | provisional sum |
| (b) Contractor's handling costs, profit and all other charges
in respect of subitem B1803(a) | percentage (%) |

Item	Unit
B18.03 Transport	
(a) As specified.....	kilometre (km)
B18.04 Equipment:	
(a) As specified.....	hour (h)

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 for transport breakdown, lack of operator of any other reason shall not be measured. The time shall be taken from the time that the personnel and/or 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 Pricing Schedule. 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 subitem B18.02(a) shall be the amounts actually paid for the procurement of materials to be purchased and shall be made in accordance with the provision of the General Conditions of Contract. Only the actual quantities of materials used, as verified by the Employer's Agent, shall be paid for.

The percentage tendered for subitem B18.02(b) shall be the percentage of the amounts actually paid for the procurement of materials as ordered under subitem B18.03(a) and shall be in full and final compensation in respect of the Contractor's handling costs, profit and all other charges in connection with the procurement and supply of the materials to the point of usage.

The unit of measurement for item B18.03 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 B18.03 shall include full compensation for the cost of the vehicle including fuel, maintenance depreciation and running costs.

The tendered rates for plant for item B18.04 shall be an all-inclusive hire charge for the use of the vehicle and driver or plant/equipment and operator and shall apply only to vehicles plant and equipment nominated in writing by the Employer's Agent, for all administrative, supervisory, operative and contingent cost, and profit relating to the running of the plant.

The above mentioned tendered rates shall be full compensation for the various items as specified and no further profit shall be paid."

SECTION 2100 : DRAINS

B2101 SCOPE

Amend the first paragraph to read:

"This section covers all work both rehabilitative and new work in connection with the excavation and construction of open drains, subsoil drainage and banks and dykes at the locations and to the sizes, shapes, grades and dimensions as shown on the drawings or as directed by the Employer's Agent, and the test flushing of subsoil drains."

B2102 OPEN DRAINS

In the third line of subclause (a) replace "streams" with "water flow".

Replace the second paragraph of subclause (b) with the following:

"Irrespective of the method of excavation whether hand or machine excavation, open drains deeper than 1,5m, such as median drains, side drains and open drains on excavation-slope benches, shall be classed as "cut" and shall be measured and paid for under section 3300, provided they fall under the above dimensional limits. Where on account of the shape of such open drains, excavation by bulk excavating equipment is not possible and either hand excavation or special excavating equipment, such as tractor loader bucket, or similar equipment, would be required, such excavation shall be classified as open-drain excavation for payment."

Replace the first and second paragraph of subclause (c) with the following:

"(c) Open drains shall be constructed within 5% true to line, grade and cross-section and shall be so maintained for the duration of the contract. Open drains shall at all points be graded to flow in the direction of intended flow without low points where water may pond.

Care shall be taken to avoid excavation below the required grades for the open drains and any excavation carried out below the required grade shall be backfilled with material of minimum G7 quality and compacted to at least 93% of MDD density by the Contractor at his own cost."

B2103 BANKS AND DYKES

At the end of the first paragraph add the following:

"Where open drains with bank/dyke are constructed as combination, excavation and fill shall be measured and paid for separately."

In the second paragraph replace "90% of modified AASHTO" with "93% of MDD"

B2104 SUBSOIL DRAINAGE

Delete the subclauses (a), (b) and (c) and replace with the following:

"(a) Materials

(i) Pipes

The pipes for subsoil drainage systems to be used shall be either unplasticised PVC (PVC-U) pipes or high-density polyethylene (HDPE) pressure pipes with smooth inner bore and internal diameters as indicated on the drawings or in the Contract Documentation. Pipes shall have the specified internal diameter, which shall be not less than 100mm (except for composite subsoil drainage systems), and shall be one of the following types:

- (1) PVC-U pipes complying with SANS 791 for solid wall pipes (category-heavy duty) or SANS 1601 for structured wall pipes (stiffness class 350), which may be slotted or perforated for drainage in-flow as specified. The carrier portions of pipes shall not be slotted or perforated.

- (2) HDPE pipes to be used with aggregate filled subsoil drains systems shall be slotted or perforated for groundwater in-flow as specified. HDPE pipes shall have a ring stiffness >450 kPa and slotted / perforated with 30% solid invert and of twin wall construction, with a smooth inner bore and ribbed outer wall. The carrier portions of pipes shall not be slotted or perforated.

The size of perforations in perforated pipes shall in all cases be 8 mm in diameter $\pm$ 1,5mm and the number of perforations per meter shall not be less than 26 for 100mm diameter pipes and 52 for 150mm diameter pipes. Perforations shall be spaced in two rows for 100mm pipes and as shown on the drawings for 150mm pipes.

Slotted pipes shall have a nominal slot width of 8mm $\pm$ 1,5mm. The arrangement of slots shall be 240 degrees of the circumference with the flow channel invert of 120 degrees. The total slot area shall not be less than that required for perforated pipes.

- (3) Pipes for geocomposite fin type subsoil drainage systems may be HDPE, extruded into an open lattice wall structure with a wall thickness of minimum of 5mm. Of the circumference area, 70% shall consist of an open structure, and the remaining 30% being the invert, shall be solid. Openings in the mesh structure shall be greater than 5mm but less than 12mm in size. Alternatively, PVC-U or HDPE pipes as specified above for aggregate filled drains may be used. The water infiltration capacity of the all types of pipes under a 200mm static head shall not be less than 20 litres per second per metre pipe length (l/s/m) for 65mm diameter pipes; not less than 55l/s/m for 100mm diameter pipes and not less than 80l/s/m for 150mm diameter pipes.

All slotted or perforated pipes shall retain 30% of the pipe invert for conveyance of drainage and the top of the pipes shall externally carry a longitudinal marker line to ensure that pipes are correctly placed during construction.

Pipes without slots or perforations required for conveying ground water from the subsoil drainage proper, to the point of discharge, shall be PVC-U or HDPE pipes of the types specified.

Pipes must be stored in a shaded area without exposure to direct sunlight, and stacked according to supplier's instructions.

- (ii) Natural and crushed permeable material

Natural permeable filter materials for subsoil drainage shall consist of sand and/or crushed stone of suitable grading. Natural permeable materials shall conform to the following requirements:

Sand used for natural permeable material shall be clean, hard sand obtained from approved sources. The sand shall comply with the requirements of SANS 1083, Table 1: Fine aggregate for concrete, and shall be either coarse, medium or fine grade as specified. The nominal maximum particle size for the various grades shall be as shown in Table B2104/1, and all sand shall be washed clean with not more than 2% of the material passing through the 0,075mm sieve.

TABLE B2104/1: NATURAL PERMEABLE MATERIALS : SAND

Grade	Nominal maximum particle size (mm)
Coarse	5,00
Medium	2,00
Fine	0,20

Crushed stone used for natural permeable material shall comply with the requirements given in SANS 1083: Table 2: Coarse aggregate for concrete (new sieve sizes), and shall be either be fine (14mm nominal size) or coarse (20mm nominal size) grade as specified. Crushed stone shall be washed clean with not more than 2% of the material passing through the 0,075mm sieve.

When no suitable sand and/or crushed stone is available from borrow pits or designated quarries, the Employer's Agent may require that it be procured from commercial sources.

- (iii) Geotextiles

Should the use of geotextiles be specified in subsoil drainage systems, or as filter separation blankets, or for any other purposes, it shall comply with the requirements as specified herein.

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

The geotextile required for each specific purpose, shall satisfy the criteria given in Table B2104/2 for the grade of geotextile specified in the schedule of quantities, drawings and/or Contract Documentation for that purpose.

The geotextile used for subsoil drains shall be grade 2 or 3, and grade 1 for separation blankets with a filtration function; or as specified by the Employer's Agent.

Geotextiles shall be stored under suitable cover and shall not be exposed to direct sunlight periods in excess of 30 days and shall be protected from mechanical damage during delivery and construction.

(1) Composition and manufacturing

The geotextile shall be manufactured from a synthetic polymer, processed into a permeable, homogeneous sheet. The sheet shall be of non-woven needle punched and mechanically bonded construction.

On account of the temperature and moisture susceptibility of polyamide, this synthetic product is not considered acceptable.

(2) Classification

The geotextile shall be classified according to the mechanical properties thereof, in terms of its strength, penetration load, puncture resistance and the minimum water-percolation rate or through flow as measured in the permeability test. Table B2104/2 shall be used for determining the grade of a geotextile.

TABLE B2104/2: GRADE CLASSIFICATIONS OF GEOTEXTILES FOR DRAINAGE

Properties		Units	Grade			Test method
			1	2	3	
Tensile Strength	minimum	kN	16	12	7	SANS 1525/ISO 10319.
	elongation	%	40-60			
Trapezoidal Tear Strength	minimum	N	600	440	240	ASTM D4533
Penetration Load	minimum	N	3500	2400	1500	SANS12236/ISO12236
Puncture Resistance	Max Diam of Hole	mm	18	26	32	SANS 13433/ISO 13433
Water Percolation	minimum	l/m ² /s	40			SANS 11058/ISO12958
Permeability (min)	@ 50mm head	m/s	5 x 10 ⁻³			SANS 11058/ISO12958
Pore Size	O95W	µm	100 - 200	150-250		SANS 12956/ISO 12956

Notes:

- The standard equivalent atmosphere for testing and the preconditioning atmosphere for all geotextile tests (SANS tests and other) shall have a relative humidity falling within the range of 0 to 80 per cent and a temperature within the range of 15°C to 35°C.
- The resistance of a geotextile to puncture is the average diameter of the hole formed when a 45 degree pointed cone with a mass of 1kg is dropped through 500mm height onto the geotextile fixed in the holding device.

(3) Durability

A geotextile is required to comply with the following durability specifications:

- Resistance to chemical attack

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

The geotextile shall withstand soil and ground water with a pH in the range of 4 to 9 (pH to be determined by SANS 10224, SANS 3001).

The geotextile shall withstand soil (as paste) and ground water containing salts with a conductance of up to 1,0S/m (conductivity to be determined by SANS 10224, SANS 3001).

- Resistance to ultra-violet light

The geotextile shall maintain at least 80% of its original strength after direct exposure to sunlight of 1500 hours as determined under ASTM D5355 or ASTM D7238 and EN ISO 12224

- Resistance to rot

The geotextile shall be manufactured of an entirely rot-proof polymer.

(4) Selection

The geotextile required shall satisfy the criteria for a grade 1, 2 and/or 3 geotextile for the selected application as specified in the schedule of quantities, drawings, Contract Documentation or as instructed by the Employer's Agent and shall satisfy the criteria for this grade of geotextile as given in Table B2104/2.

The Contractor shall, at least 45 days before the installation of the geotextile(s), submit to the Employer's Agent samples and the specifications of the geotextile he proposes to use, to enable the Employer's Agent to verify the suitability and confirm the use thereof and ensure that the geotextile meets the design requirements as well as is suited to the insitu conditions and materials to be drained. No extra payment shall be made for providing the samples required by the Employer's Agent.

(5) Testing

The Contractor shall, at his own cost, submit a certificate by an approved laboratory to prove compliance with specified tests as stated in section 8100. Alternatively, verifiable testing by the supplier may be submitted for approval to the Employer's Agent.

The tests to be carried out on geotextiles relate to the material and the method of manufacture and are mainly to ascertain that the correct grade and type of geo-textile is supplied, and that the material is equivalent in quality to that specified for use in the works. This includes geotextile qualities regarding soil retention; permeability; clogging; durability and strength. Compatibility testing can be done for filtration using the ASTM D5101 - Measuring the Soil-Geotextile System Clogging Potential by the Gradient Ratio.

(iv) Polymer film sheeting

Plastic for subsoil drainage systems to be used shall be polymer film type sheeting of 150 to 250micron (0,15 to 0,25mm) thickness, complying with SANS 952-1.

(v) Concrete

All concrete work shall be carried out in accordance with the requirements in Sections 6200, 6300 and 6400 of these specifications, read together with the provisions of this Section. Cement shall comply with SANS 50197-1 for CEM I or CEM II with a strength class of 32.5 or greater, and a rate of strength gain of N or greater.

Unless the Contractor obtains the concrete from a commercial concrete supplier, the Contractor shall be responsible for providing suitable materials, determining the mix proportions and manufacturing the concrete of the required quality to comply with SANS 50206.

The mix design shall be based upon obtaining an average concrete compressive strength sufficiently above the specified characteristic compressive strength so that, considering the expected variability of the concrete and test procedures, no more than 5 percent of strength tests will be expected to fall below the specified characteristic compressive strength.

Where concrete is supplied by a commercial source outside the direct control of the Employer's Agent, the concrete supplier shall ensure compliance with the requirements of SANS50206 (SANS878), and the Contractor shall take full responsibility to implement acceptance control testing in accordance with the specification.

All concrete mixed on the site of works shall be weigh-batched unless the Contractor can demonstrate to the Employer's Agent that his method of proportioning the concrete ingredients consistently produces uniform concrete, which meets the strength requirements.

Concrete shall be properly mixed to a uniform consistency. The total period between the times that the cement is placed into the mix until mixing starts shall not exceed 15 minutes.

Concrete shall be so transported to its final position that segregation or loss of any of the ingredients or contamination will be prevented and that the mix is of the required workability at the point and time of placing. It shall be protected against rain, heat, direct sunlight and/or evaporation by means of covers. No additional water may be added in transit or where delivered or placed.

The time lapse from the start when the concrete is mixed up to the time of placing and compacting the concrete shall not exceed 45 minutes in mild weather or 30 minutes when the concrete temperature is 30oC or higher.

(vi) Galvanised woven wire mesh

Galvanised woven wire mesh manufactured from 3,5 mm dia wire, 250 mm x 250 mm in area, with a 12 mm x 12mm mesh size, shall be built into the outlets of subsoil drainage systems as specified.

Galvanised woven wire mesh shall comply with the requirements of SANS 675.

(b) Construction of subsoil drainage systems

(i) With natural permeable material

Trenches required for subsoil drainage systems shall be excavated to the dimensions and gradients shown on the drawings or as specified by the Engineer, neatly trimmed to line and level. In case of deeper excavations, or excavations in unstable or saturated ground, the Contractor shall take all necessary steps to assure the safety of such excavations and to ensure that specified lines and levels are complied with. Such steps may entail the provision of temporary shoring or battering of side slopes. All such steps shall be deemed to be included in the tendered rates for excavations.

A layer of natural permeable material of the grade and thickness as shown on the drawings shall be placed on the bottom of the trench and be lightly tamped and finished to the required gradient.

Pipes of the type and size specified shall then be firmly bedded on the natural permeable material, true to line and level, and be coupled in accordance with the pipe manufacturer's requirements. Thereafter the trench shall be backfilled with the specified natural permeable material to such height above the pipes as shown on the drawings or as specified by the Engineer. The natural permeable material shall be lightly compacted and trimmed to the required level. Further layers of finer specified natural permeable material shall then be placed, in layers not exceeding 300mm in thickness at a time lightly compacted and finished to an even surface, as specified by the Engineer. The remainder of the trench, if any, shall be backfilled with approved impermeable material and as specified by the Engineer, in layers not exceeding 100 mm, and compacted to at least the same density as the surrounding material. The trench shall be specially protected against the ingress of water until the impermeable layer has been completed. The width of the backfill as measured for payment shall not exceed the specified width of the trench.

The total thickness of each type of natural permeable material shall be carefully controlled for thickness and level, using suitable spacers where required. When successive layers are placed, the lower layer shall not be walked on and, as far as possible, shall not be disturbed. Care shall be taken to prevent the contamination of natural permeable material during construction of the subsoil drainage system and all natural permeable material contaminated by soil or silt shall be removed and replaced by the Contractor at his own cost.

Perforated and slotted pipes shall be joined by means of couplings, the provision and installation of which shall be deemed to be covered under the rates for the pipes. Perforated pipes shall be laid with perforations either at the top or bottom as specified on the drawings, specifications or specified by the Engineer.

The higher end of each subsoil drainage pipe shall be sealed off with a loose concrete cap of class 20/20 concrete, as shown on the drawings and at the lower end, the pipe shall be built into a concrete head wall providing a positive outlet, or it shall be connected to structures for stormwater pipes or concrete culverts. The complete system, together with head walls, shall be constructed in one process starting at the lower end. No continuous section of subsoil drain shall be longer than 80m long and cleaning eyes constructed in accordance with the details shown on the drawings shall be spaced at a maximum spacing of 80m.

Any section of a subsoil drainage system constructed of pipes without perforations or slots shall be backfilled with impermeable backfill material as described herein. Where suitable, the excavated material may be used for backfilling.

(ii) With polymer film lining to trenches for subsoil drainage systems

Where shown on the drawings or specified by the Engineer, trenches for subsoil drainage systems shall be lined with approved polymer film sheeting 0,15mm or 0,25mm thick as shown on the drawings or specified in the Contract Documentation. The polymer film sheet shall cover the bottom of the trench and shall extend upwards on both sides for as far as may be specified by the Engineer in each particular case, in order to form a waterproof channel. At joints the polymer film sheeting shall be heat welded together or lapped by a minimum of 200mm. Lapping shall be in direction of the flow of water.

Pipes of the type and size specified shall be installed as specified, true to level and grade, and be coupled in accordance with requirements.

When backfilling the trench with the specified natural permeable material, care shall be taken not to displace or damage the polymer film lining in any way. The use of plastics other than polymer film will be considered, provided that the material is proven to the Engineer to be of equal or better quality.

(iii) With geotextiles

Where specified that geotextiles shall be used for lining in subsoil drainage systems, it shall be procured, furnished and installed as specified and shown on the drawings. The lining shall not be displaced or damaged in any way when the trench is being filled with the specified natural permeable material. The geotextile shall be lapped both longitudinally and transversely by at least 300mm or as specified by the manufacturers. The longitudinal lap shall be positioned on top of the box forming the drain and shall be stitched together with plastic/galvanised wire or strong synthetic thread at one metre intervals. The transverse lap shall be in the direction of flow.

Pipes of the type and size specified shall be installed as specified, true to line and grade, and be coupled in accordance with the pipe manufacturer's requirements.

(iv) With composite in-plane drainage systems

Wherever specified, composite in-plane drainage systems shall be constructed in accordance with the details shown on the drawings and in accordance with the manufacturer's requirements. The elements of the system shall be assembled above ground in manageable lengths, and all exposed surfaces shall be sealed with an approved geo-fibre seal. The trench sides shall be vertical, and the composite in-plane system shall be installed against the side through which the subsoil flow is expected. The trench shall then be backfilled with natural permeable sand, which shall be saturated with water after placement, up to the prescribed level. The upper part of the trench shall be backfilled with impermeable material, which shall be compacted to the density of the surrounding material, in layers not exceeding 100 mm in thickness.

(v) Proving of pipes in subsoil drainage system

The laying of slotted/perforated pipes supplied in coils shall be subject to providing a method statement which includes proving during installation, to ensure that the invert is accurately installed.

On completion of the pipe laying and prior to backfilling over pipes, all pipe joints shall be surveyed as proof of their installation to line and grade. After backfilling, the pipes shall be proved by pulling through a cylindrical cleaning brush followed by a wooden mandrill $\pm$ 400mm long and 5mm in diameter less than the bore of the pipe. Proving of installed pipes shall not be paid for separately and the cost thereof shall be deemed to be included in the rate tendered for laying the pipe.

(c) Test flushing

Final acceptance of longitudinal subsoil drains constructed by the contractor will be subject to satisfactory test flushing after completion and installation of the rodding eye inlets. Flushing tests shall be carried out in the presence of the Engineer's representative by flushing the drain and metering the outflow to ensure the drain is clear of blockage. Should blockages be apparent the Contractor shall locate and clear the obstruction and repeat the test.

Proving of the lack of obstructions may also be undertaken by camera equipment inserted into the subsoil drains should this be specified by the Engineer.”

B2105 CLASSIFICATION OF MATERIALS

Replace the paragraphs with following:

“All excavations for open drains and subsoil drainage systems shall be excavated in the position and to the required dimensions. Overbreak in width or depth, unless specified by the Engineer, shall be filled and compacted by the Contractor and shall not be measurable for payment.

All excavations under this Section shall be classified as follows for payment purposes:

Hard material:

Material which cannot be excavated except by drilling and blasting, or with the use of pneumatic tools or mechanical breakers,

and

Boulders exceeding 0,1 m³; where more than 40% by volume of any material consists of boulders, each exceeding 0,1 m³ in size, the volume of material so defined shall be classified as hard material

Existing stabilised road layers:

Existing layer material which has been stabilised (irrespective of stabilising agent) and requires careful cutting and excavation without damage to surrounding existing road layers, by whichever method.

Soft material:

All material not classified as hard material or existing stabilised road layers shall be classified as soft material.”

B2107 MEASUREMENT AND PAYMENT

Item	Unit
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B21.01 Excavation for open drains:

Amend subitem 21.01(b) to read as follows:

“(b) Extra over subitem 21.01(a) for excavation in hard and boulder material, irrespective of depth	cubic metre (m ³)”
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Add the following subitem:

“(c) Extra over subitem 21.01(a) for excavation in existing stabilised road layers, irrespective of depth	cubic metre (m ³)”
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Replace the second sentence of the first paragraph with the following:

“Only excavation for open drains as defined in subclause B2102(b) shall be measured.”

Add the following sentence at the end of the second paragraph:

“Payment made for either hard, boulder or stabilised existing road layers shall only be measured for the one applicable extra over category.”

Replace the third paragraph with the following:

“The tendered rates shall include full compensation for the excavation of the material to the required dimensions, lines, levels and grades, the trimming of the open drain and the loading and disposal/utilisation of the material as directed, including a free-haul over a distance of 1,0km.”

Replace the fourth paragraph with the following:

“For payment purposes a distinction shall be made between materials as defined in clause B2105.”

Item	Unit
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B21.03 Excavation for subsoil drainage systems:

Amend subitem 21.03(b) to read as follows:

“(b) Extra over subitem 21.03(a) for excavation in hard and boulder material, irrespective of depth cubic metre (m³)”

Add the following subitem:

“(c) Extra over, subitem 21.03(a) for excavation in existing stabilised road layers, irrespective of depth cubic metre (m³)”

Add the following sentence at the end of the first paragraph:

“Payment made for either hard, boulder or stabilised existing road layers shall only be measured for the one applicable extra over category.”

Replace the second paragraph with the following:

“The tendered rates shall include full compensation for the excavation of the material to the required dimensions, lines, levels and grades, the trimming of the open drain and the loading and disposal/utilisation of the material as directed, including a free-haul over a distance of 1,0km. For payment purposes a distinction shall be made between materials as defined in clause B2105.”

Item	Unit
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B21.04 Impermeable backfilling to subsoil drainage systems:

Add the following new subitems:

“(a) Unstabilised natural gravel obtained from:
(state approved sources on the site or commercial sources) cubic metre (m³)
(b) G5 material obtained from:
(state approved sources on the site or commercial sources) cubic metre (m³)
(c) Extra over subitems B21.04(a) and (b) for stabilisation with
4,0% CEM II (32.5) cement..... cubic metre (m³)”

Item	Unit
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B21.05 Banks and dykes

Add the following sentence at the end of the first paragraph:

“Where open drain with bank/dyke combinations are constructed, excavation shall be measured and paid under item B21.01.”

Item	Unit
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Amend items 21.06 and 21.07 to read as follow:

**“B21.06 Natural permeable material in subsoil drainage systems
(approved washed crushed-stone):**

**B21.07 Natural permeable material in subsoil drainage systems
(approved washed sand):”**

Item	Unit
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B21.08 Pipes in subsoil drainage system:

Delete and replace subitems (a), (b), (c) and (d) with the following:

- “(a) PVC-U or HDPE pipes and fittings complete with couplings (as specified in subsubclause B2104(a)(i)):
 (i) (State size and whether or not perforated or slotted)metre (m)”

Item	Unit
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Amend items 21.09 and 21.10 as follows:

“B21.09 Polymer film sheeting (state thickness), or similar approved, for lining subsoil drainage systems:

B21.10 Geotextiles (indicate type, grade, etc.):”

Item	Unit
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B21.12 Concrete outlet structures, manhole boxes, junction boxes, and cleaning eyes for subsoil drainage systems:

In the second paragraph replace “compacting to 90% of modified AASHTO density,” with “compacting to 93% of MDD,”.

Add the following paragraph:

“The tendered rate shall also include full compensation for procuring and finishing the galvanised woven wire mesh, cutting, waste, installing the wire mesh at outlets and keeping the wire mesh in the pipe openings clean for the duration of the contract period.”

SECTION 2200: PREFABRICATED CULVERTS

B2201 SCOPE

Add the following:

"This section also covers the replacing and/or lengthening of existing culverts, modification of and repairs to existing catch pits.

B2203 MATERIALS

Replace the first paragraph with the following:

"The material specifications are the required specifications for the materials as placed and/or processed in its final position.

It is the Contractor's responsibility to ensure that the materials delivered to the site shall meet these specified requirements.

Prior to the manufacture of any prefabricated units by the Contractor's manufacturer, the manufacturer shall submit his Quality Plan to the Employer's Agent to verify that all prefabricated units will be manufactured in full compliance with the relevant SANS requirements. No prefabricated units shall be ordered until the Employer's Agent has satisfied himself that the proposed units have been or will be manufactured to the required specifications and tolerances as well as the load bearing requirements. In particular the manufacturer shall check each prefabricated portal culvert unit for steel cover compliance, and random checking of units shall not be accepted. The Employer's Agent's representative may visit the factory at any stage to ascertain adherence to the quality plan. Should the manufacturer fail to adhere to their Quality Plan the Employer's Agent may exercise the right to reject the use of products from the manufacturer concerned. No claim from the Contractor for any resultant cost or delay due to such rejection, and due to procurement from a new manufacturer, shall be entertained.

Materials removed under this section from existing works, except where excavated materials are specified to be reused or disposed of, or except where provision has been made in the schedule of quantities for their reuse or specific disposal, shall be deemed to be the property of the Contractor.

(a) Prefabricated concrete pipe culvert units

Add the following to this subclause:

"All broken, bent, chipped, cracked, dented, corroded or otherwise damaged or substandard units shall be repaired to the Employer's Agent's specification or, where this is not acceptable or does not comply with the relevant SANS specification, they shall be removed and replaced with undamaged units, at the Contractor's cost."

(b) Portal and rectangular prefabricated concrete culvert units

Add the following to this subclause:

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.

Portal and rectangular prefabricated units shall be transported and handled with sufficient care to prevent stressing, cracking or damage to the unrestrained elements of the units. Cracks or damage shall constitute adequate reason for rejection by the Employer's Agent or required confirmation by the manufacturer of their serviceability.

All broken, bent, chipped, cracked, dented, corroded or otherwise damaged or substandard units shall be repaired to the Employer's Agent's specification or, where this is not acceptable or does not comply to the SANS specification, they shall be removed and replaced with undamaged units, at the Contractor's cost.

Slab units which are thinner than the specified thickness, or which may exhibit signs of substandard work shall be removed and replaced with units which conform to the specifications."

Replace subclause (g) Defects and its contents with the following:

“(g) U-PVC culverts

U-PVC culverts shall comply to the requirements of SANS 791 for solid wall pipes (category-heavy duty), and shall have socketed ends should joining be required.”

Add the following subclause:

“(j) Steel reinforcement

All steel reinforcement work shall be carried out in accordance with the requirements of Section 6300.”

B2204 CONSTRUCTION METHODS

Replace paragraphs after subclause (b) with the following::

“If lengthening of existing culverts are specified such lengthening shall generally be according to the “embankment method”. The Contractor shall at all times ensure that the existing drainage is at all times maintained and any damage caused as a result of blocked culverts during construction shall be repaired at the Contractor's cost.

All new prefabricated culverts/portals shall be installed by the “trench method”, unless specified otherwise by the Employer's Agent.

The bottom of the excavation for culverts that are to be replaced or lengthened shall be inspected by the Employer's Agent prior to the placing of the bedding material.

Where the material is found to be unsuitable, it shall be removed to a depth specified by the Employer's Agent and then replaced with selected material compacted to at least 93 % MDD in layers not exceeding 150 mm thickness.

Design invert levels of drainage culverts shall be verified on site by the Employer's Agent with the assistance of the Contractor before installation of new or lengthened culverts may commence.

In all cases where soft founding material is classified as suitable for bedding construction, the in-situ material shall be scarified, moistened and compacted to a depth of 150 mm below founding level to 93 % MDD, as specified by the Employer's Agent. The depth of preparation and compaction of founding material shall be as indicated on the drawings or as specified by the Employer's Agent.

The larger sizes of portal or rectangular culverts shall normally be constructed by the embankment method.

Surface drainage shall be controlled by the construction of temporary earth berms and drainage diversion channels.

The Contractor shall strictly comply with all the appropriate statutory safety provisions in regard to trench excavations.”

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, catchpits and manholes.”

B2207 UNSUITABLE FOUNDING CONDITIONS

Amend the last three lines of the second sentence of the first paragraph to read as follows:

"... or other approved material, such as rockfill, drainage layer material or natural permeable material (approved wash crushed stone) compacted in accordance with specifications or as instructed by the Employer's Agent. Such material shall be classed as backfill for purposes of payment."

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(a) Concrete pipe culverts

(iv) Rock foundation

In the first and third paragraphs amend "Class B" to read "Class C".

(b) Portal and rectangular culverts

(iii) Placing the portal portions of culverts

Add the following:

"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 to read as follows:

"The material used for the backfilling alongside the culvert shall be selected material of at least G7 quality or other material as instructed by the Employer's Agent."

In the last sentence of the fourth paragraph amend "90% of modified AASHTO density" to read "93% of MDD".

In the ninth paragraph amend "Portland cement" to read "CEM II class 32.5 cement".

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

(e) Manhole covers, grid inlets, etc

Replace the first paragraph with the following:

"Manhole covers and frames, grid inlets and accessories of metal, or non metal composition shall be supplied and/or manufactured in accordance with the details shown on the drawings and be of the size and type indicated. Frames, grid inlets and covers which are of project specific requirements shall be manufactured and installed as indicated on the drawings, and all steel elements shall be galvanised in accordance with SANS 121. Frames, grids/gratings covers and accessories of cast iron, synthetic or composite materials shall comply with the requirements of SANS 558, SANS 1115, or SANS 50124 and be of the strength class, size and type specified."

B2215 SERVICE DUCTS

Insert the following at the end of the first paragraph:

"(v) HDPE Sleeve Pipes

HDPE sleeve pipes shall be:

- Corrugated cable ducts complying with the requirements of SANS IEC 61386-24: 2005 for sleeves to be laid in trenches.

- HDPE pipes for drilling shall be manufactured from PE63 – PN4 and shall comply with the requirements of SANS 427.”

Add the following at the end of the penultimate paragraph

“Before closing, all sleeves or ducts shall be proved as specified in sub-sub-clause B2104(b)(v).”

B2218 MEASUREMENT AND PAYMENT

Item	Unit
B22.01 Excavation	

Amend subitem 22.01(b) to read as follows:

“(b) Extra over subitem 22.01(a) for excavation in hard and boulder material, irrespective of depth cubic metre (m³)”

Add the following subitems:

“(c) Extra over subitem 22.01(a) for excavation in existing stabilised road layers, irrespective of depth cubic metre (m³)
 (d) Extra-over subitem 22.01(a) for excavation by hand cubic metre (m³)”

Replace the sixth paragraph with the following:

“For payment purposes a distinction shall be made between materials as defined in clause B2105. Payment made for either hard, boulder or stabilised existing road layers shall only be measured for the one applicable extra over category.”

Add the following paragraphs:

The unit of measurement for subitem (d) shall be the cubic metre of material excavated by means of labour using hand tools only. This item shall only apply where the dimensions of the area to be excavated are such as to render excavation by machinery impractical and where the Employer’s Agent has specifically ordered or authorised excavation by hand. This item shall not apply where machine excavation would have been possible but the contractor chooses to use hand excavation instead.

The tendered rate for subitem (d) shall be additional to the rates tendered for subitem (a) and include full compensation for all additional costs in excavating the material using hand held tools.”

Item	Unit
B22.02 Backfilling:	

Amend subitem (a) to read as follows:

“(a) Using excavated material within 1,0 km..... cubic metre (m³)”

Amend subitem (b) to read as follows:

“(b) Using imported selected material:
 (i) From commercial sources (state type)..... cubic metre (m³)
 (ii) From approved sources on site (state type) cubic metre (m³)”

Amend subitem (c) to read as follows:

“(c) Extra over subitems 22.02(a) and (b) for soil cement backfilling:
 (i) With wet mixture of approved backfill material mixed with 5% CEM II class 32.5 cement cubic metre (m³)
 (ii) With stiff mixture of approved backfill material mixed with 3% CEM II class 32.5 cement cubic metre (m³)”

Replace the third and fourth paragraphs with the following:

“The tendered rates for subitems (a) and (b) shall include full compensation for backfilling with specified approved material under, alongside and over culverts and associated structures, for watering, and for compacting the specified approved backfill material to the specified density. The tendered rate for subitem (a) shall, in addition, include full compensation for procuring, furnishing and hauling of specified approved backfill material from excavations within 1,0 km. The tendered rate for subsubitem (b)(i) shall, in addition, include full compensation for procuring, furnishing and hauling of specified approved backfill material from commercial sources irrespective of haul distance. The tendered rate for subsubitem (b)(ii) shall, in addition, include full compensation for procuring and furnishing of specified approved backfill material from approved sources on site further than 1,0 km, including a free haul of 1,0 km.

The tendered rates for subsubitems (c)(i) and (c)(ii) shall be additional to the rates tendered for subitems (a) and (b) and shall include full compensation for all incidentals required for the complete backfilling with soil cement as specified.”

Item	Unit
B22.03 Concrete pipe culverts:	

Replace the second paragraph with the following:

“The tendered rates shall include full compensation for providing, testing, loading, transporting and unloading the culverts, for providing and placing all specified bedding but excluding concrete bedding, and for the installation, laying and jointing of the culverts, as specified.”

Item	Unit
B22.12 Removing existing concrete:	

Insert the following after the word “demolition” in the second paragraph:

“... to a specified maximum size of 300 mm”

Item	Unit
B22.25 Overhaul on excavated material carted to spoil, backfill material (but excluding Portland cement in the case of soil cement), existing structures demolished and removed to spoil, and removing and relaying, and removing and stacking existing prefabricated culverts, for haul on excess of the free-haul distance.....cubic metre-kilometre (m³km)	

Amend the last part of the heading to read:

“... for haul in excess of 1 kilometre”.

Add the following clause:

“B2219 CONSTRUCTION TOLERANCES

(a) Culverts

Culverts, inlets, outlets, catchpits and manholes shall be constructed to following tolerances:

- (i) Horizontal alignment

The maximum deviation from the true position of the edges or centreline shall be 25 mm.

- (ii) Vertical alignment

The invert level shall nowhere deviate by more than 25 mm from the required level and nowhere shall the inverts have an adverse grade.

(iii) Trueness of exposed surface

When tested with a 3,0 m straight-edge, no exposed formed or cast concrete or precast surface shall have surface irregularities exceeding 10 mm.

(iv) Cross-sectional dimensions

All cross-sectional dimensions shall be within 10 mm of the specified dimensions, and the average thickness of a floor, wall or roof slab shall not be less than the specified thickness.

(b) Surface finish

All unformed exposed concrete surfaces shall have a class U2 surface finish and all formed exposed concrete surfaces shall have a class F2 surface finish.”

SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, OPEN CONCRETE CHUTES AND CONCRETE LININGS FOR OPEN DRAINS
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B2301 SCOPE

Add the following:

"This section also covers the replacement of damaged concrete kerbing, channelling and lining."

B2302 MATERIALS

Amend subclause (d) to read:

"(d) Bedding and backing material"

Replace the first and second paragraph with the following:

"The bedding and backing material for concrete kerbs and channels shall consist of Class 20/20 cast in situ concrete.

Concrete shall comply with the requirements of section 6400."

Add the following subclause:

"(e) Polymer film sheeting

Plastic for drainage systems to be used shall be polymer film type sheeting of 150 to 250micron (0,15 to 0,25mm) thickness, complying with SANS 952-1."

B2304 CONSTRUCTION

(a) Excavation and preparation of bedding

(i) Kerbs and channels

In the first sentence of this subsubclause amend "approved bedding material at least 75 mm thick" to read "approved bedding material at least 50 mm thick".

Add the following to this subsubclause:

"If necessary due to pavement layer thicknesses some of the layer 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 held to have allowed for the removal of this material in the rates for kerbing and channelling."

(b) Prefabricated concrete kerbing and channelling

Amend the end of the second paragraph to read as follows:

"... road junctions, where the kerb units shall be 0,5 m in length for curve radii between 5,0 m and 20,0 m and 0,3 m in length for curve radii between 1,0 m and 5,0 m. For curves with a radius less than one metre the kerbs shall be cast in situ. Any associated prefabricated concrete channelling units shall also comply with the above requirements."

Replace the third paragraph with the following:

"Prefabricated concrete kerbs shall be laid with a Class 20/20 cast in situ concrete bedding and support behind the kerbs in accordance with the details shown on the drawings."

Add the following paragraph:

"Special care shall be taken to assure that expansion joints are constructed and sealed as shown on the drawings or specified by the Employer's Agent".

(e) Cast in situ kerbs and channels

Add the following paragraph:

“Special care shall be taken to assure that expansion joints are constructed and sealed as shown on the drawings or specified by the Employer’s Agent”.

(g) Concrete-lined open drains

In the last paragraph replace “be covered with polyethylene sheeting 0,15 mm thick” with “be covered with polymer film type sheeting of 150 micron (0,15 mm) thickness”.

Add the following to the last paragraph:

“Alternatively the surface could be sprayed with invert bituminous emulsion as soon as possible after the excavations have been trimmed and compacted. The sprayed surfaces shall be maintained until the concrete lining is cast. The nominal rate of application of the emulsion shall be 0.5 litre/m² unless otherwise instructed by the Employer’s Agent.”

(i) Construction sequence

Replace the contents of this subclause with the following:

“Where new base layers and kerb and channels or concrete lined open drains alongside the road edge are constructed, the method of construction sequence shall be determined by the Contractor taking into account stormwater surface drainage, base layer construction and protection of completed base layer, kerb and channels or concrete lined open drains alongside the road edge.

The Contractor shall submit to the Employer’s Agent for approval, his construction sequence with specific reference to reasons for said sequence. The submission to and approval by the Employer’s Agent shall not relieve the Contractor of this duties and responsibilities in terms of the specifications. Furthermore no additional claims due to the Contractor’s construction sequence shall be allowed. All additional costs due to the Contractor’s construction sequence shall be deemed included in the tendered rates for items related to the Works.

- (i) Where kerbs and channelling or concrete lined open drains alongside the road edge are constructed before the base

In this case slip-form units or cast in situ units may be constructed. During working and constructing the base, precautionary measures shall be taken to prevent the concrete work from being damaged or disturbed.

- (ii) Where kerbs and channelling or concrete lined open drains alongside the road edge are constructed after the granular base

The base shall be constructed wider than the specified width, after which a neat excavation shall be made for the kerbing or channelling or concrete lined open drains alongside the road edge. Any over-excavation shall be back filled with concrete cast simultaneously with the kerbs and channelling or concrete lined open drains alongside the road edge.

- (iii) Where kerbs and channelling or concrete lined open drains alongside the road edge are constructed after the bitumen stabilised base

The bitumen stabilised base shall be constructed wider than the specified width and shall then be cut back accurately with a mechanical saw to a marked line to give a neat joint line between the kerbs or channelling or concrete lined open drains alongside the road edge and the bitumen stabilised base layer. The bitumen stabilised base layer shall then be removed to the required depth.

- (iv) Where kerbs and channelling or concrete lined open drains alongside the road edge are constructed after the asphalt base and/or asphalt surfacing

The asphalt base and/or asphalt surfacing shall be constructed wider than the specified width and shall then be cut back accurately with a mechanical saw to a marked line to give a neat joint line between the

kerbs or channelling or concrete lined open drains alongside the road edge and the asphalt layer. The surfacing and base shall then be removed to the required depth."

Add the following subclause:

"(I) Demolition of existing kerb and channel and concrete lined drains

Where shown on the drawings and/or indicated by the Employer's Agent, the existing kerb and channel and concrete lined drains shall be demolished to a specified maximum size, removed and transported to an approved spoil site as provided by the Contractor. All adjoining existing work shall be protected against damage during such excavation and removal. Any damage to such work shall be made good at the Contractor's cost."

B2307 MEASUREMENT AND PAYMENT

Item	Unit
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B23.07 Trimming of excavations for concrete-lined open drains:

Replace the first and second paragraphs with the following:

"No payment for this item shall be made under this Contract. All costs related to the trimming of excavations for concrete-lined open drains are deemed included in item B21.01."

Item	Unit
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Amend item 23.13 to read:

"B23.13 Polymer film sheeting (state thickness) for concrete-lined open drains"

Item	Unit
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B23.14 Cutting bituminous surfacing and pavement layers for concrete kerbing, channelling or concrete-lined drains

Add the following paragraph:

"No payment for this item shall be made for cutting of bituminous surfacing and pavement layers ,constructed under this Contract, for the construction of concrete kerbing, channelling or concrete-lined drains."

Add the following items:

Item	Unit
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B23.16 Demolition and removal of existing kerbs and/or channel, concrete lined drains (specify maximum size) cubic metre (m³)

The unit of measurement shall be the cubic metre of material demolished measured in situ before demolition or excavation.

The tendered rate shall include full compensation for breaking up the existing concrete or reinforced concrete to a specified maximum size, 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.

The tendered rates shall also include full compensation for transporting the products of demolition for a free-haul distance of 1,0 km."

SECTION 3100: BORROW MATERIALS

B3103 OBTAINING BORROW MATERIALS

Add the following paragraph after the clause title:

"The Contractor shall adhere to the requirements within the environmental management plan for the preparation of the area to be utilised as a borrow pit. 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 material spoiled within these sites shall be buried to a depth of no less than 300mm below the surface soil. No construction material of any nature shall be left visible after topsoiling. The Employer's Agent shall confirm this before grassing commences. The area shall be kept free of all undesirable plant material."

(a) 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's 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 paragraphs to the end of this subclause:

"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; and
- Overburden removal and re-use for rehabilitation of the borrow pit.

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

Amend subclause (a) to read:

"(a) Removal and conservation of topsoil"

Replace the contents of this subclause with following:

"After the clearing and grubbing of an area, the topsoil shall be excavated and stockpiled as specified in section 1700, for later rehabilitation of the borrow pit or quarry. It shall be stockpiled in a designated area as indicated on the borrow pit development plan."

(b) Clearing and grubbing

Replace the contents of this subclause with following:

"The borrow pit from where material is to be sourced shall be cleared and grubbed as specified in section 1700.

Borrow pits shall be cleared and grubbed 2,0 m wider than the excavated area or to 2,0 m beyond the outer edge of temporary drainage banks and dykes, as applicable. Material obtained from clearing and grubbing of an area, provided it is not hazardous material, shall be removed to temporary stockpile within the borrow pit or quarry area. Upon closure, it can be placed within the borrow pit and covered up. The burning of material on the site of the works shall not be permitted.

Where the total thickness of the topsoil and the overburden is less than 1,0 m, all trees and tree stumps including mattered roots shall be removed to a depth of at least 1,0 m below the cleared surface. Where the total thickness is less than 1,0 m a separate grubbing operation is not required and the tree stumps can be removed together with the overburden, unless otherwise instructed by the Employer's Agent.

Individual boulders, core stones, floaters or lumps of hard material which are exposed or lying on the surface and that cannot be removed by the construction equipment used in the clearing and grubbing operation, shall be separated (pushed aside) and left in the borrow pit, or shall be broken down and then removed to spoil or to the road if suitable after breaking down or to a crushing plant for crushing. Breaking down or crushing of the material shall be approved or instructed by the Employer's Agent."

(c) Excess overburden

Replace the fourth paragraph with the following:

"Overburden shall be moved to designated areas as indicated on the borrow pit development plan or as instructed by the Employer's Agent. This operation shall not be regarded as temporary stockpiling. The Employer's Agent's approval must be obtained removing and stockpiling of overburden outside the limits of the borrow pit development plan, or for overburden that is to be used in the works."

Add the following paragraph:

"Overburden less than 200 mm thick shall be removed with the topsoil and not separately."

Add the following subclauses:

"(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 paragraphs:

"The Contractor shall be responsible for complying with the requirements of the Environmental Management Programme Report (EMPR) and Section F: EMPI of this volume 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 quarry 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 quarry shall include, but not be limited to:

- The return of all oversize material, overburden and other residual or reject material to the quarry pit whether generated by the Contractor.
- 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 (m³)

In the first sentence of the second paragraph removing the following:

“stripping,”.

B31.03 Finishing-off borrow areas in:

Add the following sub item to this item:

“(d) In all materials as ordered by the Engineer..... hectare (ha)

Expenditure under this item will be made for additional rehabilitation requirements as ordered by the Engineer, which are additional to the requirements as paid for under subitems B31.03(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.”

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 a 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 taken from the road reserve. The topsoil shall be stored in an area that shall not be affected by construction activities nor impede the natural flow of water. The topsoil so 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.

Stockpile sites shall be graded smooth with an adequate slope to ensure proper drainage. The surface shall be watered and compacted to a depth of at least 150 mm and to a density of 90% of MDD. The compacted surface shall be firm. Upon completion, the surface shall be swept clean.

Stockpile sites shall be large enough to allow the different types of material to be stockpiled without overlapping or exceeding the limits of the prepared site. Enlargement of the stockpile sites after the stockpiles have been placed will not be permitted without the Employer's Agent's approval.

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

After the first paragraph replace the three lines with the following:

"Rock fills & Pioneer material	500 mm maximum dimension
Normal fills	300 mm maximum dimension
Course fills	500 mm maximum dimension, but not exceeding the thickness of the fill layer for efficient compaction by the construction equipment
Pavement layers	300 mm maximum dimension"

(b) Further breaking-down of pavement material

Add the following at the end of the subsubclause (i):

"This shall apply mutates mutandis for in situ recycling of pavement layers."

B3208 PLACING AND COMPACTING THE MATERIALS IN LAYER THICKNESSES OF 200mm AND LESS AFTER COMPACTION

Add the following before the first 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."

(c) In place reworking of pavement layers

Add the following paragraphs:

"Where the new layer is to be constructed by in situ recycling one or more existing pavement layers, with or without the addition of extra material, the preparation procedures of subclause B3403 and B3512 shall apply so as to achieve a uniform pulverised layer complying with the target grading as specified in Table B3402/7.

The recycled layer shall not contain more than 40% of recycled asphalt or bituminous layers (RAP) measured as after compaction thickness of the designed layer.

New layers thicker than 200mm constructed using the above processes may be permitted by the Employer's Agent if the Contractor can provide sufficient proof that his recycler has the capability to provide a homogenous layer with respect to moisture, stabiliser content and compaction."

Add the following subclause:

(d) Construction joints in new layers

Where construction joints are formed between adjacent portions of the same layer the following conditions shall apply:

- (i) Joints shall be either at right angles or parallel to the road centreline.
- (ii) Joints in successive layers shall not correspond with those of the layers below and shall be offset at a minimum of 150mm or as indicated on the drawings.
- (iii) The need for and positions of all proposed joints shall be approved by the Employer's Agent prior to the commencement of work.
- (iv) During the creation of a joint in a layer, the existing material or the material previously placed for the specific layer shall either be cut back sufficiently (minimum 150mm) to ensure the incorporation of any loose or disturbed material, or ripped (minimum 150mm) and compacted together with the new portion of the layer to be constructed or only re-compacted together with the new portion of the layer as may be required by the Employer's Agent to ensure that a sound fully compacted joint is formed.

For pavement layers thicker than 200 mm the same shall apply."

B3212 MEASUREMENT AND PAYMENT

In the first sentence of the introductory 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 second paragraph:

"Separate payment for work applicable to these payment items shall be made under the relevant sections in these specifications pertaining to the materials required. The omission of any payment items from the Pricing Schedules under this section or any other relevant sections shall be taken to be deliberate and any additional costs incurred shall be included in the various payment items of such materials required."

ITEM

UNIT

B32.01 Providing a crushing and/or screening plant:

Add the following paragraphs:

"Payment for this item shall be made in two instalments as follows:

The first instalment, 85% of tendered rate, shall be paid after erection and commissioning of plant.

The second instalment, 15% of tendered rate, shall be paid after removal of the plant from the Contract.”

ITEM	UNIT
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B32.03 Crushing and screening

Amend subitem (c) below as follows and add the following subsubitems.

- | | |
|---|--------------------------------|
| “(c) Multiple stage crushing and screening | |
| (i) Single-sized surfacing stone, nominal size 20mm | Cubic metre (m ³) |
| (ii) Crusher sand for slurry, fine slurry, medium grade | Cubic metre (m ³) |
| (iii) Crusher sand for slurry, fine slurry, fine grade | Cubic metre (m ³) |
| (iv) Crusher sand concrete | Cubic metre (m ³) |
| (v) Single-sized concrete stone, nominal size 20mm | Cubic metre (m ³) |
| (vi) Single-sized concrete stone, nominal size 38mm | Cubic metre (m ³) |
| (vii) Crushed stone base, G3 | Cubic metre (m ³) |
| (viii) Crushed stone base, G2 | Cubic metre (m ³)” |

Replace the second sentence of the first paragraph with the following:

“The quantities shall not include waste material, overfill material or additional material placed for bulking (settlement during compaction). Where materials are placed in stockpile for some time before used on the road, the Employer’s Agent and the Contractor shall agree on the interim method of measuring the quantities for this item.”

Delete and replace the second paragraph with the following:

“The tendered rates shall include full compensation for crushing in the case of subitems (a) and (b), or screening in the case of subitem (c), or crushing and screening the material in the case of subitem (d), including all labour, plant, fuel, preparation for drilling and blasting, drilling and blasting, excavation, loading, transport to the crusher/screener, handling, processing, stockpiling, loading for transportation to the point of final use, and for disposing of material screened out and discarded.”

ITEM	UNIT
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B32.06 Stockpiling of material..... cubic metre (m³)

Add to following to the end of the first paragraph of the item description.

“The quantity of material temporary stockpiled shall be calculated in place after compaction where it is finally used.”

Add to following to the end of the second paragraph of the item description.

“The tendered rate shall also include full compensation for material wastage in the stockpile.”

Add the following paragraph:

“Stockpiling of material as part of crushing, screening or crushing and screening operations by the Contractor shall not be measured under this item, but shall be included in the tenderer rates under item B32.03.”

SECTION 3300: MASS EARTHWORKS

B3301 SCOPE

Add the following paragraph:

“This section also covers the use of geotextiles for the purpose of stabilisation, reinforcement, separation and filtration of roadbed or fill.”

B3302 MATERIALS

(a) Roadbed and cut

Add the following paragraph:

“These materials shall not contain any visible materials of the following:

- Organic materials, grass and shrubs,
- Wood chippings, tree bark, and roots,
- Plastic (bags, polystyrene and so forth),
- Refuse or other non-compliant material,
- Asbestos or any hazardous materials.”

(b) Fill

Delete the contents of subclause (b) and replace with the following:

“(i) Composition of materials in fill layers

- (1) Sand fill material comprises of non-plastic sand with not less than 95% passing through the 5 mm sieve, and which can be compacted to a measurable density.
- (2) Normal fill material consists of sand, gravel or gravel with cobbles with a maximum particle size up to 200 mm in the compacted fill layer and which can be compacted to a measurable density.
- (3) Coarse fill material comprises gravel with cobbles, boulders or lumps of hard material with a maximum particle size up to 500 mm, or hard material crushed by means of single stage crushing to a specified maximum particle size, or a maximum particle size so that the material in the fill layer can be compacted to the specified density by the construction equipment, whichever is the lesser. The strength of coarse fill material does not rely on mechanical interlock of the coarse particles. Coarse fill is constructed by compaction to a measurable density or, if specified by the Employer's Agent, eight roller passes compaction.
- (4) Rock fill material consists predominantly of blasted or crushed angular rock with fine material filling the voids between the rock particles to form a dense layer with minimum voids between the rocks. Rock fill may be constructed with a geotextile separation layer between the rock fill and subsequent layers to prevent loss of material into the rock fill. The stability of rock fill results from the mechanical interlock of the rock particles and not from the compaction of the finer material. The compacted density of a rock fill cannot be measured.

Rock fill material shall have a maximum dimension not exceeding 500 mm.

The following rock types that decompose or deteriorate rapidly on exposure to air and moisture shall not be used unless permitted by the Employer's Agent:

- Mudrocks and soft or weathered shales.
- Highly weathered, very soft basic crystalline rocks in the wet eastern part of Southern Africa where Weinert $N \leq 5$.
- Highly weathered (brown coloured) tillite.

For this Contract the use of blasted sandstone does not qualify as rock fill material.

If the rock fill material is deficient in fine materials, approved fine material may be added to the rock fill and placed as specified in the specifications.

- (5) Pioneer layer material consists predominantly blasted rock and boulders (shape not completely rounded or polished), generally in the size range 100 mm to 500 mm, and a lack of material finer than 50 mm.
- (6) Sand filter material consists of clean, durable sand and shall comply with the grading requirements of table B3300/1.
- (7) Crushed stone drainage blanket material consists of clean, durable crushed stone and shall comply with the grading requirements of table B3300/2.
- (8) Selected rock bench drain material consists of rock fill material as specified in subsubsubclause B3302(b)(i)(4), deficient of fine material
- (9) The materials above shall not contain any visible materials of the following:
 - Organic materials, grass and shrubs,
 - Wood chippings, tree bark, and roots,
 - Plastic (bags, polystyrene and so forth),
 - Refuse or other non-compliant material,
 - Asbestos or any hazardous materials.

TABLE B3300/1: GRADING LIMITS OF SAND FILTER MATERIAL

Sieve size (mm)	Percentage passing sieve, by mass	
	Natural sand	Crusher sand
5	90 – 100	
0,15	5 – 25	
0,075	0 – 5	0 – 10

TABLE B3300/2: GRADING LIMITS OF CRUSHED STONE DRAINAGE BLANKET MATERIAL

Sieve size (mm)	Percentage passing sieve, by mass
50	100
37,5	74 – 100
28	56 – 98
14	42 – 69
5	25 – 37
2	15 – 20
0,425	4 – 9
0,075	0 – 4

- (ii) Quality of fill materials by virtue of minimum CBR and maximum swell at specified compaction
- (1) Sand fill shall have a CBR $\geq 7\%$ and a swell $\leq 1\%$ at 100% of MDD.
- (2) The CBR of compliant normal and coarse fill shall comply with the requirements of its depth below the final road surface, as indicated below:

Within the material depth of 800 mm	CBR $\geq 7\%$ at 93 % of MDD Swell $\leq 2\%$ at 100 % of MDD
Below the applicable material depth up to 10 m	CBR $\geq 3\%$ at 93 % of MDD Swell $\leq 2\%$ at 100 % of MDD
More than 10 m	As specified by the Employer's Agent

Normal and coarse fill materials may contain inactive clay and silt, provided that the CBR strength requirements are complied with.

(iii) Compaction requirements, minimum MDD

(1) Sand fill

Sand fill material with properties as specified in these specifications shall be subject to a minimum percentage compaction of MDD. This sand shall be compacted to 100% of MDD, unless specified otherwise by the Employer's Agent.

Notwithstanding this sand fill compaction criteria, the compatibility of the sand fill material shall be assessed and confirmed by means of the construction of an appropriate trial section or trial sections.

(2) Normal fill and coarse fill

Normal fill and coarse fill material shall both be subject to a minimum percentage compaction of MDD. The compaction density of normal fill and coarse fill shall normally be either 90 % of MDD or 93 % of MDD as specified.

(3) Fill widening

Unless specified otherwise by the Employer's Agent the fill material placed in a fill widening shall be benched as specified and compacted as follows in order to minimise differential settlement.

