Re-advertisement

UPGRADING OF PENNYWHISTLE AND SWAN STREET – KANYAMAZANE (WARD 20)

TENDER NUMBER: COM09/2023B

TENDERER:	

CLOSING DATE: 18 JUNE 2024 AT 11:00AM

CSD REG NUMBER: MAAA……

CLIENT	**ENGINEER**
City of Mbombela PO Box 45 Mbombela 1200 Tel: 013-759 2358 Fax: 013-753 4444	**Sindi Consulting Engineers** Alcrest Building Suite 13 NELSPRUIT 1200 Contact: Name: Bongani Ngwenyama Telephone: (013) 752 7104 Cell No: 082 3354 213 Email: bongani@sindiconsulting.co.za

UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20)

SUMMARY FOR TENDER OPENING PURPOSES

NAME OF TENDERER :_____

ADDRESS :_____

_____

_____

_____

TELEPHONE NUMBER :_____

FAX NUMBER :_____

E-MAIL ADDRESS :_____

CLOSING DATE :_____

TENDERED AMOUNT :_____

Signed by authorised representative of the TENDERER: _____

DATE: _____

* Should any discrepancy occur between this figure and that stated in the Form of Offer and Acceptance, the latter shall take precedence and shall apply.

IMPORTANT INFORMATION

PLEASE READ CAREFULLY BEFORE COMPLETING DOCUMENT.

1. Notice to all tenderers.
2. Standards applied in this document.

1. NOTICE TO ALL TENDERERS

This is an original document:

1. It may not be re-typed or altered in any way.
2. It must be completed in black ink (non-erasable) – in an eligible handwriting. Mistakes are to be corrected by drawing a line through it and writing the correct information above it. Tenderer to sign next to the correction. The use of erasing fluid or strips is not allowed.
3. It may not be taken apart.
4. It is not available in electronic format except PDF.
5. Bidders are required to attach returnable documents to the relative pages (where requested) and encouraged to use file fasteners and binding tape or any other similar method to ensure there are no loose pages. **Any other form of presentation (loose pages or separate documents) will not be accepted.**

2. STANDARDS APPLICABLE TO THIS DOCUMENT

Available from the S.A. Federation of Civil Engineering Contractors, the S.A. Institution of Civil Engineering and the S.A. Bureau of Standards, as applicable:

1.	CIDB	***CIDB Standard for uniformity in Construction Procurement,*** *10 July 2015, as amended.*
2.	SANS 10845-1	*Processes, methods and procedures.*
3.	SANS 10845-2	*Formatting and compilation of procurement documentation.*
4.	SANS 10845-3	*Standard conditions of tender.*
5.	GCC	*General Conditions of Contract for Construction Works, Third Edition (2015) issued by the South African institution of Civil Engineering.*
6.	COLTO	*Standard Specifications for Road and Bridge Works for State Road Authorities (1998)*
7.	This Document, as presented.	

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THE TENDER

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PART T1 TENDERING PROCEDURES

T1.1 TENDER NOTICE AND INVITATION TO TENDER T1.1-1

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T1.1 TENDER NOTICE AND INVITATION FOR PROPOSALS – *RE-ADVERTISEMENT*

Bids are hereby invited from experienced services providers for UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20)

Tender No	Description	CIDB Grading	Compulsory Meeting and Site Inspection Date	Closing Date
COM09/2023B	**UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20)**	**7CE OR Higher**	**NONE**	**18 JUNE 2024 AT 11:00**

It is compulsory that service providers download a copy of the bid document that will ONLY be available as from 17 May 2024 on the municipal website: www.mbombela.gov.za on the tenders and notices folder and National e-Tender Portal: www.etenders.gov.za, free of charge.

Duly completed bid documents and supporting documents which are, COPY OF TAX COMPLIANCE STATUS, CERTIFIED COPY OF B-BBEE CERTIFICATE OR SWORN AFFIDAVIT FOR B-BBEE TO CLAIM B-BBEE POINTS, CURRENT MUNICIPAL RATES AND TAXES STATEMENT FROM RELEVANT LOCAL AUTHORITY OR PROOF OF RESIDENCE FROM A TRIBAL AUTHORITY OR LEASE AGREEMENT ACCOMPANIED WITH THE LESSOR'S UP-TO-DATE MUNICIPAL RATES AND TAXES STATEMENT FOR BOTH THE BUSINESS AND ACTIVE DIRECTORS INCLUDING JV/CONSORTIUM MEMBERS, CSD REGISTRATION FULL REPORT (Summary Report will not be considered) and a copy of the COMPANY REGISTRATION CERTIFICATE, together with the bid document must be sealed in an envelope clearly marked: **"BID NO.:COM09/2023BB, UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20), CLOSING DATE: 18 JUNE 2024"** with the name of the bidder shall be placed in the bid box at MBOMBELA CIVIC CENTRE at 1 NEL STREET, MBOMBELA, before 11:00 on the closing date

Bidders are advised not to commit fraudulent activities or forge documents. All abusers of the SCM system, including forging or faking of returnable documents, may be reported to SAPS and restricted from doing business with any Public Institutions for a period NOT exceeding 10 years which is in line with section 28 and 29 of the Prevention and Combating of Corrupt Activities Act 12 of 2004.

A preferential point system shall apply whereby this contract will be allocated to a bidder in accordance with the **Preferential Procurement Policy Framework Act**, No **5 of 2000** and as defined in the conditions of bid in the bid document, read in conjunction with the Preferential Procurement Regulations, 2022, where 80 points will be allocated in respect of price and 20 points in respect of **Targeted Goals**.

Procurement Enquiries	:	Christopher Nkambule	(013) 759 2358
Technical Enquires	:	Nhlanhla Dhlamini	(013) 759 9528
Employer	:	City Manager, City of Mbombela P. O. Box 45 1200 Mbombela	Mr. Wiseman Khumalo

VISIT OUR WEBSITE –

www.mbombela.gov.za

NB: the results of this bid will be published on council's website as prescribed on section 75(1)(g) of the MFMA and section 23(c) of the SCM Regulations.

T1.2 TENDER DATA

The conditions of tender are the standard conditions of tender as contained in SANS 10845-3 Construction procurement, Part 3: Standard conditions of tender that apply specifically to this tender.

The Tender Data shall be read with the Standard Conditions of Tender in order to expand on the Tenderer's obligations and the Employer's undertakings in administering the tender process in respect of the project under construction.

The Tender Data hereafter 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 in the standard conditions of tender to which it mainly applies.

Clause Number	Data
	The conditions of tender are those contained in the latest edition of SANS 10845-3, Construction Procurement – Part 3: Standard conditions of tender. SANS 10845-3 makes 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 provisions of SANS 10845-3. Each item of data given below is cross-referenced to the clause in SANS 10845-3 to which it mainly applies.
3.1	The Employer is: **City of Mbombela, 1 Nel Street, Mbombela, 1200**
	The tender documents issued by the Employer comprise: THE TENDER Part T1 Tendering Procedures Part T1.1 Tender Notice and Invitation to Tender (white) Part T1.2 Tender Data (pink) Part T1.3 Preferential Procurement Policy of City of Mbombela (pink) Part T2 Returnable Documents Part T2.1 List of Returnable Documents (yellow) Part T2.2 Returnable Schedules to be completed by the Contractor (yellow) Part T2.3 Returnable Schedules II (yellow) **THE CONTRACT** **Part C1 Agreement and Contract Data** C1.1 Form of Offer and Acceptance (pink) C1.2 Contract Data (yellow) C1.3 Form of Guarantee (white) C1.4 Agreement in terms of Occupational Health and Safety Act, 1993 (white) C1.5 Authority for Signatory in Terms of OH&S Act, 1993 (white) **Part C2 Pricing Data** C2.1 Pricing Assumptions (yellow) C2.2 Bill of Quantities and Information Sheets (yellow)

3.2	**Part C3 Scope of Works** C3.1 Scope of Works (blue) C3.2 Engineering (blue) C3.3 Procurement (blue) C3.4 Construction (blue) C3.5 Management (blue) C3.6 Health and Safety (blue) **Part C4 Site Information** C4 Site Information (green) **Appendices** Annexure A Health and Safety Specification (white) Annexure B Drawings for Tender Purposes (white)
3.4	The Employer's Agent is: Name: Sindi Consulting Engineers Address: PO Box 1752 Nelspruit 1242 Tel: 013 752 7104 Cell: 082 335 4213 E-mail: bongani@sindiconsulting.co.za
3.5	The language for communications is English.
3.6	The competitive negotiation procedure shall not be applied.
4.1	Only those tenderers who satisfy the following eligibility criteria and who provide the required evidence in their tender submissions are eligible to submit tenders and have their tenders evaluated: a) CIDB registration Only those tenderers who are registered with the CIDB, or are capable of being registered prior to the evaluation of submissions, 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 **7CE or higher of construction work**, are eligible to have their tenders evaluated. Tenderers registered as potentially emerging enterprises but with a CIDB contractor grading designation lower 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, are not eligible to have their tenders evaluated. For the sake of clarity and subject to satisfactory proof of a tenderer's ability to perform the work specified at the tendered value, the Employer lists in the table below the margins it considers reasonable. However, in the event that the sum tendered exceeds the margins shown then such tender shall be deemed non-responsive.