- Where the embankment fill thickness is less than 1,5 m the underlying in place roadbed and the fill material shall all be compacted to at least 93 % of MDD. Where it is not possible to achieve the compaction of the roadbed, the Employer's Agent shall instruct alternative roadbed compaction or treatment.
- Where the embankment fill thickness exceeds 1,5 m, the upper 1,5 m of the fill shall be compacted to at least 93 % of MDD. The fill material more than 1,5 m below the top of the fill and the underlying in place roadbed shall be compacted to at least 90 % of MDD. Where it is not possible to achieve the compaction of the roadbed, the Employer's Agent shall instruct alternative roadbed compaction or treatment."

B3303 CLASSIFICATION OF CUT AND BORROW EXCAVATION

Classification of cut and borrow excavation shall be revised as follows:

“(a) Classes of excavation

(ii) Intermediate excavation

No distinction shall be made between soft and intermediate excavation, and all intermediate excavation shall be classified and measured as soft excavation.”

B3304 CLASSIFICATION OF COMPACTION

Replace subclause (a) with the following:

“(a) MDD compaction

Wherever a density requirement in respect of a fill layer is specified in these specifications in terms of a percentage of MDD, the Contractor may employ any type of compaction equipment to achieve such density over the full, as-specified, depth of the layer. The compaction equipment employed shall be adequate and suitable for the purpose and shall not create lamination layers or shear cracks.

The Contractor shall restrict the size of the compaction equipment being used, if necessary, in order to ensure that no part of the already completed works, any underlying structures, adjacent buildings or underground services are damaged during the compaction process.”

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

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.”

Add the following subclauses:

“(g) Drainage blanket layer in cuttings

Once the roadbed preparation through a cutting with a hard formation has been constructed in accordance with the specifications, the initial layer on top of the completed roadbed shall be a crushed stone drainage blanket layer where instructed by the Employer’s Agent.

The crushed stone drainage blanket layer shall be constructed on top of the roadbed with material in accordance with subsubsubclause B3302(b)(i)(7) and shall be compacted with at least three (3) number of roller-passes to smooth and level it.

The crushed stone drainage blanket layer shall have a nominal placement thickness of 150 mm with a minimum compacted thickness of not less than 100 mm in any one place, and shall comply with the level tolerances for the equivalent fill or pavement layer. The average drainage layer thickness based on levels before and after placement of the drainage layer shall not exceed 200 mm.

The crushed stone drainage blanket layer shall be protected from contamination by installing suitable geotextile layers below the blanket layer and then on top of the blanket layer ahead of the next layer of fill or of the pavement.

(h) Use of geotextiles in roadbed

As an alternative to removing unsuitable roadbed material, the Employer’s Agent may instruct the Contractor to install selected geotextiles to improve roadbed soil stabilisation. The properties of geotextiles and requirements are specified in clause B3313 of this specification.

Installation and care of geotextiles shall be in accordance with the Employer’s Agent’s instruction and as per the manufacture’s installation requirements.

B3306 CUT AND BORROW

(a) Dimensions of cuts

Delete paragraph three and replace with the following:

“For this Contract the Employer’s Agent may, when he considers the cut material unsuitable for the designated cut slope as per the cross-sections or if additional suitable cut material is required, instructed the Contractor to alter (flatten) the cut slope or widen the completed or partly completed cutting. Those parts of the cut where the cut slope has been altered (flattened) or widen on the instruction of the Employer’s Agent shall be measured and paid for as specified in clause B3312, item B33.08 (cut widening) and item B33.23 (flattening of cut slopes). Clause B3312, item B33.08 and item B33.23 are not applicable to existing cut slopes being altered or widened to provide the cut dimensions as per the cross-sections.”

(b) Use of cut material

Add the following paragraphs:

“Prior to the commencement of earthworks operations, the Employer may instruct the Contractor to excavate large trial holes in certain cuttings to provide additional cut materials information. Such trial holes (maximum depth of 8 m) shall have sloping sides so that the excavation can safely entered for inspection and material sampling.

The Contractor shall submit his detailed earthworks utilization plan to the Employer's Agent for approval before commencing earthworks operations.

(e) The temporary stockpiling of materials

Replace the contents of this subclause with the following:

"The Contractor shall plan his activities in such a manner so that materials excavated from borrow areas and cuttings can be directly transported to and placed at the designated points.

The temporary stockpiling of material will not be paid for separately unless instructed by the Employer's Agent, and full compensation will be deemed to have been included in the rates tendered for the various payment items for work for which the stockpiled material is to be used."

(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 subclause:

“(h) Controlled blasting

Controlled blasting techniques as specified in clause B1222 shall be employed by the Contractor to provide the specified finished cut slope in excavated hard material.”

B3307 FILLS

(a) General

Add the following at the end of the first paragraph:

“Special attention shall be given to ensuring that compaction standards are maintained right up to the edges of the fills since no un-compacted material will be allowed to remain on the fill batters. Material spilled onto the fill batters as a result of construction at higher levels shall be trimmed off the fill batters to the satisfaction of the Employer's Agent.”

Replace the fifth paragraph starting with “The layer thickness used for the construction of the fills” with the following:

“The layer thickness used for the construction of the fills is dictated by the type and grading of the fill material and the compaction equipment being used. Fill layer thicknesses specified in the specifications are based on the expected material type and on the use of typical compaction equipment. The compacted fill thickness shall be as follows for the different types of compliant fill material used unless otherwise specified by the Employer's Agent:

- (i) Normal fill material that readily breaks down to a maximum size of 200 mm shall be compacted in layers not exceeding 200 mm after compaction.
- (ii) Sand fill material may be compacted in layer thicknesses not exceeding 400 mm subject to the construction of a compliant trial section. The trial section shall be constructed at no additional cost to the Employer.
- (iii) Coarse fill that readily breaks down to a maximum size of 500 mm shall be compacted in layers not exceeding 500 mm after compaction.
- (iv) The maximum compacted thickness of each rock fill layer shall not exceed 750 mm.”

Add the following:

"Where existing embankments are to be widened, or where new embankments are to be constructed adjacent to existing embankments, the existing side slopes shall be benched as specified in subclause 3307(d) and in accordance with the details on the drawings."

Amend subclause (b) to read as follows and replace contents of subclause with the following::

“(b) Use of fill material

Only normal fill material shall be used at a depth less than 150 mm below the top of the fill, unless instructed otherwise by the Employer's Agent.

Only normal fill or coarse fill shall be used to construct a fill widening unless instructed otherwise by the Employer's Agent.

Coarse fill material may only be used up to a depth of 150 mm below the top of fill, unless instructed otherwise by the Employer's Agent.

Rock fill material may only be used up to a depth of 300 mm below the top of fill, unless instructed otherwise by the Employer's Agent."

(d) Benching

Replace the first sentence of the second paragraph with the following:

"The dimensions of benches as well as the extent to which existing fills have to be cut back to form benches shall be as indicated on the drawings or indicated by the Employer's Agent."

Add the following after the second paragraph:

"In order to obtain sufficient working width for road-building equipment when the existing road fill is widened, it may be necessary to form benches that extend beyond the normal road prism or to cut back into the existing road fill or both. The Contractor shall submit his proposals in this regard to the Employer's Agent for approval before proceeding with such work. The Contractor will be paid in accordance with the relevant payment items for work required to obtain a working width of up to 4 m. Additional work required to provide a working width in excess of 4 m shall be at the Contractor's expense."

Amend subclause (e) to read as follows and replace contents of subclause with the following:

“(e) Construction of fills

(i) Fills up to 10 m high

Before the normal or coarse fill material is compacted, it shall first be thoroughly mixed by grader or other suitable equipment so as to obtain an even mix of the material and to spread the fine and coarse material evenly throughout the mixture. If necessary during the mixing process, water shall also be sprayed evenly over and mixed into the material to bring it to the correct uniform moisture content.

The moisture content to which the material shall be brought by adding water shall be sufficient to bring the material to the most favourable moisture content for the specific compaction equipment to be used and the percentage compaction required. If the moisture content of the material is in excess of 2% above the optimum moisture content for the MDD, the Contractor shall still ensure the required compaction is obtained by carefully monitoring and adjusting the compaction technique or the material shall first be dried out to the required moisture content before compaction commences

(ii) Fills higher than 10 m

The construction of high fills shall require special techniques to prevent the development of excessive pore pressure and ensure the stability of such fills during and after construction.

These techniques may include, inter alia, the selection of better class material for use in the bottom layers of the fill, the construction of drainage blanket layer/s, the construction of rock fill embankment toe/s and the strict control of moisture content during compaction.

The material requirements for the construction of fills higher than 10 m are set out in the drawings or as instructed by the Employer's Agent."

Amend subclause (f) to read as follows and replace contents of subclause with the following:

“(f) Drainage blankets in fills

At the bottom of fills, and sometimes at intermediate levels, the construction of a sand filter blanket layer or crushed stone drainage blanket layer may be required to facilitate the drainage of fills. The requirement for the installation of sand filter blanket layers or crushed stone drainage blanket layers shall be as indicated on the drawings or as instructed by the Employer's Agent.

(i) Sand filter blanket

Sand filter blanket layers shall be constructed with materials in accordance with subsubsubclause B3302(b)(i)(6).

The surface on which the sand filter blanket layer is to be constructed, shall be smooth and even and the sand shall be spread evenly to the required thickness and be given a one roller-pass compaction with a suitable roller. The final surface of the sand filter blanket layer shall be finished off true to line and level.

The sand filter blanket layer shall be protected from contamination by installing suitable geotextile layers below the blanket layer and then on top of the blanket layer ahead of the next layer of fill or of the pavement.

(ii) Crushed stone drainage blanket

Crushed stone drainage blanket layers shall be constructed with materials in accordance with subsubsubclause B3302(b)(i)(7).

The surface on which the crushed stone drainage blanket layer is to be constructed, shall be smooth and even and the crushed stone shall be spread evenly to the required thickness and be given at least three (3) roller-passes compaction with a suitable roller. The final surface of the crushed stone drainage blanket layer shall be finished off true to line and level.

The crushed stone drainage blanket layer shall be protected from contamination by installing suitable geotextile layers below the blanket layer and then on top of the blanket layer ahead of the next layer of fill or of the pavement."

(h) Constructing toes for rock fill embankments

Delete the last paragraph and replace with the following:

"Payment will be made for the supply and installation of geotextile and shall distinguish between the different grades of geotextiles.

(i) Widening of fills

Replace the first sentence of the eight paragraph with the following:

No extra over payment shall be made for the widening of existing fills, the additional cost associated with the widening of existing fills shall be included in the bulk rates.

Add the following subclause:

(k) Selected rock bench drains in fills

Selected rock bench drains shall be constructed with materials in accordance with subsubsubclause B3302(b)(i)(8).

The requirement of the installation of selected rock bench drains shall be as indicated on the drawings or as instructed by the Employer's Agent.

Selected rock bench drains comprises of free draining rockfill material wrapped in a geotextile constructed on benches cut at the roadbed and fill interface. Particular attention must be paid to the provision of the required grade over the full area of the drain and discharge points.

Selected rock bench drains have a compacted layer thickness of 600 mm and are generally 2 m wide.

B3312 MEASUREMENT AND PAYMENT

General directions

Delete and replace the paragraph under number (3) Work in restricted areas with the following:

“For this Contract measurement and payment under items 33.15 and 33.18 are not applicable. The cost of additional work in restricted areas shall be included in the bulk rates.”

Add the following point number:

“(4) Free-haul distance

“The free-haul distance for all items, which are less than 1,0 km, in this section shall be 1,0 km.”

Item	Unit
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B33.01 Cut and borrow to fill, including free-haul up to 1,0 km:

Amend subitem (a) to read as follows:

“(a) Normal fill material (as described in clause B3302) compacted layer thickness of 200 mm and less.”

Amend subitem (b) to read as follows:

“(b) Course fill material (as described in clause B3302) compacted layer thickness exceeding 200 mm and up to 500 mm.”

Amend subitem (f) to read as follows:

“(f) Crushed stone drainage blanket in cuttings
(as specified in subclause B3305(g))..... cubic metre (m³)

Add the following subitems:

“(g) Drainage blanket in fills (as specified in subclause B3307(f)) constructed of:

(i)	Sand filter blanket material (as specified in subsubclause B3307(f)(i))	
(1)	Natural sand	cubic metre (m ³)
(2)	Crushed sand	cubic metre (m ³)

(ii)	Crushed stone drainage blanket material (as specified in subsubclause B3307(f)(ii)).....	cubic metre (m ³)
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(h)	Selected rock bench drains (as specified in subclause B3307(k))	cubic metre (m ³)
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(i)	Sand fill material (as described in clause B3302) compacted layer thickness of 400 mm and less, compacted to 100 % of MDD	cubic metre (m ³)”
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In the second sentence of the first paragraph of the item description amend “For subitems (a), (b) and (c)” to read “For subitems (a), (b), (c) and (i)”.

Delete and replace the second paragraph of the item description with the following:

“The quantities for subitems (d), (f), (g) and (h) shall be calculated from the authorized dimensions.”

Delete and replace the sixth paragraph of the item description with the following:

“Full compensation for the supply and installation of geotextiles where specified or indicated on the drawings shall be measured and paid for under item B33.20.”

Add the following paragraphs:

“For subitem (f), subsubsubitem (g)(i)(2) and subsubitem (g)(ii) the tendered rates shall also include the crushing and screening, in terms of item B32.03, of crushed sand and crushed stone drainage material.

The tendered rates shall also include full compensation for all additional transport, equipment, labour, supervision as well as any additional costs for the widening of fills as specified in subclause B3307(i), including the cutting of benches.”

Item	Unit
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B33.03 Extra over item B33.01 for excavating and breaking down material in:

Delete subitem (a) Intermediate excavation

“Refer to subsubclause B3303(a)(ii).”

Item	Unit
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B33.04 Cut to spoil, including free-haul up to 1,0 km. Material obtained from:

Delete subitem (b) Intermediate excavation

“Refer to subsubclause B3303(a)(ii).”

Item	Unit
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B33.08 Widening of cuts (extra over items B33.01, 33.02 and B33.04):

Delete and replace the first paragraph of the item description with the following:

“The unit of measurement shall be the cubic metre of material excavated during the widening of cuts as specified in subclause B3306(a).”

Delete and replace in the sixth line of the third paragraph of the item description after the word “cut” with the following:

“as specified in subclause B3306(a).”

Item	Unit
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Amend item 33.17 to read as follows:

**“B33.17 Extra over item B33.04 for spoiling material excavated from
selected rock bench drains constructedcubic metre (m3)**

The unit of measurement shall be a cubic metre of material excavated from selected rock bench drains which is spoiled on the instruction of the Employer’s Agent.

The quantity shall be calculated in accordance with the authorized dimensions of the benched.

The tendered rate shall be paid extra over the rates applicable to item B33.04, and shall include full compensation for all additional costs for spoiling the material, including amongst others all additional work, construction equipment, labour and supervision, irrespective of the size and depth of the benches and class of material.

No extra-over payment will be made for work in restricted areas.”

Add the following items:

Item	Unit
B33.20 Geotextiles :	
(a) Filtration or filter separation system:	
(i) Type and grade	square metre (m ²)
(b) Protection system:	
(i) Type and grade	square metre (m ²)
(c) Reinforcement system:	
(i) Type and grade	square metre (m ²)
(d) Separation system:	
(i) Type and grade	square metre (m ²)

The unit of measurement shall be the square metre of geotextiles supplied and installed as specified.

The tendered rate shall include full compensation for furnishing, procuring, cutting, overlapping, jointing, placing and protecting the filter fabric as specified, as well as for wastage.

The specified grade and type of geotextile shall comply with requirements of clause B3313.

Item	Unit
B33.21 Geocomposite reinforced-geotextiles or geotextile-geogrids for ground stabilisation or reinforcement of soil:	
(a) Design, supply and installation of ground stabilisation or reinforcement of soil systems	provisional sum
(b) Handling cost and profit in respect of subitem B33.21(a)	percentage (%)

The provisional sum provided to cover the cost for the design, supply and installation of ground stabilisation or reinforcement of soil systems using geocomposite reinforced-geotextiles or geotextile-geogrids materials by the Contractor as requested by the Employer's Agent shall be in accordance with the provisions of the General Conditions of Contract.

The percentage for subitem B33.21(b) is a percentage of the actual amount spent under subitem B33.21(a), which shall include full compensation for the handling cost of the Contractor, and the profit in connection with the design, supply and installation of ground stabilisation or reinforcement of soil systems using geocomposite reinforced-geotextiles or geotextile-geogrids materials.

Item	Unit
B33.22 Flattening of cut slopes (extra over items B33.01, 33.02 and B33.04) within the following slope distance ranges:	

(a) Specify slope distance range	cubic metre (m ³)
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The unit of measurement shall be the cubic metre of material excavated during the flattening of the cut slopes as specified in subclause B3306(a).

Measurement of the material shall be the original position in the cut and the quantity shall be computed by the method of average end areas from levelled cross-sections at intervals not exceeding 20 m measured along the centre line of the road before and after removal of the material.

The slope distance range shall be a function of the flattened slope length measured from the toe of the cut slope forwards the top of the cut slope.

The tendered rates for flattening of the cut slopes shall be paid extra over the rates tendered for items B33.01, 33.02 and B33.04 and shall include full compensation for the additional costs involved (over and

above those for excavating new cuttings) for excavating material during the flattening of the cut slopes as specified in subclause B3306(a).

Item	Unit
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B33.23 Controlled blasting (as specified in subclause B1222(n)) for rock cut faces:

(a) Specify type.....square metre (m²)

The unit of measurement shall be the square metre of rock cut faces formed by using controlled blasting methods as specified in subclause B1222(n).

Measurement of the rock cut face shall be the slope area of the cut face formed by using controlled blasting methods.

The tendered rate shall include full compensation for all cost associated with the specified controlled blasting method.

Add the following clause:

“B3313 GEOTEXTILES

(a) Scope

This clause details the material specifications and uses of geotextiles in mass earthworks and their application as filtration, protection, reinforcement and separation systems.

(b) Definitions

(i) Geotextiles

Are continuous sheets of woven, nonwoven, knitted or stitch-bonded fibres or yarns. The sheets are flexible and permeable and generally have the appearance of a fabric. Geotextiles are used for separation, filtration, drainage, reinforcement and erosion control applications.

(c) General

All materials used in the works shall meet the appropriate standards given in this specified and shall be subject to the approval of the Employer's Agent. The Contractor shall submit product certificates, conformance documentation related to the specifications, test results as required together with samples of materials and, where applicable, designs that he proposes to use in the construction of the works to the Employer's Agent for his acceptance/approval as provided for in the contract documentation.

(i) Uses of geotextiles

(1) Filtration

To allow passage of fluids from a soil while preventing the uncontrolled passage of soil particles.

(2) Protection

As a localised stress reduction layer, to prevent or reduce damage to a given surface or layer.

(3) Reinforcement

To resist stresses or contain deformations in roadbed or fill layers

(4) Separation

To provide separation between two dissimilar materials, to prevent intermixing.

(d) Materials

(i) Geotextiles for filtration or filter separation systems

Geotextiles specified in subsoil drainage systems or as filter separation blankets shall be in accordance with subsubclause B2104(a)(iii).

(ii) Geotextiles for protection, separation or reinforcement systems

Geotextiles specified in protection, separation or reinforcement systems shall be in accordance with the following:

(1) Composition and manufacturing

The geotextile shall be manufactured from a synthetic polymer, processed into a permeable, homogeneous sheet. The sheet shall be of non-woven needle punched and mechanically bonded construction.

On account of the temperature and moisture susceptibility of polyamide, this synthetic product is not considered acceptable.

(2) Classification

The geotextile shall be classified according to the mechanical properties thereof, in terms of its strength, penetration load, puncture resistance and the minimum water-percolation rate or through flow as measured in the permeability test. Table B3313/1 shall be used for determining the grade of a geotextile.

TABLE B3313/1: GRADE CLASSIFICATION OF GEOTEXTILES FOR MASS EARTHWORKS

Properties	Test method	Grade (Material placed on geotextile)			
		ME 4 (Soil)	ME 3 (Gravel)	ME 2 (Coarse gravel)	ME 1 (Rockfill)
Thickness (mm)	SANS 9863-1:2013	≥1.8	≥3.0	≥4.0	≥6.0
Tensile strength longitudinal (kN/m)	SANS 1525:2013	≥14	≥20	≥40	≥50
Elongation (%)	SANS 1525:2013	≥50			
Static puncture strength (CBR)	SANS 12236:2013	≥2.5	≥4.5	≥7.0	≥9.5
Puncture resistance (maximum hole diameter mm)	SANS 13433:2013	<20	<15	<10	<6
Permeability @ 50 mm head (m/s x 10-3)	SANS 11058:2013	≥3.5	≥3.5	≥3.5	≥2.5

Notes:

- The standard equivalent atmosphere for testing and the preconditioning atmosphere for all geotextile tests (SANS tests and other) shall have a relative humidity falling within the range of 0 to 80 per cent and a temperature within the range of 15°C to 35°C.
- The resistance of a geotextile to puncture is the average diameter of the hole formed when a 45 degree pointed cone with a mass of 1kg is dropped through 500mm height onto the geotextile fixed in the holding device.

(3) Durability

A geotextile is required to comply with the following durability specifications:

- Resistance to chemical attack

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

The geotextile shall withstand soil and ground water with a pH in the range of 4 to 9 (pH to be determined by SANS 10224, SANS 3001).

The geotextile shall withstand soil (as paste) and ground water containing salts with a conductance of up to 1,0S/m (conductivity to be determined by SANS 10224, SANS 3001).

- Resistance to ultra-violet light

The geotextile shall maintain at least 80% of its original strength after direct exposure to sunlight of 1500 hours as determined under ASTM D5355 or ASTM D7238 and EN ISO 12224

- Resistance to rot

The geotextile shall be manufactured of an entirely rot-proof polymer.

(4) Selection

The geotextile required shall satisfy the criteria for a grade ME1, ME2, ME3 or ME4 geotextile (based on material placed on the geotextile) for the selected application as specified in the schedule of quantities, drawings, Contract Documentation or as instructed by the Employer's Agent and shall satisfy the criteria for this grade of geotextile as given in Table B3313/1.

The Contractor shall, at least 45 days before the installation of the geotextile(s), submit to the Employer's Agent samples and the specifications of the geotextile he proposes to use, to enable the Employer's Agent to verify the suitability and confirm the use thereof and ensure that the geotextile meets the design requirements as well as is suited to the insitu conditions and materials to be drained. No extra payment shall be made for providing the samples required by the Employer's Agent.

(5) Testing

The Contractor shall, at his own cost, submit a certificate by an approved laboratory to prove compliance with specified tests as stated in section 8100. Alternatively, verifiable testing by the supplier may be submitted for approval to the Employer's Agent.

The tests to be carried out on geotextiles relate to the material and the method of manufacture and are mainly to ascertain that the correct grade and type of geo-textile is supplied, and that the material is equivalent in quality to that specified for use in the works. This includes geotextile qualities regarding soil retention; permeability; clogging; durability and strength. Compatibility testing can be done for filtration using the ASTM D5101 - Measuring the Soil-Geotextile System Clogging Potential by the Gradient Ratio.

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3401 SCOPE

Add the following:

"This section also covers activities that are required to conduct routine and preventative maintenance to existing gravel roads, including the use of self-propelled road graders to improve the overall ride-ability, safety aspects and correcting any drainage faults that may be present."

B3402 MATERIALS

(a) General

Add the following at the end of the second paragraph:

"For chemically stabilised layers the material shall conform to the requirements in table B3402/5.

For bitumen stabilised layers the material shall conform to the requirements in table B3402/6.

For cold in situ recycled layers the target grading shall be as indicated in table B3402/7"

Add the following after the second paragraph:

"Distinction shall be made between crushed and natural G4, G5 and G6 materials. Where the crushing and/or screening of these materials has been specified, the combined grading shall conform to the grading limits specified for G4 class material in Table B3402/1.

The same shall apply for all materials obtained from commercial sources.

For this Contract all G4, G5 and G6 materials specified shall be crushed material produced by multi-stage crushing and screening."

Replace the grading section in Table 3402/1 with:

PROPERTY		TYPE OF MATERIAL					
		G4		G5		G6	
		Crushed material produced by multi-stage crushing and screening	Uncrushed material or material produced by single or two stage crushing	Crushed material produced by multi-stage crushing and screening	Uncrushed material or material produced by single or two stage crushing	Crushed material produced by multi-stage crushing and screening	Uncrushed material or material produced by single or two stage crushing
GRADING ENVELOPE	Sieve size (mm)	Percentage passing through sieve by mass	None specified	Percentage passing through sieve by mass	None specified	Percentage passing through sieve by mass	None specified
	50	100		100		100	
	37,5	85 – 100		85 – 100		85 – 100	
	20	61 – 91		61 – 91		61 – 91	
	14	48 – 82		48 – 82		48 – 82	
	5	31 – 66		31 – 66		31 – 66	
	2	20 – 50		20 – 50		20 – 50	
	0,425	10 – 30		10 – 30		10 – 30	
	0,075	5 – 15		5 – 15		5 – 15	
GRADING MODULUS (GM)			2,5≥GM≥1,5		2,5≥GM≥1,5		2,6≥GM≥1,2

Replace Table 3402/5 with:

"TABLE B3402/5: REQUIREMENTS FOR CHEMICALLY STABILISED LAYERS

Classification		C2	C3	C4
Type of material before stabilisation ⁽¹⁾		At least G4 quality	At least G5 quality	At least G6 quality
PI after stabilisation (maximum)		Non-plastic	6 ⁽²⁾	6 ⁽²⁾
UCS (Unconfined Compression Strength) (MPa) at 100 % of MDD	Min	3.0	1.5	0.75
	Max	5.0	3.0	
ITS (Indirect Tensile Strength) (kPa) at 100 % of MDD	Min	300	250	200
	Max	500	450	400 (350) ⁴
WDD (Wet/Dry Durability) (mass loss maximum)		10 %	20 %	30 %

Notes:

- (1) Material type requirement only indicative and not compulsory to be met unless specified in the Contract Documentation.
- (2) For materials derived from the basic crystalline rock group, the plasticity index after stabilisation shall be non-plastic.
- (3) It is more important that the ITS requirement be met than the UCS, as the ITS affects both the structural behaviour of the layer and limits the potential to degrade should the durability decreases in time.
- (4) ITS in brackets apply for a stabilised base layer.

The UCS and ITS requirements in Table B3402/5 are determined at the standard 7-day curing, and not at the 24-hour rapid or accelerated curing testing. The 7-day cured strengths shall always be taken as the reference requirements, as the rapid curing may give a higher strength. Should rapid curing be done during the construction, both tests shall be done in parallel and a calibration factor derived for that material with that specific stabiliser. The rapid testing can then be used for acceptance control provided that regular calibration checks are made against the 7-day cured strengths to ensure that nothing has changed significantly. When significant variations are found in the relationship between the results of the two types of test, then all further test samples that are rapid cured shall have duplicate samples that are tested by the standard full 7-day acceptance test until a reliable, stable calibration factor has been re-established.

Add the following tables after table B3402/5:

"TABLE B3402/6: REQUIREMENTS FOR BITUMEN STABILISED LAYERS (BSM)

Test ⁽¹⁾		Specimen size, compaction effort and curing	BSM Classification	
			BSM1	BSM2
ITS _{DRY} (Indirect Tensile Strength) (kPa)		150 mm dia x 95 mm high vibratory hammer or MDD compaction cured to constant mass ⁽²⁾	> 225	> 175
ITS _{WET} (Indirect Tensile Strength) (kPa)			> 125	> 100
Shear properties	Friction angle (°)	150 mm dia x 300 mm high vibratory hammer compaction cured at equilibrium moisture content ⁽³⁾	> 40	> 35
	Cohesion (kPa)		> 250	> 200
	Retained cohesion (%)		> 75	> 60

Notes:

- (1) All tests are carried out on specimens conditioned at 25 °C.
- (2) Specimens cured to constant mass at 40 °C. ITS values determined using constant displacement loading.
- (3) Specimens conditioned to 60 % – 65 % of OMC before sealing in a bag and curing at 40 °C for 48 hours.

TABLE B3402/7: TARGET GRADING ENVELOPE FOR COLD IN SITU RECYCLED PAVEMENT LAYERS

Sieve Size (mm)	Percent Passing		
	Cement / Lime	BSM-Emulsion	BSM-Foam
50	100	100	100
37.5	87 – 100	87 – 100	87 – 100
28	82 – 100	82 -100	82 – 100
20	72 - 100	72 - 100	72 - 100
14	60 -90	60 -90	60 -90
10	51 - 77	51 - 77	51 - 77
7	42 -65	42 -65	42 -65
5	36 - 57	36 - 57	36 - 57
0.425	12 – 26	10- 24	12 – 26
0.075	4 - 10	2 - 9	4 - 10

Materials to be used for the gravel wearing course shall be Type 1 as per Table 3402/4, with the following amendments:

- Maximum target size = 53 mm
- Oversize index = 10% maximum
- Maximum permitted oversize = 63 mm.”

(b) Compaction requirements

Amend the compaction requirements as follows:

“Lower selected layer (G9)	:	93 % or 100 % for sand of MDD
Upper selected layer (G7)	:	95 % or 100 % for sand of MDD
Chemically stabilized subbase (C3)	:	96 % of MDD
Bituminous stabilized base (BSM1)	:	102 % of MDD
Shoulder & wearing course	:	95 % of MDD”

B3403 CONSTRUCTION

Add the following subclause:

“(f) Cold in situ recycling and mixing

Where the in situ layer consisting of granular or cemented layers, which may include asphalt or bituminous surfacing above granular or cemented support layer is to be recycled, with or without any make-up material, the layer must be constructed according to the method described in B3512.”

B3405 CONSTRUCTION TOLERANCES

(a) Level

Replace the table in the subclause with the following:

Layer	H ₉₀	H _{max}
Selected layers	25 mm	33 mm
Sub-base layers	15 mm	20 mm
Base layers	12 mm	15 mm
Shoulders and wearing course	N/A	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, sub-base, shoulders and wearing course	20 m
Base	10 m

(b) Layer thicknesses

Replace the table in the subclause with the following:

Layer	D ₉₀	D _{max}	D _{ave}
Selected layers	25 mm	35 mm	8 mm
Sub-base layers	18 mm	24 mm	5 mm
Base layers	15 mm	22 mm	5 mm
Shoulders and wearing course	N/A	30 mm	0 mm"

(f) Surface regularity

Replace the subclause with the following:

For new base layers and rehabilitation of existing base layers the roughness of the layer will be determined by using a rolling straight edge as described in subclause 811(c), the number of surface irregularities shall not exceed those given below:

- (i) the average number of irregularities per 100 m equal to or exceeding 5 mm when taken in the wheel paths over 300 – 600 m lengths: 3
- (ii) the number of irregularities equal to or exceeding 5mm when taken in the wheel paths over 100 m lengths: 4

The maximum value of any individual irregularity measured with the rolling straight-edge or a 3m straight-edge shall not exceed 10mm.

The measurements with a rolling straight edge or 3m straight-edge shall be done in each wheel path of each lane or shoulder over the full length of the section.

Where a 3m straight-edge is used it shall be placed in such a way that for a measured line each measurement shall overlap by at least 500mm with the previous measurement."

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Replace the second paragraph with the following:

"Test results and measurements will be assessed in accordance with the provisions of Section 8200."

B3407 MEASUREMENT AND PAYMENT

Delete and replace the paragraph under the clause heading with the following:

"For this Contract measurement and payment under items 34.08, 34.09 and 34.13 are not applicable. The cost of additional work in restricted areas shall be included in the bulk rates."

Add the following:

"The tendered rates for items under this sections shall also include full compensation for all additional cost related to construction joints in new layers, as specified in subclause B3208(d), due to the construction of layer in half-widths or partial-widths."

Item	Unit
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Amend item 34.01 to read as follows:

B34.01 Pavement layers constructed from gravel taken from cut, borrow or stockpile, including free haul of 1 km:

Delete and replace in the second line of the second paragraph of the item description the words "or pits" with the following:

" , pits or stockpile"

Item	Unit
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Amend item 34.05 to read as follows:

B34.05 Extra over items B34.01 and 34.03 for the construction of gravel pavement layers from cut, borrow, stockpile or recovered pavement material mixed with existing milled bituminous material

Delete and replace the item description paragraph with the following:

“The unit of measurement shall be cubic metre of existing milled bituminous material loaded from stockpile, hauled and mixed in with gravel pavement layers from cut, borrow, stockpile or recovered pavement material. The quantity of existing milled bituminous material shall be taken as 70% of the loose volume measured in trucks.

The tenderer extra-over rate shall include full compensation for loading from stockpile, haul over a free-haul distance of 1,0 km, adding and mixing in the milled bitumen material with the other material for construction of pavement layers.”

Add the following new items:

“Item	Unit
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B34.14 Wet grading:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road bladed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(a).

The tendered rate shall include full compensation for all the blading by motor grader, water cart and all labour required to remove large stones and keeping drainage clear from gravel spillage.

Item	Unit
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B34.15 Dry grading:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(b).

The tendered rate shall include full compensation for all the blading by motor grader and all labour required to remove large stones and keeping drainage clear from gravel spillage.

Item	Unit
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B34.16 Accessibility grading:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(c).

The tendered rate shall include full compensation for all the blading by motor grader and all labour required to remove large stones and keeping drainage clear from gravel spillage.

Item	Unit
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B34.17 Special grading:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(d).

The tendered rate shall include full compensation for adding water, shaping and trimming by motor grader, and providing for the necessary compaction effort to achieve the required specification, as well as all labour required to remove large stones and keeping drainage clear of gravel spillage.

Item	Unit
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B34.18 Reshaping:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(e).

The tendered rate shall include full compensation for ripping, adding water, shaping and trimming by motor grader, and providing for the necessary compaction effort to achieve the required specification, as well as all labour required to remove large stones and keeping drainage clear of gravel spillage.

Item	Unit
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B34.19 Heavy maintenance:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(f).

The tendered rate shall include full compensation for ripping, grid rolling, adding water, shaping and trimming by motor grader, and providing for the necessary compaction effort to achieve the required specification, as well as all labour required to remove large stones and keeping drainage clear of gravel spillage.

Item	Unit
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B34.20 Light roadbed preparation:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(g).

The tendered rate shall include full compensation for shaping and trimming by motor grader and providing for the necessary labour required to remove large stones and keeping drainage clear of gravel spillage.

Item	Unit
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B34.21 Heavy roadbed preparation:

(a) Specify roadway widthkilometre (km)

The unit of measurement shall be the kilometre of full width of gravel road processed, inclusive of the formation and shaping of all the side and mitre drains, measured along the centre line of the road in terms of subclause B3408(h).

The tendered rate shall include full compensation for ripping, adding water, shaping and trimming by motor grader, and providing for the necessary compaction effort to achieve the required specification, as well as all labour required to remove large stones and keeping drainage clear of gravel spillage.”

Add the following clause:

“B3408 MAINTENANCE TO EXISTING GRAVEL ROADS

This clause covers activities that are required to conduct routine and preventative maintenance to existing gravel roads, including the use of self-propelled road graders to improve the overall ride-ability, safety aspects and correcting any drainage faults that may be present.

(a) Wet grading

The aim of the wet grading operation is to improve the riding surface and to remove the potholes, corrugations and rutting that have developed with time, as well as clearing the side and mitre drains within the road reserve and providing the correct cross sectional profile to the road prism.

Wet grading shall only be carried out when gravel is at the correct moisture content. Water is to be sprayed on the full width of road section to be worked before blading commences, to ensure that the material is at optimum moisture content. The material from both side drains of the road is to be cut into the road and spread with successive cuts towards the centre of the road. The depth of the cuts shall be sufficient to result in an even surface.

Hand labour is to fill all potholes and remove oversize and any vegetation from the roadway. Water is then again to be sprayed on the full width of road section being worked. The material windrow which has been formed in the centre of the road is now cut with successive cuts towards one side of the road. If a material windrow is formed at the shoulder of the road, this material needs to be cut out through the side drain.

If this is not possible due to physical constraints, openings and mitres will be made to ensure that the side drain can function freely. Any drains blocked off by undercutting shall be opened and gravel spillage into outlets shall be removed.

Water is then again to be sprayed on the full width of road section that was worked.

The wet grading operation will also include for providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage.

(b) Dry grading

The aim of the dry grading operation is to improve the riding surface and to remove the potholes, corrugations and rutting that have developed with time, as well as clearing the side and mitre drains within the road reserve and providing the correct cross sectional profile to the road prism.

The Contractor shall also attempt to maximise the number of dry grades after rains or when soil conditions are close to optimum moisture content.

The material from both side drains of the road is to be cut into the road and spread with successive cuts towards the centre of the road. The depth of the cuts shall be sufficient to result in an even surface.

Hand labour is to fill all potholes and remove oversize and any vegetation from the roadway. The material windrow which has been formed in the centre of the road is now cut with successive cuts towards one side of the road. If a material windrow is formed at the shoulder of the road, this material needs to be cut out through the side drain.

If this is not possible due to physical constraints, openings and mitres will be made to ensure that the side drain can function freely. Any drains blocked off by undercutting shall be opened and gravel spillage into our outlets shall be removed.

(c) Accessibility grading

Accessibility grading will be instructed in cases where roads have deteriorated so far that no gravel remains on the road and where grading is required to ensure drivability.

The aim of the blading operation is to improve the riding surface by attempting to remove the potholes, corrugations and rutting that has developed with time, as well as clearing the side and mitre drains within the road reserve. The blading operation should also attempt to provide the correct cross sectional profile to the road prism.

The first cut shall commence in the side drain collecting material in a windrow on the shoulder and blade towards the centre line. Hand labour is to fill all potholes and remove oversize material and any vegetation from the roadway. With successive cuts, the grader is to move the windrow across the full width of the road. The depth of the first cut shall be sufficient to result in an even surface if possible. No undercutting or small windrows that will prevent water from flowing freely off the road surface or into culvert inlets shall be allowed. During the blading operations all large stones and vegetation shall be removed from the windrowed material. Any drains blocked off by under cutting shall be opened and gravel spillage into culvert inlets and outlets removed. The grading operation will also strive toward providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage.

(d) Special grading

The aim of special grading operation is to improve the riding surface and to remove the potholes, corrugations and rutting that have developed with time, as well as clearing the road reserve and providing the correct cross sectional profile to the road prism.

Special grading shall only be carried out when gravel is at the correct moisture content. Water carts shall be used to water the road ahead of the grader and during the operation, as well as on completion of the shaping before compaction. The Contractor shall determine the optimum moisture content at which the material is to be graded.

The first cut shall commence in the side drain collecting material in a windrow on the shoulder and blade towards the centre line. With successive cuts, the grader is to move the windrow across the full width of the road. The depth of the first cut shall be sufficient to result in an even surface. No undercutting or small windrows which will prevent water flowing freely off the road surface or into culvert inlets shall be allowed. During the blading operations all large stones and vegetation shall be removed from the windrowed material. Any drains blocked off by under cutting shall be opened and gravel spillage into culvert inlets and outlets removed. The wet grading operation will also include for providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage. Compaction after the blading operation must ensure that at least 95% of MOD AASHTO is achieved for the gravel wearing course layer.

The special grading operation will also include for providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage.

(e) Reshaping

Reshaping will be instructed by the Engineer where the road cross section of the road profile has changed and needs to be reworked to achieve the required shape, which will facilitate a better riding quality and proper drainage.

Reshaping will consist of ripping (150 mm), adding water, mixing, shape and trimming to the required cross sections and cambers inclusive of cutting all mitre and side drains complete, to ensure proper drainage, and removing any oversize material.

Compaction during the operation must ensure that at least 95% of MOD AASHTO is achieved.

The operation will also include for providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage.

(f) Heavy maintenance

Heavy maintenance will be instructed by the Engineer where the existing material left on the road surface is extremely rough, due mainly to oversize material in it and needs to be reprocessed, to ensure that the material conforms to specification, as well as ensuring that the proper road profile is achieved, which will facilitate a better riding quality and proper drainage. Heavy maintenance will only be instructed if the existing road bed material conforms to the specified requirements.

If the insitu road bed material does not conform to the required specification, the Engineer will instruct the Contractor to blade the existing gravel material to windrow, perform the necessary road bed preparation and replace the gravel wearing surface. This operation will be measured separately and relevant items allowed for.

Heavy maintenance will consist of ripping (150 mm), re-processing, adding water, mixing, shaping, compacting and trimming to the required cross sections and cambers inclusive of cutting all mitre and side drains complete, to ensure proper drainage, and removing oversize material.

Compaction during the operation must ensure that at least 95% of MOD AASHTO is achieved for the gravel wearing course layer.

The operation will also include for providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage.

(g) Light roadbed preparation

Light roadbed preparation will be utilised to prepare the existing roadway to conform to the required design cross section before the regravelling operation commences, if so required. This item will be used when the above can be achieved by using a motorised grader unit without ripping the insitu material.

The Engineer will order light roadbed preparation before regravelling a section of road only if the insitu roadbed material conforms to the required specification.

Blading shall commence by first cutting and shaping the side and mite drains to the required specification to ensure proper drainage, as well as the shaping of the roadway. If in the opinion of the Engineer, the material so removed is suitable to be mixed in with the imported material, it should be bladed towards the centre line from both sides with successive cuts. If in the opinion of the Engineer the material from the formation of the cross section and drains is not suitable, it will be spread over the side slopes or disposed of as directed. During the blading operation all large stones and vegetation shall be removed from the windrowed material. Any drains blocked off by under cutting shall be opened and gravel spillage into culvert inlets and outlets removed. The Contractor is to ensure that the required cross section is neatly trimmed and approved by the Engineer, before any material is imported.

The operation will also include for providing the required cross sections and cambers on the road, as well as cutting all the mitre and side drains complete, to ensure proper drainage.

Any drains blocked off by under cutting shall be opened and the spillage into culvert inlets and outlets removed. The Contractor is to ensure that the required cross section is neatly trimmed and approved by the Engineer, before any material is imported.

(h) Heavy roadbed preparation

Heavy roadbed preparation will be utilised to prepare the existing roadway to conform to the required design cross section before the regravelling operation commences if required. This item will be used when the above can only be achieved by using a motorised grader to rip the insitu material, scarify, add water, mix, shape and compact the material to achieve the required cross section before the regravelling operation.

The Engineer will order heavy roadbed preparation before regravelling the section of road only if the insitu road bed material is of such a nature that upon being processed, conforms to the minimum requirement to receive the imported gravel wearing course.

Heavy roadbed preparation will consist of ripping (150 mm), adding water, mixing, shape and trimming to the required cross sections and cambers inclusive of cutting all mitre and side drains complete, to ensure proper drainage.

The Contractor is to ensure that the required cross section is neatly trimmed and approved by the Engineer, before any material is imported.

Compaction during the operation must ensure that at least 95% of MOD AASHTO is achieved for the gravel wearing course layer.

Any drains blocked off by under cutting shall be opened and the spillage into culvert inlets and outlets removed. The Contractor is to ensure that the required cross section is neatly trimmed and approved by the Engineer, before any material is imported.

(i) Quality / Standard

The road surface on completion of the works shall give a smooth ride free from corrugation and be properly drained.

The specified camber for straight sections of roads shall be maintained and super-elevation on curves shall extend across the full width of the roadway."

SECTION 3500: STABILIZATION

B3501 SCOPE

Add the following as a third 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

Delete subsubclauses (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.

For this Contract CEM II 32,5N shall be used for stabilization purposes."

(c) Material for bituminous stabilisation

(i) Bituminous stabilising agents

Delete the contents of subsubclause B3502(c)(i) and replace with the following:

"For this Contract bitumen used as a stabilisation agent for bitumen stabilised material (BSM) shall be one of the following products and shall comply with the applicable standards:

- Penetration grade bitumen: SANS 4001-BT1 (for BSM – foam); or.
- Anionic road emulsion: SANS 4001-BT3 (for BSM – emulsion)

Bitumen emulsion shall be slow set, stable grade anionic

Foamed bitumen shall be produced by injecting a limited amount of water (typically between 2 % and 4 % by mass of the bitumen) into a 70/100 penetration-grade bitumen, which has been pre-heated to a temperature of 170 °C to 180 °C. The minimum foaming characteristics (in terms of expansion ratio and half-life) shall be as specified in Table B3502/1.

TABLE B3502/1 FOAM BITUMEN CHARACTERISTIC LIMITS (MINIMUM VALUES)

Aggregate temperature (°C)	10 – 25 °C	> 25 °C
Bitumen temperature (°C)	170 – 180	170 – 180
Expansion Ratio, ER (times)	10	8
Half Life, $\tau_{1/2}$ (secs)	8	6

(e) Water

Insert the following in the first sentence after the word "emulsions":

"... and/or production of foam bitumen..."

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."

(d) Mixing in stabilizing agent

Add the following:

"Where existing and new works are joined (longitudinal joints and others), the material shall be satisfactorily mixed and compacted without any permeable or loose patches."

(h) Curing the stabilized work

Add the following to method (ii):

"The covering material shall be placed by end-tipping, spread, and not compacted until the underlaying layer has cured for at least 7 days."

Add the following to paragraph:

"Method (iii) and (iv) shall not be applicable."

(i) Construction limitations

Replace the fourth paragraph starting with "No stabilization ..." with the following:

"No stabilization shall be done during windy conditions, wet weather or with falling air temperatures (7°C and dropping), or during rising air temperatures (when the air temperature is below 3°C).

The surface temperature of a compacted stabilized layer shall not be allowed to fall below 1°C during the first three (3) days after stabilization. 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.

The Contractor shall make allowance for these requirements in his construction programme."

In Table 3503/1, delete "8 hours" for Ordinary portland cements and cement blends and replace with "6 hours".

Add the following subclause:

"(j) 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."

B3505 BITUMINOUS STABILIZING

(a) Preparing the material

Replace the first paragraph with the following:

“The material to be stabilised shall be prepared and placed as specified in section 3200. The moisture content during mixing-in of the stabilising agent shall be between 60-80% of optimum moisture content.”

(d) Applying the stabilising agent

Delete the entire subclause and replace with the following:

“The bitumen stabilising agent shall only be applied by means of an approved in situ recycling machine as specified in B3511. The recycling process as described in B3512 shall apply to the application and mixing-in of the stabilising agent.”

(e) Compaction

Delete the entire subclause and replace with the following:

The compaction process as described in B3512 shall apply.”

(g) Construction limitations

Replace this subclause with the following:

“No stabilization shall be done during windy conditions, wet weather or with falling air temperatures (7°C and dropping), or during rising air temperatures (when the air temperature is below 3°C).

Furthermore, the material temperature shall not be less than 10°C for bitumen emulsion and 15°C for foam bitumen.

The surface temperature of a compacted stabilized layer shall not be allowed to fall below 1°C during the first three (3) days after stabilization. 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.

The maximum time allowed to complete the stabilisation process shall be 12 hours.

The Contractor shall make allowance for these requirements in his construction programme.”

B3506 TOLERANCES

(a) Rate of application

(ii) Bituminous stabilising agents

Add the following new paragraphs after the first paragraph:

“Where bitumen stabilisation is done through an in situ recycling process, the Contractor shall determine the bituminous stabilising agent application and usage utilising the in situ recycling machine’s computer. To verify the application and usage, the Contractor shall provide the Employer’s Agent with a weekly reconciled schedule showing any stock records together with all consumption and deliveries for that specific week. All deliveries shall be supported by original (or certified copies of) official weighbridge certificates that are used by the Contractor as the basis of payment to the supplier.

Where there is a discrepancy between the actual and theoretical consumption of bituminous stabilising agent, the Contractor shall immediately check the calibration of the flow meter on the in-situ recycling machine. To do so, he shall provide a full tanker load of bituminous stabilising agent with a loading ticket from an assized weighbridge. The entire contents of the tanker shall then be used to recycle a continuous section of road (after resetting the computer). The consumption reflected by the computer on the in-situ

recycling machine shall be compared with the mass shown on the weighbridge ticket and, if necessary, the computer shall be re-calibrated. A second tank-load of bituminous stabilising agent with a loading ticket shall then be used to confirm the accuracy of the recalibration exercise.

Dipstick readings shall not be used as a basis of payment for bitumen stabilising agents."

(b) Uniformity of mix (chemical stabilization)

Add the following:

"Subsubclause (ii) shall be applicable to this Contract and the control for chemically stabilized layers shall be in accordance with the method prescribed in Section 8200: Quality Control (Scheme 1)."

B3507 CONSTRUCTION OF TRIAL SECTION

Insert the following before the second paragraph:

"Prior to carrying out the trial section for cold in situ recycling, the Contractor shall assemble all items of plant and equipment that he proposes to use for the recycling operation. Only those machines he intends using for production work shall be used to construct the trial section and under no circumstances shall he be permitted to use any substitutes. The first section of pavement to be recycled shall be regarded as a trial section with the objective of:

- demonstrating that the equipment and processes he proposes to employ are capable of constructing the recycled layer in accordance with the specified requirements;
- determining the effect on the grading of the recycled material by varying the forward speed of the recycling machine and the rate of rotation of the milling drum; and
- determining the amount of rolling necessary to achieve the compaction requirements.

The trial section shall be at least 200m in length and shall cover the full lane-width or half-road width in accordance with the geometry of the road and the accepted work plan.

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

Replace the second paragraph of this clause with the following:

"The uniformity of mixing and stabilizer content will be controlled by the Employer's Agent by visual checking of the number of bags of stabilizing agent applied and observation of the mixing process and cementitious binder content tests on a day's work.

The test results and measurements will be judged in accordance with the provisions of Section 8200. Bitumen stabilised layers shall be judged on the same criteria as chemically stabilised layers."

Add the following paragraphs:

"The Employer's Agent shall be notified in good time to enable him to conduct tests himself.

Sample preparation and testing for cement stabilization testing shall be done by means of the Rapid Cure Method as described in clause B8110 while bitumen stabilisation sampling and testing shall be in accordance with the latest edition of the TG2. The Employer's Agent will use unconfined compressive strength (UCS) tests for evaluating layer compliance. The Contractor shall note that this method requires the samples to be taken immediately after the material has been mixed with the 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."

The stabilized material sampled from the layer for the compaction of modified AASHTO briquettes, shall be prepared according to SANS 3001; GR54; i.e. discard material coarser than a 37,5 mm test sieve, and compacted according to SANS 3001; GR31.

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);
- Where the material is treated with a bitumen stabilising agent, the following shall be included:
 - bitumen emulsion or Pen-grade bitumen consumption;
 - average temperature and pressure measured at the spraybar; and
 - all other details shown in the sample report included in the Appendices of the latest edition of SAPEM and TG2;
- 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 pulverised material was taken."

B3510 MEASUREMENT AND PAYMENT

Delete and replace the paragraph under the clause heading with the following:

"For this Contract measurement and payment under items 35.10, 35.11 and 35.12 are not applicable. The cost of additional work in restricted areas shall be included in the bulk rates."

Add the following:

"The tendered rates for items under this sections shall also include full compensation for all additional cost related to construction joints in new layers, as specified in subclause B3208(d), due to the construction of layer in half-widths or partial-widths."

Item	Unit
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B35.01 Chemical stabilization (extra over the untreated layer):

Add the following to the item description at the end:

"The tendered rate shall also include full compensation for blending any of the different stabilizing agents, if required, and curing the stabilized layer as specified in subclause B3503(h)."

Item	Unit
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B35.02 Chemical stabilizing agent:

Replace the full stop at the end of the third paragraph with the following:

" and layer dimensions."

Item	Unit
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B35.07 Bituminous stabilization (extra over the untreated layer):

Add the following to the item description at the end:

"The tendered rate shall also include full compensation for blending any of the different stabilizing agents, if required.

Finishing off of the layer shall be in accordance with subclause B3512(e) and is paid for separately under item B35.21."

Item	Unit
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B35.08 Bituminous stabilizing agent

Replace the second paragraph with the following:

"The tendered rate for bituminous stabilising agents shall include full compensation for procuring and transporting the bituminous stabilising agent to site, for transfer into storage tanks, storage, heating and transfer into tankers for coupling to the recycling train, for all transport on site, for issuing the required assized weighbridge ticket showing the mass of bitumen contained in the tanker, for any re-heating required, for all wastage and for strict adherence to all safety measures required when handling warm or hot bitumen . The rate shall further include full compensation for diluting and applying the stabilising agent, irrespective of the prescribed rated of application. For foamed bitumen, the rate shall include for foaming the bitumen on the recycler, including the water and any other additive that may be required to achieve the minimum foaming characteristics and for injecting the foamed bitumen into the recycled material."

Item	Unit
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Amend item 35.13 to read:

"B35.13 Extra over Items B35.01, B35.07 and B35.19 for trial sections cubic metre (m³)"

Add the following items:

"Item	Unit
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B35.14 Sampling of in situ material for mix design procedure Number (No)

The unit of measurement shall be the number of positions for sampling of in situ material for the mix design procedure.

The tendered rate shall include full compensation for all costs to make available, operate and to transport the recycling machine and other equipment to the sampling position. To provide the required traffic accommodation in terms of section B1500. The tendered rate shall further include full compensation for breaking up the pavement for sampling and temporary patching the disturbed road way by adding make-

up material, watering, compacting and surfacing with a cold asphalt material. The tendered rate shall also include full compensation for all transport, labour and other incidentals required for the sampling process.

Item	Unit
B35.16 Pre-pulverising material in the existing pavement	cubic metre (m³)

The unit of measurement shall be the cubic metre of in situ measured pavement layer that is pre-pulverised in situ, as instructed by the Employer’s Agent, regardless of the hardness or type of material encountered in the existing pavement. The quantity shall be calculated from measurements of the actual width and depth of the pre-pulverised section and shall not be increased to include any allowance for overlaps between adjacent cuts, nor for the number of cuts required to cover the width of pre-pulverising.

The tendered rate shall include full compensation for setting out the works, for pre-pulverising all types of material in the existing pavement structure, for controlling the depth of pre-pulverising, for the addition of water whilst pre-pulverising, for mixing, placing, shaping, cutting levels and compacting the material to a nominal density of 95% MDD. It shall further include for all transport, labour, plant, equipment and incidentals required to pre-pulverise material as specified.

Item	Unit
B35.17 Removal from site of surplus material	cubic metre (m³)

The unit of measurement shall be the cubic metre of surplus material removed from site. The quantity shall be taken as 70% of the loose volume measured in trucks. Accurate load records shall be kept on site and submitted to the Employer’s Agent on a daily basis.

The tendered rate shall include full compensation for gathering the surplus material by windrowing or pushing it into heaps, for loading and transporting to a designated spoil or stockpile site including haul for a free haul distance of 1km, for offloading and either spreading the material or placing in neat stockpiles. It shall further include for all labour, plant, equipment and incidentals required to remove the material as specified.”

SECTION 3600: CRUSHED-STONE BASE

B3601 SCOPE

Delete and replace the first paragraph with the following:

"This section covers the procuring, furnishing and placing of approved crushed stone pavement layers (base and subbase) on top of completed gravel material layers, and constructing crushed stone pavement layers in accordance with the requirements of these specifications."

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 engineer. Argillaceous rocks may only be used if specified in the project specifications, or with the engineer's written approval.

Soft or weathered particles shall be controlled by the Durability Mill Index values specified in B3602(e) Durability.

Provision has been made in clause B8108(b)(iii), calculation, for the determination and calculation of the Apparent Density for aggregates with a total water absorption greater than 1,5%, when total water absorption is determined according to SANS 3001-AG20 (replacing TMH1 method B14) and SANS 3001-AG21 (replacing TMH1 method B15)."

(c) Grading requirements

Replace entire clause with the following:

"The target grading, after compaction, shall be as near as possible to the mean of the specified grading envelope listed in table B3602/1 and shall be continuous with no marked gaps or excessive quantities of any particular size. The mean grading of each lot (minimum of 4 but preferably 6 test points per lot) shall conform to the approved target grading plus or minus the tolerances specified in table B3602/4. However, no target grading plus tolerance can be set outside the original grading envelope in table B3602/1."

Table 3602/1

In table 3602/1 delete "85% of bulk relative density" and replace with:

"86% of Apparent Density".

Replace the grading section in Table 3602/1 with:

	Sieve size (mm)	Percentage passing through sieve by mass			
		Nominal max size			
		G1	G2	G3	
		37,5 mm	37,5 mm	37,5 mm	28 mm
	37,5	100	100	100	100
GRADING	28	86 – 95	86 – 95	86 – 95	100
	20	73 – 86	73 – 86	73 – 86	87 – 96
	14	61 – 76	61 – 76	61 – 76	73 – 86
	5	37 – 54	37 – 54	37 – 54	43 – 61
	2	23 – 40	23 – 40	23 – 40	27 – 45
	0,425	11 – 24	11 – 24	11 – 24	13 – 27
	0,075	6 – 10	6 – 10	6 – 10	5 – 12

Replace Table 3602/4 with:

TABLE B3602/4

Sieve size (mm)	Permissible deviations by mean values (% by mass)		Permissible deviations by individual values (% by mass)	
	Nominal maximum size (mm)			
	37,5	26,5	37,5	28
28	± 5		± 5	
20	± 5	± 5	± 7	± 7
14	± 5	± 5	± 7	± 7
5	± 5	± 5	± 7	± 7
2	± 4	± 4	± 5	± 5
0,425	± 3	± 3	± 5	± 5
0,075	± 2	± 2	± 3	± 3

Add the following subclause:

“(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 50% of that obtained on the unsoaked sample. Where any values are obtained that fall outside the above requirements, a detailed assessment of the quarry shall be undertaken together with a specialist mineralogical evaluation of both the coarse as well as fine fractions in order to assess the long-term durability properties of the material.

For Basic crystalline rocks, Arenaceous rocks, Argillaceous rocks and Diamictites the Durability Mill Index (DMI) shall be less than 125. For all other rock types the Durability Mill Index (DMI) shall not be more than 420, subject to the % passing the 0,425mm sieve not increasing by more than 8 percentage points during the Durability Mill test.

B3604 CONSTRUCTION

(b) Compaction

Replace that last sentence of the first paragraph with:

“The density of the layer shall be tested at each third of the layer thickness.”

(c) Surfacing preparation of the base

Replace the final paragraph in subsubclause 3604(c)(i) with:

“Slushing of the base, is compulsory and shall be carried out within 48 hours after completion of the compaction. Even if the specified density is achieved without slushing or before completion of the slushing process, the full slushing process must still be completed.”

Delete subsubclause (ii) Multi-stage process (water or slurry rolling).

B3605 PROTECTION AND MAINTENANCE

Replace “moisture content of the layer” in the first paragraph with “moisture content of the upper 50mm of the layer.”

Add the following to the end of the second sentence:

“as determined according to SANS 3001-GR30 (replacing TMH 1 method A7).”

B3607 QUALITY AND WORKMANSHIP

Replace the last paragraph of this Clause with the following:

“Test results and measurements shall be assessed in accordance with the provisions of Section 8200. (Ls = 88% or 89 % as ordered).”

B3608 MEASUREMENT AND PAYMENT

Replace the relevant clauses under payment item B36.01 with the following:

“Overhaul, Crushing and screening measured been measured under Section B1600 and Section B3200.”

Delete and replace the paragraph under the clause heading with the following:

“For this Contract measurement and payment under items 36.09, 36.10 and 36.14 are not applicable. The cost of additional work in restricted areas shall be included in the bulk rates.”

Add the following:

“The tendered rates for items under this sections shall also include full compensation for all additional cost related to construction joints in new layers, as specified in subclause B3208(d), due to the construction of layer in half-widths or partial-widths.”

SECTION 4100: PRIME COAT

B4102 MATERIALS

(b) Aggregate for blinding

Add the following sentence:

"Blinding of the primed surface with aggregate shall only be permitted to facilitate vehicular access to adjoining properties"

B4104 WEATHER AND OTHER LIMITATIONS

Replace paragraph (g) with the following:

"(g) When at any position within the layer the moisture content of a granular base layer is more than 50% of the optimum moisture content determined according to SANS 3001-GR30 (replacing TMH 1, Method A7). In the event of rain after priming, the base shall be allowed to dry out to meet the above moisture content requirement prior to surfacing."

B4106 APPLICATION OF THE PRIME COAT

Replace paragraph (c) with the following:

"The type of prime and application rate best suited for the base shall be determined during construction. The Contractor shall provide about 20ℓ of each prime and apply it at different application rates with a brush on the base. Then engineer will then instruct the type of prime and application rate to be used. No payment shall be made for tests to determine the type of prime.

Unless directed otherwise by the engineer or indicated on the drawings, the edges of the primed surface shall be 150mm wider than the edges of the surfacing."

Add the following subclause:

"(j) Application in areas treated by reworking and construction of a new base shall be primed using a mechanical distributor complying with subclause 4103(a). The edges of the previously constructed or existing surfacing shall be adequately protected by approved means to ensure that an overlap of prime not exceeding 50mm is sprayed onto the previously constructed or existing surfacing."

B4108 TOLERANCES

Replace the first paragraph with the following:

"The actual spray rates measured at spraying temperature shall not deviate by more than 8.0% from that ordered by the engineer. The engineer may, at his discretion, conditionally accept application rates falling outside this tolerance at reduced payment in accordance with Table B4108/1.

TABLE B4108/1: PAYMENT REDUCTION FACTORS FOR CONDITIONALLY ACCEPTED PRIME COAT

Deviation specified spray rate at spraying temperature. (%)	Payment reduction factor of tendered rate.
±8,0	1.00
±9,0	0.97
±10,0	0.95
±11,0	0.90
±12,0	0.85
±13,0	0.80

Any deviation outside these limits shall not be paid for, however, the engineer shall have the right to instruct the contractor to make up any deficiency, or blind excessive prime without additional payment. Where so instructed, the material for blinding shall consist of approved, but shall consist of screened 5mm nominal single size aggregate. The use of crusher dust for blinding shall not be permitted. If under-spraying occurs, and it is accepted by the engineer, only the actual quantities applied shall be paid for."

B4109 TESTING

Add the following:

"No payment will be made if this condition is not adhered to. The contractor shall provide, at his cost, representative samples of every batch of prime delivered onto site."

B4110 MEASUREMENT AND PAYMENT

Under the clause heading add the following:

"For this Contract measurement and payment under item 41.03 is not applicable. The cost of additional work in restricted areas shall be included in the bulk rates."

Item	Unit
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B41.01 Prime coat:

Add the following subitem:

(f) Spray-grade emulsion (30% bitumen)	litre (ℓ)
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SECTION 4200: ASPHALT BASE AND SURFACING

B4202 MATERIALS

(a) Bituminous binders

(i) Conventional binders

Add the following:

"The binders to be used shall be as follows:

- (a) Continuously graded surfacing course: 50/70 penetration grade bitumen
- (b) Continuously graded base: 30/50 penetration grade bitumen".

(ii) Non-homogeneous (heterogeneous) modified binders

Add the following:

"The use of non-homogeneous (heterogeneous) modified binders are not applicable/or permitted for this project."

(iii) Homogeneous modified binders

Replace the last sentence with:

"The modified binder to be used on this project shall be **A-E2**.

The homogeneous modified binder shall be manufactured according to the guidelines contained in "Technical Guideline: The use of Modified Bituminous Binders in Road Construction (TG 1-2015): Asphalt Academy". The base bitumen shall conform to SANS 4001-BT1:2012, or a blend of SANS 4001-BT1:2012 grades. The type as well as percentage of modifier is not prescribed, however the contractor shall indicate in the Pricing Schedules what polymer he shall be using. The properties of the homogeneous modified binder shall comply with the relevant requirements for binder class A-E1/A-E2/ A-P1* as listed in table B4202/12.

TABLE B4202/12: PROPERTIES OF POLYMER-MODIFIED BINDER FOR HOT-MIX ASPHALT

Property	Unit	Test Method	Class		
Before ageing			A-E1	A-E2	A-P1
Softening point ²	°C	MB-17	55-65	65-85	63-73
Elastic recovery @ 15°C	%	MB-4	> 50	> 60	30 - 50
Dynamic viscosity @ 165°C	Pa.s	MB-18	≤ 0,6	≤ 0,6	≤ 0,55
Storage stability @ 180°C ¹	°C	MB-6	≤ 5	≤ 5	≤ 5
Flash point	°C	ASTM D92	≥ 230	≥ 230	≥ 230
After ageing (RTFOT)					
Mass change	%	MB-3	≤ 1,0	≤ 1,0	≤ 1,0
Softening point (min)	°C	MB-17	53	63	61
Elastic recovery @ 15°C	%	MB-4	> 40	> 50	

1 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.

2 The prescribed test method is based on not using stirrers although it has been reported that the use of stirrers has shown no difference in test results. For referencing purposes no stirrers should be used.

TABLE B4202/15: TEMPERATURE/TIME LIMITS FOR POLYMER MODIFIED BINDERS

Binder Class	Short Term Handling/Transportation		Storage ¹		Spraying/Asphalt Mixing/Application		
	Max Temp (°C)	Max Holding Time (hrs)	Max Temp (°C)	Max Holding Time ² (hrs)	Max Temp (°C)	Min Temp (°C)	Max Holding Time (hrs)
A-E1 (SBR)	180	24	160	240	190	175	8
A-E1 (SBS)	180	24	160	240	180	160	12
A-E2 ³	180	24	160	240	180	170	12
A-P1	180	24	150	240	170	150	24

1 When storing product for 48 – 240 hours, it is recommended that the tank has agitation circulation.

2 If the recommended maximum holding time has been exceeded, the binder should be resampled and tested to ensure compliance with the specification.

3 A-E2 temperature to be confirmed by practitioners and historical data.

(b) Aggregates

Add the following paragraph to the introductory description:

“Asphalt mixes shall be manufactures using different individual single size coarse aggregates fractions and crushed fine aggregates blended to conform to the specified grading requirements. The use of natural sands shall only be permitted if approved by the Employer’s Agent and shall be limited to a maximum of 5% for continuously graded mixes. All aggregate in excess of 5mm shall consist of individual nominal single sized aggregate. For stone mastic asphalt mixes all aggregate fractions in excess of 2mm shall consist of individual single size fractions. The Contractor shall note that commercial suppliers may not be able to supply all the required single size aggregates, in which instance arrangements will have to be made for additional on site screening. No additional payment shall be made for screening aggregate. The use of run of crusher type materials shall not be permitted.”

(v) Absorption

Add the following sentence:

“In addition, the total binder absorption of the combined coarse and fine aggregate blend shall not exceed 0,5%”

(viii) Grading

Delete the second paragraph commencing with "The target grading..." and add the following paragraphs:

“The grading limits for the combined aggregate grading for the asphalt base shall be as specified in table 4202/6: Continuously graded 28m maximum.

The grading limits for the combined aggregate grading for the asphalt surfacing shall be as specified in table 4202/7: Continuously graded medium grade.

Add the following subitem:

“(xi) Moisture content

The moisture content of aggregates, sampled from the cold feed belt, shall not exceed the following limits at the time that it is introduced into the mix:

- Coarse aggregate 2%
- Fine aggregate 4%”

(c) Fillers

Delete the second last sentence of the first paragraph and replace with:

“With the exception of stone mastic asphalt, in no instance shall more than 2% by mass of active filler be used in the mixes.”

Add the following after the last paragraph:

“For tender purposes the active filler shall be hydrated lime”

(h) General

Add the following after the second paragraph:

“Sufficient aggregate for a minimum of 3 days production shall be separately stockpiled and tested for conformance and uniformity prior to use. The test results shall be presented to the Employer’s Agent”

B4203 COMPOSITION OF ASPHALT BASE AND SURFACING MIXTURES

In the first paragraph, third last line, after “or active filler content” add:

“or aggregate content”

Replace the fifth paragraph with the following:

“The design of the asphalt mixes shall be in accordance with “Interim Guidelines For The Design Of Hot-Mix Asphalt In South Africa (June 2001)”, and appropriate research results. The mix properties and requirements shall be as specified in the project specifications”

The relevant asphalt mixes for the base and surfacing layers shall comply with the requirements in table B4203/1.

Replace Table 4202/6 with:

TABLE B4202/6: GRADING LIMITS FOR COMBINED AGGREGATE FOR ASPHALT BASE

	Sieve size (mm)	Maximum nominal size (mm)			
		Semi-gap		Continuously graded	
		37,5	28	37,5	28
		Percentage passing sieve by mass			
	37,5	100		100	
	28	87 – 100	100	86 – 95	100
	20	77 – 96	93 – 100	73 – 86	87 - 96
	14		83 – 94	61 – 76	73 - 85
	10	61 – 81	73 – 88	52 - 68	64 - 79
	7		62 – 77		
	5	46 – 61	51 – 65	37 – 54	43 – 61
	2	39 – 51	39 – 51	23 - 40	28 - 44
	1	35 - 46	35 – 46	17 - 32	20 - 35
	0,600	32 – 42	32 – 42		15 – 30
	0,300	22 – 35	22 – 35	9 – 21	11 – 24
	0,150	10 – 20	10 – 20	6 – 17	8 – 19
	0,075	4 - 10	4 – 10	4 - 12	5 - 12
Nominal Mix Proportions by Mass when Bitumen is Used	Aggregate	93,5%		95%	94,5%
	Bitumen (grade according to project specifications)	5,5%		4%	4,5%
	Active filler*	1,0%		1,0%	1,0%

* Active filler for tender purposes to be hydrated lime.

Notes:

- For recycled asphalt the nominal mix ratios of recovered asphalt, new aggregate, new bituminous binders, and active mineral filler to be used for tender purposes, shall be as specified in Table B4202/16.
- Refer to standard COLTO table for COLTO grading if required

Replace Table 4202/7 with:

TABLE B4202/7 PART 1: GRADING LIMITS FOR COMBINED AGGREGATE FOR ASPHALT SURFACING

	Sieve size (mm)	Mix Type				
		Gap graded			Semi-gap graded	
		Stone content			Maximum stone size	
		High	Intermediate	Low	28 mm	20 mm
PERCENTAGE THROUGH SIEVE BY MASS	28				100	
	20	100	100	100	93 – 100	100
	14	78 – 100	78 – 100	78 – 100	83 – 94	83 – 94
	10	67 – 87	71 – 91	71 – 91	73 – 88	74 – 87
	5	52 – 62	61 – 71	66 – 76	51 – 65	46 – 61
	2	45 – 55	53 – 63	60 – 70	39 – 51	39 – 51
	1	45 – 55	53 – 63	60 – 70	35 – 45	35 – 45
	0,600	36 – 52	45 – 63	55 – 70	32 – 42	32 – 42
	0,300	25 – 45	35 – 55	45 – 65	22 – 35	22 – 35
	0,150	12 – 32	15 – 35	20 – 40	10 – 20	10 – 20
	0,075	5 – 12	5 – 12	5 – 12	4 – 10	4 – 10
NOMINAL PROPORTIONS BY MASS	AGGREGATE	92,0%	92,0%	92,0%	93%	93%
	BITUMEN (GRADE ACCORDING TO PROJECT SPECIFICATIONS)	7,0%	7,0%	7,0%	6,0%	6,0%
	ACTIVE FILLER	1,0%	1,0%	1,0%	1,0%	1,0%

Note:

Refer to standard COLTO table for COLTO grading if required

TABLE B4202/7 PART 2: GRADING LIMITS FOR COMBINED AGGREGATE FOR ASPHALT SURFACING

	Sieve size (mm)	Continuously graded			Semi-open graded
		Coarse	Medium	Fine	
PERCENTAGE THROUGH SIEVE BY MASS	28	100			
	20	88 – 100			100
	14	73 – 86	100		75 – 100
	10	64 – 77	85 – 100	100	53 – 85
	5	44 – 62	56 – 77	66 – 89	20 – 41
	2	27 – 45	33 – 48	42 – 59	7 – 20
	1	21 – 35	25 – 40	31 – 51	4 – 13
	0,600	16 – 28	18 – 32	24 – 40	3 – 10
	0,300	12 – 20	11 – 23	16 – 28	3 – 8
	0,150	8 – 15	7 – 16	10 – 20	2 – 6
	0,075	4 – 10	4 – 10	4 – 12	1 – 4
NOMINAL PROPORTIONS BY MASS	AGGREGATE	93,5%	93,5%	93,0%	90,5%
	BITUMEN (GRADE ACCORDING TO PROJECT SPECIFICATIONS)	5,5%	5,5%	6,0%	8,5%
	ACTIVE FILLER	1,0%	1,0%	1,0%	1,0%

Notes:

- For recycled asphalt the nominal mix ratios of recovered asphalt, new aggregate, new bituminous binders, and active mineral filler to be used for tender purposes, shall be as specified in Table B4202/16
- Refer to standard COLTO table for COLTO grading if required

Replace Table 4202/8 with:

TABLE B4202/8: GRADING LIMITS FOR COMBINED AGGREGATE FOR NON-HOMOGENEOUS MODIFIED BINDERS CONTINUOUSLY GRADED ASPHALT SURFACING

Sieve size (mm)	Continuously graded	
	Maximum stone size	
	14 mm	20 mm
20		100
14	100	86 - 97
10	83 – 100	72 – 86
5	53 – 72	47 – 64
2	30 - 47	26 – 43
1		17 - 30
0,600	13 – 25	13 – 25
0,300	8 – 18	10 – 18
0,150		6 – 13
0,075	4 - 8	4 - 10
Nominal mix proportions		
Aggregate	91%	91%
Modified binder	7%	7%
Active filler	2%	2%

Note:

Refer to standard COLTO table for COLTO grading if required

Replace Table 4202/9 with:

TABLE B4202/9: GRADING LIMITS FOR COMBINED AGGREGATE FOR CONVENTIONAL NON-HOMOGENEOUS MODIFIED AND HOMOGENEOUS MODIFIED BITUMINOUS BINDERS OPEN-GRADED ASPHALT SURFACING

Sieve size (mm)	Open graded asphalt mixes				
	14 mm nominal				10 mm maximum
	Type 1	Type 2	Type 3		
20	100	100			
14	91 – 100	74 – 100	100		
10	38 – 58	53 – 83	56 – 74		100
5	11 – 22	17 – 34	22 – 32		15 – 30
2	8 - 14	9 - 21	5 - 14		5 - 14
0,600		6 – 13			
0,300			3 – 8		
0,075	2 – 6	3 - 6	2 - 5		2 - 6
Binder type	Road grade	Polymod	Bitumen rubber	Bitumen rubber	Bitumen rubber
Aggregate	94,5%	94%	93,5%	93,5%	93,5%
Binder	4,5%	5%	5,5%	5,5%	5,5%
Active filler	1%	1%	1%	1%	1%

Note:

Refer to standard COLTO table for COLTO grading if required

Replace Table 4202/10 with:

TABLE B4202/10: GRADING LIMITS FOR COMBINED AGGREGATE FOR CONVENTIONAL AND HOMOGENEOUS MODIFIED BITUMINOUS BINDERS STONE MASTIC ASPHALT SURFACING

Sieve size (mm)	Maximum stone size		
	14 mm	10 mm	7 mm
14	100		
10	72 – 91	100	
7	45 – 69	57 – 83	100
5	31 – 52	33 – 59	82 – 100
2	20 – 31	21 – 31	31 – 41
1	16 - 26	16 - 26	22 - 32
0,600	14 – 24	14 – 23	18 – 30
0,300	11 – 23	11 – 22	13 – 25
0,150	9 – 17	9 – 19	9 – 19
0,075	7 - 12	7 - 12	7 - 12
Binder type	Road grade bitumen	Ploymer mod binder	Bitumen rubber
Aggregate	93,5%	93,5%	93,5%
Binder stabilizer (cellulose fibres)	0,35% - 0,5%	0,35% - 0,5%	0,35% - 0,5%
Binder content	6,5%	6,5%	6,5%

Note:

Refer to standard COLTO table for COLTO grading if required

Replace Table 4203/1 with:

TABLE B4203/1: ASPHALT MIX REQUIREMENTS: BASE AND SURFACING

Property	Continuously graded base mixes	Continuously graded surfacing mixes	Stone mastic asphalt mixes	Semi-gap graded surfacing mixes
Marshall Stability (kn)	8 – 18	8 – 18	-	8-18
Marshall Flow (mm)	2 – 6	2 – 6	-	2-6
Stability /Flow (kN/mm)	>2,5	> 2,5	-	>2,5
VMA (%)	> 14	> 15	> 17	>15
VFB (%)	65 – 75	65 – 75		65-75
Air voids (%)	4 – 6	4 – 6	3 – 5	4-7
Indirect tensile strength @ 25°C (kPa)	> 1000	> 1000	> 400	>800
Dynamic Creep Modules @ 40°C (MPa)	> 20	> 20	-	>15
Modified Lottmann @ 7% voids (TSR)	> 0,7	> 0, 8	> 0,7	>0,8
Air permeability @ 7% voids (cm ²)	< 1 x 10 ⁻⁸	< 1 x 10 ⁻⁸	<1 x 10 ⁻⁸	<1x10 ⁻⁸
Binder film thickness (microns)	5,5 – 8,0	5,5 – 8,0	-	5.5 – 8,0
Filler bitumen ratio	1 – 1,5	1 – 1,5	-	1-1,5
Immersion index (%)	-	-	-	>75

B4205 GENERAL LIMITATIONS AND REQUIREMENTS AND THE STOCKPILING OF MIXED MATERIAL

(b) Moisture

Amend the last paragraph as follows:

Insert "and/or primed base" after "surfacing" in the third line of the first sentence.

Replace the last sentence with "In such case the base shall be allowed to dry out to meet the above moisture content requirement prior to placing the surface layer."

(c) Surface Requirements

(iii) Tack Coat

Add the following paragraph:

"Hand spraying shall only be permitted on areas approved by the Employer's Agent. The binder distributor shall be capable to apply the binder evenly over the full area. The equipment shall comply with clause 4103. Tack coat shall be applied to all transverse and longitudinal joints by hand utilizing a paint brush."

B4206 PRODUCING AND TRANSPORTING THE MIXTURE

(b) Production of the mixture

(ii) Using drum-type mixer plants

Add the following:

"Pre-blending of aggregate fractions shall not be permitted and the contractor shall ensure that sufficient cold-feed bins are installed to accommodate each individual aggregate fraction, including the filler."

(c) Transporting the mixture

Delete the second sentence in this paragraph.

Add the following subclause:

“(f) Approval of asphalt mixture

Before any asphalt is placed on the road, the Employer's Agent shall approve the mix design. The approval process shall be as follows:

The contractor shall prepare and submit a laboratory design mix with test results at four different bitumen contents. The design mix shall be submitted on the prescribed form D3 of TMH 10: "Instruction for the Completion of As-Built Materials Data Sheets" with all the necessary test results completed. In addition, the proposed asphalt mixture shall be subjected to gyratory testing. All the expenses in preparing and submitting the laboratory design mix shall be to the contractor's cost.

Samples of all aggregate and bitumen shall be submitted with the laboratory design mix to enable the Employer's Agent to carry out check design testing as necessary. The above design and aggregate shall be submitted to the Employer's Agent at least six weeks before it is intended to commence with any asphalt production.

After approval is obtained for the laboratory design mix, a plant mix at varying binder contents of approximately 5 to 10 tons each shall be produced. The purpose of the plant mix is for the contractor to prove that the laboratory design mix can be produced successfully. The Employer's Agent shall conduct the necessary testing on the plant mix. The plant mix shall not be placed on the road. During the production of the plant mix, the Employer's Agent shall be afforded the opportunity to inspect the asphalt plant.

After the plant mix is approved, permission shall be given for laying a trial section at varying binder contents in accordance with the requirements of section 4211 of the specifications. The Employer's Agent may require that the mix be further assessed by means of CSIR Wheel Tracking or MMLS testing, the cost of

which will be borne by the Employer. Mass production of asphalt shall only commence after approval of the trial section, which should be given within a maximum of ten days.

The Employer's Agent may instruct the contractor at any time to halt his paving process and to review the whole or part of the above process should a change of aggregate properties occur, the specified asphalt requirements not being met and/or a consistent asphalt mixture not be produced."

B4208 JOINTS

Add the following to this clause:

"Where the difference in level between the new work and the existing road surface exceeds 25mm, joints shall be treated as follows:

Transverse steps at the end of a day's work shall be tapered off at a slope of 1 vertical to 20 horizontal (1:20) to tie in with the existing surface. The tapered section shall be removed before surfacing is recommenced and a joint formed in accordance with clause 4208 of the specification.

Longitudinal joints exposed to traffic shall be provided with a taper of compacted asphalt material over the full length of the exposed joint. The width of the taper shall be at least 5 times the difference in level between the old and new work.

All costs involved in the provision and removal of these temporary ramps shall be deemed to have been included in the rates tendered for the relevant asphalt payitem."

B4211 LAYING OF TRIAL SECTION

Add the following to the end of the first paragraph:

"As the purpose is not to calibrate any equipment, etc., the contractor shall calibrate the equipment and refine the mix design at his own cost."

B4213 CONSTRUCTION TOLERANCES AND FINISH REQUIREMENTS

(c) Gradings

Replace Table 4213/1 with:

TABLE B4213/1: AGGREGATE GRADING TOLERANCES

Size of aggregate passing Sieve size (mm)	Permissible deviation from target grading (%)
28	± 5
20	± 5
14	± 5
10	± 5
7	± 5
5	± 4
2	± 4
1	± 4
0,600	± 4
0,300	± 3
0,150	± 2
0,075	± 1*

* When statistical methods are applied the permissible deviation for the 0,075 fraction is ± 2%.

B4214 QUALITY OF MATERIAL AND WORKMANSHIP

(b) Coring of asphalt layers

Add the following:

"A suitable coring machine shall be available on a daily basis when asphalt paving is taking place. Cores shall only be drilled, when the road temperature is 20°C or less. Core holes shall be filled with hot mix asphalt and compacted, all within 24 hours of the core being drilled. Coring shall be carried out within 48 hours after the paving has been completed and supplied to the Employer's Agent. The test results of cores shall be submitted to the Employer's Agent within 24 hours after coring."

(c) Routine inspection and tests

Add the following paragraphs:

"The contractor shall keep accurate records of:

- (i) The position where every truckload of asphalt is paved (chainage, lane, time and date).
- (ii) The temperatures of the asphalt in the trucks both at the mixing plant and at the paving equipment immediately prior to discharging the load.
- (iii) The truck and load number from which control samples are taken. All samples taken shall be appropriately numbered.

Test results and measurements will be assessed in accordance with the provisions of section 8200."

Add the following sub-clause:

(d) Special tests

n-Heptane-Xylene Equivalent (Spot test) (AASHTO-T102)

If the Employer's Agent suspects that bitumen or asphalt has been overheated, he may order that the bitumen, or the bitumen recovered from the asphalt, be subjected to the Spot Test. Recovery of binder for use in the Spot Test shall be carried out according to an approved method.

Any bitumen having an n-Heptane-Xylene equivalent in excess of 36, or in excess of the manufacturers test result on the dispatched stock, shall be considered to have been overheated and shall be deemed to be rejected unless proven otherwise."

SECTION 4300: SEALS: MATERIALS AND GENERAL REQUIREMENTS
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B4301 SCOPE

Add the following paragraph:

“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 publication “Technical Guideline: TG1 The Use of Modified Bituminous Binders in Road Construction (TG 1-2015): 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 subsubclause 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 payment item in the Pricing Schedules, the type of polymer to be used in the blend.

- (3) Polymer modified emulsion blend

All blending shall be done at the factory. The modified binder for this project shall be **SC-E1 (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 Employer’s Agent.”

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 (summer grades)

Replace the entire subsubclause 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 payment item in the Pricing Schedules, 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

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

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.”

(2) Hardness

Delete the second paragraph and replace with the following:

“The polishing stone value, measured according to SANS 3001-AG11 shall comply with the requirements in the following table:

POLISHING STONE VALUE

Relevant Aggregate Grade	1
Aggregate position in seal:	
Exposed aggregate	50
Underlying aggregate	48

*Underlying aggregate refers to the first aggregate layer of a double seal.”

(3) Shape

Add Table B4302/13 and the following paragraph:

“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	12,0
14	8,0
10	5,5

Replace Table 4302/8 with:

TABLE B4302/8

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	Grading 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

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
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

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 subsubsubclause:

“(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 subsubsubclause:

“(iii) Aggregate for blinding

The aggregate used for blinding the single seal shall consist of 2,00mm to 5mm crushed aggregate or river sand. The aggregate shall be clean, hard and free from clay, silt or other deleterious matter.”

(c) Filler for slurry

Replace the first paragraph 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.”

(d) Hydrophilic aggregates

(i) Precoating of aggregate for stockpiling or for immediate use:

In the second paragraph, delete "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/m ³)
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-November-2007): Asphalt Academy".

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 Employer's Agent for acceptance testing purposes. The supplier shall submit all his tests results to the Employer's Agent for correlation purposes, failing which the Employer's Agent's results shall be binding in terms of acceptance or rejection of the product."

B4303 PLANT AND EQUIPMENT

(b) Binder distributor

Add the following:

"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:

- Emulsions, cutback and penetration grade bitumens - 5%
- Homogeneous 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:

"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 1,0m by 1,0m 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:

"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

Replace subsubclauses (i), (ii), (iii), (iv), (v) and (vi) with Table B4304/1:

TABLE B4304/1: MINIMUM ROAD-SURFACE RISING TEMPERATURE

Bituminous binder type	Minimum rising road surface temperature
70/100 penetration-grade	25°C
MC 3000	10°C
Cationic emulsion	10°C
Anionic emulsion	10°C
S-E1	25°C
S-E2	25°C
S-R1	25°C
S-R2	25°C
SC-E1	10°C
SC-E2	10°C
S-E1 cut back with 4.5% MC30	23°C
S-E1 cut back with 9.0% MC30	21°C

Add the following:

"Seal work using cold or hot applied polymer modified binders shall not be permitted if the minimum road-surface rising temperatures, at which the spraying of the specified binder, is not achieved. Winter grade binders shall not be permitted for any seal work and the Contractor's programme shall reflect this limitation."

(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.”

(d) Preparation of areas to be sealed

(i) General

Add the following:

“Seal work shall not be permitted on 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 Employer’s Agent has approved all other works ordered on that section of road.”

(e) Demarcation of the working areas

(i) New work

Add the following:

“Before the tack coat and first 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 with nails driven into the existing surface at intervals of 15m on straight sections and 3m apart on curves. 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 (°C)	Max holding time (hrs)	Max temp (°C)	Max holding time ⁴ (hrs)	Max temp (°C)	Min temp (°C)	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 (°C)	Max holding time (hrs)	Max temp (°C)	Max holding time ² (hrs)	Max temp (°C)	Min temp (°C)	Max holding time (hrs)
S-E1 (SBR & SBS)	180	24	150	240	210	175	8
S-E1 (SBS)	180	24	150	240	185 ³	175	12
S-E2	180	24	150	240	185 ³	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

3 S-E1 and S-E2 (SBS) can be sprayed at a maximum temperature of 195°C, but at the risk of thermal degradation.

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 3,7m 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 the paragraph:

"The protective sheets shall be made of reinforced building paper."

(v) Protection of kerbs, channels etc.

Add the following:

"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 an approved reinforced building paper."

Add the following subsubclause:

"(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 will enable him to construct the seal in accordance with the specified requirements.

At the commencement of the surfacing operation, a 200m half-width section shall be considered as a trial. After completion of each phase of the seal on this 200m 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 sections 4400, 4500 and 4600."

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."

In the last paragraph of this Clause, add the words "application rates" after "calculating bitumen..."

B4314 TOLERANCES AND FINISH REQUIREMENTS

(c) The rate of application

Replace the first paragraph 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 homogeneous and non-homogeneous 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%

Add the following at the end of the last paragraph:

"The completed surfacing shall be of uniform texture without gaps or patches and shall be free from longitudinal and transverse 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 Sub-clause 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."

B4602 GRADES OF BINDER TO BE USED

(a) Tack coat

(iii) Homogeneous modified binders

Delete "(1) 5% latex cationic emulsion" and replace with:

"Binder Class S-E1
Binder Class SC-E1 (t) (70-73)"

(b) Second application of binder

Add the following:

"The second application of binder shall consist of a Cationic spray-grade emulsion (35% bitumen) applied at 1,0ℓ/m²".

B4603 CONSTRUCTION BEFORE SLURRY APPLICATION

(a) Application of tack coat and aggregate

Replace Table 4306/1 with the following:

"TABLE B4603/1: NOMINAL RATES OF APPLICATION FOR TENDER PURPOSES"

Nominal size of aggregate (mm)	Conventional bitumen and emulsion (Residual cold bitumen) (ℓ/m ²)	Homogeneous modified emulsion (Residual cold bitumen) (ℓ/m ²)	Hot applied homogeneous modified bitumen at spray temperature (ℓ/m ²)	Aggregate spread rate for conventional and homogeneous modified binders (m ² /m ³)
20	1.2	1.5	1.75	75
14	0.9	1.2	1.5	110

Residual cold binder is defined as the net binder (bitumen, polymers and additives) cold at a temperature of 20°C. The hot applied binder is calculated by multiplying the residual cold binder by the "cold to hot" conversion factors published in TRH3."

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/m³ as specified in subclause B4302(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."

(b) Initial rolling

Replace "subsubclause 4307(b)(ii)" with "subsubclause B4307(b)(ii)"

(c) Broom drag and final rolling of aggregate

Replace "subsubclause 4307(b)(iii)" with "subsubclause B4307(b)(iii)"

B4604 SLURRY

(c) Composition of slurry

Add the following:

"The aggregate used for slurry shall comply with the requirements of Table 4302/11. The first slurry shall be a fine slurry "coarse to medium grade" and the second slurry shall be fine slurry "medium 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/m² if only the first slurry layer is applied, and 15 kg/m² in total if the first and second slurry layers are applied. Payment for slurry application rate 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"

B4605 MEASUREMENT AND PAYMENT

Add the following paragraph under the clause heading:

"For this Contract measurement and payment under item 46.08 is not applicable. The cost of additional work in restricted areas shall be included in the bulk rates."

Add the following:

"The tendered rates for items under this sections shall also include full compensation for all additional cost related to construction joints in new layers, as specified in subclause B3208(d), due to the construction of layer in half-widths or partial-widths."

Item

Unit

B46.01 Bituminous seal with 20mm aggregate and slurry:

In the heading to this item add the words:

"(excluding second application of binder)."

Delete the unit and add the following subitems:

- "(a) Single 20mm seal with first (fine slurry, coarse to medium grade) slurry layer with a tack coat comprising:
- (i) 70% polymer modified cationic spray-grade emulsion of Class SC-E1(t) (70-73) square metre (m²)
- (ii) Hot applied polymer modified bitumen binder of Class S-E1 square metre (m²)
- (b) Extra over (a) for second (fine slurry, medium grade) slurry layer square metre (m²)"

In the measurement paragraph delete the word "complete", and after the word "slurry" insert;

"(excluding second application of binder)".

Add the following:

"The cost of providing the slurry seal over the final primed width shall be included in the rate for providing the seal with slurry over the bituminous surfaced width."

Item	Unit
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B46.03 Bituminous binder variations:

Amend subitem (l) to read as follows:

"(l) modified spray grade emulsion of Class SC-E1 (t) (70-73) litre (ℓ)"

Add the following subitems:

"(m) Hot applied modified bitumen binder of Class S-E1 litre (ℓ)

(n) Precoating fluid (petroleum based) litre (ℓ)"

Add the following items:

Item	Unit
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B46.09 Extra over items B46.01(a) and (b) and 46.06 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 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.

Item	Unit
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B46.10 Second application of binder consisting of 35% spray grade cationic emulsion litre (ℓ)

The unit of measurement shall be the litre of emulsion sprayed as specified and measured of 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, STONEMWORK AND PROTECTION AGAINST EROSION
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B5102 MATERIALS

(a) Stone

Replace the second 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."

(c) Sand

(ii) Sand for bedding

Replace this subsubclause 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

B5106 SEGMENTAL BLOCK PAVING

(d) Edge beams

Add the following paragraph:

"Where concrete edge beams are constructed the relevant specifications under section 2300 shall apply."

SECTION 5200: GABIONS

B5202 MATERIALS

(c) PVC-coated wire

Delete and replace the paragraph with the following:

“Gabions of PVC-coated mesh and binding wire shall comply with the requirements of SANS 1580 and that with Nylon coatings shall comply with the requirements of EN 10245-5.”

Amend subitem (f) to read as follows:

“(f) Geotextile below the gabions”

Delete and replace the paragraph with the following:

“Geotextile shall comply with the requirements of subsubclause B2104(a)(iii). For this Contract use grade 1 geotextile as per Table B2104/2.”

B5204 CONSTRUCTION

Amend subclause (b) to read as follows:

“(b) Geotextile”

Replace the first sentence with the following:

“One layer of grade 1 geotextile shall be placed where indicated on the drawings or as instructed by the Employer’s Agent.”

B5205 MEASUREMENT AND PAYMENT

Item	Unit
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B52.03 Gabions:

Amend subitem (a) to read as follows:

“(a) Galvanized gabion boxes (nominal diameter of mesh wire and mesh size indicated):
(i) Specify box width and depth cubic metre (m³)”

Amend subitem (b) to read as follows:

“(b) PVC-coated gabion boxes (nominal diameter of mesh wire and mesh size indicated):
(i) Specify box width and depth cubic metre (m³)”

Amend subitem (c) to read as follows:

“(c) Galvanized gabion mattresses (mesh size, nominal diameter of mesh wire and diaphragm spacing indicated):
(i) Specify mattress width and depth cubic metre (m³)”

Amend subitem (d) to read as follows:

“(d) PVC-coated gabion mattresses (mesh size, nominal diameter of mesh wire and diaphragm spacing indicated):
(i) Specify mattress width and depth cubic metre (m³)”

Amend item 52.04 as follows:

Item	Unit
B52.04 Geotextiles (type and grade indicated).....	square metre

In the first and second paragraphs amend "filter fabric" to read as "geotextile".

Add the following new items:

Item	Unit
B52.05 Polymer film sheeting (state thickness), for gabions.....	square metre (m²)

The provisions of item 21.09 shall apply mutatis mutandis.

Item	Unit
B52.06 In situ cast concrete for blinding layer and cavity filling for gabion walls (indicate concrete class).....	cubic metre (m³)

The unit of measurement shall be the cubic metre of concrete to construct a blinding layer or backfill cavities as instructed by the Engineer. The quantity for blinding layer shall be calculated from the authorized dimensions as per the drawing or as instructed by the Employer's Agent. The quantity of cavity filling shall be calculated from dimensions indicated by the Employer's Agent in his instruction.

The tendered rate shall include full compensation for procuring and furnishing all the materials, storing the materials, providing all plant, mixing, transporting, placing and compacting the concrete, formwork, class U1 surface finish, curing and protecting the concrete.

Item	Unit
B52.07 Extra over item 33.01 for backfilling behind gabion retaining walls	cubic metre (m³)

The unit of measurement shall be cubic metre of backfill material placed and compacted behind a retaining wall as indicated on the drawing or as instructed by the Employer's Agent. The quantity measured shall be computed by the method of average end areas from levelled cross-sections prepared from the ground line after excavation of the wall and construction of the wall. Cross-sections shall be taken every 10 m and at positions of wall height changes.

The tendered rate will be paid extra over the rates applicable to item 33.01 and shall include full compensation for all additional costs for backfilling and compacting the material behind the retaining wall."

SECTION 5400: GUARDRAILS

B5401 SCOPE

Add the following sentence at the end of the paragraph:

"This section also includes the careful removal of existing guardrails and posts for removal or re-erection."

B5402 MATERIALS

(a) Guardrails

At the end of the first 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

After the last paragraph add the following:

"Gang-nail plates shall be supplied and fixed to the tops of all timber posts."

(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."

B5403 CONSTRUCTION

(a) Erection

Replace the seventh 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:

"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."

(a) Removing the guardrails

In the third line of the first paragraph, after "150mm layers," delete the full stop and add "of suitable material (not less than G7 quality material)."

B5406 MEASUREMENT AND PAYMENT

Replace item 54.01 with the following:

Item	Unit
B54.01 Guardrails on 3.81m spaced posts	
(a) Complete galvanised system on:	
(i) Timber posts	metre (m)
(ii) Steel posts	metre (m)
(b) Extra over 54.01(a) for the following:	
(i) Bull nose end treatment (including additional posts and guardrail length)	number (No)
(ii) Concrete balustrades end treatment (including half-length of standard guardrail unit and additional posts)	number (No)
(iii) Horizontally curved guardrails factory bent to a radius of less than 45m (including additional posts)	metre (m)

The unit of measurement for (a) and (b)(iii) shall be the metre of guardrail as erected, (including length of end treatments and curved guardrails).

The unit of measurement for (b)(i) and (b)(ii) shall be the number of end treatments of each type installed.

The tendered rates shall include full compensation for furnishing all materials and labour for erecting and galvanizing the guardrails, complete with posts, spacer blocks, bolts, nuts, washers and reinforcing plates, and excavating holes in all classes of material, concrete, backfilling and removing any surplus material. It shall also include full compensation for incidentals in respect of supplying and erecting curved guardrails, end treatments, and turned down sections.

Reflective plates and drilling and blasting will be paid for separately under items 54.06 and 54.12 respectively."

Replace item 54.02 with the following:

Item	Unit
B54.02 Guardrails on 4.0m spaced posts	
(a) Complete galvanised system on:	
(i) Timber posts	metre (m)
(ii) Steel posts	metre (m)
(b) Extra over 54.01(a) for the following	
(i) Bull nose end treatment (including additional posts)	number (No)
(ii) Concrete balustrades end treatment (including half-length of standard guardrail unit and additional posts)	number (No)
(iii) Horizontally curved guardrails factory bent to a radius of less than 45m (including additional posts)	metre (m)

The unit of measurement for (a) and (b)(iii) shall be the metre of guardrail as erected, (including length of end treatments and curved guardrails).

The unit of measurement for (b)(i) and (b)(ii) shall be the number of end treatments of each type installed.

The tendered rates shall include full compensation for furnishing all materials and labour for erecting and galvanizing the guardrails, complete with posts, spacer blocks, bolts, nuts, washers and reinforcing plates, and excavating holes in all classes of material, concrete, backfilling and removing any surplus material. It shall also include full compensation for incidentals in respect of supplying and erecting curved guardrails, end treatments, and turned down sections.

Reflective plates and drilling and blasting will be paid for separately under items 54.06 and 54.12 respectively."

Delete items 54.03, 54.04 and 54.05 without replacement

Item	Unit
B54.07 Removing existing guardrails	metre (m)

Add the following:

“The tendered rate shall also include for the backfill of the holes with suitable G7 quality material.”

Item	Unit
B54.12 Extra over item B54.01 and B54.02 for drilling and blasting holes for guardrails posts	

Add the following after the first paragraph:

“Stabilized layerworks are not classified as hard material.”

Add the following new item 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:

This section also covers the repairing of existing fences that form part of the permanent work and/or routine maintenance."

B5502 MATERIALS

Amend subclause (a) to read as follows:

“(a) Straining posts, corner posts, stays, standards and droppers”

In the first line of the first paragraph after “Straining posts,” insert “, corner posts,”.

In the first line of the fourth paragraph after “straining posts” insert “, corner posts”.

(c) Wire

(i) Barbed wire

Add the following:

"2,80 mm x 1,90 mm wire fully galvanized."

(ii) Smooth wire

Replace the third paragraph with the following:

"Fencing wire shall be either galvanized mild steel of minimum diameter of 4 mm or galvanized steel wire of minimum diameter of 2 mm."

Amend clause 5506 to read as follows:

"B5506 ERECTING STRAINING POSTS, CORNER POSTS AND STANDARDS"

In the first line of the first paragraph after “Straining posts” insert “and/or corner posts”.

In the first line of the second paragraph after “Straining posts” insert “and corner posts”.

In the second paragraph add the following:

"A 50 mm permeable drainage layer shall be placed below concrete backfill for timber posts."

In the first line of the fourth paragraph add “and corner posts”.

In the first and sixth lines of the sixth paragraph after “straining posts” insert “, corner posts”.

Add the following:

"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
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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) with the following:

“(i) Straining posts, corner posts, stays and anchors number (No)”

Amend subsubsubitem (i)(i)(2) to read as follows:

“(2) Timber straining and corner posts (diameter indicated) number (No)”

Wherever encountered in the measurement and payment paragraphs after “Straining post,” insert “and corner posts,”.

Add the following item:

“Item	Unit
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B55.10 Repairing existing fenceskilometre (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

(g) Retro-reflective material

Add the following:

"For this Contract, the retro-reflective material shall conform to a Class I material with a 7 year warranty grade."

B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS

(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 Drawings ECS/56/1/C2 to C5.

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

Delete this Sub-clause and replace 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. Some 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:

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 subclause:

“(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 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.

Payment items are provided in the Pricing Schedules. Payment will differentiate between different types of sign panels."

B5609 MEASUREMENT AND PAYMENT

Item	Unit
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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:

Amend the last two lines of the second paragraph 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
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Amend the following item to read and add the following subitems to this item:

"B56.04 Kilometre Post as per triangular concrete marker on the typical drawings.....number (No)

The tendered rate shall cover full compensation for procuring and taking delivery of the marker signs and kilometre pasts and their installation as shown on the typical drawings."

Item	Unit
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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 item:

"Item	Unit
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B56.10 Provision and erection of danger plates (W401 and W402) at culvert structures, size 600mm x 150mm on timber posts) 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."

SECTION 5700: ROAD MARKINGS

5701 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”.

Replace “Hot melt plastic road marking” with “thermoplastic road marking”.

B5702 MATERIALS

Insert the following before subclause (a):

“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.”

(a) Paint

Replace subsubclause (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.”

Replace subsubclause (iii) with the following:

“(iii) Thermoplastic road marking material

Thermoplastic road marking material shall comply with the requirements of EN 1436, and EN 1423: 1998 for drop-on glass beads for road marking and anti-skid aggregates and mixtures thereof. Blending of thermoplastic road marking material and glass beads shall comply with EN 1424: 1998.

The binder shall be an elasticized synthetic resin and the material shall be reflectorized by mixing in 25% by mass Class A glass beads in accordance with EN 1424: 1998. An additional topping of glass beads shall be applied to the hot surface of the material for instant retro-reflectivity.

The white road marking material shall contain 6% by mass minimum titanium dioxide content and shall have a skid resistance of 45 S.R.T. – units or higher. SABS Method 1248: 1995 shall be used for determination of traffic wear index; indication of durability.

The following minimum lumination values are required for the completed product:

- 250 mcd/m².lux & 120 mcd/m².lux for white & yellow lines respectively, at 30 days after application.
- 200 mcd/m².lux & 100 mcd/m².lux for white & yellow lines respectively, at 6 months after application.

Determination of coefficient of retro-reflected luminance by means of portable retro-reflectometer shall be carried out using SANS 6261: 2008. Application of the permanent roadmarking will thus have to be performed within the first 6 months of the 12 month defects liability period to allow for the second measurement to fall within the contract dates. Should the application of the permanent road-marking fall outside the first half of the defects liability period for whatever reason, the settlement of the retention money will be delayed until the second measurement of luminance can be performed at the stipulated time and the required adjustment can be made to the tendered rate (if required).

Two-component cold plastic road marking material shall be used for symbols, arrows and letters (hand painted markings) unless otherwise instructed by the Employer's Agent."

Amend subsubclause (iv) to read as follows:

"(iv) Colour, luminance and coefficient of retro reflection"

Amend the last sentence to read as '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 the following subsubclause:

"(v) Cold plastic road marking material

Cold plastic road marking material shall be used for symbols, arrows and letters (hand painted markings) and shall consist of a solvent-free reactive acrylic resin, stuffing, beads and pigment to which a hardener shall be added. Application is carried out using a trowel. Material applied by paint brush shall not be used.

Cold plastic road marking material shall be reflectorized by mixing in 25% by mass (or 400g/m²) Class A glass beads in accordance with EN 1424: 1998. An additional topping of glass beads is applied to the wet surface of the material after application and will comply with EN 1423: 1997."

(b) Road studs

Replace the paragraph with the following:

"Permanent and temporary road studs shall comply with the requirements of the European Standard for road studs IS EN 1463.

The road studs to be used on this contract shall be RSA-1 for permanent works and RSA-T for temporary works (such as temporary traffic accommodation)."

Road studs for the areas of application shall be supplied and installed in accordance with the requirements set out in Table B5702/1 with reference to IS EN 1463.

TABLE B5702/1

Classification	Area of Application			
	RSA-1	RSA-2	RSA-3	RSA-T
Description	Bi-directional	Bi-directional	Circular Cats-Eye	Bi-directional
Material	Galvanized Cast Iron	Plastic	Glass	Plastic
Design	Type A	Type A	Type A	Type A
Use	Type P	Type P	Type P	Type T
Reflector	Type 1	Type 1	Type 1	Type 2
Reflectivity	R1	R1	R1	Not Specified
Installation System	Anchored	Bonded	Embedded	Self Adhesive or Bonded
Height above Road	H3	H3	H3	H1
Dimensions (min-footprint)	100mmx80mm	100mmx100mm	100mm dia	100mmx100mm
Colours	W – R - Y	W – R -Y	W	W – R - Y
Road Trials	S1	S1	S1	Not Applicable

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
- granulometry :

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 and dry to ensure that the quality of the road markings will not be adversely affected. The Contractor is also responsible for protecting road studs from being painted over, and the subsequent cleaning thereof if such over-painting did occur."

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."

Add the following:

"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."

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 maintenance 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:

"Solvent borne road marking paint shall be applied at a nominal rate of 0,42l/m² or as directed by the Employer's Agent. Thermoplastic road marking shall be applied at a nominal rate of 2,5 kg/m² to achieve a minimum thickness of 1,25mm to 1,5mm or as directed by the Employer's Agent. The two-component road marking material shall be applied by hand by means of a trowel. The desired symbol or line shall be marked with a tape or a template on the road surface. Thereafter apply the required volume of material and spread uniformly over the entire area. When dry/set, remove the tape or template. A spreading rate of 4,5kg/m² is estimated to achieve a 2,0mm material thickness.

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.

Add the following paragraph:

"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 "400gm/m²".

Replace the second paragraph with the following:

"The thermoplastic road marking material and two-component road marking material shall contain insitu glass beads of minimum content of 25% in order to obtain night visibility (reflectivity). The Contractor shall immediately apply additional glass beads at 400g/m² to obtain immediate reflectivity. The beads shall be sprayed onto the road marking layer by means of a pressure sprayer. Where letter, symbol, traverse line and island road marking is undertaken by hand, the glass beads may be applied by hand if approved by the Employer's Agent. Prior to any hand application work, the Contractor shall first request approval from the Employer's Agent."

Add the following:

"Beads shall be applied in accordance with EN 1424."

B5710 TOLERANCES

Add the following paragraphs to sub-clause (c) Alignment of markings:

"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 10 mm 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 sub-clause:

(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:

- (i) that the painting machine is in good working order and properly adjusted;
- (ii) that the operator is fully experienced; and
- (iii) 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:

“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 subcontractors 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
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Amend item 57.03 to read as follows:

“B57.03 Thermo-plastic road-marking paint..... kilometre (km)”

Add the following after the third paragraph:

“Full payment of the tendered rate will be applicable upon completion of the application of the road-marking paint. However, should the coefficient of retro-reflected luminance fall below the required minimum levels as specified in paragraph B5702 above, payment will be reduced on the following sliding scale :

White lines:

- Below 250 mcd/m².lux at 30 days : minus 10 % of the tendered rate
- Below 200 down to 180 mcd/m².lux at 6 months : minus 10% of the reduced rate
- Below 180 down to 160 mcd/m².lux at 6 months : minus 20% of the reduced rate
- Below 160 down to 140 mcd/m².lux at 6 months : minus 30% of the reduced rate

Yellow lines:

- Below 120 down at 30 days: minus 20 % of the tendered rate
- Below 100 down to 80 mcd/m².lux at 6 months: minus 20% of the reduced rate

The reduction in the tendered rate applicable for failing to meet the specified minimum luminance level at the 30 days and 6 months measurement dates shall be applied accumulative in the certificate immediately following the date of measurement.

Item	Unit
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Amend item 57.05 to read as follows:

“B57.05 Road studs (installation and maintenance) number (No)”

Add the following after the first sentence of the second paragraph:

“No additional payment will be made should temporary or permanent road studs be replaced if lost or broken during the construction period or during the Defects Liability Period.”

Item	Unit
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B57.06 Setting out and pre-marking the lines (excluding traffic island markings, lettering and symbols) kilometre (km)

Add the following:

“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.”

Item	Unit
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B57.07 Re-establishing the painting unit at the end of the defects liability period Lump Sum

Substitute the first paragraph with the following:

The unit of measurement shall be the lump sum for the painting unit to re-established on Site at the end of the defects liability period as required and approved by the Employer's Agent.

The tendered rate shall include full compensation for re-establishing on site and the subsequent removal of all special equipment, personnel, etc. as may be required, for repainting the road traffic markings, and for re-establishment on Site at the end of the defects liability period.”

SECTION 5800: LANDSCAPING AND GRASSING

B5801 SCOPE AND DEFINITION

(a) Scope

Delete this paragraph and replace with:

"This section includes all areas affected by construction activities. It includes landscaping, grassing, rehabilitation, erosion protections and planting trees and shrubs.

Vegetation shall be established on deviations, borrow pits and other areas as directed by the Employer's Agent using hydroseeding techniques."

(b) Definition

WEEDS

Delete the following:

"(as listed in bulletin 413 issued by the Department of Agriculture, Directorate of Agricultural Information)"

and replace it with:

"(as listed in the Conservation of Agricultural Resources Act)"

B5802 MATERIALS

(a) Fertiliser / soil-improvement material

The type of fertilisers shall be as follows:

Type	Application rate (kg/hectare)
2:3:2(22)	400
Super phosphate	500
L.A.N.	50
Total kg per hectare	950

(c) Grass seeds

Add the following:

"The grass seed mixture shall be as follows:

Summer Mix

GRASS SPECIES	COMMON NAME	APPLICATION RATE (kg/Ha)
Chloris gayana	Rhodes Grass	4
Cynodon dactylon	Couch Grass	5
Digitaria eriantha	Smutsfinger Grass	8
Eragrostis curvula	Weeping Lovegrass	4
Panicum maximum	Guinea Grass	4
TOTAL		25

Winter Mix

GRASS SPECIES	COMMON NAME	APPLICATION RATE (kg/Ha)
Dactylis glomerata	Cocksfoot Grass	15
Digitaria eriantha	Smutsfinger Grass	8
Eragrostis curvula	Weeping Lovegrass	4
Panicum maximum	Guinea Grass	4
TOTAL		31

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

Where directed by the Employer's Agent Surfisol soil stabilizer (or similar approved anti-erosion products) shall be applied at a rate of 150 kg/ha.

(g) Topsoil

Add the following at the end of the first paragraph:

"The Contractor shall be responsible for the control of any germination of weed seeds within topsoil used on site."

Add the following at the end of the second paragraph:

"Areas such as stockpiles, borrow pits and spoil sites shall be stripped of all topsoil before work may commence within the area. Should a larger site for any of the above be required during construction, the Contractor shall refer to the DEO for best practice methods on ensuring the preservation of the additional stripped topsoil."

Add the following:

"Prior to commencing any earthmoving operations, the Contractor shall strip and stockpile all topsoil, to a depth of 150 mm or as otherwise agreed by the Employer's Agent, within the working area and construction camp for subsequent use in the rehabilitation and revegetation 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.