Category of tender	Upper limits per CIDB Table 8 Regulation 17
CE 5	R10m
CE 6	R20m
CE 7	R60m
CE 8	R200m

Joint Ventures are eligible to submit bids provided that:

(1) every member of the joint venture is registered with the CIDB;

(2) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **7 CE or Higher class** of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.

(3) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **7CE or Higher class** of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.

	b) Key Personnel In order to be considered for an appointment in terms of this tender, the tenderer must have in its permanent employment key personnel who will be the single point accountability and responsibility for the management of the construction works. Alternatively, a signed undertaking from an organization having the required personnel, stating that they will undertake the necessary work on behalf of the tenderer in terms of a sub-contractor agreement, will be acceptable. Such undertaking must be attached to Forms T of the Returnable Schedules. Individuals must be identified for each of the key personnel listed under Forms T. Where the key personnel are no longer available to undertake the necessary work after the award of the tender, the contractor shall within a period of 14 working days replace the key personnel listed in Forms T with personnel with equivalent competencies and subject to approval by the Employer. Such approval shall not be unreasonably withheld. The key person shall be a suitably qualified and experienced contracts manager who will be the single point accountability and responsibility for the management of the construction works, and who is registered with SACPCMP as Pr.CM or ECSA as Pr.Eng or Pr.Tech.Eng shall be required as a minimum. Where the Contracts Manager will not be employed on the Works full time, his powers will be delegated to the approved construction manager. Failure to comply with the requirements or to complete Form T may render the tender non- responsive.
4.6	Bidders are encouraged to revisit the City's website regularly prior the closing date particularly on this project folder to ensure that all addenda/ erratum that may be issued are adhered to. Failure to apply instructions contained in addenda may render a tenderer's offer non-responsive in terms of Condition of Tender 5.8.
4.7	The arrangements for the compulsory clarification meeting are as stated in the tender notice and invitation to tender. The onus rests with the tenderer to ensure that the person attending the clarification meeting on its behalf is appropriately qualified to understand all directives and clarifications given at that meeting. The clarification meeting shall start strictly at the time advertised. Only then will the Employer's Representative circulate the attendance register for completion by those present. During this time latecomers may complete the register. On completion by all present the Employer's Representative will: (a) read out from the collected lists calling for confirmation that all have signed; The signature on the attendance register and duly completed and signed Form A shall be considered proof that the tenderer attended the whole meeting and was available to hear all directives and clarifications given at the meeting. Tenderers must sign the attendance list in the name of the tendering entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list. **The City will not take responsibility for incorrect information provided by the bidder on the attendance register.**
4.8	**Request clarifications at least 7 working days before the closing time.**
4.10	Tenderers are required to state the rates and currencies in Rand.
	An alternative tender offer will only be considered if a main tender offer, strictly in accordance with all the requirements of the tender documented is also submitted. If the tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrate the Employer's standards and requirements, the details of which may be obtained from the Employer's Agent.

4.12	Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal. Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements. The modified Tender Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.
4.13.1	Parts of each tender offer communicated on paper shall be submitted as an <u>original</u>, no copies are required. The signed print-out shall be taken as the valid submission.
4.13 4.15	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are: Location of tender box: City of Mbombela Physical address: 1 Nel Street, Mbombela 1200 Identification details: Tender COM09/2023B, UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20) Tenders can be submitted 24 hours a day from Monday to Friday at the Employer's address. It is in the tenderer's interest to ensure that the delivery of the tender offer is recorded in the Employer's tenders received register.
4.13.4	The tenderer is required to submit all certificates as listed in the Schedule of Tender Compliance (Form U).
4.13.5	Place and seal the printed and completed tender document in an envelope clearly marked "TENDER" and bearing the Employer's name, the contract number and description, the tenderer's authorised representative's name, the tenderer's postal address and contact telephone numbers.
4.13.5	A two-envelope procedure will not be followed.
4.13.6	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
4.15	The closing time for submission of tender offer is as stated in the Tender Notice and Invitation to Tender.
4.16.1	The tender offer validity period is 120 days.
4.16.2	Where a tenderer, at any time after the opening of his tender offer but prior to entering into a contract based on his tender offer: a) withdraws his tender; b) gives notice of his inability to execute the contract in terms of his tender; or c) fails to comply with a request made in terms of 4.17, 4.18 or 5.9, such tenderer shall be barred from tendering on any of the Employer's future tenders for a period to be determined by the Employer, but not less than six (6) months, from the date of tender closure. The Employer may fully or partly exempt a tenderer from the provisions of this condition if he is of the opinion that the circumstances justify the exemption.
4.18	Any additional information requested under this clause must be provided within 5 (five) working days of date of request.
4.20	The tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Part C1.8 of this Procurement document.

5.1	The employer shall respond to clarifications received up to 7 working days before tender closing time.
5.2	The employer shall issue an addenda until 7 working days before tender closing time.
5.4	All bid responses must be submitted before the Bid Closing date and time as stipulated on the tender invitation.
5.7	In the event of disqualification, the Employer may, at its sole discretion, impose a specified period during which tender offers will not be accepted from the offending tenderer and report same to CIDB and National Treasury.
5.9	Arithmetical errors, omissions, discrepancies and imbalanced unit rates Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount appearing in the summary to the Pricing Schedule shall govern. Check responsive tender offers for: a) the gross misplacement of the decimal point in any unit rate; b) omissions made in completing the pricing schedule or bills of quantities; or c) arithmetic errors in: i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or ii) the summation of the prices. d) imbalanced unit rates. Notify shortlisted tenderers of all errors, omissions or imbalanced rates that are identified in their tender offers. Where the tenderer elects to confirm the errors, omissions or re-balancing of imbalanced rates the tender offer shall be corrected as follows: a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the unit rate shall govern, and the line item total shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted and the unit rate shall be corrected. b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall be corrected. c) Where the unit rates are imbalanced adjust such rates by increasing or decreasing them and selected others while retaining the total of the prices derived after any other corrections made under (a) and (b) above. Where there is an omission of a line item, no correction is possible, and the offer may be declared non-responsive. Declare as non-responsive and reject any offer from a tenderer who elects not to accept the corrections proposed and subject the tenderer to the sanction under 4.16.2. The tenderer is required to submit balanced unit rates for rate only items in the pricing schedule. The rates submitted for these items will be taken into account in the evaluation of tenders.