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.

The topsoil shall be kept free of all foreign material generated during construction. This shall include all stone and bituminous products. Topsoiling shall not be accepted should it contain any of the above material."

5804 PREPARING THE AREAS FOR PLANTS

b) Areas which do not require topsoil

Replace:

"50mm" with "20mm " and "150mm" with "20mm"

Add the following:

"In areas with large natural rock, i.e. not blasted or excavated rock, these rocks may be placed so as to look like a natural part of the landscape"

(c) Areas which require topsoil

Add the following to this subclause:

"Prior to topsoiling, 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 revegetated 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."

Add the following subclause:

“(g) Removal of undesirable vegetation

During the course of the Contract the Employer's Agent may instruct the Contractor to physically remove undesirable vegetation from within the road reserve. Such an operation will take place before the flowering stage of the undesirable vegetation upon written instruction from the Employer's Agent, but shall not relieve the Contractor of his obligation towards weeding sodded, grassed areas as described under clause 5806(a) and any area directly affected by any construction activity. Should the Contractor fail to respond to the written instruction from the Employer's Agent for the removal of the aforementioned undesirable vegetation before flowering, the Contractor shall be held contractually responsible for any growth or seeding of said vegetation for a period of not less than twenty four (24) months in the affected area."

B5805 GRASSING

(a) Planting grass cuttings

2nd paragraph – remove “be covered with 30mm of approved soil”. Replace with:

“have the root system of the grass cuttings thoroughly planted within the topsoil layer to ensure good growth. No part of the grass root system shall be left protruding from the topsoil”.

Remove “and, when sufficiently dry, shall be rolled with a light agricultural roller”

(c) Hydroseeding

Add the following:

“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:

“If approved by the Employer's Agent,”.

Replace the second sentence with:

"The top 20mm of prepared topsoil shall be raked away in sections, the seed shall then be spread uniformly within the prepared area. The top 20mm topsoil shall then be raked over the seedbed, ensuring an even thickness. This method is to be systematic, and where applicable, follow the contours of any slopes."

Add the following:

"The thickness of the topsoil layer shall be as specified by the Employer's Agent. The preparation of the soil 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:

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 the period September to January.

(e) Responsibility for establishing acceptable cover

Add the following:

"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 revegetated areas with L.A.N., at a rate of 150 kg/ha, in August/September. 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."

Add the following subitems:

“(g) Weeding

The Contractor shall maintain all areas affected by construction activities free of all undesirable plant species. They shall be removed before the flowering stage of each species. Should the Contractor fail to remove the alien plant species before flowering he shall be held responsible for alien plant removal within the affected area, for an additional period of one year, over and above the contractual one year defects liability period.

The method for the removal of undesirable plant species shall be either by hand, which shall include the removal of the complete root system, or by chemical means, through the use of a registered selective herbicide. A registered, licensed pest control operator, licensed for the industrial application of herbicides, shall only administer the application of the herbicide.

(h) Establishment of vegetation within areas disturbed by construction activities

The Employer's Agent shall assess any area within the construction boundaries that has been disturbed by construction activities, but which is not scheduled for formal revegetation within the contract. The assessment shall include whether re-vegetation is required. These disturbed areas, none the less remain the Contractor's responsibility for the removal of alien vegetation."

B5809 MEASUREMENT AND PAYMENT

Item	Unit
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B58.03 Preparing the areas for grassing:

- (f) Stockpiling topsoil (free haul 1,0km) where the following applies:
- (i) Topsoil stored at a stockpile site agreed with by the Employer's Agent..... cubic metre (m³)
- (ii) Topsoil pushed or bladed into heaps next to area from which it was taken cubic metre (m³)

Delete from the first paragraph, the last sentence: "Only material loaded.....approved area".

Item	Unit
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B58.04 Grassing

Amend subitem (f) to read:

- "(f) Provision and planting of vetiver grassing plants, including 200mm x 200mm deep holes, topsoil and fertilizer number (No.)"

Add the following subitem to this item:

- "(g) Provision and installation of "soil saver" protection square metre (m²)"

Add the following item:

"Item	Unit
--------------	-------------

B58.12 Removal of undesirable vegetation

- (a) Within the road reserveskilometre (km)
- (b) Borrow and quarry areas..... hectare (ha)

The unit of measurement for item B58.12 (a) shall be the linear kilometre measured along the road centreline and within the road reserve, and measured each time the Contractor has been instructed by the Employer's Agent to remove the undesirable vegetation under this item. This item shall not include areas of undesirable vegetation that have occurred within areas affected by construction activities, which are considered a contractual obligation.

The unit of measurement for item B58.12 (b) shall be the hectare, measured at borrow and quarry areas, and measured each time the Contractor has been instructed by the Employer's Agent to remove the undesirable vegetation under this item.

The tendered rate shall include full compensation for all plant, equipment, labour, and consumables required to effectively remove the undesirable vegetation, including the entire root system, and disposing by approved means."

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

B5901 SCOPE

In the first line of the second paragraph, insert the following after 'this section'

"...distinguishes between new construction and renewal construction. When construction is new, as in the case of new alignments for example, then this section "

B5902 FINISHING THE ROAD AND ROAD RESERVE

Retain the existing paragraphs as subclause:

"(a) New construction"

Replace the sixth paragraph with:

"All materials resulting from the finishing operations shall be disposed of at approved spoil sites."

Add the following:

"(b) Renewal construction

After completing construction work within the site, the contractor shall ensure that all construction generated or related material that may have been swept, windrowed, stockpiled, stored or spread beyond the road surface is removed. This shall be done before any other rehabilitation work is undertaken, including shaping, topsoiling and grassing. Should, during the removal of construction generated or related material, existing vegetation or topsoil be disturbed or destroyed, the contractor shall, at his own cost, re-instate the road reserve to its original state. This shall include ripping, should the construction material have compacted the existing surface.

Culvert inlets and outlets, culvert barrels, and open drains shall be cleared of debris, soil, silt and other material generated from the construction activities.

The surfacing shall be cleared of all dirt, mud and foreign objects. Dragging, pushing or scraping material across the finished surfacing shall not be permitted.

All junctions, intersections, islands, kerbing and other elements making up the completed works shall be neatly finished off.

The contractor shall ensure that all undesirable plants have been removed from the road reserve and borrow pit areas.

All materials resulting from the finishing operations shall be disposed of at approved spoil sites."

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

B8102 TESTING METHODS

Insert the following:

“Where reference is made to TMH test methods in this specification or the standard specifications, it shall be replaced with the relevant current published SANS test method.”

B8103 THE COST OF TESTING

Amend subclause (a) to read as follows:

“(a) Material and workmanship for quality control

“Testing shall be undertaken by an independent site laboratory 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 independent site laboratory. Should there be any doubts with regard to certain test results, this will be settled by another SANAS accredited testing laboratory facilities mutually agreed upon that shall retest the work in question. The cost in such cases shall be to the account of the party at fault by means of the aggregate results obtained by all test facilities. 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 independent site laboratory.
- (iii) The Contractor will be allowed to place a permanent representative in the independent site laboratory to observe the laboratory operations. The cost of such representation cannot be claimed as a payment contribution towards item B81.04, but will be for the account of the Contractor. The Contractor shall indicate in writing within fourteen (14) days of the commencement date if such representation will be required or declined.

The total cost of the independent site laboratory for the **sixteen (16) month** construction period has been estimated at **R 5 600 000.00**.

The estimated cost is based on for the following:

- Establishment and operation of services provided for by an independent laboratory operating from a site, which includes costs related to:
 - Establishment and operation of laboratory equipment required for on-site testing,
 - Provision of laboratory consumables,
 - Laboratory staff and labour salaries and allowances,
 - Housing for laboratory staff (labour from local community),
 - Transport requirements (based on distance) for staff and material testing.
- But excluding the following which are measured and paid for under other items:
 - Establishment of laboratory buildings on-site,
 - Servicing of laboratory buildings on-site (provision of water, electricity, sanitation and gas).

For the Contractor’s contribution towards the independent site laboratory costs, item B81.04 has been provided for, by the Employer, for the Contractor to tender a negative monthly rate to cover the Contractor’s contribution toward the independent site laboratory.

B8104 TAKING AND SUBMITTING SAMPLES

Add the following type of material submissions to Table 8104/1:

“ADDITIONAL MATERIAL SUBMISSIONS

Material submitted	Proposed use	Submission for quality approval only		Submission for quality approval and mix design	
		Minimum time to be allowed for testing and approval	Minimum quantity to be submitted	Minimum time to be allowed for testing, approval and mix design	Minimum quantity to be submitted
Binders	Asphalt	2 weeks	5 ℓ	4 weeks	10 ℓ
	Surface treatments	2 weeks	5 ℓ	4 weeks	10 ℓ
	Bituminous stabilised materials	2 weeks	5 ℓ	4 weeks	10 ℓ
Bituminous stabilised materials	Bituminous stabilised mixes	2 weeks	50 kg of each type of aggregate	4 weeks	100 kg of each type of aggregate

“

B8105 TESTING THE AGGREGATES

Add the following subclause:

“(g) Determination of Ethylene Glycol Durability Index

The Ethylene Glycol Durability Index shall be determined as follows:

(i) Apparatus

Suitable pans or basins
Ethylene Glycol solution
Stirring rod

(ii) Method

Obtain three or more representative samples from the source to be evaluated.

If not already crushed, crush the material in order to obtain sufficient minus 19mm plus 13mm sized aggregate in order to totally cover the bottom of the basin or pan with a single layer of stone. Add sufficient ethylene glycol to each basin ensuring that every aggregate particle is completely submerged.

After soaking for 24 hours, gently stir the aggregate, 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.

(iii) Classification of response

After each cycle, classify and record the response of the aggregate as follows:

DISINTEGRATION CLASS

- Class 1: No obvious effects, or only very minor spalling of sand particles or very small flakes.
- Class 2: Splitting of rock, accompanied by any other disintegrative effects.
- Class 3: Fracturing (spheroidal and / or internal) without extensive spalling or distortion.
- Class 4: Fracturing (spheroidal and / or internal) with extensive spalling or distortion.
- Class 5: Complete disintegration.

TIME CLASS

The time factor in the above disintegrative process is classified according to the time taken for the most serious effect of the expansive stresses to occur i.e.

Class 4:	0 - 5 days
Class 3:	6 - 15 days
Class 2:	16 - 30 days
Class 1:	31 - 60 days
Class 0:	Over 60 days

(iv) Determination of Glycol Durability Index

The Ethylene Durability Index is determined by adding the class number as assigned for the specific disintegrative response observed to the class number as assigned for the period for this response to occur. A durability index ranging from 1 (no response) to 9 (rapid and complete disintegration) is thus determined."

B8108 DETERMINING THE TOTAL APPROXIMATE DRY BULK RELATIVE DENSITY AND THE APPARENT DENSITY

Add the following:

"For materials where the total water absorption, when determined according to SANS 3001-AG20 (replacing TMH1 Method B14) and SANS 3001-AG21 (replacing TMH1 Method B15), is in excess of 1,5%, the Apparent Density shall be calculated in accordance to the following formula:

$$\frac{(b - a)}{(d - a) + \{ (w - 1.0)/100 \times (b - a) \} - (c - b)}$$

This formula shall be used as an alternative to note (5) regarding soaking period, when so instructed by the Employer's Agent."

B8110 TESTS RELATING TO CHEMICAL STABILISATION

(c) Test for mix uniformity in chemically stabilized layers

In the first paragraph delete "unconfined compressive strength tests, using an approved method." and replace with "indirect tensile strength tests, using SANS 3001-GR54."

Amend clause 8114 to read as follows:

"B8114 TESTING GEOSYNTHETICS AND GEOTEXTILES"

Delete all and replace with the following::

"Geosynthetics and geotextiles are defined, and test methods given in SANS 10318 and include geotextiles, geogrids, geocomposits drainage systems, geonets, geocells and geomembranes."

B8117 MEASUREMENT AND PAYMENT

Item	Unit
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Amend item 81.02 as follows:

"B81.02 Other special tests requested by the Employer's Agent:

(a)	Employer's contribution to concrete durability tests:	
(i)	Tests for water sorptivity	provisional sum
(ii)	Tests for oxygen permeability	provisional sum
(iii)	Tests for chloride conductivity	provisional sum
(iv)	Tests for concrete cover	provisional sum

- (b) Other testsprovisional sum
- (c) Handling cost and profit in respect of sub item B81.02 (a) & (b) percentage (%)

The provisional sum provided to cover the cost of special tests as requested by the Employer's Agent in terms of clause 8115 shall be expended in accordance with the provisions of the General Conditions of Contract. Payment will not be made for any special tests should the result indicate that the specifications have not been complied with."

The percentage for subitem B81.02 (c) is a percentage of the actual amount spent under subitem B81.02(a) and (b), 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:

Item	Unit
B81.04 Combined on-site laboratory	Provisional Sum

This item makes provision for a cost of R450,000.00 per month to cover the establishment, operation and de-establishment of the combined on-site laboratory over the 24-month contract period including any approved extension of time. The amount excludes the cost of all other specialised testing requested by the Engineer.

Item	Unit
B81.05 Contractor's financial contribution for the combined on-site laboratory	month

The unit of measurement shall be 'month'. The negative rate of R225,000.00 per month is deemed to cover the Contractor's contribution towards the establishment, operation and de-establishment of the combined on-site laboratory over the contract period including any approved extension of time and shall be deducted from the Contractor's payment certificates. The Contractor's contribution of R225,000.00 per month for the establishment, operation and de-establishment of the combined on-site laboratory shall be deducted monthly from the payment certificates over the contract period, including approved extensions of time. However, excluded from the tendered contribution shall be the costs of all other special tests requested by the Engineer"

Insert "(a) & (b)" after "81.03" in the 1st line of the 2nd paragraph of the Note

Add the following clause:

"B8118 BINDER DISTRIBUTORS: FIELD SPRAY FLAIR TRANSVERSE DISTRIBUTION TEST

(a) Scope

This method sets out the procedure for the simple field determination of the transverse distribution of nozzle flairs of a binder distributor. Certain statistical criteria are applied to the results to determine conformance with requirements.

(b) Definition

The purpose of the test is to determine conformance of the transverse distribution, within a spray flair, as measured by direct discharge from 3 individual nozzles, representing the centre and each side of the spray bar, using the project binder

(c) Apparatus

(i) Steel troughs

Steel troughs fitted with handles and manufactured from 3,0 mm mild steel plate, conforming to the following or similar dimensions:

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Width - 100 mm (outer edge)
Length - 450 mm
Height - 120 mm

A total of 9 troughs are required. Each trough must be clearly numbered on its side.

(ii) Balance

A balance capable of weighing up to 50 kg to an accuracy of 20 g

(iii) Personal protective clothing

The appropriate safety gear must be worn when performing this test and should include a pair of appropriate protective gloves, face shield and approved overalls.

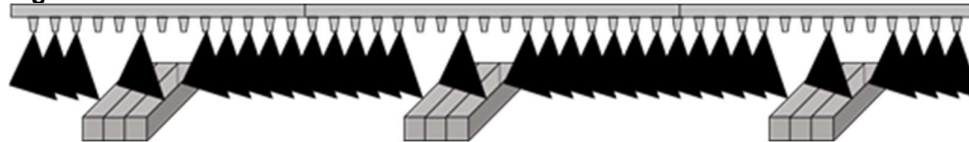
(iv) Cleaning fluid

Diesel or other suitable fluid.

(d) Preparation of the binder distributor

- (i) Ensure that all the binder strainers on the sprayer have been cleaned.
- (ii) Preheat the binder in the distributor tank to within $\pm 5^{\circ}\text{C}$ of the required spray temperature.
- (iii) Circulate the binder through the spray bar for at least 15 minutes.
- (iv) 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.
- (v) If necessary, correct any malfunctioning of the spray bar.
- (vi) Ensure that all nozzles are set at the same angle
- (vii) Select 3 nozzles representing the centre and each side of the spray bar, and close 2 nozzles each side of the selected test nozzles.

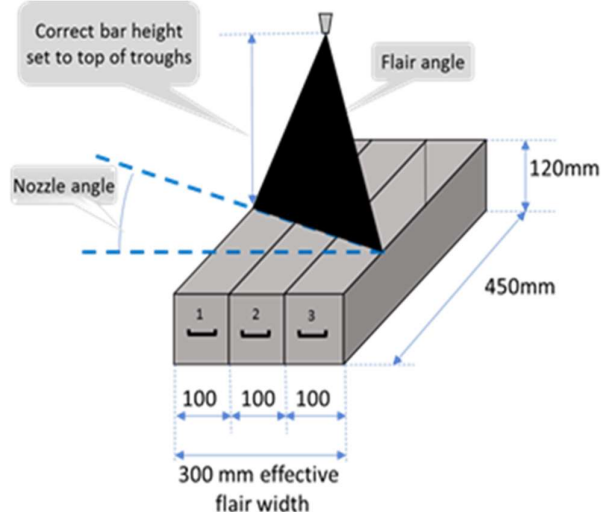
Fig. B8118/01



(e) Method

- (i) Select a horizontal, flat area of at least 20 m by 7,0 m.
- (ii) Place and secure reinforced paper to cover a distance of 5,0 m.
- (iii) Set the spray bar height (Bottom of nozzles) to the calibrated height for the particular binder and nozzle angles.
- (iv) 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.
- (v) Spray a distance of 4,0 m to verify the effective spray flair width of 310 mm (± 15 mm), perpendicular to the line of travel and adjust the spray bar height, if necessary. ASAP
- (vi) Ensure that all troughs are clean and free of any water or other materials.
- (vii) Place a set of three pre-weighed steel troughs described in subsubclause B8118(c)(i) under each of the selected test nozzles, with the length of the troughs perpendicular to the spray bar, and in such a manner that the discharge of each test nozzle is collected in the three troughs. Ensure that the troughs are placed in numerical order.
- (viii) Adjust the spray bar height to ensure that the bottom of each test nozzle is at the correct height above the top of the troughs.
- (ix) Open the nozzles and spray sufficient binder to fill the troughs without risking spillage during handling.
- (x) Weigh the troughs to determine the mass of binder sprayed.
- (xi) On completion of the weighing and before the binder cools suck back the binder into the distributor tank.
- (xii) Only clean the troughs with a suitable cleaning fluid once they have cooled down to room temperature.
- (xiii) Store used cleaning fluid in a suitable container for re-use.

Fig. B8118/02



(f) Calculation and report

- (i) Determine the net mass of binder in each trough to the nearest 20 grams.
Net mass binder = $(M_1, M_2, M_3 \dots M_9)$
- (ii) Calculate the average mass of the binder collected in all the troughs.
 $M_{ave} = \sum (M_1 - M_9) / 9$
- (iii) Calculate the deviation from the average mass for every trough and express the value as a percentage.
% Deviation = $(M_{ave} - M_i) / M_{ave} \times 100$
- (iv) Check that the deviations are within the tolerances specified in SANS 3001-BT24 Paragraph 7: Acceptable tolerances of transverse distribution.
- (v) Report results on a suitable report sheet.
- (vi) Update the 'Nozzle flair' test and pump speed/pressure record with the relevant information for the distributor and binder type.
- (vii) Ensure that after the pump speed / pressure has been finalised and a final height of the spray bar has been determined that the road speed is also adjusted or interacts with the pump speed in order to achieve the correct rate of application.

(g) Non-compliance

- (i) If the transverse distribution is out of specification, it is likely that the pump speed / pressure is incorrect.
- (ii) Consult the depot calibration sheet and make the necessary adjustments to pump speed/pressure and adjust bar height if necessary.
- (iii) Repeat the test procedure as described in subclause B8118(e) and subclause B8118(f).
- (iv) It may be necessary to repeat subsubclauses B8118(g)(i) and (ii) until compliance is achieved.
- (v) Update the 'Nozzle flair' and pump speed/pressure test record with the relevant information for the distributor.

(h) 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

SECTION 8200: QUALITY CONTROL (SCHEME 1)

B8201 SCOPE

Add the following paragraph:

“Quality Control Scheme 1 as specified in Section 8200 shall apply to this Contract.”

B8206 JUDGEMENT PLAN B

Replace “Table 8206/1” with “Table B8206/1”:

TABLE B8206/1

Structure	Characteristic
Gravel pavement layers	Relative compaction
Crushed-stone base or subbase and Bound Macadam (BM)	Relative compaction
Asphalt base and surfacing	Relative compaction Binder content of mix Void content of mix
Chemically stabilised layers	Relative compaction
BSM layers	Relative compaction
Structural Concrete	Compressive strength
Concrete for pavements	Compressive strength

(a) Taking samples and testing the properties

Add the following:

“For concrete, the sample size (n) refers to the number of valid test results. A valid test result is the arithmetic mean of at least 3 cube or cylinder specimens, where the difference between the highest and lowest result does not exceed 15 percent.”

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Replace "Table 8206/3 and notes" with "Table B8206/3 and notes":

TABLE B8206/3: VALUES OF CONSTANTS N, L_s, L_s AND Ø

Material	Properties	Minimum sample size (n) per lot				Lower specification limits L _s	Upper specification limit L' _s	Ø (%)
		Road category						
		A	B	C	D			
Selected subgrade	Relative compaction * ₁	6	6	4	4	93 % or 95 %	-	15
Subbase	Relative compaction * ₁	8	6	4	4	95 % or 97 %	-	15
Granular Base	Relative compaction * ₁	8	6	4	4	98 % or 97 % if stabilised	-	15
Crushed stone base or subbase	Relative compaction * ₂	8	6	4	4	As specified in relevant Chapter	-	15
Asphalt base or surfacing, Bound macadam	Relative compaction	8	6	4	4	See note 1		10
	Binder content	8	6	4	4			10
	Voids in mix	8	6	4	4			10
Structural concrete	Compressive strength (28 days)	See Table 8206/3				See note 2	-	5
Pavement concrete	Compressive strength (28 days)	10	8	6	4	See subclause 7103(d)		5
Chemically stabilised layers	Relative compaction * ₁	8	6	4	6	95 % or 97 %	-	10
BSM	Relative compaction * ₁	8	6	4	4	98 %	-	10

*1 Relative compaction based on maximum dry density SANS 3001-GR30 (MDD)

*2 Relative compaction based on apparent density SANS3001-AG22 (AD)

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"NOTES (Table B8206/3)

(1) Asphalt base or surfacing: Specification limits for –

(a) Relative compaction:

$$\begin{aligned} L_s &= 93 \% \text{ of voidless density (Rice's Method)} \\ L'_s &= 97 \% \text{ of voidless density (Rice's Method)} \end{aligned}$$

The above relative compaction specifications are applicable to all asphalt mixes, except for EME, SMA, UTF, Porous mixes and mixes underlying concrete pavement slabs, for which the requirements shall be specified in the Contract Documentation or as outlined in the SABITA manuals for the relevant mix types.

(b) Binder content for all mix types using both conventional and homogeneous modified binders:

$$\begin{aligned} L_s &= \text{specified binder content} - 0,30 \% \text{ binder} \\ L'_s &= \text{specified binder content} + 0,30 \% \text{ binder} \end{aligned}$$

(c) Binder Content for non-homogeneous modified binders (Bitumen – rubber mixes):

$$\begin{aligned} L_s &= \text{specified binder content} - 0,40 \% \text{ binder} \\ L'_s &= \text{specified binder content} + 0,40 \% \text{ binder} \end{aligned}$$

(d) Void content:

$$\begin{aligned} L_s &= \text{specified values} - 1,0 \% \\ L'_s &= \text{specified values} + 1,0 \% \end{aligned}$$

B8208 CONDITIONAL ACCEPTANCE

Replace "Table 8208/1" with "Table B8208/1":

TABLE B8208/1: PROPERTIES IN RESPECT OF WHICH CONDITIONAL ACCEPTANCE MAY BE APPLIED

Property	Structure
Relative compaction	(i) Asphalt base or surfacing (ii) Chemically stabilised layers (iii) Plant mixed paver laid layers (iv) BSM layers
Bituminous binder content	Asphalt base or surfacing
Voids in mix	Asphalt base or surfacing
28-day compressive strength	All strength concrete. (concrete pavements not included. See note 1)

Notes:

Delete note 2

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Replace "Table 8208/2" with "Table B8208/2":

TABLE B8208/2: REJECTION LIMITS (L_r en L'_r) FOR SAMPLE MEAN ($\bar{x}_n$)

Property	Structure	Rejection limits (L_r and L'_r)
Relative compaction	Chemically stabilised layers	$L_r = (L_a - 1,500)$ % of relative compaction
	Asphalt base or surfacing	$L_r = (L_a - 1,000)$ % of relative compaction $L'_r = (L'_a + 0,500)$ % of relative compaction
	Bituminous stabilised materials	$L_r = (L_a - 1,500)$ % of relative compaction
Concrete compressive strength	All strength concrete (excluding that in pavement)	$L_r = 0,9 L_a$
Bituminous binder content (%)	Asphalt	$L_r = (L_a - 0,200)$ % binder $L'_r = (L'_a + 0,200)$ % binder
Voids in mix (%)	Asphalt	$L_r = (L_a - 0,300)$ % voids $L'_r = (L'_a + 0,300)$ % voids

B8211 DETERMINING REJECTION LIMITS IN ACCORDANCE WITH STATISTICAL CRITERIA

The rejection limits shall be determined in accordance with the requirements of clause 8211."

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3 : SCOPE OF WORK

SECTION C : OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

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PROVINCE OF THE EASTERN CAPE

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UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE
(KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

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

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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

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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, its 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;

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- (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

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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.

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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 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:

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- (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.

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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

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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

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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 of 1966 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

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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.

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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 shall 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.

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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.

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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:

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- (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
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C10.01 Preparation of Principal Contractor's site specific Health and Safety Plan	lump sum
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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
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C10.02 Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	lump sum
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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
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C10.03 Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month
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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.

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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.

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Item	Unit
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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
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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.

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Item	Unit
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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.

C10.07 Health and safety induction training.....Number (No)

The unit of measurement shall be the number of health and safety inductions, as set out in Regulation 7 of the Construction Regulations, for all site staff, operators, labours and visitors on site.

The tendered rate shall include full compensation for all health and safety induction training conducted by the Principal Contractor in terms of the contract.

Payment shall be based on the number health and safety induction training conducted and verified by means of the Principal Contractor's indication training register.

Item	Unit
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C10.08 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

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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
C10.09 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
C10.10 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
C10.11 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
C10.12 Transportation of workers	month

The tendered rate per month represents full compensation for the safe transportation of workers in terms of these specifications.

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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
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C10.13 Submission of the Occupational Health and Safety File	lump sum
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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
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C10.14 Construction Work Permit Board	lump sum
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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.

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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

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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

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19. Certified documents and Permits (CoC – PV Test – Lifting Equipment Certificates – Haz.Substance Permits)
20. Archived Documents

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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		

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ANNEXURE D CLOSE OUT REQUIREMENTS

CONSOLIDATED HEALTH & SAFETY FILE																																																																																								
Construction Regulations - February 2014 7(1b,e & f)																																																																																								
1	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)																																																																																							
	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.																																																																																							
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2	The Principle Contractor submits a formal letter to the project appointed Agent, consolidating and Confirming the H & S history of the project.		INCLUDED																																																																																					
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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.																																																																																							
5	Defect and Liability Period																																																																																							

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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.

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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/ bowsters 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

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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:						

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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			

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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)

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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)			
<u>Awards or Achievements:</u>			
Submitted By			
Name	Designation	Signature	Date

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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 3 OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 CONSTRUCTION REGULATIONS, 2014 Medical Certificate of Fitness		ID Number:	Co. Number:
Name of Employee: 	*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 matrix above.			
Occupational Medicine Practitioner / Occupational Health Nursing Practitioner: (Please Print Name):			
Signature: _____ Address: _____		Practice Number: _____	Date : _____

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 Residual Risk - The extra factors noted that must be in place to reduce the risk 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										2	6	18
										3	8	27
GAR GSR SANS SABS NIHL GMR OHS Act SWP MS HCS PrDP	General Administration Regulations General Safety Regulations South African National Standards South African Bureau of Standards Noise Induced Hearing Loss General Machinery Regulations Occupational Health and Safety Act and Regulations 85 of 1993 Safe Work Procedures TMS Hazardous Chemical Substances Professional Driving Permit			Baseline Raw Design Risk				Residual Risk				
COLTO / LEGISLATION REF	Design aspect present	Yes / No	Describe the conditions and activities associated with the task	Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating and Risk Category	Extra control measures necessary to reduce risk / Redesign	Likely Consequences of an Accident	Frequency of Exposure	Probability of Harm	Risk Rating and Risk Category

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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. May be illegal connections Asbestos pipes	2	2	2	8	Competent supervision and adequate pre-task training will be required Removal of asbestos pipe to be according to the Asbestos Regulations 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 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	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
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 Employers Agent 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

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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	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
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 temporary by-passes are to be approved by the RE	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.	3	2	1	6
1502(e)(h)	Are there specific concerns regarding public access?	Yes	Taxi /Bus stops and access to private property will be affected	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. Allowance will be made for access to private property	3	3	2	18

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1502(i)	Traffic Safety Officer (TSO) will be appointed?	Yes	A team with at least 1 TSO to manage the traffic safety on site	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
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 engineer for the disposal of materials TMS and Environmental approval	3	3	2	18
SERIES 2000 - DRAINAGE												
2100	Drains	Yes	Open earth drains 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
2200	Prefabricated culverts	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

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2300	Concrete kerbing, concrete 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 and SWP	2	2	1	4
SERIES 4000 - ASPHALT PAVEMENTS AND SEALS												
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
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

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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
OHS SPECIFICATIONS												
	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 Emerging Contractor 's will be used	3	3	3	27	Local labour to have a medical. Emerging Contractor 's to produce H&S Plans before commencement of work on site	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
	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	3	3	2	18

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								lights, reverse warning hooters and daily check checks				
OHS Specification	Hazardous Chemicals	Yes	HCS's will be used during the project	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 Construction Vehicles	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	3	1	9
	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	3	1	9

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	Hazardous Chemicals	Yes	Flammable materials,petrol, diesel, lubricants, gas cylinders, asphalt pre mix,cement, road lime, Prime MC30, Bitumen 35% and 65% Spray grade emulsions and 65% cationic stable grade emulsions Grouts Herbicides and ant poisons Coatings Superphosphate fertilizers Limestone Ammonium Nitrate fertilizer Formula 2:3:2 fertilizer Shutter oils Additives for concrete	3	3	3	27	PPE, Method Statement, Training, Medicals and Induction	3	2	2	12
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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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PART C3 : SCOPE OF WORK

SECTION D: HIV/AIDS AWARENESS EDUCATION SPECIFICATION

PROVINCE OF THE EASTERN CAPE

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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

Payment items to cover the contractor's cost related to the HIV/AIDS Awareness Education are included in the bill of quantities. These items are described under SCHEDULE A – GENERAL in SECTION D: HIV/AIDS AWARENESS EDUCATION.

Item	Unit
------	------

D10.01 HIV/AIDS awareness training:

- | | | |
|-----|--|-----------------|
| (a) | Provision of training..... | provisional sum |
| (b) | Handling costs and profit in respect of subitem D10.01(a)..... | percentage (%) |

Expenditure under this item will be made in accordance with the general conditions of contract.

For subitem D10.01(a) the provisional sum shall include full compensation to comply with clauses D3 & D4. Payment under this item is dependent on approval from the Employer's Agent.

The tendered percentage is a percentage of the amount actually spent under subitem D10.01(a), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals in connection with HIV/AIDS Awareness Education and Training.

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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PART C3: SCOPE OF WORK

SECTION E: TARGETED LABOUR PARTICIPATION AND DEVELOPMENT SPECIFICATIONS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

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UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION E: TARGETED LABOUR PARTICIPATION AND DEVELOPMENT 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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ANNEXURE A CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN (PRO-FORMA)	C3.297
ANNEXURE B EMPLOYER'S SPECIFIC CONTRACTOR MONTHLY LOCAL LABOUR REPORT	C3.300

E1 SCOPE

This section covers the implementation of the Employer's contract participation targeted strategy and goals in terms of targeted labours employed by the Contractor, subcontractor(s) and targeted subcontractor(s), in the performance of the Contract.

This section also covers the development and training of employed targeted labours.

E2 TERMS AND DEFINITIONS

For the purposes of this section the following terms and definitions apply.

(a) allowance

Amount provided for in the Contract by the Employer relating to one or more of the following:

- (i) contingencies amount and contract price adjust amounts (if any); and
- (ii) provisional sum, prime cost sum amounts including their associated percentage (%) mark-up costs.

(b) black people

Has the meaning assigned to fit in section 1 of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)

(c) Community

South African Citizens, as defined in terms of the South African Citizenship Act, 1995 (Act 88 of 1995), who permanently reside within the target area(s).

(d) Contract

Means the documentation of the agreement between the parties in terms of the Form and Offer and Acceptance (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA).

(e) contract amount

Refers to the monetary value used to calculate the contract participation goal for the contract participation target under consideration.

The contract amount equals the Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

(f) contract participation

A process by which the Employer implements Government's objectives by employing a targeting strategy to enhance the utilisation and development of targeted enterprises (subcontractors, manufactures and suppliers) and targeted labour.

(g) contract participation goal (CPG)

For the contract participation target under consideration, the Employer sets a minimum goal expressed as a percentage value (%). In turn, this percentage (%) goal is used to calculate the minimum rand value (R) goal for said contract participation target.

The CPG (R) is thus calculated using the following formula:

$$CPG (R) = \text{contract amount (R)} \times \text{minimum goal (\%)}$$

where:

contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

minimum goal (%) = As indicated by the Employer in the Contract, Part C4: SITE INFORMATION.

(h) contract participation performance (CPP)

The measure of the Contractor's progress in achieving the contract participation goal under consideration.

(i) contract participation target(s)

The Employer's contract participation targeting strategy, in terms of this Contract, includes the following three (3) targets:

- (i) Targeted subcontractors employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract;
- (ii) Targeted suppliers employed by the Contractor, subcontractor(s) and targeted subcontractors, for supplying materials, goods or services, in the performance of the Contract;
- (iii) Targeted labour employed by the Contractor, subcontractor(s) and targeted subcontractors in the performance of the Contract **(covered in this section)**

All the above mentioned targets contribute to the Employer's contract participation. However compliance is measured based on each individual contract participation target.

(j) Contractor

Means the person named in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA) whose offer has been accepted in the Form of the Offer and Acceptance and the legal successors in title of this person.

Also referred to as the principal contractor or main contractor.

(k) Employer

Means the person for whom the Works are to be carried out and who is named as the Employer in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA), and the legal successors in title of this person.

(l) Employer's Agent

Means the person named as the Employer's Agent in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA), or any other person appointed from time to time by the Employer, and of whom the Contractor is notified, in writing, to act as Employer's Agent for the purposes of the Contract as substitute for the Employer's Agent so named.

(m) Key personnel

Means Construction Manager, all Contractor's superintendence, materials and survey technicians, skilled operators of equipment and all other personnel in the permanent employment of the Contractor, subcontractors and targeted subcontractors who possess special skills and/or who play key roles in the Contractor, subcontractors and targeted subcontractors operation.

(n) people with disabilities

Has the meaning assigned to it in section 1 of the Employment Equity Act, 1998 (Act No. 55 of 1998)

(o) Project Liaison Committee (PLC)

Means the committee that represents the project stakeholders and community. The Employer, Contractor and Employer's Agent also become parties to this committee at relevant stages of the project.

(p) Project Liaison Officer (PLO)

Means the person who acts as the liaison officer for the project. The PLO facilitates the employment of targeted labour and attends to the day to day project stakeholder and community matters that impact on the parties to the project.

(q) subcontractor

Means a subcontractor employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract but how are not a targeted subcontractor.

(r) target area

Means a geographical area defined in the in the Contract, Part C4: SITE INFORMATION, and may refer to the ward(s), local municipal area(s), district area(s) and/or province within which the Site of the Contract is located.

The Employer may, at his sole discretion and upon the basis of evidence submitted by the Contractor or PLO and PLC in support of fruitless efforts in good faith to secure targeted labour within the specified target area or to address project stakeholder and community concerns, grant a waiver with respect to the specified target area of the contract participation target under consideration.

A waiver with respect to increasing the boundary of the specified target area shall follow the order of precedence (from highest to lowest) as indicated below:

- (i) adjacent wards within the local municipal area of the specified target area,

The boundary of the local municipal area shall represent the maximum extend of a target area for which a waiver may be granted by the Employer.

(s) targeted labour

Means individuals:

- (i) who are employed by the Contractor, subcontractors and targeted subcontractors in the performance of the Contract; and
- (ii) whose monthly earnings are derived from hours worked for a fixed hourly rate which is adjusted from time to time by legislation (as a statutory minimum) and the Contractor's or subcontractor's or targeted subcontractor's employment policies; and
- (iii) who permanently resides in the target area or who are recognized as being residents of the target area based on identification and association with, and recognition by, the community of the target area.

(t) targeted labour database

Means a list of targeted labour compiled by the Project Liaison Officer (PLO), in consultation the Project Liaison Committee (PLC), in terms of the requirements of the Contract.

(u) targeted subcontractor

Refer to subclause G1.2(t) SECTION G1: TARGETED SUBCONTRACTOR PARTICIPATION AND DEVELOPMENT SPECIFICATIONS of Part 3 of the Contract.

(v) targeting strategy

An approach which is pursued to make a contract participation goal an obligation of Contract.

(x) youth

Has the meaning assigned to it in section 1 of the National Youth Development Agency Act, 2008 (Act No. 54 of 2008).

E3 APPLICABLE LEGISLATION

The following Acts, as amended from time to time, are predominant amongst those which apply to the construction industry and are listed here for reference purposes only:

- (i) The Constitution of the Republic of South Africa, 1993;
- (ii) Public Finance Management Act, 1999 (Act No 1 of 1999);
- (iii) Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000) and Regulations;
- (iv) Construction Industry Development Board Act, 2000 (Act No 38 of 2000) and Regulations; and
- (v) The Skills Development Act, 1998 (Act No. 97 of 1998).

E4 OBJECTIVE

A major objective of Government is to extend economic opportunities and entrepreneurial capacity to all localities by optimum utilisation of the resources existing in the vicinity of projects, the development of these resources in the execution of the project, and by maximising the amount of project funds retained within the project locality.

The Employer's contract participation targeting strategy for the utilisation of targeted labours is one of the processes by which the Employer implements Government's objectives.

E5 REQUIREMENTS

(a) Contract Participation Goal Implementation Plan

The Contractor shall employ, develop and train targeted labours in the performance of the Contract to the extent that the monetary value of such employments, exclusive of any value added tax or sales tax required by law, is sufficient to achieve the contract participation goal under consideration.

The Contractor is required to submit to the Employer's Agent details of his plan to achieve the contract participation goal under consideration, on the contract participation goal implementation plan form contained in Annexure A, within two (2) months after Commencement of the Contract. Thereafter, updated plans are to be submitted when amended by the Contractor.

(b) Targeted Labour Database

The Contractor shall advise the Project Liaison Officer (PLO) and Project Liaison Committee (PLC), in writing, of the various skills categories of targeted labour required for construction and number of targeted labour required per skills categories, together with the attributes associated with each skills categories, taking into account the provision of development provided by the Contractor and accredited training allowed for by the Employer.

The PLO, in consultation with the PLC, shall compile a targeted labour database based on the targeting criteria in terms of the Contract. Thereafter the PLC shall verify and endorse the targeted labour database for targeted labour employment purposes.

The targeted labour database shall be updated as and when required and as agreed with the PLC to reflect new employment opportunities provided for by the Contractor and new employment seekers in the labour market.

(c) Employment of Targeted Labour

The Contractor shall as far as practically possible, excluding key personnel and taking into account the CPG, maximize employment of semi-skilled and unskilled targeted labour in terms of employment opportunities created in the performance of the Contract.

The Contractor (subcontractors and targeted subcontractors) shall select, in consultation with PLO, and appoint targeted labour only from the endorsed targeted labour database. Such selection and employment shall take due cognisance of the following targeting principals:

- (i) Promoting equal employment for men and women,
- (ii) Maximizing the employment of youths,
- (iii) Promoting employment for people with disabilities,
- (iv) Promoting a fair and balanced ratio of employment within the target area(s), and

- (iv) Providing development and training.

The Contractor, subcontractors and targeted subcontractors are required to enter into written contracts with targeted labour. As a requirement of this Contract, signed copies of said written contracts are to be submitted to the PLO and Employer's Agent for verification and record purposes.

(d) Targeted Labour Development and Training

- (i) Skills Development training

The Contractor shall conduct a skills audit of all appointed targeted labour and provide suitable development training for the skills improvement of appointed targeted labour.

Development training provided for by the Contractor shall include:

- Basic instructions and on-site hands-on training for the skills category of work required for every targeted labour,
- In-house training courses conducted by trainers in the employ of the Contractor for selected targeted labours, selected by the Contractor and approved by the Employer's Agent,

The Contractor shall be required to provide the Employer's Agent with a project specific skills development training plan for targeted labour, which shall cover at a minimum the following items:

- Basic instructions and on-site hands-on training procedures and training material,
- Selection process and criteria for in-house training courses provided for by the Contractor, and
- List and details of in-house training courses provided for by the Contractor or by trainers in the employ of the Contractor.

The Contractor shall submit to the Employer's Agent a monthly targeted labour skills development training report which documents all skills development training that have, been provided for by the Contractor, subcontractors or targeted subcontractors to employed targeted labour during the month.

- (ii) Accredited training

As part of the skills development support provided for by the Contractor, the Employer shall make limited funds available to assist with accredited skills training for selected appointed targeted labours.

The Contractor is required to submit to the Employer's Agent for approval, a list of accredited training courses identified as per the Contractor's skills audit of appointed targeted labours. This list as minimum must include the following training information:

- training provider;
- type of accredited training course;
- title and scope of accredited training course;
- name of appointed targeted subcontractor;
- estimated cost of accredited training (direct and indirect costs);
- proposed training dates;
- type of accredited training outcome.

The training provider must be accredited and have in its employ Practitioners and/or Assessors registered with the Construction Education Training Authority (CETA) and who must have the necessary certified proof. Accreditation and registration proof shall be current, valid and a list of NQF levels and unit standards for which he/she is accredited.

The Contractor is required to submit to the Employer's Agent a monthly accredited training report which documents all approved accredited training planned for and completed by selected appointed targeted labours. The Contractor shall furthermore be required to submit to the Employer's Agent copies of all accredited training certificates issued to targeted labours.

E6 COMPLIANCE

(a) Contract Participation Performance (CPP)

The Contractor's performance in terms of achieving the minimum required goal, shall be measured by the granting of credits towards the contract participation goal under consideration. Credits are measured by converting the monetary value (exclusive of any value added tax or sales tax required by law) of targeted labour employments to a percentage of the contract amount.

The CPP (%) is thus calculated using the following formula:

$$CPP (\%) = \text{Monetary value (R) of targeted labour employments} / \text{contract amount (R)}$$

where:

Monetary value (R) of targeted labour employments = wages and allowances paid to targeted labour, exclusive of any value added tax or sales tax required by law.

contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

No credits shall be granted should the Contractor:

- fail to enter into written contract with the relevant targeted labour.

Certification of credits counting towards the contract participation goal under consideration is the responsibility of the Employer's Agent. The certification procedure requires the Contractor to submit to the Employer's Agent the Employer specific monthly local labour expenditure report as per Annexure B and signed copies of written.

E7 RECORDS

(a) Submission of Documentation

The Contractor shall submit all documentation required in terms of:

- contract participation goal implementation plan form (Annexure A) in terms of subclause E5(a);
- written submission to the PLO and PLC of the various skills categories of targeted labour required for construction and number of targeted labour required per skills categories, together with the attributes associated with each skills categories, taking into account the provision of development provided by the Contractor and accredited training allowed for by the Employer in terms of subclause E5(b);
- signed copies of written employment contracts with targeted labour in terms of subclause E5(c);
- project specific skills development training plan in terms of subsubclause E5(d)(i);
- list of accredited training courses identified as per the Contractor's skills audit of appointed targeted labours in terms of subsubclause E5(d)(ii); and
- copies of all accredited training certificates issued to targeted labours.

(b) Monthly Submission of Documentation

The Contractor shall compile and submit on a monthly basis to the Employer's Agent, in a format approved by the Employer's Agent, the following:

- monthly targeted labour skills development training report which documents all skills development training that have, been provided for by the Contractor, subcontractors or targeted subcontractors to employed targeted labour during the month in terms of subsubclause E5(d)(i);
- monthly accredited training report which documents all approved accredited training planned for and completed by selected appointed targeted labours in terms of subclause E5(d)(ii); and
- Employer specific monthly local labour expenditure report (Annexure B) in terms of subclause E6(a).

(c) Certification of Contract Participation Goal Credits

The Employer's Agent shall certify credits counted towards the contract participation goal under consideration in terms of subclause E6(a) whenever the Contractor submits his payment statement.

(d) Documentation Required Upon Termination of Services of Targeted Labour

The Contractor shall, upon termination of the services of the individuals classed as targeted labour engaged in activities relating to the performance of the Contract, certify the amount paid to such individuals and submit the certificate, counter-certified by the relevant individuals, to the Employer's Agent for record-keeping purposes.

(e) Reporting Non-Compliance

No or partial reporting by the Contractor, as part of the Contractor's obligation in terms of clause E7, shall result in:

- (i) denial of credits towards achieving the contract participation goal under consideration; and
- (ii) in the case of subsubclause E7(b)(iii) delay in certifying the Contractor payment statement in terms of the Contract.

E8 PENALTIES

In the event that the Contractor fails to substantiate that any failure to achieve the contract participation goal under consideration was due to:

- quantitative underruns;
- the elimination by the Employer of items included in the contract participation goal; 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 calculated in the following manner.

$$P = 1,05 \times [CPG(\%) - CPP(\%)] \times \text{contract amount } (R)$$

Where

P = Monetary value (R) of penalty payable

$CPG(\%)$ = Minimum required contract participation goal as indicated by the Employer in the Contract, Part C4: SITE INFORMATION

$CPP(\%)$ = Contract Participation Performance which the Employer's Agent certifies, based on credits passed, as being achieved upon completion of the Contract.

$\text{contract amount } (R)$ = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

Such a financial penalty shall be deducted from the Contractor's payment certificate before issue of the Final Payment Certificate.

E9 MEASUREMENT AND PAYMENT

Payment items to cover the Contractor's cost related to Targeted Labour Participation and Development are included in the bill of quantities. These items are described under SCHEDULE A – GENERAL in SECTION E : TARGETED LABOUR PARTICIPATION AND DEVELOPMENT.

Where specific payment items have not been included in the bill of quantities under this section for the Contractor's obligations in terms of this specification, then the costs thereof shall be deemed included under SCHEDULE A – GENERAL in SECTION 1300 : CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS.

Item	Unit
E10.01 Provision for training of targeted labour:	
(a) Wages and salaries of local labourers employed by the Contractor or targeted subcontractors in respect to training paid for by the Contractor or targeted subcontractors in terms of the Contract.....	provisional sum
(b) Accredited and approved training courses for selected targeted labourers including wages during training.....	provisional sum
(c) Handling cost and profit in respect of subitems E10.01(a) and (b).....	percentage (%)

Expenditure under this item will be made in accordance with the general conditions of contract.

For subitem E10.01(a) the provisional sum makes provision for full compensation for the wages and salaries of targeted labours for the periods during which they attend courses and receive training that are arranged and paid for by the Contractor or targeted subcontractors (at their own cost) in terms of their approved skills development training plan and are thus not available for the execution of productive work. Payment under this subitem is not applicable for any training related costs covered elsewhere in Contract e.g. flagman training. Payment under this subitem is dependent on approval by the Employer's Agent.

For subitem E10.01(b) the provisional sum makes provision to cover the costs incurred for the attendance by selected and approved targeted labourers, in the employment of the Contractor or targeted subcontractors, of approved accredited training courses. 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 targeted subcontractors related to the approved accredited training courses. Payment under this subitem is not applicable for any training related costs covered elsewhere in Contract e.g. flagman training. Payment under this subitem is dependent on approval by the Employer's Agent.

The tendered percentage is a percentage of the amount actually spent under subitems E10.01(a) and (b), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals in connection with the training of local labours.

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.

No payment, nor pro rata payment, shall be made for trainees that, once selected, do not attend or only partially complete structured training courses. The Contractor's own staff may attend the courses provided. However, such attendants from the Contractor's staff shall not be considered for measurement and payment purposes.

ANNEXURE A CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN (PRO-FORMA)

**CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN
FOR TARGETED LABOUR**

A.1 GENERAL INFORMATION

Employer:.....

Contract description:.....

.....

Contract number:.....

Contractor:

Employer's Agent:

A.2 CONTRACT PARAMETERS

Contract participation goal applicable to the Contract %

Contract Sum
(exclusive of any value added tax or sales tax required by law) R

Less all allowances R

Contract amount R (1)

A.3 ACHIEVING THE CONTRACT PARTICIPATION GOAL

The Contractor is required to achieve the contract participation goal (CPG) under consideration by means of employing targeted labour in terms of the Contract.

A.4 IMPLEMENTATION PLAN

The Contractor hereby provides the following information, as per **Tables A.4.1 and A.4.2**

TABLE A.4.1: ESTIMATE TARGETED LABOUR DETAILS

Description	Number (No)	% of Total No
Targeted labour (All) – Total	(1)	
Targeted labour (youth)	(2)	(2)/(1) x 100
Targeted labour (women)	(3)	(3)/(1) x 100
Targeted labour (people with disabilities)	(4)	(4)/(1) x 100

TABLE A.4.2: ESTIMATE TARGETED LABOUR EXPENDITURE

Activity for which Targeted Labour shall be employed	Estimated expenditure on wages and allowances (R value)
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
	R
Total value contributing towards CPG	R (2)

The formula below indicates the proposed percentage (%) contract participation goal (CPG) which the Contractor intends to achieve in terms of the Contract.

Total % towards CPG = 100 x [(2) / (1)] = %

A.5 UNDERTAKINGS

The Contractor hereby certify that, to the best of our knowledge, the above information, facts and representations are correct and that only bona fide targeted labour will be in the performance of the Contract.

Name of Contractor's representative
(in terms of the Contract):

Signature:

Date:

who duly warrants that he/she is authorised to sign this undertaking.

A.6 CONFIRMATION OF RECEIPT

The Employer's Agent hereby confirms receipt of this document in terms of the Contract.

Name of Employer's Agent's representative
(in terms of the Contract):

Signature:

Date:

ANNEXURE B EMPLOYER'S SPECIFIC CONTRACTOR MONTHLY LOCAL LABOUR REPORT

CONTRACTOR MONTHLY LOCAL LABOUR REPORT

PART 1

Contract No.:

Contract Name:

Contractor Name:

Claim No.:

For Period Ending:

Date of Report:

The Contractors Monthly Report comprises an integral part of the Contractors Payment Claim and processing of the payment claim is not permitted without this report also being submitted i.e.

"NO REPORT – NO PAYMENT".

Attachments:

Part A: Overall Project Worker Schedule: Schedule of all local labourers employed since the start of the project (BENEFICIARY LIST)

Part B: Monthly Wage Summary

Part C: Local Labour & Materials Summary Schedule

[illegible]

PART C: LOCAL LABOUR SCHEDULE		
Name of Contractor		
Project Name		
Project Number		
Applicable Month (Reporting Period)		
Claim No.:		
1. Summary of Day Tasks worked and Amount Spent on Local Labour in this Project		
Month	Total Day Tasks / Person Days Worked (Total for each month)	Total Amount Earned (Total for each month)
Total		R -
2. Summary of Amount Spent on Local Labour to date		
1. Previous Amount Spent on Local Labour (From previous claim)	R	-
2. Amount Spent on Local Labour this month (From Total above)	R	-
3. Total Amount Spent on Local Labour to date (3)=(1+2)	R	-
3. LOCAL LABOUR SCHEDULE		
Summary of Local Labour Employed	No. of local workers who worked on the project to date (From Part A)	% of Total
1. Total No. of Individual local workers who have worked on the Project		
2. How many of the Total No. are local youth (35 yrs and under)		
3. How many of the Total No. are local women		
Completed by: Capacity: Signature: Date:		

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION F: ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION SPECIFICATIONS

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION F : ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION SPECIFICATIONS

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SECTION F-1: CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME IMPLEMENTATION SPECIFICATION

F1001 SCOPE

This Specification covers the requirements for the effective implementation of an Environmental Management Programme for controlling the impact on the environment during the road construction activities. It is a generic specification and therefore certain aspects may not be directly relevant to this particular project.

The purpose of the Environmental Management Programme (EMPr) is to help control those construction activities that can have potentially adverse environmental implications on the site and surrounding areas. In short, the EMPr describes good environmental practice principles which must be applied for the duration of the construction activities.

The environmental specifications should be read in conjunction with the Environmental Assessment and Environmental Management Programme for materials sources as well as the conditions of authorisation issued by the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), the Department of Mineral Resources (DMR) and the Department of Water and Sanitation (DWS) as contained in VOLUM 5: ENVIRONMENTAL, MATERIALS & GEOTECHNICAL. It should be noted that the conditions of the DEDEAT, DMR and DWS Authorisations are legally binding.

The contractor is furthermore required to comply with other relevant legislation which may apply to the proposed activities. This may include, but not be limited to:

- (a) A water utilization permit for water abstraction, issued in terms of the National Water Act (Act No 36 of 1998).
- (b) General Authorisation/Licence required for alterations to a river bank or permanent deviation of a stream flow, issued in terms of the National Water Act (Act No 36 of 1998).
- (c) Licence required for alteration of wetlands, issued in terms of the National Water Act (Act No 36 of 1996)
- (d) Permit for atmospheric emissions produced by an asphalt plant, issued in terms of the Atmospheric Pollution Prevention Act (Act No 45 of 1965).
- (e) Permit for the removal or destruction of protected plants or removal of indigenous trees within a forest, issued in terms of the National Forestry Act (Act No 84 of 1998).

For a full list of the required licenses and permits, refer to **APPENDIX 1**.

F1002 INTERPRETATIONS

(a) Supporting Documents

Where this specification is applicable, the following documents shall inter alia be read in conjunction with this document.

- (i) Statutory requirements of the National Environmental Management Act (Act No 107 of 1998) and regulations promulgated in terms of Section 24 of NEMA;
- (ii) Statutory requirements of the Minerals and Petroleum Resource Development Act (Act No 28 of 2002);
- (iii) Statutory requirements of the National Water Act (Act No 36 of 1998);
- (iv) Statutory requirements of the National Environmental Management: Waste Management Act (Act No 59 of 2008);
- (v) Statutory requirements of the National Forests Act (Act No 84 of 1998); and
- (vi) Statutory requirements of the National Heritage Resources Act (Act No 25 of 1999).

(b) Applications

The provision of this specification shall apply in respect of all Contractors, Sub-contractors and to any of their site personnel, workforce or suppliers, who are engaged in the execution of the works.

F1003 DEFINITIONS AND ABBREVIATIONS

DEDEAT	Department of Economic Development, Environmental Affairs and Tourism.
DAFF	Department of Agriculture, Forestry and Fisheries
DWS	Department of Water and Sanitation
EEA	External Environmental Auditor
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ENVIRONMENT	The surroundings within which humans exist and that could be made up of: the land, water and atmosphere of the earth; micro-organisms, plant and animal life; any part of combination of the aforementioned and the interrelationships among and between them; and, the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
ENVIRONMENTAL IMPACT	The change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.
INVASIVE ALIEN VEGETATION	An undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act.
MSDA	Material Safety Data Sheets.
NO-GO AREAS	Generally those areas outside the designated working areas, including but not limited to: existing services and infrastructure, occupied property; grave sites; cultivated lands, wetland areas, 'Special or Sensitive Environments' as defined in the EMPr.
TOPSOIL	Natural soil covering, including all the vegetation and organic matter, with variable depth.
WORKING AREAS	Working areas are those areas required by the Contractor to construct the works, as approved by the Employer's Agent.