5.10	**List of disqualifying factors of this tender are as follows:** A bid not complying with the requirements stated hereunder will be regarded as "Non Responsive", and as such will be rejected/disqualified for further evaluation • Submit company registration certificate • Submit Tax Compliance Status issued by SARS • Full CSD report **NOT** older than **30 days** from the closing date **,** Summary report will **NOT** be considered • Submit Joint venture agreement in case of JV. All parties are expected to attach their individual returnable documents except for consolidated B-BBEE certificate and combined CIDB grading. • Submit original certified identity document of business directors • Authority for Signatory, duly signed and dated original or certified copy on the Company(s) Letterhead. This condition will not apply to companies owned by one director / member / sole • Submit copies of relevant Annual Financial Statements (last 3 Financial Years, consecutively). For JV, relevant Annual Financial Statements from all parties are required. Failure to provide for all the service Providers will results in disqualification. • Submit copy of an active CIDB contractor grading designation of 7CE or higher. For JV, a combined CIDB grading is required. • Tenderer must provide valid copy of the current municipal rates and taxes certificates from relevant local authority / proof of residential from tribal authority (if the business is operating or the directors are residing in rural areas) / lease agreement with the lessor's up-to-date municipal rates and taxes for both the company and for the active directors including JV/Consortium partners. Prospective bidders should ensure that the physical address details of the company and directors reflected on the CSD is similar to the one reflected on the company registration certificate. The municipality reserves the right to verify both the municipal rates and taxes of the company details reflected on the CSD and company registration certificates. The municipality further reserves the right to use ID numbers of the directors to verify if any municipal rates and taxes are not owned by each director. It is prudent and remains the responsibilities of the prospective bidders to ensure that each director, lessor and company rates are cleared with regards to the municipal rates and taxes. A bid will be rejected if any municipal rates and taxes owed by the bidder or any of its directors to the municipality, or to any other municipality or municipal entity, are in arrears for more than three months. • Letter of good standing for COIDA. The letter of good standing must reflect the relevant nature of business in line with the Classification of Industries, the Compensation for Occupational Injuries and Diseases Act 130 of 1993. • Proof of public liability Insurance / third party liability insurance for a minimum of R5 000 000.00. The letter must be issued by a registered insurance service provider. The letter should have the full contact details of the service provider and the underwriter. • Letter of intent for performance guarantee from a registered Financial Service Provider (FSP). The letter should have the full contact details of the service provider and the FSP number. • All certificates, appointment letters of company experience, completion certificates of company experience, proof of ownership on plant and equipment, qualification certificates of personnel with Identity Documents must be certified by the commissioner of Oaths, RSA. It must have date of certification and not older than 3 months. A copy of a certified copy will not be accepted. • Fully completed and signed where applicable in the Returnable Schedules. • Failure to apply instructions contained in addenda that may be issued. • Submissions from bidders who did not attend a compulsory briefing session will not be acceptable. • Prospective service providers may not make any alterations or additions to the Bid document, except to comply with instructions issued by the employer. The tender document must be furnished with non-erasable black ink and all corrections made by the service provider should be dated and signed by the authorized signatory. Erasures and the use of masking fluid, tippex, pencil or erasable ink are prohibited and failure to adhere to this condition will render your submission non responsive.
5.11	The procedure for the evaluation of responsive tenders is Method 2: Financial offer, quality and preferences. Method 2 Financial offer, quality and preferences is scored as follows: a) Score each tender in respect of the financial offer made and preferences claimed, if any.

	b)	Calculate the total number of tender evaluation points (TEV) in accordance with the following formula: $T_{EV} = N_{FO} + N_P + N_Q$

5.11.5

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;

N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

N_Q is the number of tender evaluation points awarded for quality claimed in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.

d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub-clause is repeated.

f) Compelling and justifiable reasons not to recommend a tenderer are inter alia tenderers who:

- do not meet the minimum requirements listed in Part T2.1, List of Returnable Documents and/or
- failed to complete the tender document comprehensively with all the required information.

5.11.7

The financial offer will be scored using the following formula: $N_{FO} =$

$W_1 \times A$

Where:

N_{FO} = the number of evaluation points awarded for the financial offer W_1

= the maximum possible number of bid evaluation points awarded for the financial offer and will be:

(i) 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R 50,000,000; or

(ii) 80 where the financial value inclusive of VAT of one or more responsive tender offers equals or is less than R 50,000,000.

A = the number calculated using Formula 2 (Option 1) Table

1: Formulae for calculating the value of A_a

Formula	Comparison aimed at achieving	Option 1[a]	Option 2[a]
1	Highest price or discount	$A = (1 + \frac{(P - P_m)}{P_m})$	$A = P / P_m$
2	Lowest price or percentage commission /fee '	$A = (1 - \frac{(P - P_m)}{P_m})$	$A = P_m / P$

[a] P_m is the comparative offer of the most favorable comparative offer.
P is the comparative offer of the tender offer under consideration.

5.11.8

Scoring preferences.

Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who submit Responsive tenders and who are found to be eligible for the preference claimed. Points are based on a tenderer's scorecard measured in terms of the Broad-Based Black Economic Empowerment Act (B-BBEE, Act 53 of 2003) and the Regulations (2022) to the Preferential Procurement Policy Framework Act (PPPFA, Act 5 of 2000).

Points awarded will be according to a tenderer's specific goals summarised in the table below:

Item No.	The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Number of points allocated (90/10 system)
1.	100% Black owned enterprises within the definition of the HDI	2	1
2.	At least 30% women owned enterprises	2	1
3.	At least 30% youth owned enterprises	2	1
4.	At least 30% enterprises people living with disabilities	2	1
5.	Enterprises regarded as EMEs located within the City of Mbombela	2	1
6.	Enterprise who will sub-contract minimum of 30% of the contract value to EME's in the ward or local communities where the services to be rendered of works to be undertaken (Bidders shall list sub-contracting works or items)	2	1
7.	Corporate Social Investment (CSI) Plan. (see notes below)	5	3
8.	B-BBEE level 1 contribution (SANAS verified B-BBEE certificate for generic enterprise, and for EME and SME a sworn affidavit or CIPC issued certificate confirming annual turnover and level of Black Ownership	3	1
Total		20	10

Eligibility for preference points will be determined as follows:

- Compliance with any other information requested to be attached to Returnable Schedule Form D.

5.11.9

Description of quality criteria	Maximum number of points
Plant and equipment	15
Key Personnel	25
Company Experience	50
Financial References	10
Total evaluation points for quality (Ms)	**100**

Tender offers will only be considered responsive if the minimum quality requirement of **70 points** is achieved.

Tenderers are required to demonstrate their ability to undertake the work and provide proof of previous experience, expertise and availability of plant and equipment to undertake a project of this nature. Tenderers are therefore required to meet a minimum Quality Score of 70% (70 points out of 100) based on the criteria listed below. A score of less than 70 out of 100 points for Quality will render the tender non-responsive. The onus rests with the Tenderer to supply sufficient information to allow for evaluation and award of points detailed below. If insufficient information is provided, zero points will be awarded for that particular item.

Note that Quality points are only used to determine responsiveness and will not be used further in the evaluation.

i). Plant and Equipment (Maximum 15 points)

Details of owned and hired plant and equipment are to be entered in Form R of the Returnable Schedules.

ii). Key Personnel (Maximum 25 points)

Details of key personnel and their experience and qualifications are to be entered in Form T of the Returnable Schedules.

iii). Roads and Bridges Construction Experience (Maximum 50 points)

Details of paved surface roads related projects & supporting information in terms of the points to be claimed in terms of quality, must be entered in Form Q in the Returnable Schedule.

iv). Financial References (Maximum 10 points)

Details of financial references are to be entered in Form S of the Returnable Schedules.

5.13	**In addition to the requirements of the Condition of Tender, offers will only be accepted if:** • the tenderer is registered on the Central Supplier Database (CSD) for the South African government (see https://secure.csd.gov.za/). CSD is compulsory for any company to bid. **The full report should be submitted, not the summary.** • the tenderer is in good standing with SARS according to the Central Supplier Database. • the tenderer submits an **Original** letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Form S of this procurement document. • the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation. • the tenderer or any of its directors/shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; • the tenderer has not: i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect; • the tenderer has completed the Compulsory Declaration and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process; • the tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; • the employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2003, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. • No Tippex has been used on the bid document. • The tenderer has not used an erasable pen and completed the bid document with a pencil.
5.17	The number of paper copies of the signed contract to be provided by the employer is One.
5.19	All requests shall be in writing.

CHECKLIST FOR RETURNABLE DOCUMENTS STIPULATED UNDER SPECIAL CONDITIONS OF TENDER DOCUMENTS AS MANDATORY REQUIREMENTS. THIS DOCUMENT SHALL BE APPLICABLE TO ALL TENDER DOCUMENTS OF THE CITY.