F1004 OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PROCEDURES

The Environmental Management Programme which is in accordance with the Environmental Policy of the Employer is intended primarily as a management tool, for the guidance of the Employer's Agent, the Contractor and his sub-contractors.

The objective of the Environmental Management Programme (EMPr) is to control the impacts firstly of materials, plant and facilities and secondly construction activities. The effective implementation of an EMPr will ensure that the required works are conducted in an environmentally sound manner and that the negative impacts of the works are minimised or prevented. This management programme contains the necessary environmental requirements to the Contractor and his staff, including all sub-contractors and on-site workers are required to adhere to.

The Environmental Management Programme outlines structures and procedures to be implemented by the Contractor and his sub-contractors to minimise and manage potential environmental impacts which the Contractor's construction activities might have on the receiving environment.

An Employers' Environmental Agent (EEA) will be appointed by the Employer to ensure that the EMPr is being effectively implemented. The EEA shall undertake monthly site inspections, the results of which will be reported to the Employer, Employer's Agent, Contractor and to the relevant government departments.

F1005 ROLES AND RESPONSIBILITIES

(a) Responsibilities of the Employer's Agent

Specific to environmental management, the role of the Employer's Agent will be to ensure enforcement of the Environmental Management Programme and Procedures and supplementary recommendations made by the EEA; review and approve the Method Statements submitted by the Contractor; and liaise with the Contractor, the EEA and DEDEAT on environmental matters as necessary.

Responsibilities of the Employer's Agent will include, but not be limited to:

- Communicating the advice of the EEA and/or contents of the EEA's reports;
- Issuing site instructions where applicable;
- Communicating to the EEA any new/amended construction activities;
- Informing the EEA of any infringements/accidents or incidents that have occurred on/off site;
- Implementing any Temporary Work Stoppages where serious environmental infringements and non-compliances have occurred;
- Issuing penalties as and when necessary; and,
- Maintaining a record of complaints and communicating these to the Contractor and EEA.

Should the Employer's Agent be of the opinion that the environmental management measures are not being adhered to, and that the appropriate corrective action is not being implemented, the Employer's Agent, advised by the EEA, will be at liberty to instruct the Contractor to cease the related operations until the contractor complies with the relevant requirements. The contractor will not be entitled to any extension of time for such stoppages.

(b) Responsibilities of the Employer's Environmental Agent (EEA)

The role of the EEA will be to monitor, review and verify the implementation of the EMPr and liaise with the Employer's Agent and/or Employer, and DEDEAT to confirm the level of compliance achieved and make appropriate recommendations on improvements/actions required.

The responsibilities of the EEA will include, at a minimum:

- Advising the Employer's Agent on the interpretation and enforcement of the Environmental Specifications;
- Assisting with the review of Method Statements;
- Demarcating particularly sensitive areas;
- Monitoring any basic physical changes to the environment as a consequence of the construction works – e.g. evidence of erosion, dust generation and littering;
- Undertaking monthly site inspections and submitting reports on the level of compliance to the EMPr demonstrated by the Contractor;
- Undertaking quarterly audits, with reporting to the relevant authorities;
- Undertaking any damage assessments with the Employer's Agent where incidents, accidents and/or serious infringements have occurred on/off site, and advising on remedial actions required;
- Liaising with the relevant authorities as required; and
- Updating the EMPr as and when appropriate and communicating these changes to the Employer's Agent and Contractor.

(c) Responsibilities of the Contractor

The Contractor will be contractually required to undertake his activities in an environmental responsible manner. The role of the Contractor will include the following, at a minimum:

- To implement the EMPr (and any subsequent revisions) for the duration of the construction activities;
- To provide reasonable resources for the effective control and management of environmental risks associated with the construction activities, as per the EMPr;
- To assign tasks to personnel as necessary and ensure appropriate accountability and responsibility is assigned to enable the carrying out of these duties;
- To maintain incident, training and other relevant administrative records; and

- To ensure all personnel, sub-contractors and other workers appointed by the Contractor are aware of the environmental responsibilities on site.

These roles will, at a minimum, translate into the following environmental responsibilities:

- Be familiar with the contents of the EMP and to comply with the EMP;
- Submit the necessary Method Statements and plans to the Employer's Agent for approval;
- Review the EEA Reports and take cognisance of the information/recommendations made;
- Notify the Employer's Agent immediately in the event of any accidental infringements of the Environmental Specifications and ensure appropriate remedial action is taken;
- Notify the Employer's Agent in advance of any amendments/changes to the proposed work activities to enable environmental impacts to be confirmed and mitigation measures identified; and
- Maintain records – e.g. photographic records, complaints records, training records and incident records.

(d) Responsibilities of the Environmental Representative

The Contractor shall on commencement of the Project appoint an Environmental Representative who, in addition to his normal duties, shall have direct responsibility for the implementation and monitoring of the Environmental Management Programme.

The Environmental Representative shall liaise with the Employer's Agent, the EEA and the Contractor, in order to ensure effective implementation of the Environmental Management Programme at site level. The Environmental Representative will be responsible for the practical implementation and monitoring of the Environmental Management Programme and he shall report directly to the Employer's Agent in this regard. The Environmental Representative shall periodically inspect and monitor operations on and off site and shall take the necessary action where required to ensure compliance with the requirements of the Environmental Management Programme. The Environmental Representative shall attend all regular site Works meetings for reporting, discussing and reviewing the performance of the Environmental Management Programme (which shall be a standard item on the agenda).

F1006 METHOD STATEMENTS

The Contractor shall be required to submit Method Statements to the EEA outlining proposed construction activities, phasing and procedures and methods to comply with the targets stipulated in the Environmental Management Programme. Method Statements shall, where applicable, include Site Establishment Drawings with sufficient detail to assess the potential impact of the site facilities or to assess the degree of safeguarding provided against pollution.

Method Statements shall indicate how the procedures will be applied in order to meet the relevant targets and are central to the proper implementation of the Environmental Management Programme. It is anticipated that in addition to assessing the systems and performance of the Environmental Management Programme, the external audit will scrutinise the formulation of, and adherence to Method Statements in some detail.

Method Statements must be submitted at least 10 days prior to the proposed commencement of related activities and must be approved by the EEA, in consultation with the Employer's Agent. The Environmental Representative shall keep copies of these Method Statements and letters of approval (including conditions attached) in a Method Statement file.

Any deviations from the approved Method Statements must be submitted to the EEA for approval and any amendments submitted to the Employer's Agent.

The following Method Statements shall be submitted by the Contractor 14 days prior to the commencement of works on site:

- (a) Layout and preparation of the construction camp;
- (b) Location, layout and preparation of cement/concrete batching facilities including the methods employed for the mixing of concrete including the management of runoff water from such areas;
- (c) Contaminated water management plan, including the containment of runoff and contaminated water;
- (d) Dust control;

- (e) Source of water for compaction and dust suppression;
- (f) Method for the control of erosion during bulk earthwork operations, including erosion of spoil material;
- (g) Methods for abstracting water from rivers or other water sources including measures to prevent pollution and sedimentation;
- (h) Emergency spillage procedures, including hydrocarbons, and compounds to be used;
- (i) Method of diverting stormwater during construction; and
- (j) Solid waste control and removal of waste from Site;

F1007 MATERIALS, PLANT AND FACILITIES

(a) Materials handling, use and storage

The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (including “no go” areas) required to comply with the Specifications of the EMPr.

The Contractor shall ensure that these delivery drivers are supervised during off-loading by someone with an adequate understanding of the requirements of the EMPr.

Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

All lay down areas for manufactured/imported material outside of the construction camp shall be subject to the Employer's Agent's approval, which shall not unreasonably be withheld.

(b) Hazardous substances

Hazardous chemical substances (as defined in the Regulations for Hazardous chemical Substances) used during construction shall be stored in secondary containers.

The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDS's shall be followed in the event of an emergency situation.

Potentially hazardous substances shall be stored, handled and disposed of in a suitable manner.

(c) Fuel (petrol and diesel) and oil

The Contractor shall ensure that all fuels and chemicals are handled and stored in a manner so to minimise the risk of spills, leaks or structural failures.

Fuel may be stored on Site and the fuel storage area shall be located at the workshop or a fuel storage depot located within the construction camp.

The Contractor shall ensure that all liquid fuels (petrol and diesel) are stored in tanks with lids, which are kept firmly shut or in bowsers.

The tanks/bowsers shall be situated on a smooth impermeable surface (plastic or concrete) base with an earth bund (plastic must have sand on top to prevent damage and perishing). The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 110% of the total capacity of all the storage tanks/bowsers.

The bunded area shall be covered to prevent the accumulation of rainwater within the bunded area.

The Contractor shall prevent unauthorised access into the fuel storage area.

The Contractor shall have on Site all the necessary materials and equipment to deal with spills of any of the substances stored on Site.

The Contractor shall set up a procedure to deal with a spillage or pollution event; this should include immediate communication with the Employer's Agent and EEA. A number of the Contractor's staff shall be appropriately trained to deal with any spills or pollution threat.

No smoking shall be allowed within the vicinity of the fuel storage area.

The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.

Gas and fuels shall not be stored in the same storage area.

Where reasonably practical, plant shall be refuelled at the depot or at the workshop as applicable. If it is not reasonably practical then the surface under the refuelling area shall be protected against pollution to the reasonable satisfaction of the Employer's Agent prior to any refuelling activities.

The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown and where possible be designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 litre of hydrocarbon liquid spill. This material must be approved by the Employer's Agent prior to any refuelling or maintenance activities.

Drip trays shall be inspected and emptied daily, and serviced when necessary. Drip trays shall be closely monitored during rain events to ensure that they do not overflow.

The appropriate signage must be erected at the diesel bowser and workshops.

(d) Ablution facilities

A sufficient number of chemical toilets shall be provided by the Contractor in the construction camp area and at appropriate locations agreed by the Employer's Agent. The ratio of toilets to site staff shall not exceed 1:30 (for each sex (refer to the Health and Safety Specification in Section C of the Contract Document), and the closest toilet shall never be further than 100 m away from the area where work is currently under way.

Toilets shall not be located in river courses or flood plains.

Washing, whether of the person or of personal effects and acts of excretion and urination are strictly prohibited other than at the facilities provided.

All temporary/portable toilets shall be secured to the ground to the satisfaction of the Employer's Agent to prevent them toppling due to wind or any other cause.

All toilets are to be maintained in a clean, sanitary condition. The Contractor shall be responsible for cleaning, maintenance, servicing and emptying the toilets on a regular basis. The Contractor shall supply adequate toilet paper at all toilets.

The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are properly stored and removed from Site.

Discharge of waste from toilets into the environment and burial of waste is strictly prohibited.

Septic tanks may be used only once the soil conditions have been checked and found to be suitable.

The contractor may make use of a waste water treatment plant (or sewage package plant), should this be required, provided such a facility has been authorised and/or registered by the relevant authorities (DEDEAT and DWS) according to the NEMA EIA Regulations (Government Notice No R. 385) and the National Water Act (Act No 36 of 1998).

(e) Living Accommodation (if necessary)

The location of the living accommodation must be approved by the local authorities and the traditional leadership.

The living accommodation should be located on already transformed and disturbed areas.

The living accommodation should not be located within the Coastal Conservation Area, ie within 1,0 km of the coast or high water mark of any estuary.

The living accommodation should not be located at the coastal development nodes, unless prior permission has been obtained in writing from the DEDEAT.

Living accommodation for workers on Site should comply with minimum standards.

All temporary structures shall be removed and the area rehabilitated on completion of the works.

The Contractor shall designate eating areas for his employees. The Contractor shall provide bins with lids in these areas.

The source of energy/fuel for use by the workers residing in the area must be clearly specified. There must be no collection of wood outside the designated area.

(f) Solid waste management

No on-site burying or dumping of any waste materials, vegetation, litter or refuse shall occur.

The Contractor shall provide sufficient bins with lids on Site to store the solid waste produced on a daily basis. Bins shall not be allowed to become overfull and shall be emptied a minimum of once daily.

The waste may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Employer's Agent has approved.

No burning of refuse is permitted.

All solid waste shall be disposed of off-site at least once weekly at a licensed landfill site. Contractor to notify the Employer's Agent of the nearest licensed landfill site to the Site.

The Contractor shall supply the Employer's Agent with a certificate of disposal.

(g) Contaminated water

The Contractor shall set up a contaminated water management system, which shall include collection facilities to be used to prevent pollution, as well as suitable methods of disposal of contaminated water.

The Contractor shall notify the Employer's Agent immediately of any pollution incidents on Site and liaise with the local irrigation board and farming interests.

The Contractor shall prevent discharge of any pollutants, such as cements, concrete, lime, chemicals and fuels into any watercourses, estuaries or stormwater channels.

Water that has been contaminated with suspended solids, like soils and silt may be released into natural watercourses or stormwater channels. However, all suspended solids shall be removed from water before it is discharged by settling out these solids in settling ponds.

(h) Site camp

All site establishment components (as well as equipment) shall be positioned to limit visual intrusion on neighbours and the size of area disturbed.

The Contractor shall provide the Employer's Agent with a plan of the site camp showing the layout/positioning of all infrastructure including wash bays, fuel storage areas, materials storage areas, sewage infrastructure and buildings. The Contractor shall maintain a map of the site layout that indicates where the wash bays, fuel storage areas, topsoil sites etc are located. The Employer's Agent and EEA must approve this.

Where site camps are to be established the feasibility of removing topsoil from the site, before site establishment, shall be investigated. Removed topsoil should then be stockpiled for use in rehabilitation of the site camp

The site camp should not be located within the Coastal Conservation Area, ie within 1,0 km of the coast or high water mark of any estuary, or within 100 m of any drainage line.

The site camp should not be located at the coastal development nodes, unless prior permission has been obtained in writing from the DEDEAT.

All water requiring discharge, including wastewater from kitchen and ablution facilities, should be led to soak pits, treated or discharged in a manner approved by the Employer's Agent. No wastewater shall be discharged into rivers or streams.

Site camps and surrounds shall be maintained in a clean, tidy and orderly condition at all times.

The Contractor shall restore the site camp to its former condition upon completion of the works. This will include removal of all rubble and foundations, loosening of compacted soils and re-establishing groundcover. Where a homestead has been used as a site camp, the Contractor may be required to renovate the buildings once the works are complete.

(i) Lights

The Contractor shall ensure that any lighting installed on the Site for his activities does not interfere with road traffic or cause a reasonably avoidable disturbance to the surrounding community or other users of the area. Lighting installed shall be down lighting.

(j) Workshop, equipment maintenance and storage

Where practical, all maintenance of equipment and vehicles on Site shall be performed in the workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the Employer's Agent prior to commencing activities.

The Contractor shall ensure that in his workshop and other plant maintenance facilities, including those areas where, after obtaining the Employer's Agent's approval, the Contractor carries out emergency plant maintenance, there is no contamination of the soil or vegetation.

The workshop shall have a smooth impermeable concrete floor. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil).

When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders, vehicles).

All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from the Site.

The washing of equipment shall be restricted to urgent or preventative maintenance requirements only. All washing shall be undertaken in a wash bay area which must be equipped with a suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate and nitrate containing, low sudsing-type detergents.

(k) Drinking and construction water

Water for drinking and construction purposes should be obtained from local reticulation works, or an approved source. Unless approved by DWS, water should not be extracted from nearby dams and rivers, and construction activities should not be conducted in or directly adjacent to rivers and dams.

Water is a scarce resource throughout South Africa and certain parts of the Eastern Cape Province are prone to water shortages during periods of drought. Water, whether drinking or for operational purposes must be used responsibly.

F1008 CONSTRUCTION ACTIVITIES

(a) Working Areas

The road construction and associated activities may be conducted only in designated working areas. Limitation of these activities to specific working areas minimises the impact on the surrounding environment and facilitates control of the works. Sites should be divided into working areas and “no-go” areas:

- (i) Working areas are those areas required by the Contractor to undertake the works and as approved by the Employer’s Agent. These areas include the area of works, borrow areas and haul roads between the working site and borrow areas. If necessary, the working areas may be demarcated during the period. The Contractor and his staff are not permitted to move around outside the designated working areas. The Contractor shall ensure that, insofar as he has the authority, no person, machinery, equipment or material enters the “no go” areas at any time.

Within the overall working area, the Contractor requires the Employer’s Agent’s approval for the following specific areas:

- (1) Site Camp.
 - (2) Stockpiling and storage of construction materials.
 - (3) Stockpiling of topsoil for rehabilitation purposes.
 - (4) Spoiling of cleared vegetation (alien/invasive species).
 - (5) Sites for spoil materials.
- (ii) “No-go” areas are those areas outside of working areas. The Contractor shall erect and maintain permanent and/or temporary fences of the type and in the locations directed by the Employer’s Agent. Such fences shall, if so specified, be erected before undertaking designated activities. Venturing outside of the working area into a defined “no-go” area may attract a fine as indicated in Clause F1014.

(b) Protection of Flora and Fauna

Natural features, indigenous flora and fauna in the vicinity of the project works should be protected and damage or disturbance prevented or minimised; specifically:

- (i) The removal of any indigenous vegetation must be in strict accordance to the conditions as set out by the DAFF permit.
- (ii) No plant species may be removed unless agreed by the EEA or unless they are listed as alien invasive species.
- (iii) The minimum amount of vegetation must be removed. Excessive clearing of a site must be avoided. Disturbance outside of the immediate construction area must be avoided.
- (iv) No construction staff may have access to indigenous vegetation outside of the working corridor.
- (v) The use of indigenous plants as firewood is prohibited.
- (vi) Where protected or Red Data Species are encountered and require removal, the EEA should be consulted and the plant(s) then replanted in a nearby ‘safe’ area of similar habitat. Permission should be obtained from DEDEAT, Eastern Cape.
- (vii) All fauna (including domestic livestock) within and surrounding the site shall be protected; they shall not be caught, poisoned, trapped, snared or killed.
- (viii) No domestic animals shall be brought onto the site.

(c) Sites of Archaeological and or Cultural Interest

The Contractor shall take responsible precautions to prevent any person from removing or damaging any fossils, coins, articles of value or antiquity and structures and other remains of archaeological interest discovered on the Site, immediately upon discovery thereof and before removal.

All archaeological sites identified in the environmental scoping must be demarcated with danger tape and placed out of bounds. Should disturbance of these sites be unavoidable, then an application must be made to the South African Heritage Resource Agency (SAHRA) via a qualified archaeologist.

Items identified during the investigations conducted over the site to date include:

- (i) Stone implements worked by pre-historic people.
- (ii) Potential fossil horizons in the calcrete deposits.
- (iii) Grave sites.

Should an archaeological or cultural site be located during the upgrading of the route or any associated infrastructure, it should immediately be reported to the National Monuments Council. Failure to report a site of archaeological and/or cultural significance is a contravention of the National Heritage Act (Act No 25 of 1999).

All construction site staff must be briefed to immediately report any potential sites which are encountered during the construction of the road. In the event of finding what appears to be an archaeological site or a cultural and/or historic site or object, work should be terminated until a qualified archaeologist or historian can examine the item or find.

The contractors must check the area carefully for any graves. The relocation of graves must be undertaken in consultation with the affected families and through the Project Steering Committee. The correct procedures for the exhumation and reburial of the remains must be strictly adhered to.

(d) Protection of Natural Features

The Contractor shall not deface, paint, damage or mark any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes unless agreed beforehand with the Employer's Agent.

Any features affected by the Contractor in contravention of this clause shall be restored/rehabilitated to the satisfaction of the Employer's Agent.

The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, and open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

(e) Aesthetics

The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area.

(f) Conservation and Stockpiling Of Topsoil

Topsoil shall be removed from the following areas no longer than 10 days before construction begins:

- (i) All areas to be excavated;
- (ii) Areas to be occupied by roads, including the temporary haulage road;
- (iii) Areas for the storage of fuels;
- (iv) Areas to be used for batching/mixing of concrete;
- (v) Areas for stockpiling of construction materials;
- (vi) Areas for stockpiling of crushed rock; and
- (vii) Areas for spoiling material.

Topsoil shall be excavated to a minimum depth of 150 mm or to a maximum depth of 300 mm. Compaction of these topsoil stockpiles is not permitted. Where topsoil has been stored for longer than 12 months the Contractor shall turn the soils to maintain viability of the seeds and the soil properties.

The topsoil stockpiles shall be clearly demarcated and vehicle access restricted. The topsoil shall not be contaminated with any fuels, oils or other construction waste or materials.

Topsoil shall not be mixed with any other material (construction rubble, subsoil etc) and erosion of the topsoil stockpiles must be prevented.

(g) Erosion Control

Soil erosion shall not be tolerated on the Site. Uncontrolled erosion will cause siltation and pollution of the stream and result in loss of valuable topsoil. The Contractor should take all reasonable measures to prevent soil erosion and protect areas susceptible to erosion. Erosion prevention measures must be implemented to the satisfaction of the Employer's Agent.

Areas affected by construction related activities must be monitored regularly for evidence of erosion. Areas particularly susceptible to erosion include: areas stripped of topsoil, soil stockpiles and steep slopes (gradients > 8%).

Soil erosion may result from a diversion, a restriction, or an increase in the flow of stormwater or river flow caused by the presence of temporary/permanent works, operations and activities. Where evidence of erosion appears, the construction of contour berms, cut-off drains or planting of grass sods / ground cover may be necessary.

The Contractor shall take reasonable measures to control the erosive effects of stormwater runoff. A cut-off drain(s) or low berm will be constructed where necessary to lead run-off rain water away from steep, exposed slopes, ensuring that the water does not flow over the slopes and cause erosion. Water from these drain(s) will be disposed of in such a way that the erosive force of the water in the drain(s) is dissipated and erosion does not occur at the drain discharge point(s).

Where erosion does occur the Contractor shall reinstate such areas and areas damaged by the erosion, at his own cost and to the satisfaction of the Employer's Agent and EEA. Topsoil that has been washed away shall be replaced.

The access/haul roads, after ripping, must be topsoiled and hydroseeded with an appropriate hydroseed mix and the same specifications apply as in the other areas that require hydroseeding.

The order for the seeds must be placed timeously to ensure availability at the time required.

(h) Prevention of Pollution

The Contractor should ensure that pollution of the soil or water (i.e. surface and ground) does not occur as a result of any activities on Site. Pollution could result from the release, accidental or otherwise, of chemicals, oils, fuels, sewage, wastewater containing kitchen waste, detergents, solid waste and litter, etc. Specific measures to be taken to prevent the pollution of the environment include:

- (i) Immediately report and manage any leakage or spillage with appropriate spill contingency equipment and measures.
- (ii) All fuels, oils, lubricants and other petrochemical products must not be stored within 100 m of any estuary, wetlands and rivers.
- (iii) Fuel lubricants, solvents, paints, and other chemicals must be stored within the contractors campsite in a facility secured with lock and key. Storage should be on a bunded, impervious site (secondary containment).
- (iv) Maintenance of vehicles must only take place in a designated workshop with a concrete base and drip trays for the collection of waste lubricants. Emergency maintenance vehicles must be equipped with drip trays and absorbent material, such as spillsorb, to collect and contain waste oils.
- (v) No rock, silt, cement, grout, asphalt, petroleum product, timber, vegetation, domestic waste, or any deleterious substance should be placed or allowed to disperse into any stream, river, pond, storm or sanitary sewer, or other watercourse.
- (vi) Ensure all construction equipment is free of leaks from oil, fuel or hydraulic fluids and is cleaned in an area with a suitable controlled runoff.
- (vii) Refueling activities should not be conducted where runoff could carry contaminants into drainage pathways (including stormwater drains/trenches and sewers).
- (viii) Washing of vehicles must be kept to a minimum and must only take place in a designated area on an impervious surface which drains into an oil sump.
- (ix) Cleaning out of concrete mixers and trucks must take place on a properly designated site where there is no opportunity for the pollution of water bodies.

(i) Stockpiling/Spoiling of Materials

The Employer's Agent and EEA shall approve all stockpiling and spoiling sites and confirm the end-use or rehabilitation plans for these sites.

The stockpiles should be located within demarcated construction sites. Material stockpiled should be done so in such a way as to minimise the spread of materials and the impact on the natural vegetation. The Contractor should ensure that no materials 'creep' into "no-go" areas.

No spoiling of material should take place below the 1:100 year floodline of any river, stream, and wetland or water course.

A stockpile or spoil areas are limited to a maximum surface area one (1) hectare.

The Contractor, upon completion of the project shall reinstate areas used for stockpiling to their former states.

(j) Asphalt, Bitumen and Paving

Over spray of bitumen products outside of the road surface and onto roadside vegetation shall be prevented using a method approved by the Employer's Agent.

The area used for the storage of bitumen drums/products shall comply with the following:

- (i) The floor shall be smooth and impermeable (concrete or thick plastic covered in sand).
- (ii) The floor shall be bunded and sloped towards a sump to contain any spillages of substances.
- (iii) The bund shall be inspected and emptied daily, and serviced when necessary.
- (iv) The bund shall be closely monitored during rain events to ensure that they do not overflow.

When heating bitumen products, the Contractor shall take cognisance of appropriate fire risk controls. Heating of bitumen products shall only be undertaken using LPG or similar zero emission fuels and appropriate fire fighting equipment shall be readily available.

Water quality from runoff from newly/fresh bitumen surfaces will be monitored by the Employer's Agent and remedial actions taken where necessary.

Stone chip/gravel excess shall not be left on road/paved area verges. This shall be swept/raked into piles and removed to an area approved by the Employer's Agent.

(k) Cement and Concrete Batching

The permitted location of the batching plant (including the location of cement stores, sand and aggregate stockpiles) will be indicated by the Employer's Agent. The concrete/cement batching plant shall be kept neat and clean at all times.

The batch plant should not be located closer than 100 m from any water course or wetland and not below the 1:100 year floodline of any water course or wetland.

The batching plant shall be located on a smooth impermeable surface (plastic or concrete). The area shall be bunded and sloped towards a sump to contain any spillages of substances.

No batching activities shall occur directly on the ground. All wastewater resulting from batching of concrete shall be disposed of via the wastewater management system and shall not be discharged into the environment.

Used bags shall be stored in weatherproof containers to prevent windblown cement dust and water contamination. Used bags shall be disposed of on a regular basis via the solid waste management system, and shall not be used for any other purpose.

Unused cement bags shall be stored so as not to be affected by rain or runoff events. In this regard, closed steel containers should be used for the storage of cement powder and any additives.

The Contractor shall ensure that sand, aggregate, cement or additives used during the mixing process are contained and covered to prevent contamination of watercourses, the surrounding vegetation and natural rock through wind or water dispersion.

All runoff from the batching plant shall be strictly controlled, and cement- contaminated water shall be collected, stored and disposed of off-site, at a location approved by the Employer's Agent.

Contaminated water storage areas shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented.

All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete pour section and disposed of. Washing the remains into the ground is not acceptable. All excess aggregate shall also be removed and disposed of in an approved landfill site.

(l) Dust Control

Dust is regarded as a nuisance when it reduces visibility, soils private property, reduces the palatability of grazing grasses and may retard plant growth. It is also aesthetically displeasing.

The Contractor shall be responsible for the control of dust arising from his operations and activities. Control measures could include regular spraying of working/bare areas with water, at an application rate that will not result in soil erosion or runoff.

(m) Vehicles and Access Roads

Site vehicles should be permitted access only within the demarcated construction sites or on existing roads, as would be required to complete their specific tasks. Vehicles are not permitted on re-vegetated areas.

Site vehicle traffic should be limited to specific access roads to prevent unnecessary damage to the natural environment.

On the Site the Contractor shall control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic and that all relevant laws are complied with. In addition such vehicles and plant shall be so routed and operated as to minimise disruption to regular users of the routes not on the Site. On gravel or earth roads on Site and within 500 m of the Site, the vehicles of the Contractor and his suppliers shall not exceed a speed of 40 km/hr.

(n) Traffic Control and Temporary Deviations

Increased traffic, especially heavy vehicle traffic, has the potential to draw complaints from nearby residents. The Contractor is expected to address any complaints received.

Temporary vehicular deviations should be located so as to cause minimal disruption to surrounding communities, minimal disturbance to flora, fauna and the surrounding landscape and minimal risk of erosion. The deviations shall not impede normal pedestrian or vehicular access to adjoining villages and community lands.

Each deviation route should be rehabilitated as soon as practically possible, and preferably immediately once the construction on the adjoining section of road has been completed.

(o) Blasting

All and any blasting is to be done in terms of the Minerals and Petroleum Resources Development Act (Act 28 of 2002) and the Mine Health and Safety Act (Act 29 of 1996) and as specified in the project specifications (see also Section C: Health and Safety).

The Contractor shall prevent damage to special features and the general environment, which includes the removal of fly-rock. Damage caused by blasting/drilling shall be repaired to the satisfaction of the Engineer.

(p) Bridges, Culverts and Watercourse crossings

The Contractor shall minimise the extent of any damage to the flood plain to that necessary to complete the works, and shall not pollute the river systems a result of construction activities. No construction materials shall be stockpiled on the flood plain.

The Contractor shall not divert, dam or modify any watercourse or stream without the approval of the Engineer and DWS.

The existing structures must be removed as soon as the new bridge has been completed and opened to traffic, unless otherwise specified. Rehabilitation of the disturbed areas must be carried out in consultation with Working for Water.

Bridge construction and culvert installation should, where possible, be planned to take place during periods when stream flow is low.

Avoid operating machinery in water bodies. Excavation for a bridge or a large culvert should not be performed in flowing water. The water should be diverted around the work site during construction with a cofferdam or stream diversion. Any diversion of a stream requires a separate investigation and an approval from the Department of Water and Sanitation.

Avoid channel changes and protect the embankments of streams and rivers.

All rubble from the demolished structures must be removed from the riverbed and disposed of according to the waste management system. No rubble may be left in the water course.

All concrete must be allowed to fully cure prior to coming into contact with the water.

Specific mitigation measures related to bridge and culvert construction, covered in detail in the specialist Estuary and Aquatic Studies undertaken as part of the EIA and summarized in the EIR, must be adhered to.

(q) Water Abstraction

Water for construction purpose may be abstracted from rivers or other small streams crossing the road only in receipt of the required permits from the Department of Water and Sanitation. A method statement must be prepared and approved for the abstraction of water.

During water abstraction the Contractor shall take all reasonable measures to limit sedimentation of downstream watercourses due to his activities and shall ensure that the flow in the river is never reduced below 50% of ambient. The temporary sump shall be removed from the river as soon as practically possible.

(r) Earthworks

All earthworks shall be undertaken in such a manner so as to minimise the extent of any impacts caused by such activities. No equipment associated with earthworks shall be allowed outside of the Site and defined access routes unless expressly permitted by the Employer's Agent.

(s) Site Rehabilitation

The Contractor shall be responsible for complete rehabilitation of the site, including spoil sites, access roads, haul routes, site camp, stockpile, crusher area, ablution facilities and storage areas.

The Contractor shall undertake full rehabilitation under no extra cost to the Employer.

The Contractor should implement progressive rehabilitation: once works are complete in a particular area, rehabilitation/re-vegetation could begin. This would provide the opportunity to assess whether or not the methods employed are suitable and successful and would help prevent erosion in impacted areas.

Where re-vegetation of an area is not successful the Contractor will replant these areas, at no additional cost to the Employer.

The Contractor shall provide the EEA and Employer's Agent with a comprehensive plan for rehabilitation of the entire site. This plan must meet the approval of the EEA and Employer's Agent. The following points must be taken into account when drawing up the Rehabilitation Plan:

- (i) The Plan should be flexible – where measures are found to be inefficient, the plan shall be modified, at no additional cost to the Employer.
- (ii) The Contractor shall be responsible for successful rehabilitation and re-vegetation of the site, for a minimum period of 12 months after construction is complete.
- (iii) The Plan shall include the eradication of young alien invasive plant species that may have become established during the construction period, in impacted areas and in rehabilitated areas.
- (iv) The growth of alien invasive plant species shall be monitored during the 12 month period following construction.
- (v) The Plan shall include grass seed mixes applicable to summer and winter.
- (vi) The Plan shall include suitable fertilisers and application rates.
- (vii) Successful re-vegetation means $\geq 80\%$ of the seeded area is covered with grass/groundcover.
- (viii) Where there is insufficient topsoil to cover an area to specified depth, the Contractor shall import suitable topsoil at no cost to the Employer.
- (ix) Consideration should be given to using established seedlings of indigenous grasses such as *Digitaria eriantha* and *Cenchrus ciliaris* to at least augment the use of aliens in re-vegetation of bare areas. On eroded soil chopped bush should be spread over bare surfaces, the soil should be re-seeded and the veld rested.

(t) Exotic Vegetation

Exotic invasive vegetation shall be removed from any working areas and the site camp(s). These vegetation species shall also be eradicated when they begin to establish themselves in disturbed areas (disturbance of the natural vegetation will encourage the establishment of invasive species). In order to discourage the spread of exotic species, soil should not be moved from one part of the site to another without the consent of the EEA.

The EEA shall assist in the identification and eradication of exotic plant species. Methods of removal/eradication may involve hoeing by hand or the controlled application of herbicides.

(u) Community Relations

The Contractor shall erect and maintain information boards in the position, quantity, design and dimensions specified. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Employer's Agent.

The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, information regarding the complaint itself and measures taken to address the complaint.

(v) Social Disruption

Where construction activities require the removal of fences from around private land, the occupants shall be warned at least three days in advance. These fences/boundary markers shall be reinstated as soon as construction is complete.

Care should be taken not to damage private property. No access to homesteads/farms or other such areas is permitted without permission of the resident and on agreement with the Employer's Agent.

The Contractor shall take measures to reduce disruption to users of the area abutting the Site.

(w) Existing Services and Infrastructure

The Contractor shall ensure that existing services (road, rail, pipelines, power lines and telephone services) are not disrupted or damaged, unless required by the contract and with the permission of the Employer's Agent.

(x) Protection of the Public

The Contractor shall be responsible for the protection of the public, and public property, from any dangers associated with the road construction and associated activities, and for the safe and easy passage of pedestrians and traffic in areas affected by project activities.

Any excavation material, spoil sites and other obstructions or excavations shall be suitably barricaded and/or demarcated with hazard tape.

(y) Staff Safety and Education

All staff shall be given an environmental induction course before beginning work on the site.

Telephone numbers of HAZMAT shall be posted conspicuously in the Contractor's office near the telephone.

F1009 EMERGENCY PROCEDURES

The following Emergency Procedures shall be submitted by the Contractor 14 days prior to the commencement:

(a) Fire

The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall ensure that his employees are aware of the procedure to be followed in the event of a fire.

(b) Accidental Leaks and Spillages

The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include notifying the Employer's Agent and the relevant authorities.

The Contractor shall ensure that the necessary materials and equipment for dealing with spills and leaks is available on Site at all times.

Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the Employer's Agent.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown and where possible be designed to encapsulate minor hydrocarbon spillage.

The quantity of such materials shall be able to handle a minimum of 200 litres of hydrocarbon liquid spill.

In the event of a fire or accidental leak/spillage, the Contractor shall notify the Employer's Agent as soon as possible, but at least within 48 hours of the incident being noticed.

The telephone numbers for the closest Hazmat offices should be prominently displayed as bitumen and diesel spillage on construction and road building sites are fairly common. The cleanup procedure is critical to prevent contamination.

F1010 ENVIRONMENTAL AWARENESS TRAINING

Before any work is commenced on the Site, the Contractor's site management staff including foremen shall attend an environmental awareness training course of approximately one-hour duration presented by the EEA. The Contractor shall liaise with the Employer's Agent prior to the Commencement Date to fix a date and venue for the course. The EEA will provide the course content. The Contractor shall provide a suitable venue and ensure that the specified employees attend the course.

The environmental awareness training course shall be held during normal working hours. The information presented at the course shall be communicated to the Contractors employees on the site, to any new employees coming onto site after the initial training course and to his suppliers as required by the Project Specification.

The Contractor shall ensure that all attendees sign an attendance register, and shall provide the Employer's Agent with a copy of the attendance register the day after each course.

The Contractor shall erect and maintain information posters for the information of his employees depicting actions to be taken to ensure compliance with aspects of the Specifications. These information boards shall be erected at the locations, agreed by the Employer's Agent and should contain the following symbols:

- (a) At working areas: Use drip trays, use toilets, no eating, no littering, no swimming, no picking of flowers, no dogs, no veld fires.
- (b) At eating areas: Use toilets, no littering, no veld fires.

F1011 EXTERNAL AUDITING AND EVALUATION

In order to ensure that the Environmental Management Programme is effectively implemented, it is important that regular external audits of the Environmental Management Programme are conducted. An Employers' (EEA) will be appointed by the Employer to undertake these audits on a monthly basis. The Employer's Agent shall arrange that these external audits do take place and that a system for addressing any problems identified during these audits, is formulated. The relevant documentation shall be kept and shall be available to the public.

F1012 ENVIRONMENTAL MANAGEMENT DURING DECOMMISSIONING

Environmental Management associated with the decommissioning of this project will ensure that the following items are addressed before issuing of the Completion Certificate and during the defects liability period:

- (a) All cleared sites are rehabilitated with indigenous grass material with a cover of at least 80%.
- (b) All visible alien plants are removed from disturbed sites.
- (c) All recyclable rubble and waste, for example, scrap metal, bottles, cans and plastics are collected and disposed of through a registered recycling company.
- (d) All non-recyclable rubble and solid waste be collected and disposed of at a registered waste disposal facility.
- (e) Provision has been made for stormwater control to prevent erosion from taking place post construction.

F1013 MEASUREMENT AND PAYMENT

Payment items to cover the Contractor's cost related to compliance with the Environmental Management Plan Implementation are included in the bill of quantities. These items are described under SCHEDULE A – GENERAL in SECTION F: ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION.

Item	Unit
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F10.01 Contractor's initial obligations in respect of the Environmental Management Plan Implementation requirements.....	lump sum
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The lump sum tendered shall include full compensation for the Contractor's initial obligations in respect of the Construction and Mining Environmental Management Plan Implementation requirements (Section F1, and F2) as detailed in these specifications.

The once-off payment of the lump sum will be made when the Employer's Environmental Agent has verified in writing to the Employer's Agent and Contractor that the Contractor has fulfilled the required initial obligations.

Item	Unit
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F10.02 Contractor's time related obligations in respect of the Environmental Management Plan Implementation requirements.....	month
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The tendered rate per month or parts thereof represents full compensation for that part of the Contractor's obligations in respect of the Construction and Mining Environmental Management Plan Implementation

requirements (Section F1 and F2) as detailed in these specifications, 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 Environmental Agent has verified the Contractor's compliance as part of his monthly audit report.

Notes:

Release of retention at the end of the Defects Liability Period will be delayed in the event of non-compliance with the environmental requirements in terms of clause F1012. No payment will be made until full compliance has been demonstrated.

F1014 WORK STOPPAGE, NON-COMPLIANCE AND PENALTIES

The Employer's Agent shall have the right to order work to be stopped in the event of significant infringements of the Environmental Specifications, until the situation is rectified in compliance with the specifications. In this event, the Contractor shall not be entitled to claim for delays or incurred expenses.

Any failure on the part of the Contractor to comply with the EMPr will entitle the Employer's Agent to certify work stoppage subject to the details set out.

The Employer's Agent shall be the judge as to what constitutes a transgression subject to the provisions of the Conditions of Contract. In the event that transgressions continue, the Contractor's attention is drawn to the provisions of the Conditions of Contract, under which the Contract Supervisor and/or Employer may cancel the Contract.

In addition to work stoppage, penalties may be issues where there is damage to the natural or human environment as a consequence of the transgression(s) and/or non-compliance(s). In such an event, the Contractor may be liable to pay a penalty at the instruction of the Employer's Agent.

A list of incidents that may lead to work stoppage are indicated below – this list is not exhaustive:

- (a) Failure to submit Method Statements timeously.
- (b) Failure to stockpile topsoil properly or materials in designated areas.
- (c) Inappropriate use of adjacent watercourses and water bodies.
- (d) Pollution of water bodies – including increased sediment loads.
- (e) Failure to maintain basic safety measures on site.
- (f) Animal poaching (wildlife or domestic).
- (g) Failure to provide waste disposal facilities or services.
- (h) Excess dust or excess noise levels emanating from the Contractor's Camp and construction areas.
- (i) Any person, vehicle, plant or item related to the Contractor's activities causing a public nuisance.
- (j) Failure to carry out liaison with adjacent landowners; causing damage to property without prior negotiation and/or compensation and/or causing other social infringements.
- (k) Failure to control the pollution risks from dispensing fuel or the storage of vehicles and plant (drip trays).

The Contractor shall be responsible for the costs associated with repairing any damage to the natural or human environment that may result from the transgression and/or the result of the work stoppage.

In the event of non-compliance with the requirement of these Environmental specifications, penalties will be imposed at the discretion of the Employer.

The value of any penalty imposed shall be determined in light of the consequential damage caused and the costs required to rehabilitate the damaged area. Values are given for basic non-compliances below and these shall be use to determine the penalty for an identified or notified occurrence.

Payment of any penalty in terms of the contract shall not absolve the Contractor from being liable for prosecution in terms of the any appropriate law.

The contractor shall act immediately when such notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings.

Any avoidable non-compliance with the above-mentioned measures shall be considered sufficient ground for the imposition of a penalty.

The following penalties shall apply for environmental violations:

(a) Unnecessary removal or damage to trees:

- | | | |
|-------|---|------------------|
| (i) | 2600 mm girth or less | R5 000 per tree |
| (ii) | Greater than 2600 mm, but less than 6180 mm | R10 000 per tree |
| (iii) | Greater than 6180 mm girth | R30 000 per tree |

(b) Serious violations:

- | | | |
|-------|---|-------------------------------|
| (i) | Hazardous chemical/oil spill and/or dumping in non-approved sites | R10 000 per incident |
| (ii) | General damage to sensitive environments | R5 000 per incident |
| (iii) | Damage to cultural and historical sites | R5 000 per incident |
| (iv) | Uncontrolled/unmanaged erosion | |
| (v) | (plus rehabilitation at contractor's cost) | R1 000 to R5 000 per incident |
| (vi) | Unauthorised blasting activities | R5 000 per incident |
| (vii) | Pollution of water sources | R10 000 per incident |

(c) Less serious violations:

- | | | |
|--------|--|---------------------|
| (i) | Littering on site | R1 000 per incident |
| (ii) | Lighting of illegal fires on site | R1 000 per incident |
| (iii) | Persistent or un-repaired fuel and oil leaks | R1 000 per incident |
| (iv) | Any person related to the contractor's operations found within the designated "no-go" areas | R500 per incident |
| (v) | Any vehicles or equipment related to the contractor's operations found within the designated "no-go" areas | R3 000 per incident |
| (vi) | Excess dust or excess noise emanating from site | R1 000 per incident |
| (vii) | Dumping of milled material in side drains or on grassed areas | R1 000 per incident |
| (viii) | Possession or use of intoxicating substances on site | R500 per incident |
| (ix) | Any vehicles being driven in excess of designated speed limits | R500 per incident |
| (x) | Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife | R2 000 per incident |
| (xi) | Illegal hunting | R2 000 per incident |
| (xii) | Urination and defecation anywhere except in designated areas | R500 per incident |

The Employer's Agent's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

ANNEXURE A: LIST OF PRE-CONSTRUCTION REQUIREMENTS

NUMBER	DESCRIPTION
1	METHOD STATEMENTS
1a	Layout and preparation of the construction camp.
1b	Location, layout and preparation of cement/concrete batching facilities including the methods employed for the mixing of concrete including the management of runoff water from such areas.
1c	Contaminated water management plan, including the containment of runoff and contaminated water.
1d	Dust control.
1e	Source of water for compaction and dust suppression.
1f	Method for the control of erosion during bulk earthwork operations, including erosion of spoil material.
1g	Methods for abstracting water from rivers or other water sources including measures to prevent pollution and sedimentation.
1h	Emergency spillage procedures, including hydrocarbons, and compounds to be used.
1i	Method of diverting stormwater during construction.
1j	Solid waste control and removal of waste from Site.
1k	Methods for the construction/widening of each of the bridges and the removal of the existing structures. This must include detailed procedures for working within the streambed and the prevention of sedimentation through the construction of temporary coffer dams.
2	CONTRACTOR'S ENVIRONMENTAL REPRESENTATIVE
2a	The Contractor must appoint in writing of their Environmental Representative and provide proof thereof to the Employer's Agent and Employer's Environmental Agent.
3	ENVIRONMENTAL INDUCTION/EDUCATION
3a	Contractor's management staff to have attended environmental awareness session from the Employers' Environmental Agent.
4	SITE OFFICE LOCATION
4a	Localities for the site office and storage yard areas to be approved by the Employer's Agent and Employers' Environmental Representative.
5	ENVIRONMENTAL POLICY
5a	Contractor to submit Environmental Policy to the Employers' Environmental Representative.

ANNEXURE B: LIST OF DURING CONSTRUCTION REQUIREMENTS

NUMBER	DESCRIPTION
1	TO BE SUBMITTED TO EMPLOYERS' ENVIRONMENTAL AGENT ONCE CONSTRUCTION HAS COMMENCED
1a	The Contractor shall erect and maintain information boards in the position, quantity, design and dimensions specified. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Employer's Agent.
1b	The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, information regarding the complaint itself and measures taken to address the complaint.
1c	Localities for site office, storage yards, stockpile and spoil areas approved by the EEA.
1d	All Contractor staff made aware of the environmental sensitivities of the site and should be reminded regularly through toolbox talks that they must not litter, must use toilets etc. The EEA can provide a booklet to assist the Contractor with this compliance activity.
1e	The Contractor must ensure that a hard copy of the project EMPr (and all other environmental approvals) is kept on site at all times. Hard copies of all monthly EEA reports must also be kept on site.
1f	Letter of agreement from site office landowner to be submitted to the EEA.
1g	Letters of agreement from stockpile and/or spoil area landowners to be submitted to the EEA.
1h	A hydrocarbon spill kit must be purchased and kept at the site office/workshop.
1i	Identify and engage the local registered landfill site that will accept the construction waste generated on site.
1j	Identify and engage the appropriately registered landfill site or service provider that will accept the hazardous waste generated on site.
1k	Appropriate bunded areas must be constructed for storage of fuel and other hazardous substances.
1l	Workshop and vehicle washbay area constructed to EMPr specifications.
1m	Department of Water and Sanitation (DWS) permit obtained for water abstraction from surface water sources (eg. dams, rivers, streams) if these are to be used for construction water on site.
1n	Department of Water and Sanitation (DWS) permit obtained for release of treated effluent water from water treatment plant on site (if required or necessary).

ANNEXURE C: LIST OF REHABILITATION PHASE REQUIREMENTS

NUMBER	DESCRIPTION
1	REHABILITATION PLAN The Contractor shall provide the Employers' Environmental Agent and Employer's Agent with a comprehensive plan for rehabilitation of the entire site. This plan must meet the approval of the Employers' Environmental Representative and Employer's Agent. The Rehabilitation Plan must be submitted (at the latest) once 50% of the project works have been completed.
1a	The Plan should be flexible – where measures are found to be inefficient, the plan shall be modified, at no additional cost to the Employer.
1b	The Contractor shall be responsible for successful rehabilitation and re-vegetation of the site, for a minimum period of 12 months after construction is complete.
1c	The Plan shall include the eradication of young alien invasive plant species that may have become established during the construction period, in impacted areas and in rehabilitated areas.
1d	The growth of alien invasive plant species shall be monitored during the 12 months period following construction.
1e	The Plan shall include grass seed mixes applicable to summer and winter.
1f	The Plan shall include suitable fertilisers and application rates.
1g	Successful re-vegetation means $\geq 80\%$ of the seeded area is covered with grass/groundcover.
1h	Where there is insufficient topsoil to cover an area to specified depth, the Contractor shall import suitable topsoil at no cost to the Employer.
1i	Consideration should be given to using established seedlings of indigenous grasses such as <i>Digitaria eriantha</i> and <i>Cenchrus ciliaris</i> to at least augment the use of aliens in re-vegetation of bare areas. On eroded soil chopped bush should be spread over bare surfaces, the soil should be re-seeded and the veld rested.

ANNEXURE D: LIST OF TYPICAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH ROAD CONSTRUCTION PROJECTS

Contents	Environmental Impacts				
	Pollution Type	Deformation of Landscape	Soil erosion	Alien Vegetation	Sensitive Areas (to be completed by compiler)
Camp Establishment	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Within 100m of water bodies (including wetlands, estuaries, streams and rivers).
Housing, Offices and laboratories	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Within 100m of water bodies (including wetlands, estuaries, streams and rivers).
Accommodation of Traffic	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Overhaul	Spillage Storage Noise/lights Dust control Exhaust fumes Washing waste	Turning circles Parking areas	Restrict access to sensitive areas	Protection of indigenous vegetation Preserve topsoil	

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Contents	Environmental Impacts				
	Pollution Type	Deformation of Landscape	Soil erosion	Alien Vegetation	Sensitive Areas (to be completed by compiler)
Clearing and grubbing	Waste treatment Hazardous waste Water supply Noise /lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Protection of indigenous vegetation Preserve topsoil	Within 100m of water bodies (including wetlands, estuaries, streams and rivers).
Drainage	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Stockpiling	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Within 100m of water bodies (including wetlands, estuaries, streams and rivers).
Pavement layers	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	At the river crossings.
Asphalt works / sealing operations	Waste treatment Hazardous waste Water supply	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	At the river crossings.

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Contents	Environmental Impacts				
	Pollution Type	Deformation of Landscape	Soil erosion	Alien Vegetation	Sensitive Areas (to be completed by compiler)
	Spillage Storage Noise / lights Dust control Smoke control Storage of materials	Turning circles Parking areas			
Ancillary roadworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Structures	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	Within 100m of water bodies (including wetlands, estuaries, streams and rivers).
Concrete pavements etc	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	In villages.

SECTION F-2: MINING ENVIRONMENTAL MANAGEMENT PROGRAMME IMPLEMENTATION SPECIFICATION

F2001 MITIGATORY MEASURES

The mitigation measures which will apply during the Site Establishment, Operation and Rehabilitation phases are provided in the following Sections. An “aspects based” approach has been adopted to the mitigation measures as the impacts may be more effectively controlled through the management of the aspects, eg the impact on surface water quality may be effectively mitigated through the management of surface water runoff, discharge of water from a point source and from effective hazardous waste management.

Overall objectives and specific targets for the management of the various aspects are provided. Activities which are responsible for the aspect are listed and the likely impact summarised. The responsibility for the implementation of the mitigation measures is indicated and any institutional and training requirements outlined. Finally, requirements for monitoring are provided.

The Mitigation Measures are grouped under the following aspects:

- (a) Energy consumption
- (b) Water consumption
- (c) Materials consumption
- (d) Releases to Water (point)
- (e) Releases to Water: Diffuse (Stormwater Management)
- (f) Emissions to Air
- (g) Light Emissions
- (h) Noise Disturbance
- (i) Surface Disturbance (Soil Compaction and Loss)
- (j) Surface Disturbance (Vegetation Degradation and Loss)
- (k) Surface Disturbance (Cultural Heritage)
- (l) Surface Disturbance (Land use and Productivity)
- (m) Surface Disturbance and Changes in Landform and Topography (Aesthetics)
- (n) Changes in landform and Topography (Public Health and Safety)
- (o) Solid Waste Generation and Disposal
- (p) Hazardous Waste Generation and Disposal
- (q) Access Creation and Disruption
- (r) Procurement of Goods and Services
- (s) Employment and Training
- (t) Additional Measures, which include
 - (i) Community Relations
 - (ii) Staff Safety and Education
 - (iii) Work Stoppages
 - (iv) Existing Services and Infrastructure

(a) ENERGY CONSUMPTION

Objectives:

To utilise renewable resources SUSTAINABLY, and non-renewable resources WISELY.

To ensure that the project does not impact negatively on the availability of power for other users.

Targets:

To use “clean” sources of power where possible, eg solar power.

To minimise the amount of power utilised on site and to guard against the unnecessary wastage of power.

Activities:

- All mining activities using either diesel or electrical derived power.

Impact:

Greenhouses gasses produced from the production of power from fossil fuels.

The depletion of non-renewable materials in the generation of power and processing of diesel.

Mitigation Measures:

Alternative energy sources (such as solar power) to be used where practical.

Energy saving measures (eg the use of energy saving globes) to be implemented on site.

Responsibility:

Contactor

Permit Requirements:

None

Institutional and Training requirements:

Appointment of a part time independent Employers' Environmental Agent (EEA).

Conservation of energy (electricity and diesel) to form part of the environmental awareness training programme.

Monitoring:

Energy conservation will form part of the environmental management programme. This will be monitored during the environmental performance assessments.

(b) WATER CONSUMPTION

Objectives:

To utilise renewable resources SUSTAINABLY, and non-renewable resources WISELY.

To ensure that the project does not impact negatively on the availability of water for other users, including the environment.

To ensure that the project does not impact on the conservation status of the ecosystems and the health and welfare of surrounding water users.

Targets:

Recycle as much of the process water as possible and prevent wastage and/or loss through the proper maintenance of machinery.

Ensure that all water which is discharged off site either as stormwater or process water meets the DWS standards for water quality.

Activities:

- Creation of access roads and haul roads
- Crushing Operations (dust suppression)
- Maintenance of plant and machinery
- Rehabilitation.

Impact:

The depletion of potable and process water sources to the detriment of other users and the environment.

Mitigation Measures:

Water consumption to be monitored. .

Recycling of water must take place where possible.

Water abstraction from other sources (dams, streams, rivers etc) is not permitted without obtaining the necessary authorisation from DWS.

Responsibility:

Contractor

Permit Requirements:

Obtain permit for water abstraction from DWS in terms of the National Water Act.

Institutional and Training requirements:

Appointment of a part time independent EEA.

Water conservation and recycling will form part of the environmental awareness training programme.

Monitoring:

Water consumption is to be monitored by mine staff on an ongoing basis and reported to the Independent Employers' Environmental Agent. The implementation and efficacy of the water conservation policy and plan will be assessed as part of the annual performance assessments.

(c) **MATERIALS CONSUMPTION**

Objectives:

To utilise renewable resources SUSTAINABLY, and non-renewable resources WISELY.

Targets:

To recycle and reuse materials where possible in order to minimise the wastage of such materials.

Enhance the benefits to local economy through using local suppliers of materials where possible.

Activities:

- Construction/upgrade of the haul roads and access road (gravel)
- Relocation of Eskom powerline
- Construction of office buildings and workshops etc
- Establishment of crusher yard
- Fencing.
- Mining operations (general)

Impact:

Not applicable

Mitigation Measures:

A targeted procurement policy to be implemented at the mine whereby goods and services should be sourced locally if possible.

A **waste management and minimisation method statement** to be developed and implemented with a focus on the minimisation of waste and the reuse and recycling of materials where possible.

Responsibility:

Contractor

Permit Requirements:

No permits required

Institutional and Training requirements:

No institutional or training requirements necessary.

Monitoring:

No monitoring required.

(d) RELEASES TO WATER (POINT)

Objectives:

To ensure that the project does not impact negatively on the ground and surface water quality and therefore the health of other users, and of the environment.

To ensure that any polluted water (eg sewage) is treated and discharged in accordance with the legislation with negligible risk to the health of other users and the environment.

To prevent the loss of soil through erosion caused by point source discharge.

Targets:

All water which is discharged on or off site either as stormwater, wastewater or process water must meet the DWS standards for water quality.

The discharge of water from point sources must not result in the pollution or loss of soils through erosion.

Activities:

- Office Block (ablutions, waste water from kitchens etc)
- Workshop and washbay
- Temporary work sites (portable toilets)
- Cement batch plant

Impact:

The contamination of soils through discharge of polluted water.

The pollution of surface and groundwater sources through the discharge of polluted water.

Mitigation Measures:

Potential point sources of pollution include: ablutions, waste water from kitchens etc, washbays, workshops and cement mixers (construction)

Onsite ablutions at the site office are to be discharged into French drains/soakaways.

Temporary work areas (eg during the construction phase) are to be equipped with chemical porta-loos, which should be emptied on a regular basis and the contents disposed of at the sewage treatment works in Bizana.

All temporary/portable toilets shall be secured to the ground to prevent them toppling due to wind or any other cause. All toilets are to be maintained in a clean, sanitary condition. The Contractor shall ensure that no spillage occurs when the toilets are cleaned, or emptied, and that the contents are properly stored and removed from Site. Discharge of waste from toilets into the environment, and burial of waste, is strictly prohibited.

Refueling activities should not be conducted where runoff could carry contaminants into drainage pathways (including stormwater drains/trenches and sewers).

Washing of vehicles must be kept to a minimum and must only take place in a designated washbay area on an impervious surface which drains into an oil sump.

Concrete mixers to be located on an impermeable surface. A lined settlement pond to be established below the plant to contain any contaminated run-off.

Cleaning out of concrete mixers and trucks must take place on a properly designated site with a sump that can be cleaned out.

Washing, whether of the person, or of personal effects, and acts of excretion and urination, are strictly prohibited other than at the facilities provided.

All water requiring discharge, including wastewater from kitchen and ablution facilities, should be led into the soakaway system. No wastewater shall be discharged into rivers or streams.

Responsibility:

Contractor

Permit Requirements:

No permits are required for the discharge of waste water via the soakaway system as the quantities are expected to be relatively low.

Institutional and Training requirements:

The prevention of pollution through the discharge of contaminated water will form part of the **Environmental Awareness Programme**.

Appointment of a part time independent EEA.

Monitoring:

Monitored by the Engineer on site. Will be checked as part of the monthly independent monthly audits.

(e) RELEASES TO WATER: DIFFUSE (STORMWATER MANAGEMENT)

Objectives:

To ensure that the project does not impact negatively on the ground and surface water quality and therefore the health of other users, and of the environment.

To ensure that all contaminated water (eg sewage) is treated and discharged in accordance with the legislation with negligible risk to the health of other users and the environment.

To prevent the loss of soil through erosion caused by stormwater runoff.

Targets:

Provide for appropriate stormwater control, protecting exposed areas from stormwater runoff and directing and dissipating stormwater in such a manner as to prevent erosion.

Activities:

- Construction and upgrade or access and haul roads
- Clearing and Grubbing
- Stripping of topsoil
- Creation of platforms
- Construction of office buildings, workshop etc
- Creation of the crusher yard.
- Stripping of overburden
- Creation of stormwater drainage systems
- Stockpiling of topsoil and overburden
- Rehabilitation measures.

Impact:

The overland flow of stormwater may result in the erosion and loss of soil, the transformation of the surface through gully and sheet erosion and the contamination of surface water bodies through sediment ingress and pollution with consequent impacts on the aquatic flora and fauna.

Mitigation Measures:

An appropriate Stormwater Management Method Statement is to be developed by the contractor.

All excess runoff water, generated during mining operations, must be captured in a sediment trap constructed below the low point of each platform created during each phase of the development of the mine. These sediment traps must be monitored to ensure that they remain effective. Once the trap becomes 50% full, then it must be emptied and the captured material must be stored within the stockpile area.

The stormwater management system must be designed for the worst case, i.e., heavy rainfall and runoff events.

No rock, silt, cement, grout, petroleum product, timber, vegetation, domestic waste, or any deleterious substance shall be placed or allowed to disperse into the stormwater system or directly into the drainage lines.

Halt construction activity on exposed soil during events of high rainfall intensity and runoff.

Minimise vegetation cover removal on all the cleared areas - ie only clear those areas where mining and stockpiling is currently taking place.

Water that has been contaminated with suspended solids, like soils and silt, may be released into natural watercourses or stormwater channels. However, all suspended solids shall be removed from water before it is discharged by settling out these solids in settling ponds.

Soil erosion shall not be tolerated on the Site. Uncontrolled erosion will cause siltation and pollution of the downstream areas and result in loss of valuable topsoil. The Contractor should take all reasonable measures to prevent soil erosion and protect areas susceptible to erosion. Erosion prevention measures must be implemented to the satisfaction of the EEA and DMR.

Areas particularly susceptible to erosion include:

- areas stripped of topsoil,
- soil stockpiles, and
- steep slopes (gradients > 8%).

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Where erosion does occur, the Contractor shall reinstate such areas to the satisfaction of the DMR through the construction of contour berms, cut-off drains, or planting of grass sods/ground cover, as may be necessary. Topsoil that has been washed away shall be replaced.

The access/haul roads must be constructed with adequately effective drainage to ensure that they are themselves not excessively eroded, as well as ensuring that they do not promote excessive erosion along their boundaries.

The Contractor must construct the mine and crusher yard access roads following the existing track as much as possible. The access road must make allowance for proper stormwater drainage and erosion control.

Responsibility:

Contractor

Permit Requirements:

There are no permit requirements for the control of erosion and stormwater discharge.

Institutional and Training requirements:

There are no specific institutional or training requirements for the control of stormwater.

Appointment of a part time independent EEA.

Monitoring:

Areas affected by mining related activities must be monitored regularly for evidence of erosion.

Results will be reported in the Environmental Performance Assessment Reports submitted to DMR.

(f) **EMISSIONS TO AIR**

Objectives:

To reduce dust emissions to levels that are acceptable in terms of the following aspects: nuisance, road hazards, aesthetics and health hazards.

To minimise the risk to human health through the minimisation of emissions and the provision of protective equipment.

Targets:

To ensure that dust emissions do not exceed the legal standards and where these standards are exceeded, to take the necessary precautionary measures to protect the health of the exposed persons.

Activities:

- Construction and upgrade or access and haul roads
- Clearing and Grubbing
- Stripping of topsoil
- Creation of platforms
- Construction of office buildings, workshop etc
- Creation of the crusher yard.
- Stripping of overburden
- Creation of stormwater drainage systems
- Stockpiling of topsoil and overburden
- Crushing
- Transportation of material within and off site
- Rehabilitation measures.

Impact:

Excessive exposure to dust may impact on human health. Lower levels are primarily of a nuisance value. Dust is regarded as a nuisance when it reduces visibility, soils private property, reduces the palatability of grazing grasses and may retard plant growth. It is also aesthetically displeasing.

Mitigation Measures:

A **Dust Management Method Statement** must be developed and implemented on site. This must include the following:

- The identification of sources of dust.
- Measures to be taken to minimize dust generation.
- Protective measures to minimize exposure of the workforce to the adverse effect of dust.
- Occupational health checks for all staff exposed to dust.
- A dust monitoring programme.

Specific mitigation measures are outlined as follows:

Minimize areas of exposed soil by only clearing those areas where mining or stockpiling is activity taking place and by revegetating mining and stockpiling areas progressively where possible.

Fine material must be kept to a minimum by practicing good housekeeping. All fines should be removed to the spoils area and covered with overburden and vegetated accordingly.

Employ dust suppression measures on dry dusty surfaces. This may involve the spraying of water from water carts.

Ensure fine materials being stored or transported are covered with tarps or equivalent material.

Ensure that the district road accessing the site is maintained in a good condition with a suitable gravel surface. Heavy trucks may lead to the pulverizing of the gravel and increase the amount of dust produced.

Operators exposed to high levels of dust (including cement dust) must be equipped with dust masks. This is a health and safety requirement and must be managed via the mine's Health and Safety Plan.

Ensure all equipment is in good operating order, and fitted with standard air emission control devices.

Wet methods must be enforced when rock breaking, drilling and loading take place.

Minimize idling of engines at all times.

Responsibility:

Contractor

Permit Requirements:

No permits are required in connection with this aspect.

Institutional and Training requirements:

The minimisation of dust and gaseous emissions and the use of protective equipment will form part of the health, safety and environmental awareness and training programmes.

Appointment of a part time independent EEA.

Monitoring:

Dust to be monitored daily on site by the environmental representative. Monthly monitoring by the occupational health and safety auditors and the environmental auditors will take place.

(g) LIGHT EMISSIONS

Objectives:

To minimise the negative impacts of light emissions on the aesthetics of the area.

Targets:

All external lighting must be designed and located in such a way as to minimise the visual impact without compromising safety and security.

Activities:

- Mining Operation (General) – crusher yard area only

Impact:

Night lighting may be of nuisance (irritation) to the surrounding landowners and residents.

Mitigation Measures:

The Contractor shall ensure that any lighting installed on the Site for mining activities does not interfere with road traffic, or cause a reasonably avoidable disturbance to the surrounding community, or other users, of the area. Lighting installed shall be down lighting.

Responsibility:

Contractor

Permit Requirements:

No permits are required in respect of this impact.

Institutional and Training requirements:

Appoint a part time independent EEA.

Monitoring:

This impact will be monitored by means of the IAP complaints register

(h) NOISE DISTURBANCE

Objectives:

To minimise the risk to human health through the minimisation of noise and the provision of protective equipment.

Targets:

Take the necessary measures to ensure that noise does not exceed the legal standards and where these standards are exceeded, to take the necessary precautionary measures to protect the health of the exposed persons.

Activities:

- All Mining Activities (operation of machinery etc)
- Blasting
- Crushing
- Transportation of material around and off site.

Impact:

Excessive exposure to high level noise may result in temporary or permanent damage to hearing. Exposure to lower noise levels (eg from surrounding residential areas) may be of nuisance value (irritation).

Mitigation Measures:

A **Noise Management Method Statement** must be implemented on site. This must include the following:

- The identification of sources of noise.
- Measures to be taken to minimize noise generation.
- Protective measures to minimize exposure of the workforce to the adverse effect of noise.
- Occupational health checks for all staff exposed to noise.
- A noise monitoring programme.

Specific mitigation measures are outlined as follows:

No nighttime activities are to take place at the borrowpits or crusher yard until such time as these activities have been proven, through regular monitoring, not to constitute a noise disturbance.

All activities with high noise levels should be restricted to daylight hours on weekdays. Working hours on Saturdays should be from 06h00-13h00.

All operators exposed to noise in excess of 85dB will be equipped with hearing protection devices.

The Contractor shall take the necessary measures to limit noise levels on site to within legally acceptable limits. The regulations framed under the Machinery and Occupational Safety Act, 1983 (Act No. 6 of 1983) apply.

All vehicles to be kept in a serviceable condition and fitted with silencers.

Any warning hooters be so designed that they are only effective in the area of concern.

Where possible physical barriers are to be placed between noise sources and the community.

All compressors and pumps at the beneficiation plant be housed in purpose built structures to minimise noise transmission.

Responsibility:

Contractor

Permit Requirements:

None

Institutional and Training requirements:

The minimisation of noise and the use of protective equipment will form part of the health, safety and environmental awareness and training programmes.

Appointment of a part time independent EEA.

Monitoring:

Noise to be monitored daily on site by the environmental representative. Monthly monitoring by the occupational health and safety auditors and the environmental auditors will take place.

(i) **SURFACE DISTURBANCE (SOIL COMPACTION AND LOSS)**

Objectives:

To minimise the disturbance or loss of top soil and subsoil through limiting the footprint of the operations and/or recovering and protecting soil for use in final rehabilitation of the site.

Targets

To ensure that all activities which might impact negatively on the soils are restricted to the smallest area possible.

To ensure that rehabilitation is such that the minimum land with agricultural potential is compromised.

To limit soil erosion and consequent degradation of soil and pollution of air and surface water.

Activities:

- Construction and Upgrading of access and haul roads
- Clearing and Grubbing
- Stripping of topsoil
- Rehabilitation

Impact:

Compaction of soil may result in the loss of soil viability (ie ability to sustain vegetation. Compacted soils decrease infiltration and increase runoff which increases the risk of erosion.

Soil may be lost through erosion.

Mitigation Measure:

Topsoil should be viewed as a precious commodity on site. Every effort must be made to preserve topsoil from construction areas, to protect it from loss through erosion and to maintain its viability.

Topsoil shall be removed from the following areas no longer than 30 days before activities, in each particular area, begin:

- All areas to be mined/excavated;
- Areas to be occupied by roads;
- Areas for the storage of fuels;
- Areas to be used for a crushing yard;
- Areas for stockpiling of construction materials;
- Areas for stockpiling of crusher run; and
- Areas for spoiling material.

During site clearing and establishment activities, topsoil shall be excavated to a depth of 150 mm. Topsoil must be placed within the designated topsoil stockpile areas as indicated in the site development plan (as provided by the Engineer).

Topsoil stockpiles must be no higher than 1.5m and must be protected from compaction.

The topsoil stockpiles must be vegetated using a suitable seed mix which includes fast growth annual species (such as *Eragrostis teff*) and perennial species. Vegetating the topsoil stockpiles will protect them from erosion and maintain their viability (organic content, seedbank) etc.

The topsoil stockpiles shall be clearly demarcated with appropriate signage.

Topsoil shall not be mixed with any other material (construction rubble, subsoils etc) and erosion of the topsoil stockpiles must be prevented by placing the stockpiles below the stormwater diversion berms where appropriate.

Topsoil should under no circumstances be used to create diversion berms or for general erosion control measures.

All overburden (decomposed rock) and subsoil must be stockpiled in the designated areas and protected from erosion by placing them downslope of the stormwater diversion berms.

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The size of required work areas and campsites must be restricted to the minimum required for efficient and effective work.

The minimum amount of vegetation must be removed from the construction sites.

Plan for the worst case, that is, for heavy rainfall and runoff events, or high winds.

Care must be taken not to introduce alien plant material into the stockpile areas.

All disturbed sites must be revegetated and rehabilitated immediately after construction on that site has been completed so as to limit the exposure of the disturbed areas to wind and water erosion.

Topsoil which is placed on slopes steeper than 1:3 must be protected from erosion through the application of "soilsaver" or some other form of biodegradable geomesh.

Should any soil become contaminated by pollutants (eg oil spillages), this must be dug up and removed from site for treatment and/or disposal at a licensed facility. No treatment of contaminated soils (e.g. bioremediation) shall be allowed on site.

Responsibility:

Contractor.

Permit Requirements:

No permits required

Institutional and Training requirements:

The protection and conservation of soil will form part of the health, safety and environmental awareness and training programmes.

Appointment of a part time independent EEA.

Monitoring:

Soil conservation and protection will be monitored as part of the monthly EEA visits and reported on in the environmental performance assessment reports.

(j) SURFACE DISTURBANCE (VEGETATION DEGRADATION AND LOSS)

Objectives:

To minimise the impact on the vegetation, taking special consideration of species of high conservation value (rare or protected species).

To protect and preserve as far as possible, the indigenous animal life affected by the construction operations, with special emphasis on endemic, endangered and vulnerable species.

Targets:

No loss of biodiversity.

The reestablishment of indigenous vegetation following closure and rehabilitation of the sections of the mine.

The prevention of the spread of alien invasive plant species.

Activities:

- Clearing and Grubbing

Impact:

Loss of biodiversity, loss of animal habitat, removal of protected species and spread of alien invasive vegetation.

Mitigation Measure:

Develop a **Rehabilitation Method Statement** and an **Invasive Alien Plant Eradication method statement** for the mining areas.

Natural features, indigenous flora and fauna within the vicinity of the project works, should be protected and damage or disturbance prevented or minimised, specifically:

No plant species outside of the designated mine site and associated areas may be removed.

No mining staff may have access to indigenous vegetation outside of the Site.

The use of indigenous plants as firewood is prohibited.

All fauna (including domestic livestock) within, and surrounding the site, shall be protected. They shall not be caught, poisoned, trapped, snared or killed.

The minimum amount of vegetation must be removed. Excessive clearing of a site must be avoided. Disturbance outside of the immediate construction area must be avoided.

Replanting of these or other indigenous species in disturbed areas will be required, under the guidance of the Environmental Controller.

Planning and construction must ensure that alien plants are not introduced to the disturbed areas. This can be accomplished by:

- Utilising the saved topsoil from the construction area and regular monitoring during the revegetation phase and immediately after the revegetation phase.
- Preventing continuous disturbances of the rehabilitated areas.
- Alien invader species must be removed from the site and destroyed as per the DWS Working for Water specifications for that species. Any regrowth must be controlled in the same manner.
- Soil should not be moved from one part of the site to another unnecessarily.

Responsibility:

Contractor

Permit Requirements:

No permits required.

Institutional and Training requirements:

Appointment of a part time independent Employers' Environmental Agent (EEA).

The protection and rehabilitation of vegetation cover will form part of the environmental awareness training programme.

Monitoring:

Protection and rehabilitation will be monitored as part of the monthly EEA visits and reported on in the environmental performance assessment reports.

(k) SURFACE DISTURBANCE (CULTURAL HERITAGE)

Objectives:

To identify, protect and preserve any sites of cultural, religious or archaeological significance.

Activities:

- Creation of access roads
- Clearing and grubbing
- Stripping of topsoil
- Stripping of overburden

Impact:

Graves have been identified within the vicinity of the BP 14.9 site. These must be clearly demarcated and protected from damage.

Although no other sites of cultural heritage significance have been identified, there is always some potential that sites may be uncovered during the site preparation and mining activities. It is necessary therefore to put in place an action plan for this eventuality.

Mitigation Measures:

The graves at the BP 14.9 site must be very clearly marked (fenced) and placed out of bounds for construction activities.

All activities must be restricted to the smallest area possible. All areas outside of the designated mining area will be placed out of bounds.

Should an archaeological or cultural site be located during preparation of the site or mining activities, it should immediately be reported to the South African Heritage Resource Agency. Failure to report a site of archaeological and/or cultural significance is a contravention of the National Heritage Act (Act No 25 of 1999).

All construction site staff must be briefed to immediately report any potential sites which are encountered during the project. In the event of finding what appears to be an archaeological site or a cultural and/or historic site or object, work should be terminated until a qualified archaeologist or historian can examine the item or find.

Should any sites be discovered, the Contractor shall take reasonable precautions to prevent any person from removing or damaging any fossils, coins, articles of value or antiquity and structures and other remains of archaeological interest discovered on the Site, immediately upon discovery thereof and before removal. All works within the vicinity of the discovery must cease immediately and the area shall be cordoned off until such time as the SAHRA authorises resumption of the works in writing.

Responsibility:

Contractor

Permit Requirements:

No permits are required as there have been no sites identified.

Institutional and Training requirements:

The possible uncovering of sites of cultural heritage significance and the actions to be taken in event of this occurring will be covered by the Environmental Awareness Training Course.

Appointment of a part time independent EEA.

Monitoring:

The possible discovery of sites of cultural heritage significance will be monitored during the monthly EEA visits and reported during the environmental performance assessment reports.

(I) SURFACE DISTURBANCE (LANDUSE AND PRODUCTIVITY)

Objectives:

To minimise the impact on surrounding landuses during construction.

To, where possible, return the affected areas to their previous landuse capabilities following completion of construction.

Targets:

Rehabilitation of the mined out areas and stockpiles in order to allow for the resumption of the previous landuse (ie grazing) within a reasonable time frame following completion of the mining operations.

Activities:

- Clearing and grubbing
- Stripping of topsoil
- Stripping of overburden
- Stockpiling and spoiling
- Mining operations (General)

Impact:

The mining operations will result in a temporary change of landuse. The land will not be available for its current use (grazing) for the duration of the mining operations.

Mitigation Measure:

All activities must be restricted to the smallest area possible. All areas outside of the mining area should be placed out of bounds.

Measures outlined in 0 (vegetation), above, are to be implemented in order to return the site to the previous landuse on closure.

Responsibility:

Contractor

Permit Requirements:

No permits are required.

Institutional and Training requirements:

None

Monitoring:

This impact will be monitored by an independent EEA on completion of the mining operations and rehabilitation programme

(m) **SURFACE DISTURBANCE AND CHANGES IN LANDFORM AND TOPOGRAPHY (AESTHETICS)**

Objectives:

To minimise as far as possible the visual impacts resulting from the mining activities and to return the land to its previous condition as far as possible on completion of the mining operations.

Activities:

- Clearing and grubbing
- Stripping of topsoil
- Stripping of overburden
- Stockpiling and Spoiling
- Excavation of the material.
- Mining Operations (General)

Impact:

The impact of the mine establishment and operation on the aesthetics of the general landscape surrounding the mining area.

Mitigation Measure:

In addition to the mitigation measures described under clause F2001, the following will apply:

Photographic records to be kept throughout construction, starting prior to any activities getting underway. Fixed point photo sites are to be selected. These photographic site records should be used to ensure that the affected topography and vegetation can be reinstated, where practical, to a state which closely approximates the natural situation.

Mining is to take place according to the proposed mine development plans included in **APPENDIX 2**. Mined out areas are to be used a spoil site thereby facilitating rehabilitation.

All site establishment components (as well as equipment) shall be positioned to limit visual intrusion on neighbours and the size of area disturbed.

The Contractor shall provide the EEA with a plan of the site camp showing the layout/positioning of all infrastructure including wash bays, fuel storage areas, materials storage areas, sewage infrastructure and buildings. The Contractor shall maintain a map of the site layout that indicates where the wash bays, fuel storage areas, topsoil sites etc are located. The EEA and DMR must approve this.

The EEA shall approve all stockpiling and spoiling sites and confirm the end-use or rehabilitation plans for these sites.

The stockpiles should be located within demarcated specified sites. Material must be stockpiled in such a way as to minimise the spread of materials and the impact on the natural vegetation. The Contractor should ensure that no materials "creep" into "no-go" areas.

The Contractor shall ensure that, insofar as he has the authority, no person, machinery, equipment or material enters the "no go" areas at any time.

Responsibility:

Contractor

Permit Requirements:

None

Institutional and Training requirements:

Appointment of a part time independent EEA.

Monitoring:

The visual impact of the mining operations will be assessed as part of the monthly EEA site visits and reported on in the environmental performance assessment reports.

(n) **CHANGES IN LANDFORM AND TOPOGRAPHY (PUBLIC HEALTH AND SAFETY)**

Objectives:

To prevent any injury to staff or members of the public which might incur through access to unstable surfaces, high rock faces etc.

Activities:

- Mining Activities (General)

Impact:

Injury or death incurred as a result of blasting or access to unstable areas and high rock faces.

Mitigation Measure:

A **Health and Safety Plan and Programme** is to be complied and implemented on site.

The nearby household to be relocated prior to any activities commencing on site.

The mining area must be placed out of bounds to members of the public and other unauthorised persons.

Security must be put in place to prevent unauthorised access to the site.

The entire mining area is to be fenced.

Appropriate warning signage is to be erected around the mining and processing area.

Responsibility:

Contractor

Health and Safety Officer

Permit Requirements:

None

Institutional and Training requirements:

Appointment of a health and safety officer.

All staff are to go through the health and safety training programme

Monitoring:

Health and Safety to be monitored by an external, independent health and safety professional.

(o) **SOLID WASTE GENERATION AND DISPOSAL**

Objectives:

To ensure that the mine establishment and operation does not have a significant negative impact on the environment through the manner in which solid waste is stored, handled or disposed of.

Targets:

Minimise the quantities of solid waste by reducing, reusing and recycling materials wherever possible.

To store, handle and dispose of all solid waste according to sound environmental principles and in accordance with the legal requirements.

Activities:

- Mining operations (General)

Impact:

Inappropriate handling and disposal of waste may result in contamination of water sources, soils and general pollution of the surrounding environment

Mitigation Measure:

A **Waste Management and Minimisation Method Statement** must be developed for the mining operations.

No construction or other waste may be disposed of on site. All waste generated during the construction of the site must be removed from the site and disposed of at a registered waste disposal site.

Adequate litter drums or other containers must be located throughout the construction camp and at all construction sites to ensure that no litter is generated on site. The containers should be fitted with suitable lids and pegged to the ground so that dogs or any other scavengers cannot gain access to the container when the sites are unattended.

No burning of refuse is to take place on site.

Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, fine vegetation, refuse and paper shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure of his employees, or suppliers, to properly secure transported materials.

No on-site burying or dumping of any waste materials, vegetation, litter or refuse shall occur.

All solid waste shall be disposed of off site at least once weekly at an approved landfill site. The Contractor shall provide the EEA with documentary proof of disposal during the biannual compliance audit site inspection.

Responsibility:

Contractor

Permit Requirements:

None

Institutional and Training requirements:

Appointment of a part time independent EEA.

Solid Waste Management will form part of the environmental awareness training to take place on site.

Monitoring:

Solid waste management to be monitored by the EEA during the monthly site visits and to be reported on in the environmental performance assessment reports.

(p) HAZARDOUS WASTE GENERATION AND DISPOSAL

Objectives:

To manage the hazardous waste component so as to minimise the potential to cause harm to the human and the natural environment.

Targets:

To have zero spillages of hazardous materials on site.

Activities:

- Refuelling and operation of plant
- Vehicle and plant repair and maintenance.

Impact:

The pollution of soil, surface water and groundwater as a result of spillages of hazardous substances.

Mitigation Measure:

Hazardous substances used on site will likely include fuel, oil and certain degreasers.

Hazardous Waste Management Method Statement is to be compiled as follows:

The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDSs shall be followed in the event of an emergency situation.

Fuel may be stored on Site and the fuel storage area shall be located at the workshop, or a fuel storage depot, located within the construction camp. The Contractor shall ensure that all liquid fuels (petrol and diesel) are stored in tanks with lids, which are kept firmly shut or in bowzers. The tanks/bowzers shall be situated within a concrete bundwall with a concrete base. The volume inside the bund shall be 110% of the total capacity of all the storage tanks/bowzers. The bunded area shall be covered to prevent the collection of rainwater. The Contractor shall prevent unauthorised access into the fuel storage area.

The Contractor shall ensure that all fuels and chemicals are handled and stored in a manner so to minimise the risk of spills, leaks or structural failures.

The Contractor shall have on Site all the necessary materials and equipment to deal with spills of any of the substances stored on Site.

The Contractor shall set up a procedure to deal with a spillage or pollution event.

Staff shall be appropriately trained to deal with any spills or pollution threat.

No smoking shall be allowed within the vicinity of the fuel storage area.

The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.

Gas and fuels shall not be stored in the same storage area.

Where reasonably practical, plant shall be refuelled at the depot, or at the workshop, as applicable. If it is not reasonably practical, then the surface under the refuelling area shall be protected against pollution.

The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown hydrocarbon spills, and where possible, be designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 litres of hydrocarbon liquid spill.

Where practical, all maintenance and repair of equipment and vehicles on Site shall be performed in the workshop. If it is necessary to do maintenance outside of the workshop area, then drip trays must be used. Only emergency repair and maintenance work is allowed outside of the workshop.

The Contractor shall ensure that there is no contamination of the soil, or vegetation, in the workshop and other plant maintenance facilities, including those areas where emergency plant maintenance has been conducted.

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The workshop shall have a smooth impermeable concrete floor. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil).

When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants.

Drip trays shall also be provided for stationary plant (such as compressors) and for “parked” plant (such as scrapers, loaders, vehicles).

Drip trays shall be inspected and emptied daily, and serviced when necessary. Drip trays shall be closely monitored during rain events to ensure that they do not overflow.

All vehicles and equipment shall be kept in good working order and serviced regularly.

Leaking equipment shall be repaired immediately or removed from the Site.

The washing of equipment shall be restricted to urgent, or preventative maintenance requirements only. All washing shall be undertaken in a wash bay area which must be equipped with a suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate and nitrate containing, low sudsing-type, detergents.

The appropriate danger/warning signs must be erected at the diesel bowser, mine and crusher yard area entrance and at the workshops.

Fuel lubricants, solvents, paints, and other chemicals must be stored within the contractors campsite in a facility secured with lock and key. Storage should be on a bunded, impervious site (secondary containment).

Storage of all chemicals and herbicides should be in a bunded area and on an impervious site with secondary containment.

All used oil is to be collected and placed in drums stored on a concrete surface. Used oil must be recycled by a licensed dealer or disposed of at a registered landfill site, where the permit conditions of the landfill allow.

Responsibility:

Contractor

Permit Requirements:

None

Institutional and Training requirements:

Appointment of a part time independent EEA.

Appropriate hazardous waste management will form part of the environmental awareness and training course.

Monitoring:

Solid waste management to be monitored by the EEA during the monthly site visits and to be reported on in the environmental performance assessment reports.

(q) ACCESS CREATION AND DISRUPTION

Objectives:

To minimise the disruption of traffic on public roads.

Activities:

- Construction/upgrade of the access road.
- Transportation of material to site.

Impact:

The movement of heavy vehicles along the district road accessing the site may result in some disruption to traffic on the road. This is likely to be largely of nuisance value.

Mitigation Measure:

Increased traffic, especially heavy vehicle traffic, has the potential to draw complaints from nearby residents. The Contractor is expected to address any complaints received.

The Contractor shall comply with all the applicable local, regional and national by-laws with regard to road safety and transport. He shall instruct his drivers and plant operators that vehicles will be expected to comply with all road ordinances, such as speed limits, roadworthiness, load securing/covering.

Site vehicles should be permitted access only within the demarcated construction sites or on existing roads, as would be required to complete their specific tasks.

Site vehicle traffic should be limited to specific access roads to prevent unnecessary damage to the natural environment.

Responsibility:

Contractor

Permit Requirements:

None

Institutional and Training requirements:

None

Monitoring:

Will be monitored through a public complaints register.

(r) **PROCUREMENT OF GOODS AND SERVICES**

Objectives:

To maximise the benefits to the local economy through the procurement of goods and services locally if practical.

Activities:

- Mining operations (General)

Benefit:

The local economy within the OR Tambo District Municipality and further afield within the former Transkei area stands to benefit significantly through the supply of materials or specialist services.

Measures to enhance benefit:

A targeted procurement policy to be implemented at the mine whereby goods and services should be sourced locally if possible.

Responsibility:

Contractor

Permit Requirements:

None

Institutional and Training requirements:

None

Monitoring:

None required

(s) **EMPLOYMENT AND TRAINING**

Objectives:

To maximise the social and economic benefits to the local residents through employment and training.

Activities:

- Recruitment of labour
- Training

Benefit:

The local community stand to benefit significantly from the provision of jobs and the implementation of a staff training programme.

Measures to enhance benefit:

Labour should be drawn from the affected community.

Labour intensive methods of mining and rehabilitation should be used where possible.

A training programme should be put in place to train unskilled labour into skilled positions.

Responsibility:

Contractor

Permit Requirements:

None Required

Institutional and Training requirements:

Implementation of a Staff Training Programme.

Monitoring:

Will be monitored via the Social and Labour Plan

(t) ADDITIONAL MITIGATION MEASURES

(i) Community Relations

The Contractor shall erect and maintain information boards at the entrance to the site. Such boards shall include contact details for complaints by members of the public.

The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, information regarding the complaint itself, and measures taken to address the complaint.

A **Project Steering Committee** must be set up with the community to assist the Contractor with employment issues and liaison with communities.

(ii) Staff Safety and Education

All staff shall be given a health and safety induction course before beginning work on the site. Part of the induction course will be to make the staff aware of the potential dangers associated with the mining process and the potential hazards around the borrowpits and crusher yard.

Telephone numbers of emergency services such as HAZMAT/ZORBIT shall be posted conspicuously in the office near the telephone.

All operations on site must be undertaken according to the Mine Health and Safety Act No. 29 of 1996 and ensure the safety, health and welfare of the staff on site.

(iii) Work Stoppage

The DMR shall have the right to order work to be stopped in the event of significant infringements of the Environmental Specifications. Work will only be allowed to restart once the situation is rectified in compliance with the specifications.

(iv) Existing Services and Infrastructure

Section of the Eskom powerlines and Telkom lines may require relocation. This must be co-ordinated through Eskom and Telkom and should be completed before any earthmoving or blasting activity commences on site.

The Contractor shall ensure that existing services (road, rail, pipelines, power lines and telephone services) are not disrupted or damaged.

Activities below overhead powerlines and within the vicinity of the Telkom lines must be carefully monitored to ensure that they do not cause damage to that infrastructure, or impact on the safety of employees. Suitable hazard/ warning signage must be deployed in the vicinity of the Eskom and Telkom lines.

F2002 ENVIRONMENTAL MANAGEMENT DURING DECOMMISSIONING AND CLOSURE

Responsibilities

The Applicant, the Department of Roads and Public Works, shall be responsible for the complete rehabilitation of the sites, including borrowpit slopes, benches, floor, spoil sites, access roads, haul routes, site camp/office, crusher yard, stockpile area, ablution facilities and storage areas.

The Contractor should implement progressive rehabilitation as far as possible. Once works are complete in a particular area, rehabilitation/re-vegetation must begin.

Where re-vegetation is not successful, these affected areas will be re-seeded and replanted until such time as a cover in excess of 80% has been achieved.

Rehabilitation Programme

The Site Agent, in conjunction with the EEA, shall develop a comprehensive plan for rehabilitation of the entire site, including the associated workshops, site camps etc. This plan must meet the approval of the DMR.

The following points must be taken into account when drawing up the **Rehabilitation** Programme:

- The Plan should be flexible – where measures are found to be inefficient, the plan shall be modified.
- The Contractor shall be responsible for successful rehabilitation and re-vegetation of the site, for a minimum period of 2 years after mining has ceased.
- The Plan shall include the eradication of young invasive, exotic species that may have become established during the construction period, in impacted areas and in rehabilitated areas.
- The growth of invasive exotic species shall be monitored during the 24 month period following decommissioning/closure.
- The Plan shall include grass seed mixes applicable to summer and winter;
- The Plan shall include suitable fertilisers and application rates.
- Successful re-vegetation means $\geq 80\%$ of the seeded area is covered with trees/grass/groundcover.
- Where there is insufficient topsoil to cover an area to specified depth, the Site Agent shall import suitable topsoil.

Additional Requirements

Environmental Management associated with the decommissioning of this project will ensure that the following items are addressed at closure and during the maintenance/liability period:

- All cleared sites are rehabilitated with indigenous grass species.
- All visible alien plants are removed from disturbed sites.
- All recyclable rubble and waste, for example, scrap metal, bottles, cans and plastics are collected and disposed of through a registered recycling company.
- All non-recyclable rubble and solid waste be collected and disposed of at a registered waste disposal facility.
- The borrowpits and crusher yard conforms to the designed closure specifications, including drainage, slope stability, topsoiling and tree/grass planting.
- Excess rock material mined during the expansion of the borrowpits, and not used for the rehabilitation of waste stockpile areas, should be backfilled into the quarry excavation (or stockpiled adjacent to it and bulldozed into it on closure).

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- All site infrastructure will be removed and those areas will be ripped and then covered with a 50mm thick layer of topsoil. Those areas will then be hydroseeded with a mix of grasses indigenous to the area.
- The site must remain fenced with warning signs erected to caution the general public of the altered state of the environment in the area. Drainage structures must also be left intact.
- Remaining waste, boulders and spoil will be pushed up against the slopes of the mine face. That rock material will be covered with overburden (decomposed rock) and a 50cm thick layer of topsoil and then hydroseeded.
- The edges of the borrowpits will be cut back as per the mine development plans.
- Overburden (decomposed rock) will be, where possible, placed over any exposed rock. This will be covered with a layer of topsoil no less than 50cm deep.
- The topsoil will be hydroseeded at an appropriate time of the year (spring to early – mid-summer). Sufficient grass cover will be maintained on the stockpiles during the operational life span of the affected areas (borrowpits and crusher yard area) until such a time that the waste material is used in the rehabilitation of the mine face. The long term nature of the mining operation requires that the waste stockpile areas be rehabilitated during the mine life and then used for rehabilitation measures at the end of the mine life.
- The mine and crusher yard areas will be fenced with a stockproof fence to prevent access by livestock until such time that the vegetation has been allowed to recover. No dangerous faces which present a safety threat to communities will be left.
- All closure objectives prescribed by the DMR must be met before retention monies will be released back to the Contractor.
- The requirements detailed in Regulations 56, 57, 60, 61 and 62 pertaining to Site Closure must be fulfilled. They include the following key actions:
 - Identify and assess all residual and latent environmental impacts;
 - Undertake a performance assessment and an environmental risk report; and
 - Compile a **Closure Plan** and apply for a **Closure Certificate**.

F2003 MONITORING OF ENVIRONMENTAL IMPACTS

In order to ensure that the Environmental Management Programme is effectively implemented, it is important that regular external audits of the Environmental Management Programme are conducted.

An independent Employers' Environmental Agent (EEA) will be appointed by the ECDoT to undertake monthly site inspections and Biannual Performance Assessments in compliance with the DMR's requirements. The ECDoT shall arrange that these external audits do take place and that a system for addressing any problems identified during these audits, is formulated. The relevant documentation shall be kept and shall be available to the DMR and the public.

An **Implementation Plan and Programme** for the management and monitoring of impacts is included OVERLEAF

TASK No.	ENVIRONMENTAL TASK	ENVIRONMENTAL ACTION PLAN	RESPONSIBILITY	TIMEFRAME	ENVIRONMENTAL MONITORING AND CHECKING	
		This Section outlines the individual actions to be taken in accomplishing the Environmental Tasks.	Party with overall responsibility for implementing the task	Timeframes for completing the task.	ACTION	Responsibility
					This indicates the actions to be taken to check whether the tasks have been implemented.	Party responsibility for the monitoring of the task
Pre-Site Establishment Phase						
A1	Appoint an independent Employers' Environmental Agent (EEA)	1. Appoint independent EEA to conduct <u>monthly site inspections</u> (initially) and undertake biannual environmental performance assessments as per DMR's requirements. NOTE: Quotation have been received from three professional environmental consulting companies. An evaluation has been conducted and a recommendation for the award made.	Department of Transport, or its agent, the Employer's Agent	Immediately on receiving authorisation from DMR and appointment of the contractor		Client
A2	Obtain DWS Permit for Water abstraction	1. Submit a copy of the DWS Permit to DMR	Contractor	Prior to any abstraction commencing on site.	Check that permits have been obtained before abstraction commences.	EEA
A3	Obtain the necessary DEDEAT authorisation for listed activities.	1. Submit a copy of the DEDEAT Authorisation to DMR.	Department of Transport	Prior to construction commencing on site.	Check that the necessary DEDEAT authorisation has been obtained prior to commencing with listed activities.	EEA
A4	Relocate the Eskom powerlines	1. Obtain permission and quotation from Eskom and Telkom 2. Relocate the powerlines and Telkom lines as indicated on the site development plan. NOTE: Eskom and Telkom have been consulted regarding moving their infrastructure.	Contractor	Prior to construction commencing on site.	Check that the powerlines and Telkom lines have been relocated prior to any earthworks commencing on site.	EEA
A5	Develop a Health and Safety Plan (HSP) and appoint a Health and Safety Officer	1. Appoint a professional service provider to assist with the development of the Health and Safety Plan (if necessary) 2. Develop HSP and submit to DMR for approval. 3. Appoint service providers to undertake the necessary health and safety monitoring.	Contractor	Prior to construction commencing on site.	Check that the HSP has been developed and approved.	EEA
A6	Development Emergency Action Plans.	1. Development Action Plan for Spillages. 2. Development Action Plan for Fire	Contractor	Prior to construction commencing on site.	Review and approve the Actions Plans before the construction phase commences	EEA
A7	Develop detailed Method Statements for specific aspects.	1. Water Conservation Method Statement 2. Waste Management and Minimisation Method Statement 3. Hazardous Waste Management Method Statement. 4. Dust Management Method Statement. 5. Noise Management Method Statement 6. Stormwater Management Method Statement 7. Alien Invader Plant Control and Eradication Method Statement	Contractor	Prior to construction commencing on site.	Check that Method Statements have been compiled and accepted before the construction phase commences.	EEA
A12	Develop detailed Mine Layout Plan for the Borrowpits & Crusher Yard Area.	1. Develop Detailed Mine layout plan prior to construction commencing. 2. Submit to EEA and DMR for approval.	Contractor	Prior to construction commencing on site.	Review Mine layout plan and provide comments. Check that the plan has been compiled and approved by DMR.	EEA
Site Establishment (Construction) Phase						
B1	Environmental Awareness Training of Management, Staff and Subcontractors	1. Design and conduct an environmental awareness training programme and training materials.	Contractor EEA	Month 1 of Construction Phase	Check that all staff has been through the training programme.	EEA
B2	Manage Interested and Affected Parties Complaints	1. Establish a Complaints Register. 2. Enter all complaints and action taken into the complaints register	Contractor	Construction Phase	Check that Complaints Register has been established, is being maintained and action is being taken to address complaints	EEA

TASK No.	ENVIRONMENTAL TASK	ENVIRONMENTAL ACTION PLAN	RESPONSIBILITY	TIMEFRAME	ENVIRONMENTAL MONITORING AND CHECKING	
		<i>This Section outlines the individual actions to be taken in accomplishing the Environmental Tasks.</i>	<i>Party with overall responsibility for implementing the task</i>	<i>Timeframes for completing the task.</i>	ACTION	Responsibility
					<i>This indicates the actions to be taken to check whether the tasks have been implemented.</i>	<i>Party responsibility for the monitoring of the task</i>
B3	Mitigate and Minimise Environmental Impacts	1. Commence with stormwater management measures (cut-off berms etc) prior to the stripping and stockpiling of any material on site. 2. Implement mitigation measures outlined in clause F2001 .	Contractor	Construction Phase	Monitor the implementation of the environmental mitigation measures. Monthly site inspections will be undertaken during the construction phase. Conduct Biannual Performance assessments with reports to DMR.	EEA
Operational Phase (Mining)						
C1	Environmental Awareness Training of Management, Staff and Subcontractors	1. Conduct an environmental awareness training programme and training materials.	Contractor	Ongoing	Check that all staff has been through the training programme.	EEA
C2	Manage Interested and Affected Parties Complaints	1. Enter all complaints and action taken into the complaints register	Contractor	Ongoing	Check that Complaints Register is being maintained and action is being taken to address complaints	EEA
C3	Mitigate and Minimise Environmental Impacts	1. Implement mitigation measures outlined in clause F2001	Contractor	Ongoing	Monitor the implementation of the environmental mitigation measures. Monthly site inspections will be undertaken during the Operation phase. Conduct Biannual Performance assessments with reports to DMR.	EEA
Mine Closure						
D1	Implementation of Rehabilitation Plan	1. Implementation of Rehabilitation Plan	Contractor	At Closure of Mining Phase	Check that Mine Rehabilitation Plan is being correctly applied.	EEA
D2	Mitigation and Minimise Environmental Impacts during mine closure ¹ .	1. Implement mitigation measures outlined in clause F2001	Contractor	At Closure of Mining Phase	Monitor the implementation of the environmental mitigation measures. Monthly site inspections will be undertaken during the rehabilitation phase. Conduct Biannual Performance assessments with reports to DMR.	EEA
D3	Application for Closure for Mine closure.	1. Prepare Closure Plan. 2. Prepare Environmental Risk Report 3. Complete application form and submit to DMR	Contractor	At Closure of Mining Phase	Final Performance Assessment Report. Check that closure application has been submitted to DMR.	EEA
Post-Closure						
E1	Monitor Rehabilitation Success	1. Facilitate monitoring of rehabilitation success and take corrective or remedial action if necessary.	Contractor	Post Closure of mine or mine phases.	Monitor the success of rehabilitation measures and report results to Mine Manager and to DMR in a Post-Closure Performance Assessment.	EEA

¹ Mine closure may refer to a section of phase of the mine which has been completed and is undergoing rehabilitation and closure. It does not necessarily relate to the entire mine closure.

F2004 EMERGENCY PROCEDURES AND REMEDIATION

Emergency procedures must be developed for the following incidents:

- Spillage of Hazardous Materials (fuel, chemicals, sewage etc)

It is the Contractor's responsibility to develop the emergency action plans. These must be checked and approved by the EEA and by DMR.

(a) Accidental leaks and spillages

An Emergency Action Plan and Procedure for the prevention and remediation of spillages of hazardous substances is to be developed by the Contractor. This must include clear roles and responsibilities. The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include the immediate notification of the Manager and the relevant authorities.

The Contractor must develop emergency action plans for managing the spillage of hazardous substances and shall ensure that the necessary materials and equipment for dealing with spills and leaks is available on Site at all times.

Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the DMR.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown spilt hydrocarbon material and where possible, be designed to encapsulate minor hydrocarbon spillage. This is particularly relevant in the fuel storage and dispensing area.

The quantity of such materials shall be able to handle a minimum of 200 litres of hydrocarbon liquid spill.

The telephone numbers for the closest HAZMAT/ZORBIT offices should be prominently displayed as bitumen and diesel spillage does occur on mining sites. The cleanup procedure is critical to prevent contamination.

F2005 ENVIRONMENTAL AWARENESS PLAN AND PROGRAMME

A draft Environmental Awareness Plan and Programme has been developed and is presented in **APPENDIX**

1. This includes the following:

- Clear objectives on implementing the plan and programme.
- Roles and Responsibilities in developing and implementing the plan.
- An Environmental Awareness Training Manual.
- A Programme for the implementation of the Plan.

It is envisaged that Environmental Awareness training will be ongoing throughout the life of mine. The training should be undertaken by the Employers' Environmental Agent or by an accredited trainer. A register must be kept of the staff members who have attended the training course. All staff, including the Contractor must attend the training course.

The Environmental Training Materials include the following modules:

- Overview of the Environment and importance of proper environmental management.
- Legal Framework.
- Environmental Management Objectives and Goals
- Overview of environmental hazards which may occur at various work stations.
- Water conservation.
- Waste Management.
- Preservation of Flora and Fauna
- Protection of soil and prevention of erosion.
- Protection of water bodies and prevention of pollution.
- Occupational Health (Air Quality, Noise etc)²
- Cultural Heritage aspects
- Visual and Aesthetic Impacts.
- Emergency procedures

² Note: A separate and comprehensive Health and Safety Training programme will be implemented.

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F2006 WORK STOPPAGE, NON-COMPLIANCE AND PENALTIES

As per clause F1014.

APPENDIX 1: DRAFT ENVIRONMENTAL AWARENESS PLAN AND PROGRAMME

FOR THE USE OF EIGHT BORROW PITS AND A CRUSHER/STOCKPILE AREA BETWEEN MAGUSHENI AND MZAMBA, VIA BIZANA

1. INTRODUCTION

An Environmental Awareness Plan is required in terms of Section 39(1)(c) of the Minerals and Petroleum Resources Development Act. This plan is to be included in the Environmental Management Programme and must *"describe the manner in which the applicant intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or degradation of the environment."*

Environmental awareness among all levels of the staff and management of the mining operation is viewed as critical in managing and minimising the environmental impacts and risks of pollution or degradation to the environment. By signing the letter of undertaking, the applicant, the Department of Roads and Public Works, have undertaken to uphold the management plan and programme and all aspects associated with this, including the training of staff in environmental management skills and techniques.

This section presents a draft Environmental Awareness Plan and Programme and includes relevant training materials which will be employed on site once the construction phase commences. It is critical that environmental awareness training commences prior to any physical work being undertaken on site in order to ensure that all supervisors, foremen and operators, contractor and subcontractors understand the need to comply with the approved management programme and are aware of the consequences should they transgress the EMPr.

2. OBJECTIVES IN IMPLEMENTING THE PROGRAMME

The objectives in implementing the Programme are outlined as follows:

- To ensure that all supervisory staff, contractor's management and staff and subcontractors, at all levels of the organisation are aware of (a) the Environmental Management Programme and Programme; (b) DMR's licence conditions; and (c) the consequences of non-compliance;
- To ensure that all supervisory staff, contractor's management and staff and subcontractors, at all levels of the organisation are sensitised to the potential environmental impacts and risks associated with the operations which will be taking place on site. Through the associated training programme, all staff must receive the relevant training for their area of responsibility/work area to ensure compliance with the EMPr;
- To ensure that all supervisory staff, contractor's management and staff and subcontractors, at all levels of the organisation, understand the specific actions that are required from them in order to prevent or minimise the risk to the environment and the corrective action which will be required should any impacts or pollution arise.
- To ensure that all contractors, subcontractors and suppliers who may present a risk to the environment through the normal course of their operations, are likewise aware of the requirements of the EMPr and programme and the consequences of non-compliance.

For the success of the Environmental Awareness Plan, it is critical that the staff on site understand the need for the EMPr and specifically the need for the actions they will be required to undertake within their work area in order to minimise the risks to the environment. The training material will therefore include a description of the environment and a motivation for why one should wish to protect the earth and all its resources. A global perspective, presented in simple terms and incorporating concepts such as sustainable development and the polluter pays principles will be incorporated into the training materials.

3. ROLES AND RESPONSIBILITIES

3.1 Contractor: Site Agent

- It is the overall responsibility of the Contractor to ensure that the environmental awareness training is conducted on site and that all staff is subject to the training and awareness programme.
- It is the Contractor's responsibility to make sufficient financial provision for the successful implementation of the environmental awareness programme.
- Furthermore, it is the Contractor's responsibility to ensure that all subcontractors (eg Eskom) are aware of the provisions of the EMPr before commencing work on site.

3.2 Employers' Environmental Agent

- It is the responsibility of the external independent Employers' Environmental Agent (EEA) to develop a detailed environmental training manual and materials based on the information provided in this plan.
- It is the EEA's responsibility to conduct training sessions with all managers as far as supervisor level.
- It is the EEA's responsibility to audit whether the necessary training and environmental awareness is taking place on site and to monitor the efficacy of this.
- The EEA will furthermore be obliged to report to the DMR, through the environmental performance assessments, on the success of the training and awareness programme.
- The EEA must undertake the necessary training of the Training Officer to ensure that he or she is properly equipped to undertake the staff training on site.

3.3 Training Officer

- The Training Officer will be responsible for environmental induction and specific environmental training for each work area.
- It will be the Training Officers responsibility to develop "tool box talks" which relate specifically to each work area or function within the mine (examples to be provided by EEA).
- The Training Officer must report to the Contractor on the number of persons inducted or re-inducted through the environmental awareness programme.

3.4 Supervisors

- It is the supervisor's (or foremen's) responsibility to ensure that all staff members within their sections have been through the environmental induction and that they are familiar with the provisions of the EMPr as it relates to their section.
- It is the supervisor's responsibility to ensure that their staff is equipped with the material means of implementing the EMPr and taking the necessary corrective action should any non-compliances arise.

3.5 Staff

- It is the responsibility of all staff to ensure that they have been provided with the required environmental induction and training necessary for them to undertake their work without putting the environment at risk.

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4. ENVIRONMENTAL AWARENESS TRAINING MATERIALS

The following items should be expanded and included in the detailed environmental awareness training manual to be developed by the EEA for the mining operations:

4.1 Definition of the Environment

The National Environmental Management Act (NEMA) definition for the environment should be provided and explained so that everyone is aware that the term “environment” includes the natural as well as the social and cultural aspects.

NEMA defines the “Environment” as:

The surroundings in which humans exist and that are made up of –

- (i) The land water and atmosphere of the earth;*
- (ii) Micro-organisms, plant and animal life;*
- (iii) Any part or combination of (i) and (ii) and the interrelationship among and between them;*
- (iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well being.*

These components of the environment and their interrelationship should be discussed with participants.

5 minutes

4.2 The Importance of Sound Environmental Management

The importance of sound environmental management should be conveyed to the participants. The potential consequences of their actions should be explained with the use of examples. It is important to convey that it is everyone’s responsibility to protect the environment not just for our own quality of life, but for the quality of life of future generations.

Section 24 of the Bill of Rights embodied in the Constitution of South Africa which states that:

“Everyone has a right (a) to an environment that is not harmful to their health and well-being, and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative measures that

- (i) prevent pollution and ecological degradation;*
- (ii) promote conservation; and*
- (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”*

Concepts such as sustainable development should be explained and discussed.

10 minutes

4.3 Legal Framework

A very brief introduction to environmental legislation in South Africa will be presented. The purpose of this will be to provide some background to the legal framework in which the mine will be operating. The following will be covered:

- Constitution of South Africa and Bill of Rights;
- National Environmental Management Act;
- EIA Regulations;
- National Environmental Management: Biodiversity Act;
- Minerals and Petroleum Resources Development Act and Regulations;
- National Water Act;

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- National Forests Act;
- Cultural Heritage Act;

10 minutes

4.4 Environmental Management Objectives and Goals

The environmental management objectives and goals embodied in the EMPr (clause F1004) will be discussed. These are outlined below:

The **Overall Environmental Objective** for mine closure is as follows:

“To render the mining area³ in a safe and environmentally acceptable condition on completion of the mining, rehabilitation and closure activities.”

Specific **Environmental Goals** include:

- “To return the mining area, as closely as possible, to its former condition and landuse through the shaping and landscaping of the surface and through the reestablishment of indigenous vegetation”.
- “To minimise the residual impacts through ensuring that erosion is controlled, slopes are stable, vegetation cover is established and the area is left in a condition which does not pose a safety hazard to humans, livestock and indigenous fauna”.
- “To minimise the visual impacts of the mine on closure through the avoidance of exposed faces and slopes and the through the reestablishment of the indigenous vegetation”.
- “To obtain the necessary Mine Closure Certificate from the Department of Mineral Resources”.

The specific objective related to the **Socio-Economic Conditions** is as follows:

“To contribute significantly and meaningfully to the economic and social development of Bizana area and the Bizana Local Municipality in general.”

Specific goals include:

- “To maximise the benefits to the local economy through the provision of jobs and support of local service providers and suppliers wherever possible.”
- “To institute a training programme for all staff members.”
- “To encourage further economic development through exploring partnerships with local individuals and groups in the establishment of further beneficiation businesses”

Specific Objectives and Goals outlined in clause F1004 of the EMPr will be discussed in brief.

10 Minutes

4.5 Overview of Environmental Impacts

This section will highlight the primary potential impacts which were identified during the EIA for the mining operations. These will be broken down into impacts which are anticipated during the construction, operation

³ The mining area is defined as everything within the boundaries of the perimeter fence including the mine excavation, the spoil sites, trimming yard, stockpile areas, offices, haul roads and any other surface which was disturbed as a result of the mining operations.

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and closure phases, as well as residual impacts. Direct, indirect and cumulative impacts will be discussed. Positive impacts (benefits) will be highlighted.

30 Minutes

4.6 Environmental Management and Mitigation

A detailed presentation of the management of impacts likely to arise on site will be provided. Examples will be provided where possible. The following topics will be covered:

- Water conservation.
- Protection of water bodies and prevention of pollution.
- Soil conservation.
- Waste Management and Waste Minimisation.
- Preservation of flora and fauna
- Cultural Heritage Aspects
- Visual and Aesthetic Impacts; and
- Emergency Situations and Procedures.

The mitigatory measures provided in clause F2001 of the EMPr will be used as a basis for this discussion. Questions and discussion should be encouraged to make the EMPr “real” for participants.

45 Minutes

4.7 Monitoring and Auditing

Procedures for the monitoring impacts and for auditing the successful implementation of the EMPr will be discussed. Mention will be made of external independent audits and reporting to DMR as well as daily checking which will be undertaken by site staff. The monitoring programmes for dust, noise and water quality will be presented.

10 Minutes

4.8 General Notes

- The total length of the sessions will be roughly 2hrs.
- The Awareness Course should be presented in English unless participants are unable to understand English in which case it should be translated into their first language.
- Training materials in the form of a booklet (in English or isiXhosa) must be provided. This must be available for the participants to take away with them.
- The training material should include short “tool box talks” (to be developed by Contractor – examples to be provided by EEA).
- All participants must sign a training/awareness register confirm that they have attended the course.
- Training should preferably occur in the morning prior to staff commencing with work on site.
- Educational posters should be erected around the site, particularly at assembly areas, offices, notice boards and eating areas.

5. PROGRAMME

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- Environmental awareness and training should be conducted as part of the initial induction ensuring that no person is allowed to commence with work on site without having been through the session.
- Re-induction should occur under the following circumstances:
 - After staff return from annual leave;
 - When staff are shifted between work stations;
 - Following an incident or accident on site which has resulted in (or could have potentially resulted in) environmental pollution or degradation; or
 - In the event of any changes to the conditions of the mining licence or any significant changes to environmental legislation.