Preamble

The objective of this checklist is aimed at ensuring that interpretation and application of the special conditions and other mandatory requirements at Bid Evaluation Committee (BEC) & Bid Adjudication Committee (BAC) are aligned as envisaged by the Bid Specification Committee (BSC). This will enhance consistency and uniformity in the entire bid committee system whilst promoting "user friendly" principles by simplifying tender requirements to all interested prospective bidders.

ITEM NO:	DESCRIPTION / RETURNABLE DOCUMENTS	NOTES	FOR OFFICE USE ONLY	
			CHECKLIST	YES or NO or N/A
1.	Company Registration Certificate	a) It's a certificate issued by the Companies and Intellectual Property Commission in line with section 14 of the Companies Act 78 of 2008 b) A Certificate issued by CIPRO in line with section 2 of the Close Corporation Act 69 of 1984 NB: The registration of Close Corporations (CCs) was replaced by introduction of the New Companies Act which came to effect in April 2011. CCs to be recognized as valid registration certificate will be up to 2010.	Has the bidders attached a valid company registration document in line with the applicable legislation?	
2.	Company Profile	a) A Company Profile is a professional introduction of your Business that aims to inform Clients about its purpose, vision, trustworthiness, products and services, and experience of your Company. It is basically a "CV for yo0ur Business/Company"	Has the bidder attached a company profile and its experience is relevant to add value on this project?	
3.	Certification of documents to be submitted together with the tender document. I.e. ID Copies of business owners, qualifications, Licenses and certificates, accreditation by professional bodies, proof of ownership document, appointment letters, completion certificates, etc.	a) The certification of documents must be done by a commissioner of oath as prescribed in the Justices of the Peace and Commissioners of Oaths Act 16 of 1963 and its Regulations. b) Acceptable certified copies are copies originally certified from any police station, post office, Lawyers or notary public (who are members of a recognised professional body), Actuaries or accountants (who are members of a recognised professional body), Members of the judiciary, Directors, managers or company secretaries of a banks or regulated financial services business.	Has the bidder certified all documents to be certified as per special conditions of bid? Check validity on the date, check if the commissioner of oaths stamp is compliant as per example copied from the Regulations.	

		c) Commissioner of Oaths stamps can be purchased at Stationary shops, but it can be custom made following the below example: CERTIFIED TRUE COPY OF THE ORIGINAL DOCUMENT. THERE ARE NO INDICATIONS THAT THE ORIGINAL DOCUMENT HAS BEEN ALTERED BY UNAUTHORISED PERSONS. Designation (rank) ……..ex officio: RSA Date: …… Place …… Business Address: …… …… Commissioner of Oaths …… Signature Full Names NB: All certified copies must NOT exceed three months and be originally certified.		
4.	Central Supplier Database (CSD) Full report, (Summary report will **NOT** be acceptable). **N/B CSD Report date should not be more than 30 days before Bid closing date.**	a) The City requires that all prospective bidders should be registered on CSD. This is aimed at verification of email addresses, phone numbers, banking details, company registration numbers, tax status with SARS, state employees, etc.	Has the bidder attached a full CSD report, are tax matters in good order, are the directors not in the employment of any state and the CSD report is not older than 30 days from the closing date?	
5.	Tax Compliant Status (TCS)	a) Prospective bidders are required to attach a valid TCS together with the tender document.	Has the bidder attached a valid (not expired) TCS? The designated official should verify the bidder's tax compliance status prior to finalization of the award of a bid or prize quotation. Where the recommended bidder is not tax compliant, the bidders should be notified of their non-compliant status and the bidder must be requested to submit to the City within 7 working days, written proof from SARS of their tax compliance status or proof from SARS that they have made arrangements to meet their outstanding tax obligations. The proof of tax compliance status submitted by the bidder to the City	

			must be verified via the CSD report or e-Filing. The City should reject a bid submitted by the bidder if such a bidder fails to provide proof of tax compliance status within the timeframe stated above **(See MFMA Circular No: 90).**	
6.	Certified copy of B-BBEE Certificate / affidavit for B-BBEE status level of contributor (**to claim points only).**	a) EMEs in terms of the B-BBEE Act 53 of 2002 JUNE submit a sworn affidavit confirming annual total revenue and level of black ownership or Certified Copy of B-BBEE Certificate. b) Bidders other than EMEs and QSEs **MUST** submit their certified copies of valid B-BBEE status level verification certificate, substantiating their B-BBEE rating issued by a registered auditor approved by IRBA or a verification agency accredited by SANAS. c) A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid. NB: There is NO consolidated affidavit for B-BBEE status level of contributor. Only consolidated B-BBEE certificate will be considered for JVs / Consortium & large companies that are making an annual turnover in access of R50 million including value added tax (VAT). *This is not a disqualifying factor, non-adherence will lead to no allocation of B-BBEE points.*	Is the copy B-BBEE Certificate valid? Is the sworn affidavit for EME / QSE in line with the threshold for EME and EME and valid? If the tendering entity is a JV / Consortium / Large company, has the bidder attached a certified copy of a valid and consolidated B-BBEE certificate in order to claim points as prescribed by the MSCM Regulations? Is the copy of B-BEE certificate certified by the Commissioner of Oaths reflects as prescribe on the regulations of the Act? Is the affidavit for B-BBEE stamped and signed by commissioner of oaths? I.e. full names and signature, force/practice number, designation / rank, date and address. Is the certification date not older than 3 months and original ink is clear on the document to confirm if it is originally certified?	
7.	Formal agreement must be attached in case of a joint venture (JV) or consortium.	a) The JV/consortium must amongst others, reflect clear profit and loses sharing percentages. It is compulsory that the lead partner must have at least 51% majority shares in the JV/consortium.	If the tendering entity / bidder is a JV/Consortium, has the bidder attached a detailed JV/Consortium agreement with all critical information?	

8.	In bids where Consortia / Joint Ventures / Sub-contractors are involved; each party must submit separate required returnable documents.	a) This will not be applicable to functionality and B-BBEE requirements.	If the tendering entity / bidder is a JV/Consortium, have the parties involved attached all individual required documents as per special condition of bid?	
9.	Latest municipal rates and taxes certificates from relevant local authority for the business and all business directors OR Proof of resident from tribal authority for the business and all business directors OR Lease agreement with the Lessor's latest municipal rates and taxes certificates from relevant local authority. NB: All accounts owing any municipality for more than 90 days will be disqualified as prescribed on the MSCM Regulations.	a) If the business is operated and its director(s) are residing within a municipal area, bidders are expected to attach latest municipal rate and taxes certificates for the business and ALL its directors. b) If the business is operated and its director(s) are residing within a tribal authority. Bidders are expected to attach proof of resident for the business and ALL its directors. c) If the business directors are leasing a facility for residential purposes, they are required to attach individual lease agreement with lessor's latest municipal rates and taxes for a facility is within a Municipal boundary and if the business is renting office / business facility, the bidders are required to attach lease agreement for the business with lessor's latest municipal rates and taxes for a facility within a municipal boundary. If the facility leased is in a rural area, lease agreement will be accompanied with the lessor's proof of residential from a tribal authority. NB: *Domicilium citandi at executandi*: Domicilium citandi et executandi is a Latin legal term meaning the address nominated by a bidder in a legal contract where legal notices may be sent. Bidders are encouraged to update their addresses when they relocate their businesses and the preferred address on the CSD should be in line with the address on the Company Registration Document. It is the responsibility of the bidder to ensure that all physical addresses reflected either on the company registration document and CSD are not owing any municipal rates and taxes for more than three months including the Lessor's municipal account in case of lease. The rationale behind this requirement is the enhance revenue in RSA municipalities as enshrined on the Municipal Systems Act 32, 2000. Failure to attach is an immediate disqualification but failure to align addresses will not be a disqualifying factor, however all addresses reflected on the	Has the bidder attached latest municipal rates and taxes from relevant local authority for the company / business and all company directors / owners? In case of lease, has the bidders attached lease agreements and lessor's proof of res from a tribal authority or latest municipal rates and taxes certificate? Is the account not in areas for more than 90 days (3 months)?	