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION G1 : TARGETED SUBCONTRACTOR PARTICIPATION AND DEVELOPMENT SPECIFICATIONS

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PART C3: SCOPE OF WORK

SECTION G1 : TARGETED SUBCONTRACTOR PARTICIPATION AND DEVELOPMENT SPECIFICATIONS

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G1.1 SCOPE

This section covers the implementation of the Employer's contract participation targeted strategy and goals in terms of targeted subcontractors employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract.

This section also covers the development and training of employed targeted subcontractors.

G1.2 TERMS AND DEFINITIONS

For the purposes of this section the following terms and definitions apply.

(a) allowance

Amount provided for in the Contract by the Employer relating to one or more of the following:

- (i) contingencies amount and contract price adjust amounts (if any); and
- (ii) provisional sum, prime cost sum amounts including their associated percentage (%) mark-up costs.

(b) black people

Has the meaning assigned to fit in section 1 of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)

(c) commercially useful function

Performance of real and actual work, or the provision of services, in the discharge of any contractual obligation which includes, but is not limited to, the performance of a distinct element of work which the enterprise has the skills and expertise to undertake and responsibility for management and supervision.

(d) Contract

Means the documentation of the agreement between the parties in terms of the Form and Offer and Acceptance (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA).

(e) contract amount

Refers to the monetary value used to calculate the contract participation goal for the contract participation target under consideration. The contract amount equals the Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

(f) contract participation

A process by which the Employer implements Government's objectives by employing a targeting strategy to enhance the utilisation and development of targeted enterprises (subcontractors, manufactures and suppliers) and targeted labour.

(g) contract participation goal (CPG)

For the contract participation target under consideration, the Employer sets a minimum goal expressed as a percentage value (%). In turn, this percentage (%) goal is used to calculate the minimum rand value (R) goal for said contract participation target.

The CPG (R) is thus calculated using the following formula:

$$CPG (R) = \text{contract amount (R)} \times \text{minimum goal (\%)}$$

where:

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contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

minimum goal (%) = As indicated by the Employer in the Contract, Part C4: SITE INFORMATION.

(h) contract participation performance (CPP)

The measure of the Contractor's progress in achieving the contract participation goal under consideration.

(i) contract participation target(s)

The Employer's contract participation targeting strategy, in terms of this Contract, includes the following three (3) targets:

- (i) Targeted subcontractors employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract **(covered in this section)**;
- (ii) Targeted suppliers employed by the Contractor, subcontractor(s) and targeted subcontractors, for supplying materials, goods or services, in the performance of the Contract;
- (iii) Targeted labour employed by the Contractor, subcontractor(s) and targeted subcontractors, in the performance of the Contract

All the above mentioned targets contribute to the Employer's contract participation. However compliance is measured based on each individual contract participation target.

(j) Contractor

Means the person named in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA) whose offer has been accepted in the Form of the Offer and Acceptance and the legal successors in title of this person.

Also referred to as the principal contractor or main contractor.

(k) control

Possession and exercise of legal authority and power to manage the assets, goodwill and daily operations of an enterprise, and the active and continuous exercise of appropriate managerial and financial authority and power in determining the policies and directing the operations of the said enterprise.

(l) EME

Means an exempted micro enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

(m) Employer

Means the person for whom the Works are to be carried out and who is named as the Employer in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA), and the legal successors in title of this person.

(n) Employer's Agent

Means the person named as the Employer's Agent in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA), or any other person appointed from time to time by the Employer, and of whom the Contractor is notified, in writing, to act as Employer's Agent for the purposes of the Contract as substitute for the Employer's Agent so named.

(o) manufacturer

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Sole trader, partnership or legal entity that operates or maintains a factory or establishment that produces on its premises, goods required in terms of the Contract.

(p) ownership

Legal right of possession, including the right of disposition, and sharing in all the risks and profits commensurate with the degree of ownership interest or shareholding, as demonstrated by an examination of the substance, rather than the form, of ownership arrangements.

(q) QSE

Means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

(r) subcontract agreement

Refers to a written contractual agreement between the Contractor and appointed targeted subcontractor using the latest edition of the General Conditions of Subcontract (GCSC), as published by South African Institution of Civil Engineering (SAICE).

(s) target area

Means a geographical area defined in the in the Contract, Part C4: SITE INFORMATION, and may refer to the ward(s), local municipal area(s), district area(s) and/or province within which the Site of the Contract is located.

The Employer may, at his sole discretion and upon the basis of evidence submitted by the Contractor in support of fruitless efforts in good faith to secure targeted subcontractors with the required CIDB category and/or grading within the specified target area, grant a waiver with respect to the specified target area of the contract participation target under consideration.

A waiver with respect to increasing the boundary of the specified target area shall follow the order of precedence (from highest to lowest) as indicated below:

- (i) adjacent local municipal areas within the district area of the specified target area;
- (ii) adjacent district areas within the Province of the Eastern Cape.

The boundary of the Province of the Eastern Cape shall represent the maximum extend of a target area for which a waiver may be granted by the Employer.

(t) targeted enterprise

A targeted enterprise is an EME or QSE which:

- (i) is at least 51% owned by black people; and
- (ii) the Contractor has no equity holding in; and
- (iii) is registered in terms of the Company's Act, 2008 (Act No. 71 of 2008) or Close Corporation Act, 1984 (Act No. 69 of 1984), and
- (iv) is registered on the National Treasury's Central Supplier Database (CSD); and
- (v) is a business within the target area.

(u) targeted subcontractor

A targeted subcontractor is a targeted enterprise which:

- (i) is a contractor who undertakes construction work within its registered CIDB category; and
- (ii) has a letter of good standing in terms of the Compensations for Occupational Injuries and Disease Act (COIDA); and

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- (iii) is registered with the relevant bargaining council(s), duly established in terms of Part C of the Labour Relations Act 66 of 1995, as amended.

(v) targeted supplier

A targeted supplier is a targeted enterprise which:

- (i) manufactures and/or supplies materials or goods or provide services; and
- (ii) is not classified as a targeted subcontractor.

(x) targeting strategy

An approach which is pursued to make a contract participation goal an obligation of Contract.

(y) work package

Refers to a portion of the Works which the Contractor has identified to be subcontracted to a targeted subcontractor for the purpose of fulfilling the Contractor's obligations in terms of the contract participation goal under consideration.

G1.3 APPLICABLE LEGISLATION

The following Acts, as amended from time to time, are predominant amongst those which apply to the construction industry and are listed here for reference purposes only:

- (i) The Constitution of the Republic of South Africa, 1993;
- (ii) Public Finance Management Act, 1999 (Act No 1 of 1999);
- (iii) Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000) and Regulations;
- (iv) Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003);
- (v) Construction Industry Development Board Act, 2000 (Act No 38 of 2000) and Regulations; and
- (vi) National Small Business Amendment Act, 2003 (Act No 26 of 2003).

G1.4 OBJECTIVE

A major objective of Government is to extend economic opportunities and entrepreneurial capacity to all localities by optimum utilisation of the resources existing in the vicinity of projects, the development of these resources in the execution of the project, and by maximising the amount of project funds retained within the project locality.

The Employer's contract participation targeting strategy in terms of the utilisation of targeted subcontractors is one of the processes by which the Employer implements Government's objectives.

G1.5 REQUIREMENTS

(a) Contract Participation Goal Implementation Plan and Programme

The Contractor shall employ, develop and train targeted subcontractors in the performance of the Contract to the extent that the monetary value of such employments, exclusive of any value added tax or sales tax required by law, is sufficient to achieve the contract participation goal under consideration.

The Contractor is required to submit to the Employer's Agent details of his plan to achieve the contract participation goal under consideration, on the contract participation goal implementation plan form contained in Annexure A, within two (2) months after Commencement of the Contract. Thereafter, updated plans are to be submitted when amended by the Contractor.

Furthermore the Contractor is required to submit to the Employer's Agent his programme of targeted subcontractor activities, a schedule which clearly indicates the expected commencement and completion dates of work to be performed by all targeted subcontractors engaged by the Contractor on the Contract for the

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purpose of securing credits towards the contract participation goal under consideration, within two (2) months after Commencement of the Contract. Thereafter, updated programmes are to be submitted when amended by the Contractor

(b) Targeted Subcontractor Database

No later than one (1) week after Commencement of the Contract, the Contractor shall:

- (i) in consultation with the Employer, local government and business structures source and review existing EME & QSE contractor databases within the target area (if any);
- (ii) advertise in the local media, expression of interest notices for contractors that qualify in terms of the targeting requirements of the Contract;
- (iii) verify the targeting requirements of contractors sourced from existing EME & QSE contractor databases within the target area and expression of interest notices;
- (iv) setup and submit for approval by the Employer, an initial targeted subcontractor registered project database for the Contract.

The Contractor is required to submit to the Employer for approval, the initial targeted subcontractor registered project database no later than six (6) weeks after Commencement of the Contract.

The initial submission shall include a report from the Contractor detailing at a minimum the following:

- Availability of existing EME & QSE contractor databases within the target area;
- Expression of interest notices advertised and media outlets used to place adverts;
- Confirmation of targeting requirements for targeted subcontractors used for verification purposes;

The registered project database shall remain open for potential targeted subcontractors during the duration of the Contract. The Contractor shall be responsible for verify the targeting requirements of contractors before inclusion.

On a monthly basis, the Contractor shall be required to provide and report on the targeted subcontractor registered project database. The report shall provide details of targeted subcontractors added to the database including verification process :

Only contractors that comply with the targeting requirements of the Contract shall be allowed on the targeted subcontractor registered project database.

The purpose of the targeted subcontractor registered project database is to provide the Contractor with a project specific list of targeted subcontractors, that quality in terms of the targeting requirements, for work package tender invitations.

(c) Work Packages

In terms of the Contractor's contract participation goal implementation plan, the Contractor is required to identify work packages which can be subcontracted to targeted subcontractors.

It shall be the sole responsibility of the Contractor to identify possible work packages, however the Contractor is required to take into account the following factors in terms of each individual work package:

- size (quantity of work to be done);
- category (type of work to be done);
- complexity (level of experience and resources required);
- value (cost of work to be done);
- duration (period of continues or "stop start" engagement);
- locality (where the work will be done within the Site);
- maximizing opportunities (number of work packages);
- number of targeted subcontractors within the target area;
- targeted subcontractors CIDB category and grading;

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- mentorship and training opportunities for targeted subcontractors.

The Contractor is required, to submit to the Employer's Agent a list of work packages identified for written approval by the Employer's Agent, which shall not be unreasonably withheld or delayed.

Each listed work package shall require a work package document detailing as a minimum the following items:

- description of the works (scope);
- period of construction and programme of the works;
- specifications (standard and project);
- pricing schedule / bill of quantities;
- Contractor's estimate (based on the Contractor's approved tender prices in terms of the Contract, including applicable contract price adjustments).

The Contractor is required to submit to the Employer's Agent each detailed work package document for written approval by the Employer's Agent, which shall not be unreasonably withheld or delayed.

The Contractor shall, notwithstanding any verbal or written approval by the Employer's Agent of the list of work packages and/or each detailed work package document, remain liable for fulfilling his obligations in terms of the contract participation goal under consideration.

(d) Procurement of Targeted Subcontractors

The Contractor is required to, after the Commencement Date of the Contract, procure targeted subcontractors through a tender process.

(i) Compilation of tender documents

The Contractor is required to compile a tender document for each approved work packages. As a minimum the tender document shall include the following:

- tender notice and invitation to tender;
- tender data;
- returnable schedules;
- subcontract agreement and contract data;
- pricing assumptions;
- pricing schedules / bill of quantities;
- scope of works (includes standard and project specifications);
- site information;
- applicable drawings.

The Contractor shall submit to the Employer's Agent a copy of the tender document for each work package for written approval, which shall not be unreasonably withheld or delayed.

The Contractor shall, notwithstanding any verbal or written approval by the Employer's Agent of a work package tender document, remain liable for fulfilling his obligations in terms of the contract participation goal under consideration.

(ii) Tender invitations

Tenders for work packages shall only be issued, by the Contractor, to targeted subcontractors on the targeted subcontractor project database. The number of tender invitations shall be limited to twelve (12) per work package, unless otherwise allowed for by the Employer. A tender roster shall be employed to ensure that each targeted subcontractor, tender at least once for a work package. Targeted subcontractors already appointed on a work package shall not be eligible to tender on a second work package.

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The Contractor shall submit to the Employer's Agent, on a monthly basis, an updated list of tender invitations issued by the Contractor for each work package.

(iii) Issuing of tender documents

The Contractor shall issue to each of the invited targeted subcontractors a work package tender document at no cost to the invited targeted subcontractor.

(iv) Tender briefing

The Contractor is required fulfil the following tender briefing requirements:

- provide a suitable venue for the tender briefing;
- indicate on the tender invitations; the tender briefing session date, time and venue;
- invite the Employer's Agent (as an observer only);
- ensure tender briefing attendance register compliance;
- present a tender briefing presentation and question and answer session;
- provide minutes of the tender briefing session to the invited targeted subcontractors and Employer's Agent.

Only invited targeted subcontractors may attend the tender briefing session. Attendance of the tender briefing session is compulsory. Invited targeted subcontractors shall be limited to a maximum of two (2) representatives only.

The Contractor's tender briefing presentation for a work package shall as a minimum cover the following items:

- implications, liabilities and responsibilities inherent to the work package and subcontract agreement under consideration;
- scope and extent of the portion of the works included in the work package under consideration;
- the requirements for quality control of works;
- the requirements for occupational health and safety;
- applicable local labour rates;
- expected assistance to be provided by the Contractor;
- proper procedures for the submission of tenders;
- procedures on which tenders shall be adjudicated on and appointments made;
- internal mentorship and accredited training provided by the Contractor.

(v) Tender adjudication

The Contractor shall receive all tenders at a location and time identified by him in the tender invitation. All sealed tender submissions shall be placed in a suitable tender box provided for by the Contractor. A tender submission register shall be maintained by the Contractor for all tenders received.

A minimum of six (6) returned tenders are required for tender adjudication purposes. All returned shall be evaluated by the Contractor on the basis of:

- Compliance with eligibility criteria (responsive check);
- 80/20 (price/preference) preference point system (applied to responsive tenders only);
- commercial risk to the Employer and/or Contractor.

The Contractor shall prepare a tender evaluation report, including recommendations, for submission to the Employer's Agent.

Evaluation of commercial risk to the Employer and/or Contractor shall be based on the following:

- Arithmetical errors in pricing schedules / bill of quantities;
- Abnormally high or low price offered;

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- Unbalanced and/or unreasonable item rates.

If the price offered by the responsive tenderer scoring the highest points is not project-related then the Contractor may not award the work package without the written approval of the Employer. For this Contract, project-related price is deemed to be plus or minus ($\pm$) fifteen percent (15%) of the Contractor's approved estimate (inclusive of contract price adjustments amounts at the time of tender of the work package).

If the highest scoring responsive tender price offered is rejected by the Employer due to the price offered not being deemed project-related, then the Contractor may:

- negotiate a project-related price with the tenderer scoring the highest points or cancel the tender;
- if the tenderer does not agree to a project-related price, negotiate a project-related price with the tenderer scoring the second highest points or cancel the tender;
- if the tenderer scoring the second highest points does not agree to a project-related price, negotiate a project-related price with the tenderer scoring the third highest points or cancel the tender;
- if the tenderer scoring the third highest points does not agree to a project-related price, then Contractor must cancel the tender.

(vi) Award or cancellation of tender

The Contractor, in consultation with the Employer, may award a work package tender to a responsive tenderer only if the tender adjudication requirements and procedures as detailed in subsubclause G1.5(d)(v) has been complied with.

Cancellation of a work package tender shall require a re-tender process to be implemented by the Contractor.

(vii) Subcontract agreement

The Contractor is required to enter into a written contractual agreement with a targeted subcontractor procured in terms of subclause G1.5(d). Such a written contractual agreement shall be in the form of a subcontract agreement as defined in subclause G1.2(r).

The following conditions are a requirement for any subcontract agreement between the Contractor and targeted subcontractor:

- Contractor and targeted subcontractor must have a letter of good standing in terms of the Compensations for Occupational Injuries and Disease Act (COIDA);
- Contractor and targeted subcontractor must have proof of registration and good standing with the relevant bargaining council(s) duly established in terms of Part C of the labour Relations Act 66 of 1995, as amended;
- targeted subcontractor to submit a letter of undertaking and targeted subcontractor declaration affidavit;
- Contractor and targeted subcontractor agreement in terms of the provisions of section 37 (2) of the Occupational Health & Safety Act, 1993 (Act 85 of 1993).

Written contractual agreements between the Contractor and targeted subcontractor may not contain any of the following:

- a right to set off in favour of the Contractor not provided for by law;
- authoritarian rights given to the Contractor or his agent, with no recourse to independent adjudication in the event of a dispute arising;
- payment procedures based on a pay-when-paid system;
- a dispute resolution process which does not include inexpensive alternative dispute resolution procedures, such as mediation or adjudication, but which only makes use of formal proceedings such as arbitration or litigation; or
- conditions which are more onerous than those which exist in the Contract.

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The Contractor shall provide the Employer's Agent with a complete signed copy of each subcontract agreement (contract document) entered into between the Contractor and a targeted subcontractor.

(e) Verification of the Status of Targeted Subcontractor

The Contractor shall submit completed letters of undertaking, including targeted subcontractor declaration affidavits, of appointed targeted subcontractors (refer to Annexure B) with respect to each and every targeted subcontractors whose contributions shall be counted towards the contract participation goal under consideration. These documents shall be submitted to the Employer's Agent before the submission of the appointed targeted subcontractor first claim for payment.

(f) Targeted Subcontractor Management and Supervision

The Contractor is required to provide adequate management resources to manage and report on all aspects regarding appointed targeted subcontractors to ensure the Contractor's compliance with his obligations in respect of achieving the contract participation goal under consideration.

The Contractor shall furthermore provide adequate site supervision resources to assist, monitor and report on appointed targeted subcontractor's quality of work and compliance with the contract between the Contractor and targeted subcontractor.

(g) Targeted Subcontractor Development and Training

(i) Development support

The Contractor shall perform a needs analysis on all appointed targeted subcontractors and provide internal mentorship which improves the targeted subcontractor's performance in at least two development areas. Such development areas should be guided by the requirements of the cidb *Best Practice Contractor Recognition Scheme* as well as the NCDP exit requirements for accreditation of contractors, and may include but are not limited to:

- management and labour skills transfer;
- establishment of administrative systems;
- establishment of cost control systems;
- establishment of construction management systems and plans (health and safety, quality and environmental);
- planning, tendering and programming skills transfer;
- business skills transfer with emphasis on entrepreneurial and negotiation skills;
- technical skills transfer with emphasis on innovation;
- legal compliance;
- procurement skills transfer;
- establish credit rating/history; and/or
- contractual knowledge transfer.

The needs analysis shall be mutually agreed upon between the Contractor and appointed targeted subcontractor.

The Contractor shall appoint a targeted subcontractor development co-ordinator. The targeted subcontractor development co-ordinator is required to:

- develop a project specific targeted subcontractor development plan to improve the targeted subcontractor's performance in the identified development areas which allocate resources and monitors progress in relation to improved performance; and
- submit to the Employer's Agent a monthly targeted subcontractor development report which documents all mentoring activities that have taken place during the month and the progress made in improving the targeted subcontractor's performance in the development area, countersigned by the targeted subcontractor

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(ii) Accredited training

As part of the development support provided for by the Contractor, the Employer shall make limited funds available to assist with accredited training for appointed targeted subcontractors.

The Contractor is required to submit to the Employer's Agent for approval, a list of accredited training courses identified as per the Contractor's needs analysis of appointed targeted subcontractors. This list as minimum must include the following training information:

- training provider;
- type of accredited training course;
- title and scope of accredited training course;
- name of appointed targeted subcontractor;
- estimated cost of accredited training (direct and indirect costs);
- proposed training dates;
- type of accredited training outcome.

The training provider must be accredited and have in its employ Practitioners and/or Assessors registered with the Construction Education Training Authority (CETA) and who must have the necessary certified proof. Accreditation and registration proof shall be current, valid and a list of NQF levels and unit standards for which he/she is accredited.

The Contractor is required to submit to the Employer's Agent a monthly accredited training report which documents all approved accredited training planned for and completed by appointed targeted subcontractors. The Contractor shall furthermore be required to submit to the Employer's Agent copies of all accredited training certificates issued to contracted targeted subcontractors.

G1.6 COMPLIANCE

(a) Contract Participation Performance (CPP)

The Contractor's performance in terms of achieving the minimum required goal, shall be measured by the granting of credits towards the contract participation goal under consideration. Credits are measured by converting the monetary value (exclusive of any value added tax or sales tax required by law) of the work completed by appointed targeted subcontractors in fulfilling their contractual obligations to a percentage of the contract amount.

The CPP (%) is thus calculated using the following formula:

$$CPP (\%) = \text{Monetary value (R) of work completed by appointed targeted subcontractors} / \text{contract amount (R)}$$

where:

Monetary value (R) of work completed by appointed targeted subcontractors = subcontract contract price less any value added tax or sales tax which the law requires the Contractor to pay to the targeted subcontractor.

contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

No credits shall be granted should the Contractor:

- make direct payment to a supplier, manufacturer, plant hire or lease company on behalf of a targeted subcontractor when such payment is recovered by making deductions from payments to the targeted subcontractor in connection with Contract; or
- fail to enter into written contractual agreements with the relevant targeted subcontractor.

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Furthermore credits claimed towards the contract participation goal under consideration shall be denied where written contractual agreements between the Contractor and appointed targeted subcontractor contain any of the following:

- a right to set off in favour of the Contractor not provided for by law;
- authoritarian rights given to the Contractor or his agent, with no recourse to independent adjudication in the event of a dispute arising;
- payment procedures based on a pay-when-paid system;
- a dispute resolution process which does not include inexpensive alternative dispute resolution procedures, such as mediation or adjudication, but which only makes use of formal proceedings such as arbitration or litigation; or
- conditions which are more onerous than those which exist in the Contract.

Certification of credits counting towards the contract participation goal under consideration is the responsibility of the Employer's Agent. The certification procedure requires the Contractor to submit to the Employer's Agent all records, documentation, agreements and subcontract payment certificates.

(b) Substitutions

In the event that, through no fault of the Contractor, an appointed targeted subcontractor is found to be:

- unable to perform,
- unable to perform on time,
- unable to produce acceptable work,
- unwilling to perform work required, or
- not fit to perform the service;

the Contractor shall notify the Employer's Agent of the apparent necessity to reduce or terminate such appointed targeted subcontractor's contract, citing the reasons therefor and all verifiable remedial actions taken the Contractor and targeted subcontractor in terms of their contract.

In the event that the Employer approves the Contractor's request to be relieved of his obligation to make use of an appointed targeted subcontractor, the Contractor shall either provide a substitute targeted subcontractor to take over the contract, or engage an appointed targeted subcontractor on another aspect of the Contract so as to secure the required credits to achieve the contract participation goal under consideration. The Contractor shall, in such circumstance, submit to the Employer a targeted subcontractor declaration affidavit with respect to the proposed substitute targeted subcontractor, and supply details of the nature and value of the contract which shall be performed by such a targeted subcontractor.

Contracts with appointed targeted subcontractors may only be terminated, and new contracts entered into with substitute targeted subcontractors for the purpose of securing credits towards the contract participation goal under consideration, with the Employer's approval, which shall not be unreasonably withheld. Where the Employer approves such substitutions, the Contractor shall comply with all the requirements of this section.

The Employer may, at his sole discretion and upon the basis of evidence submitted by the Contractor in support of fruitless efforts in good faith to secure substitute targeted subcontractor participation, grant a waiver with respect to the contract participation goal obligations under consideration.

(c) Bona fides of Targeted Subcontractors

Where a subcontractor under contract was initially considered to be a targeted subcontractor but later discovered not to be so, or is found not to be creditable towards the contract participation goal under consideration, the Employer may consider a partial waiver of the Contractor's obligations towards the achievement of the contract participation goal with respect to such a targeted subcontractor, should the Contractor satisfactorily demonstrate that he was justified in believing the subcontractor to be a targeted subcontractor and that eligibility standards were not violated.

G1.7 ADDITIONAL CONDITIONS

(a) Liability for Subcontractors

Clauses 4.4.4 and 4.4.5 of GCC 2015, as indicated in the CONTRACT DATA of the Contract, shall apply in terms of subcontracting targeted subcontractors.

(b) Performance Guarantee

The issuing of a performance guarantee by a targeted subcontractor to the Contractor is not deemed a requirement of the Employer.

However if the Contractor requires the targeted subcontractor to provide a performance guarantee in terms of their subcontract agreement, then the following maximum performance guarantee shall apply to the accepted contract sum per work package:

- | | | |
|---|---------------------------------|--------|
| • up to R 1 000 000 | shall be zero percent | (0%) |
| • exceeding R 1 000 000 up to R 4 000 000 | shall be two and a half percent | (2.5%) |
| • exceeding R 4 000 000 | shall be five percent | (5%) |

(c) Retention

The percentage retention on the amounts due to an appointed targeted subcontractor shall be five percent (5%) of the contract price per work package. Limit of retention money is R 100 000.00 (excluding VAT). A retention money guarantee in lieu of retention is not permitted.

(d) Subcontracting and Joint Ventures

Appointed targeted subcontractors are not permitted to further subcontract.

Targeted subcontractors are not permitted to enter into joint ventures with any other targeted or non-targeted subcontractor for the purpose of tendering on and execution of a work package.

(e) Payment of Targeted Subcontractors

The date on which payment to an appointed targeted subcontractor becomes due and payable is the date determined in the subcontract agreement, but may not be later than thirty (30) calendar days after the date on which the appointed targeted subcontractor has submitted a statement for payment or a claim for payment to the Contractor in relation to construction works, goods or services completed or delivered in accordance with the subcontract agreement between the Contractor and appointed targeted subcontractor.

Where an appointed targeted subcontractor has not been paid within thirty (30) calendar days after the date on which the appointed targeted subcontractor has submitted a statement for payment or a claim for payment to the Contractor in relation to construction works, goods or services completed or delivered in accordance with the subcontract agreement, the Employer shall upon a written request by the appointed targeted subcontractor confirm in writing within fifteen (15) calendar days whether the Contractor has been paid in full or in part by the Employer in respect of construction works, goods or services completed or delivered by the appointed targeted subcontractor.

(f) Variations Exceeding the Subcontract Contract Sum

For any work package the subcontract final contract price (excluding allowances for contract price adjustments and VAT) may not exceed the subcontract contract sum (excluding allowances for contract price adjustments and VAT) by more than five percent (5%), without written approval from the Employer.

In the event that the Contractor requires approval from the Employer to exceed the maximum allowed contract price (contract sum x 105%), then the Contractor is required to submit in writing a formal request which provides the following information:

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- detailed reason(s) for the requested increased contract price;
- current status of the work package in terms of expenditure and progress; and
- estimated additional cost variance allowance.

The Contractor is required to inform, in writing, the Employer's Agent of any increase or decrease of the appointed targeted subcontractor original scope of works as per the subcontract agreement.

G1.8 RECORDS

(a) Submission of Documentation

The Contractor shall compile and submit all documentation required in terms of:

- initial and updated contract participation goal implementation plan and programme in terms of subclause G1.5(a);
- initial targeted subcontractor registered project database in terms of subclause G1.5(b);
- identified work package details (for each individual work package) in terms of subclause G1.5(c);
- tender document for each approved work package in terms of subsubclause G1.5(d)(i);
- tender adjudication report for each work package in terms of subsubclause G1.5(d)(v);
- complete signed copy of each subcontract agreement (contract document) entered into between the Contractor and a targeted subcontractor in terms of subsubclause G1.5(d)(vii);
- completed letter of undertaking, including targeted subcontractor declaration affidavit for each appointed targeted subcontractor in terms of subclause G1.5(e);
- targeted subcontractor development plan for each appointed targeted subcontractor in terms of subsubclause G1.5(g)(i); and
- list of accredited training course(s) identified for each appointed targeted subcontractor in terms of subsubclause G1.5(g)(ii).

(b) Monthly Submission of Documentation

The Contractor shall compile and submit on a monthly basis to the Employer's Agent, before the site meeting date, in a format approved by the Employer's Agent, the following:

- list of tender invitations issued by the Contractor per work package in terms of subsubclause G1.5(d)(ii), both during the interim period and on a cumulative basis;
- a report which describes the commercially useful functions performed by appointed targeted subcontractors in the performance of the Contract, both during the interim period and on a cumulative basis;
- a schedule reflecting the resources employed by the Contractor for the purpose of managing and supervising appointed targeted subcontractors as described in subclause G1.5(f), both during the interim period and on a cumulative basis;
- an appointed targeted subcontractor development report in term of subsubclause G1.5(g)(i), both during the interim period and on a cumulative basis;
- an appointed targeted subcontractor accredited training report in terms of subsubclause G1.5(g)(ii), both during the interim period and on a cumulative basis;
- copies of all appointed targeted subcontractors monthly interim payment certificates; and
- a schedule reflecting the approved contract sum, Contractor's estimated contract value and contract price to date, of work packages performed by appointed targeted subcontractors, both during the interim period and on a cumulative basis.

Should random inspections conducted by the Employer's Agent on appointed targeted subcontractor activities indicate that such appointed targeted subcontractors are not performing in accordance with the requirements of this section, then the Contractor shall provide in addition to the monthly reporting requirements, separate weekly resource returns and any other relevant information with respect to such appointed targeted subcontractors in a format approved by the Employer's Agent.

(c) Certification of Contract Participation Goal Credits

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The Employer's Agent shall certify credits counted towards the contract participation goal under consideration in terms of subclause G1.6(a) whenever the Contractor submits his payment statement.

(d) Documentation Required Upon Completion of a Targeted Subcontractor's contract with the Contractor

The Contractor shall, upon completion of each individual targeted subcontractor contract with the Contractor, issue the Employer's Agent with the following documentation:

- (i) final payment certificate for each appointed targeted subcontractor's work package;
- (ii) signed copies of completion certificates for each appointed targeted subcontractor's work package in terms of the subcontract;
- (iii) final signed report of internal mentorship provided by the Contractor to each appointed targeted subcontractor;
- (iv) final list of accredited training provided to each appointed targeted subcontractor, including all training certificates.

(e) Reporting Non-Compliance

No or partial reporting, by the Contractor, as that part of the Contractor's obligation in terms of clause G1.9, shall result in denial of credits towards achieving the contract participation goal under consideration.

G1.9 PENALTIES

In the event that the Contractor fails to substantiate that any failure to achieve the contract participation goal under consideration was due to:

- quantitative underruns;
- the elimination by the Employer of items included in the contract participation goal; 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 calculated in the following manner.

$$P = 1,05 \times [CPG(\%) - CPP(\%)] \times \text{contract amount } (R)$$

Where

P = Monetary value (R) of penalty payable

$CPG(\%)$ = Minimum required contract participation goal as indicated by the Employer in the Contract, Part C4: SITE INFORMATION

$CPP(\%)$ = Contract Participation Performance which the Employer's Agent certifies, based on credits passed, as being achieved upon completion of the Contract.

$\text{contract amount } (R)$ = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

Such a financial penalty shall be deducted from the Contractor's payment certificate before issue of the Final Payment Certificate.

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G1.10 MEASUREMENT AND PAYMENT

- (a) Items in the pricing schedule / bill of quantities under SCHEDULE A – GENERAL in SECTION G1: TARGETED SUBCONTRACTOR PARTICIPATION AND DEVELOPMENT have been provided for by the Employer, for the Contractor to provide tendered rates for the Contractor's obligations in terms of targeted subcontractor contract participation and development.
- (b) When instructed by the Employer's Agent, the Contractor shall be required to provide the Employer's Agent with a detailed breakdown of any tendered rate related to the Contractor's payment items in connection with targeted subcontractor contract participation and development.
- (c) The Contractor's estimate for a identified work package shall be calculated as if the work package is carried out by the Contractor himself. For this estimate the Contractor shall include the following costs based on the Contractor's approved tender rates:
 - proportional cost of the contractor's general obligations in terms of Section 1300 of the Scope of Works for the work package;
 - cost of construction work activities for the work package;
 - proportional cost of occupational health and safety costs in terms of Section C of the Scope of Works; and
 - contract price adjustments applicable in terms of the Contract.
- (d) Cost variations due to targeted subcontractor work packages

The purpose of a cost variation allowance is to provide a proportionate measure inherent to the procurement of targeted subcontractors, in terms of subclause G1.5(d), after the Commencement Date of the Contract.

Cost variations due to targeted subcontractor work packages is calculated by using the following formula:

$$CV(R) = TSCP(R) - CECP(R)$$

where:

$CV(R)$ = Monetary value (R) of the cost variation for the work package under consideration, exclusive of VAT.

$TSCP(R)$ = Monetary value (R) of a certified targeted subcontractor contract price for the work package under consideration, exclusive of VAT.

$CECP(R)$ = Monetary value (R) of a calculated contract price based on the approved Contractor's estimate rates (inclusive of contract price adjustments) and certified targeted subcontractor quantities for the work package under consideration, exclusive of VAT.

Any savings due to a negative $CV(R)$ shall remain in the Contract.

Item	Unit
-------------	-------------

G10.01 Contractor's obligations in terms of targeted subcontractor contract participation:

- | | |
|---|----------|
| (a) Contract participation goal implementation plan and programme | lump sum |
| (b) Targeted subcontractor database | lump sum |
| (c) Work packages..... | lump sum |
| (d) Targeted subcontractor management and supervision | month |

The lump sum tendered under subitem G10.01(a) shall represent full compensation for that part of the Contractor's obligations in terms of subclause G1.5(a).

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The first instalment, 80% of the lump sum, will be paid on the Contractor's submission and Employer's Agent's approval of the initial contract participation goal implementation plan and programme in terms of subclause G1.5(a).

The second and final instalment, 20% of the lump sum, will be paid on completion of the Contractor's obligations in terms of targeted subcontractor contract participation and shall be subject to the submission, by the Contractor and approval by the Employer's Agent, of updated plans and programmes due to Contractor's amendments.

The lump sum tendered under subitem G10.01(b) shall represent full compensation for that part of the Contractor's obligations in terms of subclause G1.5(b).

The first instalment, 80% of the lump sum, will be paid on the Contractor's submission and Employer's approval of the targeted subcontractor registered project database in terms of subclause G1.5(b).

The second and final instalment, 20% of the lump sum, will be paid on completion of the Contractor's obligations in terms of targeted subcontractor contract participation and shall be subject to the submission and reporting, by the Contractor, of updated targeted subcontractor registered project database.

The lump sum tendered under subitem G10.01(c) shall represent full compensation for that part of the Contractor's obligations in terms of subclause G1.5(c).

The lump sum tendered under subitem G10.01(c) will be payable monthly in instalments in relation to the monetary value of the Contract Participation Performance and Contract Participation Goal.

Should the final monetary value of the Contract Participation Performance increase in relation with the monetary value of the Contract Participation Goal, then the lump sums tendered under subitems G10.01(a), (b) and (c) will be increased pro rata, up to a maximum of 15% variation, in full settlement of any difference in the Contractor's obligations in terms of subclauses G1.5(a), (b) and (c) resulting from an increase monetary value of the Contract Participation Performance.

The tendered rate per month under subitem G10.01(d) shall include full compensation for the Contractor's obligations in terms of subclause G1.5(f).

The tendered rate will be paid monthly, pro rata for parts of a month, for the period in which the Contractor provides appointed targeted subcontractors with management resources and supervision assistance, in terms of subclause G1.5(f).

Item	Unit
G10.02 Procurement of targeted subcontractor(s).....	number (No)

The unit of measurement shall be the number of appointed targeted subcontractors procured by the Contractor in terms of subclause G1.5(d).

The tendered rate per number shall represent full compensation for that part of the Contractor's obligations in terms of subsubclauses G1.5(d)(i) to (vii) and subclause G1.5(e).

Item	Unit
G10.03 Development support and accredited training for contracted targeted subcontractors:	

- | | | |
|-----|---|-----------------|
| (a) | Development support provided by the Contractor | lump sum |
| (b) | Accredited training direct and indirect costs | provisional sum |
| (c) | Handling cost and profit in respect of subitem G10.03(b)..... | percentage (%) |

The lump sum tendered under subitem G10.03(a) shall represent full compensation for that part of the Contractor's obligations in terms of subsubclause G1.5(g)(i).

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The lump sum tendered under subitem G10.03(a) will be payable monthly in instalments in relation to the monetary value of the Contract Participation Performance and Contract Participation Goal.

Should the final monetary value of the Contract Participation Performance increase in relation with the monetary value of the Contract Participation Goal, then the lump sums tendered under subitem G10.03(a), will be increased pro rata, up to a maximum of 15% variation, in full settlement of any difference in the Contractor's obligations in terms of subsubclause G1.5(g)(i) resulting from an increase monetary value of the Contract Participation Performance.

Expenditure under subitem G10.03(b) will be made in accordance with the general conditions of contract.

The provisional sum under subitem G10.03(b) shall include full compensation for all direct and indirect costs related to approved accredited training for appointed targeted subcontractors in terms of subsubclause G1.5(g)(ii).

The tendered percentage under subitem G10.03(c) is a percentage of the amount actually spent under subitem G10.03(b), which shall include full compensation for the handling costs of the Contractor, plus the profit and all other incidentals, in connection with to approved accredited training for appointed targeted subcontractors in terms of subsubclause G1.5(g)(ii).

No payment, nor pro rata payment, shall be made for trainees that, once selected, do not attend or only partially complete structured training courses. The Contractor's own staff may attend the courses provided. However, such attendants from the Contractor's staff shall not be considered for measurement and payment purposes.

Item	Unit
G10.04 Contractor's obligations in terms of submission of documents lump sum	

The lump sum tendered shall represent full compensation for that part of the Contractor's obligations in terms of subsubclauses G1.8(a)(ix), (b)(ii), (b)(v), b(vi), b(vii) and (d)(i) to (iv) which are not covered under items G10.01 and G10.02 and subitem G10.03(a).

The first instalment, 70% of the lump sum, will be payable monthly in instalments in relation to the monetary value of the Contract Participation Performance and Contract Participation Goal, subject to the submission of documentation, by the Contractor, in terms of subsubclauses G1.8(a)(ix), (b)(ii), (b)(v), b(vi) and b(vii)

The second and final instalment, 30% of the lump sum, will be paid on completion of the Contractor's obligations in terms of targeted subcontractor contract participation and shall be subject to the submission of documentation, by the Contractor, in terms of subsubclauses G1.8(d)(i) to (iv).

Item	Unit
G10.05 Cost variations due to targeted subcontractor work packages.....provisional sum	

Expenditure under this item will be made in accordance with the general conditions of contract, excluding the payment of a percentage mark-up.

The provisional sum shall include full compensations for cost variations as described in subclause G1.10(d), approved by the Employer's Agent.

The provisional sum amount provided for in the Bill of Quantities shall represent the maximum expenditure in terms of compensation provided for cost variations due to appointed targeted subcontractor work packages.

ANNEXURE A CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN (PRO-FORMA)

**CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN
FOR TARGETED SUBCONTRACTING**

A.1 GENERAL INFORMATION

Employer:.....

Contract description:.....

.....

Contract number:

Contractor:

Employer's Agent:.....

A.2 CONTRACT PARAMETERS

Contract participation goal applicable to the Contract %

Contract Sum
(exclusive of any value added tax or sales tax required by law) R.....

Less all allowances R.....

Contract amount R..... (1)

A.3 ACHIEVING THE CONTRACT PARTICIPATION GOAL

The Contractor is required to achieve the contract participation goal (CPG) under consideration by means of subcontracting a portion of the Works to targeted subcontractors in terms of the Contract.

A.4 IMPLEMENTATION PLAN

The Contractor hereby provides the following information, as per **Table A.4.1**,:

- description of Works proposed to be subcontracted (work package type);
- number (No.) of work package(s) targeted (per work package type);
- CIDB category and grading level of targeted subcontractor required (per work package type);
- estimated value of work package type (R value); and
- total estimated value of all work packages contributing towards achieving the contract participation goal under consideration (R value)

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Table A.4.1: IMPLEMENTATION PLAN DETAILS

Description of Works proposed to be subcontracted (Work package type)	No. of work package(s) targeted	CIDB category and grading level of targeted subcontractor required	Estimated value of work package category excluding value added tax or sales tax (R value)
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
			R
Total value contributing towards CPG			R (2)

The formula below indicates the proposed percentage (%) contract participation goal (CPG) which the Contractor intends to achieve in terms of the Contract.

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Total % towards CPG = $100 \times [(2) / (1)] = \dots\dots\dots\%$

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A.5 UNDERTAKINGS

The Contractor hereby certify that, to the best of our knowledge, the above information, facts and representations are correct and that only bona fide targeted subcontractors will be contracted to perform commercially useful functions in terms of the Contract.

Name of Contractor's representative
(in terms of the Contract):

Signature:

Date:

who duly warrants that he/she is authorised to sign this undertaking.

A.6 CONFIRMATION OF RECEIPT

The Employer's Agent hereby confirms receipt of this document in terms of the Contract.

Name of Employer's Agent's representative
(in terms of the Contract):

Signature:

Date:

ANNEXURE B LETTER OF UNDERTAKING TO ACT AS A TARGETED SUBCONTRACTOR AND DECLARATION AFFIDAVIT (PRO-FORMA)

LETTER OF UNDERTAKING TO ACT AS A TARGETED SUBCONTRACTOR

Employer:.....

Contract description:.....

Contract number:

From: (Name and address of targeted subcontractor)

.....
.....

To: (Name and address of Contractor)

.....
.....

The undersigned undertakes to perform the following work in connection with the above-mentioned Contract:

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

for an estimated amount of R excluding any value added tax or sales tax required by law.

The status of the undersigned as a targeted subcontractor is confirmed in the attached targeted subcontractor declaration affidavit.

Signature:

Name:

Designation:

Date:

who duly warrants that he/she is authorized to sign the letter

TARGETED SUBCONTRACTOR DECLARATION AFFIDAVIT TO BE ATTACHED.

TARGETED SUBCONTRACTOR DECLARATION To be completed for each targeted subcontractor									
Section A: Employer information									
cidb Employer Number									
Employer Name	 								
Section B: Contract Data									
cidb Employer Number									
Contract Title	 								
Date of Practical Completion	Y Y Y Y			M M			D D		
Estimated final value of contract (including Vat, variation and any price adjustment)									
	R								0.00
Section C: Main Contractor / JV Information									
cidb Contractor Registration									
Number of main / lead contractor									
Name of contractor / Joint Venture									

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Section D: Targeted Subcontractor Information

cidb Contractor Registration						
Name of contractor						
Contact Person Title		Initials			Surname	
Designation						
email						
Mobile				-		
Office Telephone				-		
Number of full time employees other than the owner						

Sharholding by cidb Registration Contractors

[illegible]

Ownership by Black Persons (Complete for each person)

Name Title			Initials			Surname	
ID or Passport							
email							
Citizenship							
	by birth			or by decent			or by naturalisation
							year of naturalisation
Name Title			Initials			Surname	
ID or Passport							
email							
Citizenship							
	by birth			or by decent			or by naturalisation
							year of naturalisation
Name Title			Initials			Surname	
ID or Passport							
email							
Citizenship							

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Section E: Agreement of Co-Operation and Assistance										
List the areas of development (at least two)										
Section F: Contract Participation for Targeted Subcontractor										
a) Estimate final value of contract with targeted enterprise (excluding VAT, including variations and price adjustments)										
R										0.00
b) Estimate final value of contract from Section B (excluding VAT, including variations and price adjustments)										
R										0.00
Contract participation for targeted enterprise a/b (%)										
Section G: Declaration; Targeted Subcontractor Development Co-Ordinator										
Name of Co-ordinator Title			Initials				Surname			
Designation										
email										
Mobile		0								
Office Telephone		0								
I, the undersigned warrant that:										
I am duly authorised to submit this notice behalf of the Contractor /JV ; and										
The contents of this notice are within my personal knowledge, and are the best of my belief both true and correct.										
Signature										
Date completed		Y	Y	Y	Y	M	M	D	D	

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Section H: Declaration, Targeted Subcontractor Representative												
Contact Person Title		Initials			Surname							
Designation												
email												
Mobile	0			-				-				
Office Telephone	0			-				-				
I/we agree		disagree			with the Targeted Subcontractor Development Co-ordinator's assessment of compliance with the Targeted Subcontractor Development support provided							
I /We appeal the assessment by the Targeted Subcontractor Development Co-ordinator											Y	N
I, the undersigned warrant that:												
I am duly authorised to submit this notice behalf of the Contractor /JV ; and												
The contents of this notice are within my personal knowledge, and are the best of my belief both true and correct.												
Signature												
Date completed	Y	Y	Y	Y	M	M	D	D				

Section I: Declaration, Employer's Agent												
Contact Person Title		Initials			Surname							
Designation												
email												
Mobile	0			-				-				
Office Telephone	0			-				-				
I/we agree		disagree			with the Targeted Subcontractor Development Co-ordinator's assessment of compliance with the Targeted Subcontractor Development support provided							
I /We appeal the assessment by the Targeted Subcontractor Development Co-ordinator											Y	N
I, the undersigned warrant that:												
I am duly authorised to submit this notice behalf of the Contractor /JV ; and												
The contents of this notice are within my personal knowledge, and are the best of my belief both true and correct.												
Signature												
Date completed	Y	Y	Y	Y	M	M	D	D				

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION G2: TARGETED SUPPLIER PARTICIPATION

SCMU10-24/25-0011: UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION G2: TARGETED SUPPLIER PARTICIPATION

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G2.1 SCOPE

This section covers the implementation of the Employer's contract participation targeted strategy and goals in terms of targeted suppliers employed by the Contractor, for supplying materials, goods or services, in the performance of the Contract.

G2.2 TERMS AND DEFINITIONS

For the purposes of this section the following terms and definitions apply.

(a) allowance

Amount provided for in the Contract by the Employer relating to one or more of the following:

- (i) contingencies amount and contract price adjust amounts (if any); and
- (ii) provisional sum, prime cost sum amounts including their associated percentage (%) mark-up costs.

(b) black people

Has the meaning assigned to fit in section 1 of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)

(c) commercially useful function

Performance of real and actual work, or the provision of services, in the discharge of any contractual obligation which includes, but is not limited to, the performance of a distinct element of work which the enterprise has the skills and expertise to undertake and responsibility for management and supervision.

(d) Contract

Means the documentation of the agreement between the parties in terms of the Form and Offer and Acceptance (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA).

(e) contract amount

Refers to the monetary value used to calculate the contract participation goal for the contract participation target under consideration. The contract amount equals the Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

(f) contract participation

A process by which the Employer implements Government's objectives by employing a targeting strategy to enhance the utilisation and development of targeted enterprises (subcontractors, manufactures and suppliers) and targeted labour.

(g) contract participation goal (CPG)

For the contract participation target under consideration, the Employer sets a minimum goal expressed as a percentage value (%). In turn, this percentage (%) goal is used to calculate the minimum rand value (R) goal for said contract participation target.

The CPG (R) is thus calculated using the following formula:

$$CPG (R) = \text{contract amount (R)} \times \text{minimum goal (\%)}$$

where:

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contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

minimum goal (%) = As indicated by the Employer in the Contract, Part C4: SITE INFORMATION.

(h) contract participation performance (CPP)

The measure of the Contractor's progress in achieving the contract participation goal under consideration.

(i) contract participation target(s)

The Employer's contract participation targeting strategy, in terms of this Contract, includes the following three (3) targets:

- (i) Targeted subcontractors employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract;
- (ii) Targeted suppliers employed by the Contractor, subcontractor(s) and targeted subcontractors, for supplying materials, goods or services, in the performance of the Contract **(covered in this section)**;
- (iii) Targeted labour employed by the Contractor, subcontractor(s) and targeted subcontractors in the performance of the Contract

All the above mentioned targets contribute to the Employer's contract participation. However compliance is measured based on each individual contract participation target.

(j) Contractor

Means the person named in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA) whose offer has been accepted in the Form of the Offer and Acceptance and the legal successors in title of this person.

Also referred to as the principal contractor or main contractor.

(k) control

Possession and exercise of legal authority and power to manage the assets, goodwill and daily operations of an enterprise, and the active and continuous exercise of appropriate managerial and financial authority and power in determining the policies and directing the operations of the said enterprise.

(l) EME

Means an exempted micro enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

(m) Employer

Means the person for whom the Works are to be carried out and who is named as the Employer in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA), and the legal successors in title of this person.

(n) Employer's Agent

Means the person named as the Employer's Agent in the Contract Data (refer to the Contract, Part 1 of 4 : AGREEMENTS AND CONTRACT DATA), or any other person appointed from time to time by the Employer, and of whom the Contractor is notified, in writing, to act as Employer's Agent for the purposes of the Contract as substitute for the Employer's Agent so named.

(o) manufacturer

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Sole trader, partnership or legal entity that operates or maintains a factory or establishment that produces on its premises, goods required in terms of the Contract.

(p) ownership

Legal right of possession, including the right of disposition, and sharing in all the risks and profits commensurate with the degree of ownership interest or shareholding, as demonstrated by an examination of the substance, rather than the form, of ownership arrangements.

(q) QSE

Means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act.

(r) subcontract agreement

Refers to a written contractual agreement between the Contractor and appointed targeted subcontractor using the latest edition of the General Conditions of Subcontract (GCSC), as published by South African Institution of Civil Engineering (SAICE).

(s) target area

Means a geographical area defined in the in the Contract, Part C4: SITE INFORMATION, and may refer to the ward(s), local municipal area(s), district area(s) and/or province within which the Site of the Contract is located.

The Employer may, at his sole discretion and upon the basis of evidence submitted by the Contractor in support of fruitless efforts in good faith to secure targeted suppliers to supply required materials, goods or services within the specified target area, grant a waiver with respect to the specified target area of the contract participation target under consideration.

A waiver with respect to increasing the boundary of the specified target area shall follow the order of precedence (from highest to lowest) as indicated below:

- (i) adjacent local municipal areas within the district area of the specified target area;
- (ii) adjacent district areas within the Province of the Eastern Cape.

The boundary of the Province of the Eastern Cape shall represent the maximum extend of a target area for which a waiver may be granted by the Employer.

(t) targeted enterprise

A targeted enterprise is an EME or QSE which:

- (i) is at least 51% owned by black people; and
- (ii) the Contractor has no equity holding in; and
- (iii) is registered in terms of the Company's Act, 2008 (Act No. 71 of 2008) or Close Corporation Act, 1984 (Act No. 69 of 1984), and
- (iv) is registered on the National Treasury's Central Supplier Database (CSD); and
- (v) is a business within the target area.

(u) targeted subcontractor

A targeted subcontractor is a targeted enterprise which:

- (i) is a contractor who undertakes construction work within its registered CIDB category; and
- (ii) has a letter of good standing in terms of the Compensations for Occupational Injuries and Disease Act (COIDA); and

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- (iii) is registered with the relevant bargaining council(s), duly established in terms of Part C of the Labour Relations Act 66 of 1995, as amended.

(v) targeted supplier

A targeted supplier is a targeted enterprise which:

- (i) manufactures and/or supplies materials or goods or provide services; and
- (ii) is not classified as a targeted subcontractor.

(x) targeting strategy

An approach which is pursued to make a contract participation goal an obligation of Contract.

G2.3 APPLICABLE LEGISLATION

The following Acts, as amended from time to time, are predominant amongst those which apply to the construction industry and are listed here for reference purposes only:

- (i) The Constitution of the Republic of South Africa, 1993;
- (ii) Public Finance Management Act, 1999 (Act No 1 of 1999);
- (iii) Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000) and Regulations;
- (iv) Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003);
- (v) Construction Industry Development Board Act, 2000 (Act No 38 of 2000) and Regulations; and
- (vi) National Small Business Amendment Act, 2003 (Act No 26 of 2003).

G2.4 OBJECTIVE

A major objective of Government is to extend economic opportunities and entrepreneurial capacity to all localities by optimum utilisation of the resources existing in the vicinity of projects, the development of these resources in the execution of the project, and by maximising the amount of project funds retained within the project locality.

The Employer's contract participation targeting strategy in terms of the utilisation of targeted suppliers is one of the processes by which the Employer implements Government's objectives.

G2.5 REQUIREMENTS

(a) Contract Participation Goal Implementation Plan and Programme

The Contractor shall employ targeted suppliers in the performance of the Contract to the extent that the monetary value of such employments, exclusive of any value added tax or sales tax required by law, is sufficient to achieve the contract participation goal under consideration.

The Contractor is required to submit to the Employer's Agent details of his plan to achieve the contract participation goal under consideration, on the contract participation goal implementation plan form contained in Annexure A, within two (2) months after Commencement of the Contract. Thereafter, updated plans are to be submitted when amended by the Contractor.

(b) Targeted Supplier Database

No later than the six (6) weeks after Commencement of the Contract, the Contractor shall:

- (i) in consultation with the Project Liaison Officer (PLO), Project Liaison Committee (PLC) and local business structure, set up a targeted suppliers database;
- (ii) verify the targeting requirements of targeted suppliers;
- (iii) setup and submit for approval by the Employer's Agent, an initial targeted supplier registered project database for the Contract

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The Contractor is required to submit to the Employer's Agent for approval, the initial targeted supplier registered project database no later than six (6) weeks after Commencement of the Contract.

(c) Employment of Targeted Suppliers

Only verified targeted suppliers employed by the Contractor, subcontractor(s) and targeted subcontractors, for supplying materials, goods or services, in the performance of the Contract shall contribute towards the contract participation performance.

(d) Verification of the Status of Targeted Suppliers

The Contractor shall submit completed letters of undertaking, including targeted suppliers declaration affidavits, of employed targeted suppliers (refer to Annexure B) with respect to each and every targeted supplier whose contributions shall be counted towards the contract participation goal under consideration. These documents shall be submitted to the Employer's Agent before credits can be awarded..

G2.6 COMPLIANCE

(a) Contract Participation Performance (CPP)

The Contractor's performance in terms of achieving the minimum required goal, shall be measured by the granting of credits towards the contract participation goal under consideration. Credits are measured by converting the monetary value (exclusive of any value added tax or sales tax required by law) of materials, goods or services supplied by targeted suppliers, in the performance of the Contract.

The CPP (%) is thus calculated using the following formula:

$$CPP (\%) = \frac{\text{Monetary value (R) of materials, goods or services supplied by targeted suppliers}}{\text{contract amount (R)}}$$

where:

Monetary value (R) of materials, goods or services supplied by targeted suppliers = the value of materials, goods or services supplied less any value added tax or sales tax which the law requires the Contractor to pay to the targeted supplier.

contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

No credits shall be granted should the Contractor:

- make direct payment to a supplier, manufacturer, plant hire or lease company on behalf of a targeted supplier when such payment is recovered by making deductions from payments to the targeted supplier in connection with Contract;

Certification of credits counting towards the contract participation goal under consideration is the responsibility of the Employer's Agent. The certification procedure requires the Contractor to submit to the Employer's Agent all records, documentation, agreements and suppliers payment certificates.

G2.7 RECORDS

(a) Submission of Documentation

The Contractor shall compile and submit all documentation required in terms of:

- (i) contract participation goal implementation plan form (Annexure A) in terms of subclause G2.5(a);
- (ii) initial targeted supplier registered project database in terms of subclause G2.5(b);

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- (iii) completed letter of undertaking, including targeted supplier declaration affidavit for each employed targeted supplier in terms of subclause G2.5(d);

(b) Monthly Submission of Documentation

The Contractor shall compile and submit on a monthly basis to the Employer's Agent, before the site meeting date, in a format approved by the Employer's Agent, the following:

- (i) a report which describes the commercially useful functions performed by employed targeted suppliers in the performance of the Contract, both during the interim period and on a cumulative basis;
- (ii) a schedule reflecting materials, goods or services supplied by targeted suppliers, both during the interim period and on a cumulative basis.