		both the CSD and company registration document will be subjected to this requirement.		
10.	**<u>Forging of documents/certificates</u>** The City has noted that prospective bidders are allegedly submitting fraudulent and forged documents when bidding for tenders. Bidders are advised not to commit fraudulent activities and forge documents. The City will ensure that this Act is adhered to by reporting all abusers of the SCM system to SAPS and enlist them on the Register of Tender Defaulters as prescribed on section 29 of the Prevention and Combating of Corrupt Activities Act 12 of 2004. Abusers of the SCM system, amongst other penalties, may be restricted to do business with any Public Institutions for a period NOT exceeding 10 years (**see section 28 of this Act**).	Section 34(1)(b) of the Prevention and Combating of Corrupt Activities Act 12 of 2004, stipulates that: *"any person who holds a position of authority and who knows or ought reasonably to have known or suspected that any other person has committed the offence of theft, fraud, extortion, **forgery** or uttering a forged document involving an amount of R100 000 or more, must report such knowledge or suspicion or cause such knowledge or suspicion to be reported to any police official".* Section 34(2) of the same Act stipulates that: *"subject to the provision of section 37(2), any person who fails to comply with subsection (1), is guilty of an offence".*	Are there any suspicious / alleged fraudulent or forged documents? If yes, has the matter been reported to the nearest SAPS following correct institutional protocol? Has the matter been registered with the Registrar to enable due processes and per the Act? NB: The minutes of the BEC / BAC should detail all the elements of alleged fraud and forged documents.	
11.	Copy of Public Liability insurance. Only insurance covers from registered and authorized financial service providers will be accepted.	a) Public liability insurance may vary from one project to another on the basis of the level of risk and complexity of the project. Minimum cover to be determined by the BSC prior consultation with the project manager if deemed necessary.	If applicable, is the bidder compliant with the minimum cover stipulated in the bid document? Is the public liability insurance from a registered financial institution?	
12.	Recent audited / independently reviewed financial statements for three consecutive years. NB: if a company provides any financial	a) Applicable to private companies that are not managed by its owners, if: - It compiles its financial statement internally and its public interest score is less than 100.	Has the bidder furnished MBD 5 as mandatory for all projects estimated to be in excess of R10 million? Has the bidder attached the relevant	

	statements in terms of section 29 of the Companies Act, such statements must comply with the provision of the Act.	- It has its financial statements compiled independently and its public interest score is between 100 and 349. - the public interest score is 350 points or more, is required for an audit to be conducted.	AFS as required by law and is it aligned with his/her declaration on MBD 5? False / mismatched / inconsistent declaration may lead to immediate disqualification.	
13.	Recent annual financial statement (AFS) for three consecutive years (unaudited AFS). NB: if a company provides any financial statements in terms of section 29 of the Companies Act, such statements must comply with the provision of the Act.	a) Applicable to private companies with a public interest score of less than 100. b) If, with respect to a particular company, every person who is a holder of, or has a beneficial interest in, any securities issued by that company is also a director of the company, that company is exempt from the requirements in this section to have its annual financial statements audited or independently reviewed. NB: An independent review will suffice if the company has opted to have its financial statement audited or is required by its Memorandum of Incorporation (MOI) to do so.	Has the bidders furnished MBD 5 as mandatory? Has the bidder attached the relevant AFS as required by law in line with his/her declaration on MBD 5?	
14.	Functionality / Quality for evaluation of complex projects	a) Functionality test refers to evaluation of bidders on various aspects of the contract to establish if the bidders has the capabilities to execute the contract or not. The various aspect may include but not limited to: track record and experience on similar projects, human resource and their individual experience, financial capabilities, relevant technology, etc. NB: Functionality will not be compulsory for all projects but for complex projects. Functionality criteria will vary from one project to another.	Has the bidder met the minimum threshold on functionality in order to qualify for further evaluation on price and B-BBEE? Has the bidders been scored in line with the evaluation criteria set on the tender document? All portfolio of evidence attached and certified as stated on the bid document?	
15.	The Compensation for Occupation Injuries and Diseases Act 130 of 1993 (COIDA)	a) The COIDA provides for compensation for disablement caused by occupational injuries or diseases sustained or contracted by employees in the course of their employment, or for death resulting from such injuries or diseases, hence bidders are expected to attach COIDA certificates in line with their specialize area aligned to the type/nature of business.	If applicable, is the COIDA certification / letter of good standing attached, valid and reflects the nature of work in line with the scope of works?	

PART T2 RETURNABLE DOCUMENTS

PART T2: RETURNABLE DOCUMENTS

1. Failure to fully complete the **compulsory** returnable documents shall render such a tender offer unresponsive.
2. Tenderers shall note that their signatures appended to each returnable form **represents a declaration that they vouch for the accuracy and correctness of the information provided**, including the information provided by candidates proposed for the specified key positions.
3. Notwithstanding any check or audit conducted by or on behalf of the Employer, the information provided in the returnable documents 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 willful misrepresentation by that tenderer to induce the contract**. In such event the Employer has the discretionary right under contract condition 9.2 to terminate the contract.

The Tenderer must complete the following returnable Schedules:

Returnable Schedules required for Tender evaluation purposes

COMPULSORY TENDER DOCUMENTS	
FORM A	CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING
FORM B	RECORD OF ADDENDA TO TENDER DOCUMENTS
FORM C	PROPOSED AMENDMENTS, QUALIFICATIONS AND ALTERNATIVES
FORM D	PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022
FORM E	COMPULSORY DECLARATION
FORM F	MUNICIPAL DECLARATION AND RETURNABLE DOCUMENTS
FORM G	CERTIFICATE OF INDEPENDENT TENDER
FORM H	DECLARATION OF GOOD STANDING REGARDING TAX
FORM I	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES
FORM J	REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE
FORM K	DECLARATION OF TENDERER'S LITIGATION HISTORY
FORM L	AUTHORITY OF SIGNATORY
FORM M	SCHEDULE OF SPECIALIST SUBCONTRACTORS
FORM N	PROOF OF GOOD STANDING WITH COMPENSATION COMMISSIONER
FORM O	SCHEDULE OF CURRENT COMMITMENTS
FORM P	REGISTRATION WITH CIDB
RETURNABLE FOR QUALITY CRITERIA	
FORM Q	COMPANY EXPERIENCE IN RELATION TO SCOPE OF WORKS
FORM R	PLANT & EQUIPMENT
FORM S	FINANCIAL RESOURCES
FORM T	KEY PERSONNEL EXPERIENCE AND QUALIFICATIONS
CERTIFICATE FOR TENDER COMPLIANCE	
FORM U	SCHEDULE OF TENDER COMPLIANCE

COMPULSORY TENDER DOCUMENTS

FORM A: CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING

Notes to Tenderer:

1. Unless the attendee's name, details and signature also appear on the attendance register this Certificate of Attendance shall not be accepted and the tenderer's offer shall be deemed non- responsive.

This is to certify that I, ...

representative of (tenderer) .....

of (address) .....

.....

.....

telephone number .....

fax number .....

e-mail .....

attended the clarification meeting on (date) .....

Signature of Representative: _____

Signature of Project Manager: _____

FORM B: RECORD OF ADDENDA TO TENDER DOCUMENTS (SIPDM)

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 or Details
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		
▪		

Attach additional pages if more space is required.

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

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

FORM C: PROPOSED AMENDMENTS, QUALIFICATIONS AND ALTERNATIVES (SIPDM)

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in a covering letter to his tender and reference such letter in this schedule.

The Tenderer's attention is drawn to clause 5.8 of SANS 10845-3 regarding the employer's handling of material deviations and qualifications.

(a) AMENDMENTS

Page, Clause or Item No	Proposed Amendment

Note: (1) Amendments to the General and Special Conditions of Contract are not acceptable.
(2) The Tenderer must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his tender.

(**This is not an invitation for alternatives** but should the Tenderer desire to make any departures for the provisions of this contract he shall set out his proposals clearly hereunder.

(b) ALTERNATIVES

Proposed Alternative	Description of Alternative

Note: (1) Individual alternative items that do not justify an alternative tender, and an alternative offer for time for completion should be listed here.

(2) In the case of a major alternative to any part of the work, a separate Bill of Quantities, programme, etc. and a detailed statement setting out the salient features of the proposed alternatives must accompany the tender.

(3) Alternative tenders involving technical modifications to the design of the works and methods of construction shall be treated separately from the main tender offer.

Signed ---------- Date _____

Name ---------- Position ----------

FORM D: PREFERENTIAL PROCUREMENT REGULATIONS 2022

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

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1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

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

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

a) The applicable preference point system for this tender is the 80/20 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	80
SPECIFIC GOALS	20
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. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

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

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

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

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

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.)

Item no.	The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Number of points claimed (80/20 system) (To be completed by the tenderer)
1.	100% Black owned enterprises within the definition of the HDI	2	
2.	At least 30% women owned enterprises	2	
3.	At least 30% youth owned enterprises	2	
4.	At least 30% enterprises people living with disabilities	2	
5.	Enterprises regarded as EMEs located within the City of Mbombela	2	
6	Enterprise who will sub-contract minimum of 30% of the contract value to EME's in the ward or local communities where the services to be rendered of works to be undertaken (Bidders shall list sub-contracting works or items)	2	
7	Corporate Social Investment (CSI) Plan. (see notes below)	5	
8	B-BBEE level 1 contribution (SANAS verified B-BBEE certificate for generic enterprise, and for EME and SME a sworn affidavit or CIPC issued certificate confirming annual turnover and level of Black Ownership	3	

The City will utilise the CSD report for the above-mentioned information

Corporate Social Investment (CSI)

NB: The minimum total value of the CSI should not be less than 2% of the total project value excluding vat and contingencies. The CSI project should be delivered concurrently with the project. The final product should be delivered prior to the issuing of completion certificate. The nature of the CSI project must benefit the community at large. (1 page, Arial font size 12) Prospective bidders will be expected to provide the City with a written explanation on how to implement the Corporate Service Investment on that particular ward, community or region. The investment must benefit the community at large. In order to claim points, a detailed one-page report must be included in the list of returnable documents. The corporate social investment initiates must be implemented by the company/successful bidder. The final details of the CSI project will be finalized prior to the signing of the contract in consultations with relevant stakeholders.

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. 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]

4.6. 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.

4 Declaration

The tenderer declares that

a) the tendering entity is a level contributor as stated in the submitted evidence of qualification as at the closing date for submissions

b) the tendering entity has been measured in terms of the following code (tick applicable box)

□ Generic code of good practice

□ Other – specify .....

c) the contents of the declarations made in terms of a) and b) above are within my personal knowledge and are to the best of my belief both true and correct

The undersigned, who warrants that he / she is duly authorized to do so on behalf of the tenderer, confirms that he / she understands the conditions under which such preferences are granted and confirms that the tenderer satisfies the conditions pertaining to the granting of tender preferences.

Signature: .....

Name: .....

Duly authorised to sign on behalf of: .....

Telephone: .....

Fax: ..... Date: .....

Name of witness ..... Signature of witness .....

Note:

1) Failure to complete the declaration will lead to the rejection of a claim for a preference.
2) Supporting documentation of the abovementioned claim for a preference must be submitted with the tender submission to be eligible for a preference. (see Clause 5.11.8 in Tender Data)

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: .....
DATE: .....

ADDRESS: .....

.....

.....
.....

FORM E: COMPULSORY DECLARATION (SIPDM)

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

Section 1: Enterprise Details

Name of Enterprise

Name of enterprise:	
Contact person:	
Email:	
Telephone:	
Cell no	
Fax:	
Physical address	
Postal address	

Section 2: Particulars of companies and close corporations Company / Close Corporation registration number.

Section 3: SARS Information

Tax reference number	
VAT registration number	*State Not registered if Not Registered for VAT*

Section 5: National Treasury Central Supplier Database

Supplier number	
Unique registration reference number	

Section 6: Particulars of principals

principal: means a natural person who is a partner in a partnership, a sole proprietor, a director of a company established in terms of the Companies Act of 2008 (Act No. 71 of 2008) or a member of a close corporation registered in terms of the Close Corporation Act, 1984, (Act No. 69 of 1984).

Full name of principal	Identity number	Personal tax reference number

*insert separate page if necessary

Section 7: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any principal is currently or has been within the last 12 months in the service of any of the following:

a) a member of any municipal council	☐	an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act of 1999 (Act No. 1 of 1999)	☐
b) a member of any provincial legislature	☐		
c) a member of the National Assembly or the National Council of Province	☐	member of an accounting authority of any national or provincial public entity	☐
1. a member of the board of directors of any municipal entity	☐		
2. an official of any municipality or municipal entity	☐	an employee of Parliament or an employee of Parliament or a provincial legislature	☐

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

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

*insert separate page if necessary

Section 8: Record of family member in the service of the state

family member: a person's spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such a relationship results from birth, marriage or adoption.

Indicate by marking the relevant boxes with a cross, if any family member of a principal as defined in section 5 is currently or has been within the last 12 months been in the service of any of the following:

d) a member of any municipal council	☐	an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act of 1999 (Act No. 1 of 1999)	☐
e) a member of any provincial legislature	☐		
f) a member of the National Assembly or the National Council of Province	☐	member of an accounting authority of any national or provincial public entity	☐
3. a member of the board of directors of any municipal entity	☐		
4. an official of any municipality or municipal entity	☐	an employee of Parliament or an employee of Parliament or a provincial legislature	☐

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

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

*insert separate page if necessary

Section 9: Record of termination of previous contracts with an organ of state

Was any contract between the tendering entity including any of its joint venture partners terminated during the past 5 years for reasons other than the employer no longer requiring such works or the employer failing to make payment in terms of the contract.

☐ Yes ☐ No (Tick appropriate box)

If yes, provide particulars (insert separate page if necessary)

Section 10: Declaration

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the tendering entity confirms that the contents of this Declaration are within my personal knowledge, and save where stated otherwise in an attachment hereto, are to the best of my belief both true and correct, and:

neither the name of the tendering entity or any of its principals appears on:

a) the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 (Act No. 12 of 2004).

National Treasury's Database of Restricted Suppliers (see www.treasury.gov.za)

ii) neither the tendering entity of any of its principals has within the last five years been convicted of fraud or corruption by a court of law (including a court outside of the Republic of South Africa);

iii) any principal who is presently employed by the state has the necessary permission to undertake remunerative work outside such employment (attach permission to this declaration);

iv) the tendering entity is not associated, linked or involved with any other tendering entities submitting tender offers

v) has not engaged in any prohibited restrictive horizontal practices including consultation, communication, agreement, or arrangement with any competing or potential tendering entity regarding prices, geographical areas in which goods and services will be rendered, approaches to determining prices or pricing parameters, intentions to submit a tender or not, the content of the submission (specification, timing, conditions of contract etc.) or intention to not win a tender;

vi) has 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;

vii) neither the tenderer or any of its principals owes municipal rates and taxes or municipal service charges to any municipality or a municipal entity and are not in arrears for more than 3 months;

SARS may, on an on-going basis during the term of the contract, disclose the tenderer's tax compliance status to the Employer and when called upon to do so, obtain the written consent of any subcontractors who are subcontracted to execute a portion of the contract that is entered into in excess of the threshold prescribed by the National Treasury, for SARS to do likewise.

Signed: _____ Date: _____

Name: _____ Position: _____

NOTE 1 The Standard Conditions of Tender contained in SANS 10845-3 prohibits anticompetitive practices (clause 3.1) and requires that tenderers avoid conflicts of interest, only submit a tender offer if the tenderer or any of his principals is not under any restriction to do business with employer (4.1.1) and submit only one tender either as a single tendering entity or as a member in a joint venture (clause 4.13.1). Clause 5.7 also empowers the Employer to disqualify any tenderer who engages in fraudulent and corrupt practice. Clause 3.1 also requires tenderers to comply with all legal obligations.