Should random inspections conducted by the Employer's Agent of employed targeted suppliers activities indicate that such employed targeted suppliers are not performing in accordance with the requirements of this section, then the Contractor shall provide in addition to the monthly reporting requirements, separate weekly resource returns and any other relevant information with respect to such employed targeted suppliers in a format approved by the Employer's Agent.

(c) Certification of Contract Participation Goal Credits

The Employer's Agent shall certify credits counted towards the contract participation goal under consideration in terms of subclause G1.6(a) whenever the Contractor submits his payment statement.

(d) Documentation Required Upon Completion of a Targeted Supplier's involvement with the Contractor

The Contractor shall, upon completion of the employment each individual targeted supplier with the Contractor, issue the Employer's Agent with the following documentation:

- (i) final payment certificate for each employed targeted supplier, which includes the quantity and type of materials, goods or services supplied.

(e) Reporting Non-Compliance

No or partial reporting, by the Contractor, as that part of the Contractor's obligation in terms of clause G2.7, shall result in denial of credits towards achieving the contract participation goal under consideration.

G2.8 PENALTIES

In the event that the Contractor fails to substantiate that any failure to achieve the contract participation goal under consideration was due to:

- quantitative underruns;
- the elimination by the Employer of items included in the contract participation goal; 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 calculated in the following manner.

$$P = 1,05 \times [CPG(\%) - CPP(\%)] \times \text{contract amount } (R)$$

Where

P = Monetary value (R) of penalty payable

$CPG(\%)$ = Minimum required contract participation goal as indicated by the Employer in the Contract, Part C4:
SITE INFORMATION

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CPP(%) = Contract Participation Performance which the Employer's Agent certifies, based on credits passed, as being achieved upon completion of the Contract.

contract amount (R) = Contract Sum less all allowances and any value added tax or sales tax which the law requires the Employer to pay to the Contractor.

Such a financial penalty shall be deducted from the Contractor's payment certificate before issue of the Final Payment Certificate.

ANNEXURE A CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN (PRO-FORMA)

**CONTRACT PARTICIPATION GOAL IMPLEMENTATION PLAN
FOR TARGETED SUPPLIERS**

A.1 GENERAL INFORMATION

Employer:.....

Contract description:.....

.....

Contract number:

Contractor:

Employer's Agent:.....

A.2 CONTRACT PARAMETERS

Contract participation goal applicable to the Contract %

Contract Sum
(exclusive of any value added tax or sales tax required by law) R.....

Less all allowances R.....

Contract amount R..... (1)

A.3 ACHIEVING THE CONTRACT PARTICIPATION GOAL

The Contractor is required to achieve the contract participation goal (CPG) under consideration by means of employing targeted suppliers for the supply of materials, goods or services in terms of the Contract.

A.4 IMPLEMENTATION PLAN

The Contractor hereby provides the following information, as per **Table A.4.1**,:

- description of proposed materials, good or services required in the performance of the Contract;
- number (No.) of targeted suppliers to be employed;
- total estimated value of materials, goods and services contributing towards achieving the contract participation goal under consideration (R value)

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Table A.4.1: IMPLEMENTATION PLAN DETAILS

[illegible]

The formula below indicates the proposed percentage (%) contract participation goal (CPG) which the Contractor intends to achieve in terms of the Contract.

Total % towards CPG = 100 x [(2) / (1)] = %

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A.5 UNDERTAKINGS

The Contractor hereby certify that, to the best of our knowledge, the above information, facts and representations are correct and that only bona fide targeted suppliers will be employed to perform commercially useful functions in terms of the Contract.

Name of Contractor's representative
(in terms of the Contract):

Signature:

Date:

who duly warrants that he/she is authorised to sign this undertaking.

A.6 CONFIRMATION OF RECEIPT

The Employer's Agent hereby confirms receipt of this document in terms of the Contract.

Name of Employer's Agent's representative
(in terms of the Contract):

Signature:

Date:

ANNEXURE B LETTER OF UNDERTAKING TO ACT AS A TARGETED SUPPLIER (PRO-FORMA)

LETTER OF UNDERTAKING TO ACT AS A TARGETED SUPPLIER

Employer:.....

Contract description:.....

Contract number:

From: (Name and address of targeted supplier)

.....
.....

To: (Name and address of Contractor)

.....
.....

The undersigned undertakes to supply the following materials, goods or services in connection with the above-mentioned Contract:

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

for an estimated amount of R excluding any value added tax or sales tax required by law.

The status of the undersigned as a targeted supplier is confirmed in the attached targeted supplier declaration affidavit.

Signature:

Name:

Designation:

Date:

who duly warrants that he/she is authorized to sign the letter

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PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE (KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

PART C3: SCOPE OF WORK

SECTION H: QUALITY ASSURANCE FRAMEWORK FOR ROAD WORKS

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PART C3: SCOPE OF WORK

SECTION H: QUALITY ASSURANCE FRAMEWORK FOR ROAD WORKS

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QUALITY ASSURANCE FRAMEWORK FOR ROAD WORKS

The Contractor shall implement a quality assurance system that replicates an ISO 9002 and appoint a quality manager who shall ensure that members of the Contractor's staff comply with the requirements of the quality system. The quality system and the methods used to implement it shall be described in a quality plan produced by the Contractor. The 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.

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. The system shall record the lines and levels of responsibility and indicate the method by which testing procedures will be conducted. Once accepted by the Employer's Agent the Contractor shall not deviate from it unless written notification of proposed changes has similarly been submitted and approved.

The system shall provide for a method statement for each construction activity. Each method statement shall be submitted to the Employer's Agent for his approval two weeks prior to commencement of the activity. Where appropriate the Contractor shall make use of the Employer's manuals in preparing his method statements. No construction activity shall commence before the Employer's Agent has approved the Contractor's quality assurance system.

It should be noted that elements 1 to 19 are mandatory to a quality system, while Elements 20 to 22 are not, but are likely to enhance the contractor's efficiency and profitability.

ELEMENT 1 – MANAGEMENT

RESPONSIBILITY

QUALITY POLICY

The contractor shall define and document his policy and objectives for and commitment to quality. The contractor shall ensure that the policy is understood, implemented and maintained at all levels of his organization.

Note: In drawing up this document, top management must give close consideration of their Quality Policy and their commitment thereto and put this into writing in a manner that can be clearly understood by all members of their organization.

ORGANISATION

The contractor shall produce organization charts and job descriptions showing the responsibility, authority and interrelation of key staff, at company and contract level, involved in the management, performance and verification of work affecting quality, who need the organizational freedom and authority to: -

- a. Initiate action to prevent the occurrence of non-conformities.
- b. Identify and record problems relating the product, process and quality system.
- c. Recommend solutions through designated channels.
- d. Verify the implementation of solutions.
- e. Control further processing and delivery of non-conforming products until the problem has been corrected.

The contractor shall provide adequate staff, including trained personnel for management, performance of the work and verification activities including internal quality audit.

The contractor shall appoint a member of his management team as the Quality Manager who, irrespective of his other responsibilities, shall have defined authority for:-

- a. Ensuring that a quality system is implemented and maintained in accordance with this framework.
- b. Reporting on the performance of the quality system to top management for review.
- c. Liaising with external parties on matters relating to quality system.

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Note: Successful management relies on good communication within the management team and on a clear definition of the responsibilities and authority of each member of the team. This is best documented by means of an organogram and a list of job descriptions. Job descriptions should preferably be defined by “position” rather than by name and should briefly but clearly state the responsibilities of the position and the reporting lines.

MANAGEMENT REVIEW

The contractor’s senior management shall review the quality system at regular intervals to ensure its suitability and effectiveness in satisfying the requirements of this framework and the contractor’s quality policy and objectives.

The review intervals shall not be more than 12 months and shall be 6 months or less during period of development or when significant numbers of non-conformities are occurring.

The Quality Manager shall present a report to the review meeting. This report shall include details of internal audit and non-conformance report and resultant actions taken to eliminate the recurrence of non-conformities. Employer feedback relating to quality shall be included in the report.

Deficiencies in the Quality System shall be identified and a plan for improvements agreed. The proceeding of the review, together with action requirements, shall be recorded.

Note: A quality system requires regular maintenance if it is to remain effective. Top management must maintain its interest, involvement and commitment to the system. Management Reviews are an important, visible expression of this interest and commitment.

ELEMENT 2 – THE QUALITY SYSTEM

The contractor shall establish, document and maintain a quality system, which shall contain as a minimum the following components: -

- a. Quality policy.
- b. Works Instruction, Standard Methods and Manuals describing how individual activities shall be planned, carried out, controlled and inspected for compliance with specification.
- c. Inspection Check lists. Inspection checklists shall contain details of the work, which require checking or testing to ensure compliance with the specification. They will, where applicable, contain details of specification tolerances and test results. Inspection checklists shall be signed off by the responsible person and stored as part of the Quality Records.
- d. Check lists. Checklists shall contain details of tasks necessary for the smooth running of the checklist shall be signed off by the person responsible for the task and passed to higher authority for reviewing and storage.
- e. Contract Quality Plans. A contract Quality plan will be required for each individual contract. They will describe those aspects of the Quality System, which will be adopted for that contract. The Contract Plan is dealt with in greater detail in Element 19.

ELEMENT 3 – CONTRACT REVIEW

The contractor shall establish procedures to provide for the following:

- a. A thorough reading of the full document so as to determine the extent that other items of the work will affect the work to be carried out by the contractor.
- b. A review of the document for consistency, clarity and sufficiency of information.
- c. Bringing to the notice of the Employer, either in writing or at the Site Inspection, of any unclear or inconsistent requirement or lack of sufficient information in the tender document.
- d. That the contractor has or can obtain sufficient skills and resources to carry out the proposed work.

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Unless a compulsory Site Inspection forms part of the tendering procedure, the contractor and the employer shall formally meet prior to the award of the contract to review the contract and the contractor's tender proposal to:-

- a. Ensure that both parties have the same understand of their respective contract obligations.
- b. To resolve any inconsistencies, lack of clarity or shortage of information in the contract document.
- c. To review the contractor's resources and capacity to undertake the work.
- d. To review the contractor's Contract Quality Plan.

The minutes of such meeting/s shall form a part of the contract documents.

The contractor shall identify how an amendment to the contract is made and lay down procedures for the efficient transfer of such amendments to his staff.

Note: This element is vital to the smooth running of a contract and is intended to minimize misunderstanding and delays during the course of the contract.

ELEMENT 4 – DESIGN CONTROL

The contractor shall establish and maintain documented procedures to control and verify and design of the product in order to ensure that the specified requirements are met.
The design inputs shall be identified, documented and selection reviewing by the contractor for adequacy. Incomplete, ambiguous or confliction requirements shall be resolved with the Employer.

The design output shall be documented.
The design output shall

- a. Meet the design input requirements.
- b. Contain acceptance criteria.

Design output documents shall be reviewed before release.

The contractor shall liaise with the employer's control laboratory while carrying out the design.
The contractor's laboratory mix designs shall be verified and where necessary modified by producing, laying and testing the material using the mixing and paving plant that will be used during the contract. During these trials the settings for the plant to produce the specified end results shall be recorded and incorporated in the design output documentation. Test result showing the physical properties of the material shall be incorporated in the design output documentation.

Note: A well thought out, documented and applied design procedure will prevent delays at the start of a contract and provide essential output for the control of the work. The design output should include details of materials to be used, the job grading of aggregates and the accepted tolerance on each sieve fraction (which will normally be tighter than the tolerances in the contract document), setting of mixing and paving plant to produce the required specification, mixing and laying temperatures, holding times for modified binders and modified mixes, etc. These outputs will form essential inputs for the compilation of Work Instruction and Inspection Check Lists. On PPGS contracts where contractor is required to design and overlay having a specific life it may be necessary to call on outside help to carry out a full pavement design.

ELEMENT 5 – DOCUMENT AND RECORD CONTROL
--

The contractor shall control all documents and records as follows:-

- a. Drawings. A register showing the current revision of all drawings shall be maintained, updated and displayed at the work site. The register shall indicate the holders of copies of each drawing. Changes not involving the reissue of drawings shall be clearly noted on ALL copies

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- of the relevant drawing and cross referenced to the instruction document. Superseded drawing required for record purposes shall stored separately from the current revisions.
- b. Correspondence which relates to the contract such as letters, memos, instructions, orders and the minutes of meeting shall filled in a manner which will allow easy access. The distribution of correspondence shall be clearly marked on the file copy.
 - c. Quality Control Records. The contractor shall determine the distribution of each quality control document. The distribution shall be clearly marked on each record and shall be signed off prior to passing along the chain. Fully signed off quality Control Records shall be filled in a manner which will allow easy access.
 - d. The distribution of Quality System documentation shall be controlled by the Quality Manager. Distribution lists shall be maintained to ensure that holder of original documents receive any revisions. Superseded issues shall be marked as such withdrawn from use.

All drawing and records shall be stored in a manner that will prevent loss and minimize deterioration.

Copies of contractual Quality Records, specified as such, shall be supplied to the Employer. Other Quality Records shall be available to the Employer for inspection and audit.

On completion of the contract all records and documents shall be archived in a manner which will prevent loss, minimize deterioration and allow retrieval for the period specified on the contract document or as required by legislation, whichever is the longer.

Note: For the smooth running of a contract it is essential that staff responsible for the ordering of supplies and the execution of the work have available all the information relevant to their responsibilities and that the information is up to date. This can be achieve by having a systematic procedure for the receiving, copying distribution and filling of documents together with a procedure for the withdrawal of out of date copies.

ELEMENT 6 – PURCHASING AND SUBCONTRACTING

GENERAL

The contractor shall have documented procedures which he shall follow to ensure that materials purchased from suppliers and services provided by subcontractors meet the specified requirements.

Note: The performance of suppliers and subcontractors is critical for achieving the quality requirements of the contract. They must therefore form an integral part of the Quality System. This justifies having a documented policy to formally and consistently control their activities.

ASSESSMENT

The contractor shall evaluate and select suppliers and subcontractors on the basis of their ability to meet the requirements of the Quality System, specification and the program. Subcontractors and suppliers should be encouraged to develop their own quality assurance systems.

Before making a purchase from a supplier or employing a subcontractor whom the contractor has not dealt with during the previous two years in relating to products or services similar to those being sought a prior, documented assessment shall be made to verify their ability to meet the quality and program requirements.

Note: Where prospective suppliers and subcontractors do not have an established track record the contractor should satisfy himself that they have the necessary skills and resources to carry out the proposed work. This should be done formally by a senior member of management and the outcome recorded.

PURCHASING DATA

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Each Contract Quality Plan shall specify the person responsible for the purchase of materials and services which relate to achieving the specified requirements.

All purchase orders and subcontract agreements which are significant for the achievement of quality requirement shall be in writing and shall contain:

- a. Precise identification of the type and specification.
- b. The title or other positive identification and applicable issue for specifications, process requirements, inspection instructions and other technical data.
- c. The quantities, rate of delivery, delivery details and completion dates.

The contractor shall review and approve purchasing documents for adequacy of the specified requirement prior to issue.

Note: Unless purchasing instructions are precise there is a significant risk of the wrong materials or service being delivered.

INCOMING MATERIALS

All materials purchased or produced by the contractor or supplied by the Employer for incorporation in the works shall be checked for compliance with the specification prior to incorporation in the works and verification recorded on the relevant Inspection Check List. Delivery dockets and verification test result sheet shall either be attached to the Inspection Check List or referred to, in an identifiable manner, on the Inspection Check List.

All materials shall be handled, stockpiled and stored in a manner that will prevent deterioration; segregation, contamination or damage and verification shall be recorded on the relevant Inspection Check List.

Note: The contents of stockpiles and storage tanks should be checked for compliance prior to their being released for use. The habit of recovering material from a stockpile while it is being constructed should be avoided. Care must be taken to ensure the incoming binder are placed in storage tanks allocated for that type of material. Material not meeting the specified requirements should be dealt with as non-confirming work.

MATERIALS AND PRODUCT IDENTIFICATION AND TRACEABILITY

The contractor shall establish and maintain procedures for the identification and traceability of materials incorporated in the works from their origin (quarry, borrow pit, refinery etc.) to their final position in the completed work.

Records of such identification and traceability shall be incorporated in the Quality Records.

Note: The traceability of materials through the process can be achieved by cross-referencing stockpiles/storage tanks with delivery notes and daily process records. Agreements should be made with suppliers of modified binder for full records of the modification process to be supplied with every delivery of modified binder.

ELEMENT 7 – PROCESS CONTROL

The contract shall identify and document the production and placing processes which affect quality and shall ensure that these processes are carried out under controlled conditions. Controlled conditions shall include the following:

- a. Documented procedures for the operation of equipment for the production and placing of the product and for building of material stockpiles and the recovery of material from stockpiles.
- b. Documented procedures for the maintenance and servicing of equipment.
- c. Documented procedures for the calibration and adjustment of equipment.

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- d. Documented procedures for modification of binders.
- e. Monitoring, control and recording of suitable process parameters (i.e. temperatures, rates of delivery of raw materials, storage times, etc).
- f. Compliance with documented procedures.
- g. Approval of processes and equipment.
- h. Criteria for workmanship, which shall be stipulated in the clearest possible manner (e.g. paving manuals, works instruction, illustrations or representative samples).

The processes shall be carried out by qualified operators and records shall be kept of all process parameters which cannot be verified by subsequent inspection (i.e. storage temperatures and times for binders and modified binders, mixing times, mixing and placing temperature, etc.) These records shall form part of the Quality Records.

Note: The quality of the end product in asphalt paving and bitumen seal work is highly dependent on good process control. Trial mixes and pavements will, if properly carried out, provide the control parameters for process control.

ELEMENT 8 – CONTROL AND INSPECTION OF THE WORK

GENERAL

The contractor shall undertake the work in a planned and controlled manner to ensure that the specified requirements are achieved. To this end the contractor shall develop procedures and documentation that:

- a. Identify the Employer's quality requirements.
- b. Plan how these will be met.
- c. Control the work in accordance with the plan.
- d. Inspect the work to verify that it complies with the specified requirements.
- e. Record the result of the verification.

Note: This element required that all work on the site is properly managed. Identifying and planning

The contractor shall examine the contract document and produce a Specification Review Schedule (SRS) tabulating the specified quality requirements for the work. This information shall be used as a basis for developing the Contract Quality Plan. Method Statements and/or Work Instructions shall be issued to that those person actually carrying out the work fully understand what is required. These shall describe how the task is to be performed, the person responsible for ensuring its completion, the sequence of operations and the resources to be used.

Note: Each and every quality requirement in the contract specification and the contractor's design must be identified, the task necessary to achieve and check the required quality laid down and a person appointed to ensure that task are carried out and quality records are completed and filled. The SRS will form the input for the drawing up of work Instructions.

INSPECTION AND RECORDING

The contractor shall inspect and/or test all the specified quality requirements (see "Identifying and Planning" above) to verify their compliance. The results shall be documented and retained as part of the Quality Records. Prior to covering up work carried out by other parties the contractor shall satisfy himself that such work conforms to the required specification.

Note: The documentation required for inspection and recording can normally be covered by inspection Check Lists, which when completed will be filled as part of the Quality Records.

ELEMENT 9 – CONTROL OF INSPECTION, MEASUREMENT AND TEST EQUIPMENT
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The contractor shall maintain a register of all inspection, measurement and test equipment used to check the quality of the work. Every item of equipment shall be clearly marked with its identification number or code appearing in the register.

All inspection, measurement and test equipment shall be calibrated and/or checked at appropriate intervals.

The register shall record the required frequency of calibration of checking, together with name of the person or body responsible for the calibration or check.

Work Instructions and Inspection Check Sheet shall be issued, setting out the methods to be used for checking of equipment by the contractor's employees.

The contractor shall safeguard inspection, measurement and test equipment, including computer software, from adjustment which would invalidate the calibration settings.

Calibration certificates and check sheet shall be retained and form part of the Quality Records.

Note 1: Calibration certificates are required for load measuring devices such as weigh bridges, load cells, proving rings and scales. Calibration of these devices should be in accordance with the manufacturers' recommendations, legal requirements or the requirements of the specification.

Note 2: The mass and drop of compaction hammers, the mass and straightness of penetration needles, the accuracy of the thermometers, etc. should be checked at least once a month and the results of the checks recorded and filed.

Note 3: The condition of such items as moulds, riffles, sieves, centrifuge cups, measuring tapes, ovens, centrifuges, etc, should be checked at least once every six months, or more frequently if the work load is heavy. These checks must be made by a responsible person appointed by the Quality Manager and the results of the checks recorded and filed.

ELEMENT 10 – CONTROL OF NON-CONFORMING WORK
--

The contractor shall draw up and maintain procedures to ensure that non-conforming materials work are either:

- a. Reworked to meet the specified requirements;
- b. Accepted with or without concession by the Employer; or
- c. Rejected and replaced.

Non Conformance Report (NCR) shall be issued. An NCR shall contain the following:

- a. Details of the precise location;
- b. Details of the symptoms;
- c. The probable cause;
- d. Proposals for the correction; and
- e. Proposals for the future avoidance of the non-conformity.

NCRs shall be approved by the person granted such authority in the Contract Quality Plan and by the Employer in case where a concession is being sought prior to implementing rectification work or the covering up of the non-conforming work.

Where non-conforming work will affect or delay other parties, the presence of the non-conformity shall be brought that party's notice as a matter of urgency.

The cause of non-conformities shall be investigated by the Quality Manager who shall take action, including if necessary the modification of the Quality System and/or the Contract Quality Plan, so as to eliminate or reduce the recurrence of such non-conformities. All NCRs and quality improvement action taken by the Quality Manager shall be reported at the Management Review meetings.

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Note: Even with excellent practice and control some defects in material or workmanship will occur. This element formalises how these non-conformities should be handled to ensure that:

- a. other parties are aware of the problem;
- b. the defective work is correct; and
- c. corrective measures are taken to eliminate or reduce the future occurrence of the defect.

ELEMENT 11 – HANDLING, STORAGE AND DELIVERY

The contract shall draw up and maintain procedures, issue Work Instructions and make agreements with suppliers for the correct handling, stockpiling, storage and delivery of raw and processed materials to prevent deterioration and damage. These procedures shall include methods for the building of stockpiles and the recovery of materials from stockpiles, temperature control and duration for the storage and/or curbing of modified binders and the protection of processed materials while being transported from the mixing plant to the laying site.

Note: Poor stockpiling, storage, handling and delivery may have a deleterious effect on the quality of materials and in some cases may render them unfit for use. On the other hand, good practices in the building of stockpiles and the recovery of material could enhance the quality of marginal materials. The formalising and strict control of work under this element can therefore have a market effect on the quality of the end product.

ELEMENT 12 – CONTROL OF QUALITY RECORDS.

The contractor shall produce and maintain documented procedures for the identification, collection, indexing, filling, storage and safe keeping of Quality Records to demonstrate conformance with the specified requirements and the effective operation of the Quality System. Pertinent quality records from suppliers and subcontractors shall form part of these records.

Note: Quality records are evidence that the contract has implemented his Quality System. To be of use they must be kept in an orderly fashion and be easily retrievable for examination by the Employer and, if necessary, to be used in the settlement of disputes.

ELEMENT 13 – POLLUTION CONTROL

The contractor shall issue Work Instructions, Method Statements or manuals covering the control of pollution. These should include (but are not restricted) to the following:

- a. Emission control at mixers.
- b. Avoidance of spills.
- c. Action to control spills.
- d. Disposal or reject material.
- e. Disposal of surplus material at laying sites.
- f. Disposal of oils, fitters and discarded parts during servicing of plant.
- g. Testing of sprays bars.
- h. Clearing of stockpile sites.
- i. Cleaning up of mixing sites.

Note: The production and laying of bituminous materials is potentially a dirty process and strict control is required if the contractor is not to fall foul of the law. Lack of good pollution control can result in disputes and possibly in stoppage of work.

ELEMENT 14 – SAFETY AND WELFARE

The contractor shall document and operate a formal health and safety programme which complies with the Occupational Health and Safety Act No 85 of 1993 and any subsequent amendments and associated

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Regulations. Work Instructions shall be issued pertaining to health and safety measures specific to the work to be carried out. The minutes of Health and Safety Committee Meetings shall be included in the Quality Records.

The contractor shall formalise his policy regarding the welfare of his staff and labour and issue Works Instructions setting out the methods of implementing this policy.

Note: A safe site with contented staff will greatly enhance both the quality and quantity of the work produced. The formalisation of safety and welfare measures will ensure that all members of the organisation are aware of both their rights and responsibilities in these matters. Close attention to these matters will help to prevent accidents and minimize labour disputes.

ELEMENT 15 – TRAINING

The contractor shall establish and maintain documented procedures for identifying training needs and provide appropriate training for all personnel. Personnel specific assigned task shall be qualified on the basis of appropriate education, training or experience to carry out such tasks. Training and qualification records shall be maintained for all personnel and review on a regular basis. These reviews, together with the information contained in non-conformance reports, shall form the basis for future training programmes.

The contractor shall establish and maintain documented procedures for checking that prospective employees have sufficient skills to perform the intended tasks to the quality standards required and shall institute necessary training where such skills are lacking.

Note: Inadequate training is one of the most common cause of foul-up and inefficiencies. Carefully planned training programs, on the site, at head office and through attendance at outside courses and seminars will go a long way to ensuring that all members of the organization are fully trained to carry out their expected tasks. Internal Audits, Management Reviews and NCRs are sources from which to identify training needs and the content of training courses. The Reconstruction and Development Programme (RDP) places great emphasis on the training of disadvantaged people, and future contracts are likely to contain requirements for the training of emerging contractors. To be effective this training must cover the whole gambit of contracting and not only concentrate on on-site skills.

ELEMENT 16 – CONTROL AND RECTIFICATION DURING THE GUARANTEE PERIOD

The contractor shall draw up, document and agree with the Employer procedures for the inspection of the work during the guarantee period and for the rectification of non-conforming work.

Note: All contracts contain some form of guarantee period. For existing standard contracts this is the maintenance period, normally twelve months. For PPGS contracts this guarantee period is likely to be between three and five years and for Build-Operate-Transfer (BOT) contracts the guarantee period may possibly extend to as much as thirty years. It is therefore essential that, at an early stage of the work, preferably before the submission of tenders, both the contractor and the Employer are aware of their responsibilities and authority during the guarantee period and of how such responsibilities and authority during the guarantee period and of how such responsibilities and authority are to be carried out.

ELEMENT 17 – STATISTICAL CONTROL

The contractor shall identify the need for statistical control methods to give warning of any tendency for the quality of raw or processed materials to depart from the specified requirements.

The contractor shall establish and maintain documented procedures to implemented statistical warning systems and to pass the results of such system to the relevant supplier or process personnel.

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Note: Statistical control charts can give early warning of the tendency of attributes, such as gradings, sand equivalents, void contents, binder contents, etc. to depart from the specification. This early warning can allow preventative action to be taken before non-conformities start to occur.

ELEMENT 18 – INTERNAL QUALITY AUDITS

The contract shall produce and maintain documented procedures for planning and carrying out Internal Quality Audits to verify whether quality activities and result comply with the Quality System and to determine the effectiveness of the Quality System and Contract Quality Plans.

Internal audits shall be recorded and brought to the attention of the personnel having responsibility for the activity being audited.

Corrective action shall be taken on deficiencies found in the audit.

Internal audits shall be carried out on all quality activities at last once a year but more frequently during development stages of the Quality System, during the early stages of the implementation of Contract Quality Plans and when the occurrence of non-conformities is excessive.

Result of audits and follow up action shall be reported by the Quality Manager at the Management Review Meeting.

Note: Internal Quality Audits, carried out by staff who are independent of those responsible for up front quality control will provide a check that the Quality System is operating as planned and is being effective in producing the objectives set out in the contractor's Quality Policy and provide information for the improvement of the Quality System and Contract Quality Plans.

ELEMENT 19 – CONTRACT QUALITY PLANS

The contractor shall draw up Contract Quality plan for each contract. The plan will detail how the Quality System will be adapted to ensure the control of quality on that contract.

The contract Quality Plan shall include (but not be restricted) to the following:

- a. The title, brief description, and key dates of the contract.
- b. A list of the drawings and specification applicable to the contract.
- c. The names, titles and responsibilities of the contract management team.
- d. A list of subcontractors and suppliers
- e. The construction programme.
- f. Specification review schedules.
- g. A list of Work Instructions, Inspection Check lists, check lists, Standard Methods and Manuals applicable to the contract.
- h. Documents setting out purchasing and subcontracting procedures.
- i. Procedures for Document and Record Control.
- j. Procedures for the control and rectification of Non-conforming work.
- k. Procedures for carrying out Internal Audits and the frequency of carrying out such audits.
- l. Procedures for ensuring compliance with the Occupational Health and Safety Act No 85 of 1993.
- m. A list of and procedures for the Control and safe keeping of Quality Records.
- n. A list of training courses to be attended by the contract staff and Works Instructions pertaining to the on site training of staff, labour and SMMEs.
- o. Details of any Statistical Control methods to be used on the contract.
- p. The signatures of the persons who prepared and authorised the plan.

Note: A Contract Quality Plan is the on-site working document setting out how the contractor's Quality System will be applied to that contract to ensure that the Quality Policy and the quality requirements of the contract are met. The Work Instructions, Inspection Check Lists, Standards Methods Check Lists and Manuals required in plan can be assembled:

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- ✓ By adopting and/or adapting standard company documents
- ✓ By adopting or adapting documents developed for similar work previous job, or
- ✓ By preparing new documents for new activities

These will provide details of how all the identified quality requirements will be planned, controlled, inspected for compliance, corrected where compliance is not met, and the results record.

ELEMENT 20 – PROCUREMENT OF WORK

The contractor shall develop, document and maintain procedures and allocate personnel for the regular scanning of the media for tender advertisements pertaining to bituminous work and for projects where bituminous alternatives could be offered.

The procedures should lay down the publications to be scanned and the action to be taken if the publications do not come to hand when expected.

The result of the scanning must be channelled to top management for further action.

Contractors interested in innovation work should lay down procedures for obtaining early access to planning proposal, Road Authority preliminary programs and local and overseas research data.

Note: these procedures should ensure that potential work is not overlooked and keep the contractor up to date with the latest thinking.

ELEMENT 21 – PAYMENT

The contractor shall establish, document and maintain procedures for:

- a. Obtaining progress information from site.
- b. Agreeing this information with other parties concerned.
- c. The preparation and issuing of payment certificates or invoices.
- d. Ensuring prompt payment.

The contractor shall also establish, document and maintain procedures for obtaining agreement with subcontractor and supplier for:

- a. The issue of invoices.
- b. Agreeing invoiced quantities.
- c. The settlement of dispute regarding non-conforming work and suppliers.
- d. Agreeing the terms and conditions of payment for services and suppliers received.
- e. Ensuring prompt payment.

Note: These procedures will go a long way to ensuring good relation with subcontractors and supplied and a smooth cash flow for the contractor.

ELEMENT 22 – QUALITY MANUAL

The contract shall compile and maintain a Quality Manual which shall contain:

- a. The contractor's Quality Policy.
- b. An organogram showing key management position and reporting lines.
- c. A description of how the Quality System is structured.
- d. A statement of the contractor's objectives and implementation policy in relation to each element of the system.
- e. A list of the contractor's Standard Methods, Manuals, Work Instruction and Check Lists.

Note: This document provides an overview of the whole system and can be useful as a reference document for external auditors, as a marketing document, as a tender submission document and as an

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introduction for new employees. Because of the wide distribution of this document, its content should be restricted to non-confidential information.

PROVINCE OF THE EASTERN CAPE

DEPARTMENT OF TRANSPORT

TENDER NO. SCMU10-24/25-0011

UPGRADING OF ROAD DR08044 FROM THE MSENGENI JUNCTION AT THE KAWANGCULU VILLAGE
(KM 0+000) TO THE MTOKWANE VILLAGE (KM 14+400)

THE CONTRACT
PART 4 (OF 4) : SITE INFORMATION

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SECTION C4: SITE INFORMATION

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C4.1 SCOPE

This part of the contract document consists of information that:

- describes the Site as at the time of tender; and
- provides the Employer's contract participation goals; and
- provides a description of the Works; and
- provides information that makes reference to in other parts of the contract document; and
- provides general information in terms of the Contract.

All data and descriptions contained in this part of the contract document are given for information purposes only and cannot be interpreted as prescriptive or as an instruction despite the fact that the text may give the opposite perspective. If any conflict arises between the content of this part and other parts of the contract documents, the latter take precedence.

C4.2 EMPLOYER'S OBJECTIVES AND CONTRACT PARTICIPATION GOALS

C4.2.1 Employer's objectives

The Employer's objectives are to deliver adequate public infrastructure within the Province of the Eastern Cape and to extend economic opportunities and entrepreneurial capacity to all localities by optimum utilisation of the resources existing in the vicinity of projects, the development of these resources in the execution of the project, and by maximising the amount of project funds retained within the project locality.

The Employer's contract participation targeting strategy; utilisation of targeted subcontractors, targeted suppliers and targeted labour in terms of the Contract are the three (3) main processes by which the Employer implements his objectives.

C4.2.2 Employer's contract participation

As a condition of the Contract the Contractor will be required to spend a minimum total of 50% of the Contract Sum less VAT, allowances for contingencies and contract price adjustment and provisional and prime cost sum amounts on the following contract participation goals within the targeted area(s) of the project:

- Minimum of **30%** on Targeted subcontractors employed by the Contractor, for the execution of portions of construction works, in the performance of the Contract; and
- Minimum of **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
- Minimum of **10%** on Targeted labour employed by the Contractor, subcontractor(s) and targeted subcontractors in the performance of the Contract.

C4.2.3 Target area

The Site is located within the Mbhashe local municipal area which is located within the Amathole District of the Province of the Eastern Cape.

C4.2.3.1 Target area for targeted subcontractors

- Mbhashe Local Municipality area

C4.2.3.2 Target area for targeted suppliers

- Mbhashe Local Municipality area

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C4.2.3.3 Target area for targeted labour

- Wards 21 (new hard-rock quarry), 25 (borrow pit 1) and 29 within Mbhashe Local Municipality area

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C4.3 DESCRIPTION OF EXISTING ROAD

C4.3.1 General Description

The Mbashe Local Municipality and the Eastern Cape Department of Transport has obtained approval to upgrade portions of the roads DR0846 and DR08044 from the town of Willowvale to Dwesa holiday resort via Msengeni. The route made up of DR08046, which is the portion of the proposed Wild Coast Meander tourism route, runs from Kei Mouth to Port St Johns along the coast.

The project comprises the upgrading of the existing gravel roads between Willowvale and the Dwesa Nature Reserve. The project comprises of four distinct road sections, namely:

1. Upgrading of the Main Road within the Town of Willowvale (Phase 1);
2. The Upgrading of the DR08046 between Willowvale and Msengeni Intersection, with an estimated length of 15,50 km (Phase 2);
3. The upgrading of the DR08044 between the Msengeni Intersection to km 14,40 (Phase 3); and
4. The upgrading of the DR08044 from km 14,40 to the the Dwesa Nature Reserve at km 31,40 (Phase 4).

The above upgrading projects are undertaken as part of the proposed new primary coastal road between East London and Durban.

The upgrading the Main Road through Willowvale (Phase 1) has been completed as well as the upgrading of DR08046 (Phase 2).

The specific objective of this project is to upgrade ± 14 km of DR08044, between Msengeni Junction, from a gravel road to a surfaced road, improve the surface & subsurface drainage conditions.

C4.3.2 Topography

The geometry of the road could be described as rolling with few bends over the entire length. It is predominately built on or near the water shed.

C4.3.3 Geology

Refer to Volume 5 – Geotechnical and Materials Report of the contract documentation.

C4.3.4 Land Use

Peri-urban communities, of various densities are located on both sides throughout the length of the road. Local businesses and schools are located within these communities. Due to the encroachment of the community along the road, most of the properties alongside the road have direct access to the road. Many formalised intersections along the road are present to provide access for Municipal and District gravel roads.

C4.3.5 Cross-section

The current gravel road width ranges from 6.0 m to 7.5 m. The road will be upgraded to provide 3.4m wide surfaced lanes in each direction with 0.9m wide surfaced shoulder.

C4.3.6 Pavement Structure

Pavement structure consist of the following as detailed in Table C4.1 overleaf.

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TABLE C4.1: PAVEMENT STRUCTURE

LAYER	PAVEMENT STRUCTURE	
	THICKNESS	DESCRIPTION
Surfacing	20 mm	Cape Seal (20mm)
Base layer	150 mm	G2
Subbase layer	150 mm	G6 (C3)
Selected layer	150 mm	G7
Fill layer	150 mm	G9
Subgrade	-	G9

C4.3.7 Traffic Data

The traffic volumes on DR08044 are deemed to be low. Temporary traffic accommodation will therefore be implemented by means of Stop/Go control.

C4.4 OVERVIEW OF THE CONTRACT

The rural road section of the DR08044 that will be upgraded under this contract start at the Msengeni Junction at the Mawangculu Village at km 0.00 and end at the Mtokwane Village at km 14.30.

The existing gravel road surface is in a generally poor condition.

The main aspects of the work are as follows:

- (a) Establishment on site;
- (b) Accommodation of traffic (including half-width construction) during construction;
- (c) Clearing and grubbing in the road reserve, borrowpits and quarry;
- (d) Relocation and protection of services
 - electricity
 - telephone
 - watermain
- (e) Drainage works, including culverts, open drains and sub-soil systems;
- (f) Earthworks and roadbed preparation. Blasting will be necessary;
- (g) Pavement layers, including stabilised sub-base, crushed stone basecourse;

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- (h) Surfacing using a Cape Seal or asphalt;
- (i) Gabion retaining structures;
- (j) Road signage, pavement markings, guardrails, masonry stone barriers, and other safety features;
- (k) The construction of accesses and intersections;
- (l) The construction of pedestrian sidewalks;
- (m) Community and stake holder liaison;
- (n) Training of targeted subcontractors and targeted labour;
- (o) Fulfilment of Employer's contact participation goals;
- (p) The rehabilitation, landscaping and finishing of borrow pits and roadway;
- (q) Training programmes for residents / local labour.

The width of this section of gravel road varies. The section of road being re-constructed / upgraded is to a Class 3 road cross section comprising 3.4m wide surfaced lanes with 0.9m wide surfaced shoulders and 0.6m wide gravel shoulders.

The horizontal alignment on DR08044 will largely be unaffected with some minor changes in isolated places. The vertical alignment on DR08044 is generally slightly higher than the current alignment but localised cut and fill is required to improve sight distance on the existing road.

A combination of earth drains, subsoil drains, concrete down chutes and concrete side drains will be constructed along DR08044 where required to suit the new vertical alignment and drainage improvements.

The general drainage will be improved by installing various concrete pipe and portal culverts where required to suit the new vertical alignment and drainage improvement needs.

The permanent road marking will be painted on the road once the final surfacing layer has been constructed. All permanent road markings will be re-painted before the end of the defects liability period.

Some existing road signs are old, faded and or damaged. These signs will be replaced during the contract. Some existing signs also require re-positioning and new signs are also required.

The existing sections of guardrails will be removed and replaced with new guardrail section in new positions to suit the new surfaced road widths and levels. Sections of damaged guardrails will also be replaced.

Provision has been made in the contract to install new fencing along the new road reserve boundaries along the full length of the road.

It is envisaged that relocation or protection of existing services will be required as provided for in the bill of quantities for protection of unknown existing services that may be located on site during construction. Details of known existing services are contained in Volume 4 - Roadworks Drawings.

Landscaping and environmental requirements:

- (a) Topsoil management

Topsoil will be stripped to stockpile for later reinstatement. Stockpiles will be contained in well drained areas and may not exceed 2m in height.

- (b) Cut and fill slope re-vegetation

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The cut and fill slopes will be re-vegetated by means of mulch and hydroseeding.

(c) Protection of plants and collection of seed

Allowance for the removal, storing, protection and replanting of selected vegetation has been allowed in the bill of quantities.

(d) Rehabilitation of borrow pits, stockpile areas and spoil sites

There are borrow pits and a hard-rock quarry on this contract which will have to be managed in terms of the Environmental Authorization. All pavement materials will be sourced from either within the road reserve or borrow pits and/or the hard-rock quarry, except where existing pavement materials are to be reused in the works as indicated. The contractor will be required to rehabilitate stockpile areas, borrow pits and the hard-rock quarry.

(e) Weed control

Weeds will be controlled on topsoil stockpiles by mean of frequent manual eradication.

(f) Routine maintenance

Over and above the responsibilities under Care of the Works, the contractor shall also be responsible for routine maintenance of the site in general.

C4.6 PAVEMENT DESIGN AND MATERIALS

C4.6.1 Pavement Design

The pavement design for this Contract shall consist of the following:

Surfacing	:	20 mm Cape Seal using S-E1 modified binder with two layers of slurry
Base	:	150 mm thick G2 quality crushed stone material, compacted to 85% of BRD.
Subbase	:	150 mm thick cement stabilized (C3) using G6 quality crushed stone material, compacted to 96% of MDD.
Selected Layer	:	150 mm compacted thick G7 quality gravel material, compacted to 95% of MDD.
Fill	:	200 mm thick G9 quality gravel material, compacted to 93% of MDD.

C4.6.2 Materials

- Fill and Selected Layers

All fill and selected layer materials are available from road cuttings and approved borrow pits. Provision has been made in the Contract for the establishment of single-stage crushing, by the Contractor, to breakdown hard materials for use in course fill material and selected layers.

The coordinated of the borrow pits are as follows:

- Borrow pit 1 - 32° 14' 44.32" S; 28° 35' 07.39" E
- Borrow pit 2 - 32° 14' 03.03" S; 28° 39' 00.39" E
- Borrow pit 3 - 32° 14' 22.82" S; 28° 40' 58.16" E

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- Borrow pit 4 - 32° 16' 09.88" S; 28° 44' 45.64" E
- Borrow pit 5 - 32° 16' 11.63" S; 28° 44' 58.51" E

- Blasted Rockfill, Pioneer layer and Rock toe Materials:

All such materials shall be procured by the Contractor from the approved hard rock quarry.

Material is currently being sourced for Phase 2 from an approved hard-rock quarry located on the outskirts of Willowvale west of the project. Due to the location of this source material will have to be transported over a significant haul distance utilizing the completed phases as haul roads. An alternative hard-rock quarry, near Phases 3 & 4, has been identified for which Environmental and Mining approval are expected before the commencement of the construction phase. Should Environmental and Mining approval not be obtained for the alternative hard-rock quarry prior to the commencement of construction the current approved quarry has sufficient capacity to supply material for the project until approval is granted for the alternative quarry.

The coordinated of the two hard-rock quarries are as follows:

- Original quarry - 32° 15' 11.32" S; 28° 27' 48.84" E
- Alternative quarry - 32° 12' 14.27" S; 28° 44' 05.41" E

- Crushed stone for Base, Subbase Layers:

All materials are to be obtained from the approved hard rock quarry which will be mined and produced by the Contractor on site.

- Surfacing stone, fine and coarse aggregates and gabion and stone pithing

All materials are to be obtained from the approved hard rock quarry which will be mined and produced by the Contractor on site.

- Water sources:

Construction water will be supplied to the project from the rivers on route for which a Water Use License Application (WULA) has been obtained from the Department of Water and Sanitation.

C4.7 ACCOMMODATION OF TRAFFIC

Accommodation of traffic during the construction period will be implemented to ensure the safe passage of vehicular and pedestrian traffic at all times.

The Contractor is required to comply with all requirements and specifications as detailed in this document.

The Contractor must at all times allow access to existing intersections and accesses along the road. Any temporary works required to provide temporary access over the works shall be to the Contractor's cost and deemed to be included in his rates for the applicable works activity.

The traffic volumes on DR08044 are deemed to be low. Temporary traffic accommodation will therefore be implemented by means of Stop/Go control.

C4.8 MAINTENANCE OF THE EXISTING ROAD

The Contractor shall be responsible for all routine maintenance operations along the entire length of road reserve from the date of receiving the instruction to commence works until the date of issue of the certificate

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of completion of the works. The maintenance of the existing road is to be carried out using routine road maintenance methods approved by the Employer.

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 District Roads Engineer.

C4.9 EXISTING SERVICES

Table B1202/1 Clause B1202 in Section 1200 of C3.2 Section B – Project Specification Amendments contains a list of known services which was compiled during the investigation stage of the project. This list should not be deemed as complete.

It is the responsibility of the Contractor to liaise with the local authorities, Eskom and Telkom prior to the start of construction activities to determine the type and approximate location of existing services within the road reserve. For services that may be affected by the works, the Contractor is required to provide the Employer's Agent and service authority with the true location thereof.

C4.10 DRAWINGS AND INFORMATION

Reduced tender drawings, that form part of the tender document shall be used for tender purposes only.

At the start of the contract the Employer's Agent will supply the Contractor with three (3) paper copies of each drawing for construction purposes. These paper copies and subsequent revisions of these drawings shall be issued free of charge to the Contractor. Additional paper copies requested by the Contractor, over and above the ones issued for free, shall be to the Contractor cost.

Any information in the possession of the Contractor, which the Employer's Agent requires for completing his as-built drawings, shall be supplied to the Employer's Agent before a certificate of completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Employer's Agent. The Employer's Agent will supply 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.

C4.11 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 office of both Telkom and Eskom 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.

C4.12 CONSTRUCTION IN CONFINED AREAS

It will be necessary for the contractor to work within confined areas. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the contractor's constructional plant.

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Regardless, 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. It is deemed that the rates tendered in the Pricing Schedule 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. No extra payment will be made nor will any claim for additional payment be considered in such cases. [Refer to Clause B1209(j) in Section 1200 of C3.2 Section B – Project Specification Amendments]

C4.13 CONTRACTOR'S CAMP SITE

It is the responsibility of the Contractor to make his own arrangements regarding the location of this camp site, housing for his site staff, site offices of the Employer's Agent and site laboratory. The Contractor will have to liaise with the local council and/or the local community to find a suitable site. The chosen site(s) shall also be subject to the approval of the Employer's Agent and the Employer's Environmental Agent.

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 Employer's Environmental Agent.

C4.14 EMPLOYER'S AGENT'S OFFICES AND LABORATORIES

For this Contract the following Employer's Agent's offices and laboratories are required in terms of Section 1400 of C3.2 Section B – Project Specification Amendments.

C4.14.1 Employer's Agent's office area:

- One (1) office for the Employer's Agent's Representative (internal floor size of approximately 18 m²);
- One (1) office for the Assistant Employer's Agent's Representative (internal floor size of approximately 18 m²);
- Three (3) offices for the administrative and technical staff (internal floor size of approximately 9 m² per office);
- One (1) office for the Employer's Agent's filing and records documents (internal floor size of approximately 18 m²);
- One (1) conference room (internal floor size of approximately 27 m²);
- One (1) ablution unit (with separate rooms for males and females);
- One (1) kitchen unit.

C4.14.2 Laboratory area:

- Bituminous material laboratory consisting of one (1) room with an internal floor area of at least 16 m² (4 x 4 m);
- Chemical laboratory consisting of one (1) room with an internal floor area of at least 16 m² (4 x 4 m);
- Concrete laboratory consisting of one (1) room with an internal floor area of at least 48 m² (12 x 4 m);
- Soils laboratory consisting of three (3) - compaction room with an internal floor area of at least 24 m² (6 x 4 m), Atterberg limit and sieve analysis rooms each with an internal floor area of at least 16 m² (4 x 4 m);
- Stabilization laboratory consisting of one (1) room with an internal floor area of at least 24 m² (6 x 4 m);
- One (1) store room with an internal floor area of at least 24 m² (6 x 4 m);
- Open concrete working floor, 150 mm thick, with a floor area of at least 160 m² (16 x 10 m);
- Roof over open concrete working floor covering at least 80 m² (8 x 10 m);
- One (1) office for the Laboratory Manager (internal floor size of approximately 18 m²);
- One (1) office for the Laboratory Field Technicians (internal floor size of approximately 9 m²);
- One (1) ablution unit (with separate rooms for males and females);

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- One (1) changing unit (with separate rooms for males and females);
- One (1) kitchen unit.

C4.15 SECURITY

The Contractor shall be responsible for the security of his personnel and constructional equipment 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 site offices and that of the site laboratories.

C4.16 PROCESS AND ACCEPTANCE CONTROL

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 effected 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 avoiding or restricting 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.

C4.17 ENVIRONMENTAL MANAGEMENT

The Contractor will be responsible for managing the Environmental Management Plan (EMP) and comply with all environmental requirements and specifications in terms C3.6 Section F: Environmental Management Plan Implementation Specifications.

The appointed Employer's Environmental Agent will conduct at least once a month a site audit to verify the Contractor's compliance.

C4.18 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT

The Contractor will be responsible for managing his project specific health and safety plan and comply with all OHS requirements and specifications in terms of C3.3 Section C: Occupational Health and Safety Specifications.

The appointed Employer's Health and Safety Agent will conduct at least once a month a site audit to verify the Contractor's compliance.

C4.19 AREAS AVAILABLE FOR TEMPORARY STOCKPILES AND SPOIL SITES

The areas within the road reserve (but outside the road prism) and approved borrow pits are available as temporary stockpile sites.

It is the responsibility of the Contractor to arrange his own site site(s) at his own cost. All said site(s) will be compliant with the requirements and specifications in terms C3.6 Section F: Environmental Management Plan Implementation Specifications.

C4.20 WASTE DISPOSAL SITES

The Contractor shall arrange his own waste disposal 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 Environmental Agent. All disposal costs will be borne by the Contractor.

C4.21 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.

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Where not under cultivation, the vegetation is generally grass lands. Open areas between settlements are often cultivated as mealie lands or used as general cattle grazing.

The Contractor shall cause no damage to fauna and flora. If, in the opinion of the Employer's Environmental Agent, this happens, the Employer's Environmental Agent is entitled to initiate prosecution by the relevant authorities.

C4.22 CLIMATE

C4.22.1 Topography

The highest point of the road is at an elevation of 463 m at KM 0,00 and the lowest of the road is at an elevation of 276 m at KM 13,640.

C4.22.2 Climatic Conditions

The project area lies between the sub-tropical KZN coast and the warm climate of the Eastern Cape. Maximum temperatures in summer range between 25 and 17 degrees Celsius. The winter temperatures are generally in the region of 8 degrees Celsius but can drop to between 2 and 4 degrees. Rainfall varies between 800 and 1000 mm per annum.

The project area falls within the Mbhashe River Basin primary catchment, and falls within the WMA 12 Water Management Area. The climate is typical of the Eastern Cape with mild summers and winters. There is a general drop in average temperatures for the months from April to October.

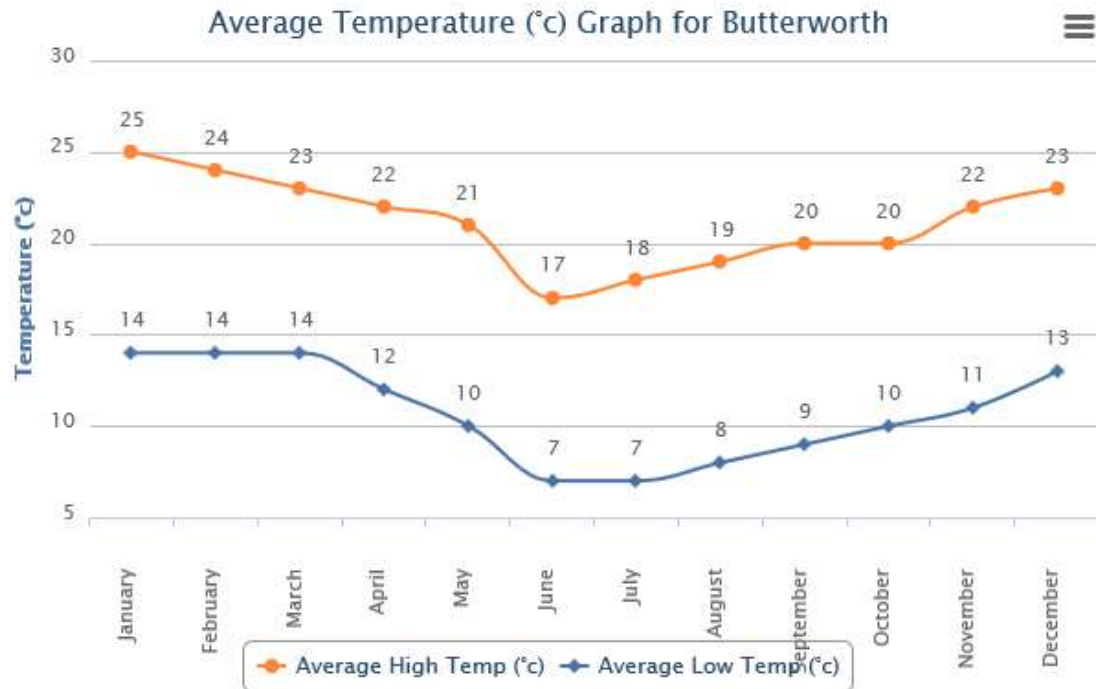
The nearest functional weather station with accurate data was that of the Butterworth Prison. These data sets will be used for climatic considerations.

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C4.22.3 Temperatures

The following temperature data is based on records from Weather Station at Butterworth Prison.

TABLE C4.2: AIR TEMPERATURES



C4.22.4 Precipitation

The following precipitation data is based on records from Weather Station at Butterworth Prison.

TABLE C4.3: PRECIPITATION DATA

2001 2011 (Extracted 2005/09/05 15:10) BUTTERWORTH PRISON												
0103230 3			Lat:-32.3330			Lon:28.1330			Height:534 m			
MON	AVE	ST DEV	N DAY RAIN	NUM MON	1 5	5.1 10	10.1 20	20.1 50	50.1 100	100.1 900	MAX R DAY	MAX RAIN DATE
JAN	93.7	54.4	6.3	10.0	1.3	1.6	1.9	1.2	0.2	0.0	90.0	2007/01/06
FEB	37.9	19.5	4.4	11.0	1.6	1.0	1.5	0.0	0.0	0.0	20.0	2006/02/26
MAR	39.1	18.5	3.7	10.0	1.6	0.5	1.1	0.5	0.0	0.0	39.0	2006/03/13
APR	39.3	30.3	4.2	10.0	1.7	0.8	1.5	0.0	0.0	0.0	20.0	2007/04/06
MAY	24.8	28.2	1.9	11.0	0.5	0.6	0.5	0.3	0.0	0.0	36.0	2003/05/11
JUN	15.5	20.1	1.2	10.0	0.2	0.2	0.8	0.0	0.0	0.0	20.0	2010/06/13
JUL	27.6	46.7	2.1	11.0	1.0	0.2	0.5	0.1	0.2	0.0	57.0	2002/07/17
AUG	17.8	18.3	2.0	11.0	0.8	0.2	0.6	0.2	0.0	0.0	31.0	2008/08/17
SEP	20.5	22.5	2.5	11.0	1.4	0.4	0.4	0.2	0.0	0.0	45.0	2006/09/24
OCT	38.8	32.0	3.7	9.0	1.6	0.9	1.0	0.2	0.0	0.0	50.0	2003/10/13
NOV	74.9	74.5	5.5	10.0	1.6	1.0	2.3	0.1	0.3	0.0	98.0	2001/11/24
DEC	60.7	33.6	4.9	9.0	1.4	1.2	1.7	0.6	0.0	0.0	193.0	2005/12/14
YR	490.6		42.3		14.7	8.6	13.8	3.3	0.7	0.0		

TABLE C4.4: AVERAGE PERCIPITATION