NOTE 2: Section 30(1) of the Public Service Act, 1994, prohibits an employee (person who is employed in posts on the establishment of departments) from performing or engaging remunerative work outside his or her employment in the relevant department, except with the written permission of the executive authority of the department. When in operation, Section 8(2) of the Public Administration Management Act, 2014, will prohibit an employee of the public administration (i.e. organs of state and all national departments, national government components listed in Part A of Schedule 3 to the Public Service Act, provincial departments including the office of the premier listed in Schedule 1 of the Public Service Act and provincial departments listed in schedule 2 of the Public Service Act, and provincial government components listed in Part B of schedule 3 of the Public Service Act) or persons contracted to executive authorities in accordance with the provisions of section 12A of the Public Service Act of 1994 or persons performing similar functions in organs of state from conducting business with the State or to be a director of a public or private company conducting business with the State. The offence for doing so is a fine or imprisonment for a period not exceeding 5 years or both. It is also a serious misconduct which may result in the termination of employment by the employer.

NOTE 3: Regulation 44 of Supply Chain Management regulations issued in terms of the Municipal Finance Management Act of 2003 requires that organs of state and municipal entities not award a contract to a person who is the service of the state, a director, manager or principal shareholder in the service of the state or who has been in the service of the state in the previous twelve months.

NOTE: 4: Regulation 45 of Supply Chain Management regulations requires a municipality or municipal entity to disclose in the notes to the annual statements particulars of any award made to a close family member in the service of the state.

NOTE: 5 Corrupt activities which give rise to an offence in terms of the Prevention and Combating of Corrupt Activities Act of 2004) include improperly influencing in any way the procurement of any contract, the fixing of the price, consideration or other moneys stipulated or otherwise provided for in any contract and the manipulating by any means of the award of a tender.

NOTE: 6 Section 4 of the Competition Act of 1998 prohibits restrictive horizontal practice including agreements between parties in a horizontal relationship which have the effect of substantially preventing or lessening competition, directly or indirectly fixing prices or dividing markets or constitute collusive tendering. Section 5 also prohibits restrictive vertical practices. Any restrictive practices that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties.

ATTACH THE FOLLOWING DOCUMENTS TO THIS PAGE

- **For Closed Corporations**

CK1 or CK2 as applicable (Founding Statement) Certified Copies of the ID's of the Directors Certified Shareholders Certificate

OR

- **For Companies**

A copy of the Certificate of Incorporation Certified Copies of the ID's of the Directors, and Certified shareholders' register

OR

- **For Joint Venture Agreements**
- Joint Venture Agreement between all the parties,
- as well as the documents in (1) or (2) of each Joint Venture member.

OR

- **For Partnership**

1. Certified Copies of the ID's of the partners

OR

- **One person Business / Sole trader**

2. Certified Copy of ID

FORM F: MUNICIPAL DECLARATION AND RETURNABLE DOCUMENTS

(SIPDM)

The following particulars must be furnished in relation to tenders for municipalities and municipal entities where:

a) contractors are required; and

b) goods, services or a combination thereof where the estimated total of the prices exceeds R 10 million including VAT.

In the case of a joint venture, separate municipal declarations and returnable documents shall be submitted in respect of each partner.

Section 1: Enterprise Details / Name of enterprise:

Name of enterprise:	
Contact person:	
Email:	
Telephone:	
Cell no	
Fax:	
Physical address	
Postal address	

Section 2: Declaration for Contractor's services:

The enterprise has been awarded the following contract services by an organ of state during the last five years.

Name of organ of state	Estimated value of contracts	Nature of service e.g. quantity surveying	Service number similar to required service (yes / no)?

Attach separate page as necessary

Section 3: Goods, services or a combination thereof where the estimated total of the prices exceeds R 10 million including VAT

I / we certify that

1) (tick one of the boxes):

☐ the enterprise is not required by law to prepare annual financial statements for auditing.

☐ the enterprise is required by law to have audited annual financial statements and attached the audited financial statements for the past three financial years, or since the establishment as the enterprise was established within the past three years.

2) the enterprise and its directors has / have no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days (i.e.: all municipal accounts are paid up to date) Attach Municipal Utility Account;

3) source of goods and / or services:

(tick one of the boxes and insert percentages if applicable):

☐ goods and / or services are sourced only from within the Republic of South Africa

☐ ☐ % of the total cost of goods and / or services will be sourced from outside the Republic of South Africa and the percentage of payment from the municipality or municipal entity which is expected to be transferred out of the Republic is ☐ %

I furthermore confirm that the following contracts were awarded to the enterprise by an organ of state during the last five years and attached particulars of any material non-compliance or dispute concerning the execution of such contracts:

Name of organ of state	**Estimated number of contracts**	**Nature of contracts**

*Attach separate page as necessary

I, the undersigned who warrants that I am duly authorised on behalf of the tendering entity, hereby declare that the contents of this Declaration are within my personal knowledge, and save where stated otherwise are to the best of my belief both true and correct.

Signed: _____ Date: _____

Name: _____ Position: _____

ATTACHED HERETO AN ORIGINAL OR CERTIFIED COPY OF THE MUNICIPAL UTILITY ACCOUNT NOT OLDER THAN 3 MONTHS

FORM G: CERTIFICATE OF INDEPENDENT TENDER (MBD 9)

Notes to tenderer:

a) This certificate conforms to Treasury Regulation 16A9 and the requirement of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, that prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms if it is between parties in a horizontal relationship and if it involves collusive tendering.

b) Collusive tendering is a conspiracy between businesses that would normally be expected to compete, to agree not to compete, in a tender process.

c) This certificate serves as a declaration by the tenderer that the tender submitted is free from any collusion with a competitor.

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying tender:

_____

(Tender Number and Description) in response to the invitation for the tender made by:

_____

(Name of Municipality / Municipal Entity)

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

I certify, on behalf of: _____ that:

(Name of Tenderer)

i) I have read and I understand the contents of this Certificate;

ii) I understand that the accompanying tender will be disqualified if this Certificate is found not to be true and complete in every respect;

iii) I am authorized by the tenderer to sign this Certificate, and to submit the accompanying tender, on behalf of the tenderer;

iv) Each person whose signature appears on the accompanying tender has been authorized by the tenderer to determine the terms of, and to sign, the tender, on behalf of the tenderer;

v) For the purposes of this Certificate and the accompanying tender, I understand that the word “competitor” shall include any individual or organization, other than the tenderer, whether or not affiliated with the tenderer, who:

(a) has been requested to submit a tender in response to this tender invitation;

(b) could potentially submit a tender in response to this tender invitation, based on their qualifications, abilities or experience; and

(c) provides the same goods and services as the tenderer and/or is in the same line of business as the tenderer

vi) The tenderer has arrived at the accompanying tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.

vii) In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

a) prices;
b) geographical area where product or service will be rendered (market allocation)
c) methods, factors or formulas used to calculate prices;
d) the intention or decision to submit or not to submit, a tender;
e) the submission of a tender which does not meet the specifications and conditions of the tender; or
f) bidding with the intention not to win the tender.

viii) In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this tender invitation relates.

ix) The terms of the accompanying tender have not been, and will not be, disclosed by the tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.

x) I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

Signature	Date
Capacity under which Tender is Signed	Name of Tenderer

FORM H: DECLARATION OF GOOD STANDING REGARDING TAX (GBD 2)

ATTACH VALID TAX CLEARANCE CERTIFICATE AND TAX COMPLIANCE STATUS (TCS) PIN TO THIS PAGE

The Tax Clearance Certificate and Tax Compliance Status (TCS) PIN must be submitted together with the tender. Failure to submit the above-mentioned documentation will result in the invalidation of the tender.

In tenders where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate, and Tax Compliance Status (TCS) PIN.

FORM I: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD 8)

Notes to tenderer:

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

Item	Question	Yes	No
4.1	**Is the tenderer or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?** **(Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the *audi alteram partem* rule was applied).** **The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the tenderer or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		

4.4	Does the tenderer or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the tenderer and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) ……

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

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

Signature

Date

Capacity under which Tender is Signed

Name of Tenderer

FORM J: REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE

The tenderer shall provide a printed copy of the Active Supplier Listing on the National Treasury Central Supplier Database. (www.treasury.gov.za). Tenderers who are not registered on the Central Supplier Database should attach proof of their application for registration (refer to Tender Data Clause 4.1). In the case of a Joint Venture, a printed copy of the Active Supplier Listing must be provided for each member of the Joint Venture.

Name of Contractor:

.....

Central Supplier Database Supplier Number:

.....

Affix Proof of the National Treasury Central Supplier Database to this page

(Full CSD required, not summary)

FORM K: DECLARATION OF TENDERER'S LITIGATION HISTORY

Does the tenderer have any litigation with which tenderer (including its directors, shareholders or other senior members in previous companies) have been involved with any organ of state or state department within the last ten years?

YES	NO

If yes, furnish your details in table below.

NB: It is compulsory for all bidders to sign this form

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

Client	Other Litigating Party	Dispute	Award Value	Date Resolved

Signature

Date

Capacity under which Tender is Signed

Name of Tenderer

FORM L: AUTHORITY OF SIGNATORY

Details of person responsible for tender process:

Name: ----------

Contact number: ----------

Office address: ----------

Signatories for close corporations and companies shall confirm their authority by attaching to this form **a duly signed and dated original or certified copy on the Company Letterhead** of the relevant resolution of their members or their board of directors, as the case may be.

PRO-FORMA FOR COMPANIES AND CLOSE CORPORATIONS:

"By resolution of the board of directors passed on *(date)*

Mr……

has been duly authorized to sign all documents in connection with the Tender for Contract Number/Name

……and any Contract which may arise there from on behalf of

……

(BLOCK CAPITALS) SIGNED ON BEHALF OF THE COMPANY

IN HIS CAPACITY AS .....……

DATE .....……

FULL NAMES OF SIGNATORY ……

SIGNATURE .....……

AS WITNESSES: 1. NAME …… SIGNATURE ……

2. NAME …… SIGNATURE ……

PRO-FORMA FOR JOINT VENTURES:

Certificate of Authority for Joint Ventures

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize…… Mr./Ms ……., authorized signatory of the company....., acting in the capacity of lead partner, to sign all documents in connection with the tender offer an any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
		Signature: …….. Name: ……. Designation: ……..
		Signature: …….. Name: ……. Designation: ……..
		Signature: …….. Name: ……. Designation: ……..
		Signature: …….. Name: ……. Designation: ……..

ATTACHED HERETO THE DULY SIGNED AND DATED ORIGINAL OR CERTIFIED COPY OF AUTHORITY OF SIGNATORY ON COMPANY LETTERHEAD

FORM M: SCHEDULE OF SPECIALIST SUBCONTRACTORS

Notes to tenderer:

1. The tenderer shall list below the specialist items of work on this contract. Alternatives may be mentioned.
2. The tenderer shall state whether he intends to carry out any specialised work himself.

Acceptance of this tender shall not be construed as approval of all or any of the listed specialist subcontractors. Should any or all of the specialist subcontractors not be approved subsequent to the acceptance of the tender, it shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed below being approved by the engineer.

SPECIALISED ITEM	**INDICATE IF SUB-CONTRACTED (Tick correct option)**	
	YES	NO

In order to complete the Works under this Contract, I/we propose to employ the following sub-contractors to carry out the portion/type of work as detailed. **Affix Original or Certified proof of 3 previous projects for each sub-contractor.**

(Note: All proposed sub-contractors must be listed).

Sub-contractor: Name, Address and Telephone No.	**Portion/type of work to be undertaken**	
_____ _____ **(____)_____**		**Previous value of work:** **Previous Experience:**
_____ _____ **(____)_____**		**Previous value of work:** **Previous Experience:**

_____ _____ (____)_____		**Previous value of work:** **Previous Experience:**
_____ _____ (____)_____		**Previous value of work:** **Previous Experience:**

FORM N: PROOF OF GOOD STANDING WITH COMPENSATION COMMISSIONER

Notes to tenderer:

1. Discovery that the tenderer has failed to make proper disclosure may result in the City of Mbombela terminating a contract that flows from this tender on the ground that it has been rendered invalid by the tenderer's misrepresentation.

2. The tenderer shall attach to this Form evidence that he is registered and in good standing with the compensation fund or with a licensed compensation insurer who is approved by Department of Labour in terms of section 80 of the Compensation for Injury and Disease Act 1993 (COID) (Act 130 of 1993).

Affix certified Proof of Good Standing with Compensation Commissioner to this page

FORM O: SCHEDULE OF CURRENT COMMITMENTS

Notes to tenderer:

(a) The tenderer shall list below all contracts currently under construction or awarded and about to commence and tenders for which offers have been submitted but awards not yet made.
(b) In the event of a joint venture enterprise, details of all the members of the joint venture shall similarly be attached to this form.
(c) The lists must be restricted to not more than 5 contracts and 5 tenders. If a tenderer's actual commitments or potential commitments are greater than 5 each, those listed should be in descending order of expected final contract value or sum tendered.

Contracts Awarded				
Employer	Project	Expected Value of contract (Inclusive of VAT)	Durations (Months)	Expected Completion Date

Tenders not Yet Awarded				
Employer	Project	Tendered Amount (Inclusive of VAT)	Tendered Durations (Months)	Expected Commencement Date

Signature

Date

Capacity under which Tender is Signed

Name of Tenderer

FORM P: REGISTRATION WITH CIDB

The tenderer shall provide a printed copy of the Active Contractor's Listing off the CIDB website. (www.cidb.org.za). Tenderers whose CIDB registration expires within 21 days after close of tender should attach proof of their application for re-registration (refer to Tender Data Clause 4.1). In the case of a Joint Venture, a printed copy of the Active Contractor's Listing must be provided for each member of the Joint Venture.

Name of Contractor: .....

Contractor Grading Designation: .....

CIDB Contractor Registration Number: .....

Expiry Date: .....

RETURNABLES FOR QUALITY CRITERIA

FORM Q: COMPANY EXPERIENCE IN RELATION TO SCOPE OF WORKS

The Tenderer will receive a maximum of 50 points based on information provided in this schedule.

The following is a statement of work of similar nature and size (roads projects) recently successfully executed by myself
/ Ourselves:

1 Points will be given for projects completed of similar nature and size.

2 The tenderer scores **6 points** per project with a value of more than R10 million but less than R20 million, completed in the last 5 years.

3 The tenderer scores **8 points** per project with a value of more than R20 million but less than R30 million completed in the last 5 years.

4 The tenderer scores **10 points** per project with a value of more than R30 million completed in the last 5 years.

5 The tenderer may attach not more than 5 projects of similar nature and size.

6 The maximum Quality points for each criterion are listed below.

7 Points for completion certificates attached will be given for similar projects.

8 Failure to submit all relevant information per project will result in the forfeiture of all points for that relevant project.

9 The experience of the Tenderer or joint venture partners in a consortium will be evaluated based on experience in similar projects or similar areas and conditions in relation to the scope of work required for this project.

10 Documents requested above must be certified and not older than 3 months. Failure to adhere to the directive zero points will be allocated.

NB: Similar project (construction of roads and/or vehicle bridges, excluding maintenance)

Appointment letter as well as Completion Certificate (signed by client, contractor and engineer) of Relevant Work (to be attached – zero points if any is not attached)	**Consulting Engineer: Contact Person and Telephone Number**	**Employer: Contact Person and Telephone Number**	**Value of Work** (inclusive of VAT)	**Date Completed (Attach Certified Completion Certificate)**
*Attach additional pages if more space is required		Total Points		

FORM R: PLANT & EQUIPMENT

The tenderer will receive a maximum of 15 points based on information provided in this schedule.

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

2. The tenderer will receive Quality points for listing of plant available for this specific contract as follows:
   - Major plant for construction works if well identified and 100% is owned and available at start of contract maximum points will be as stated in allocated points if owned column.
   - **No points will be allocated for hired plant** as indicated in the Allocate points for hired plant column on the table below.
   - Points for the plant correctly identified and owned will be calculated according to the allocated points based on the quantities under the Quantities Required column.

3. Proof of ownership to be submitted. Certified copies of motor vehicle license (MVLX) or motor vehicle license and license disc (MVL1) or certificate of registration (RC1) or any valid document issued by the department of transport (where applicable**). Invoices for equipment that are not traveling on the road will be accepted as proof of ownership (where applicable*). The invoice must be in the name of the bidding company or director(s).

4. Documents requested above must be certified and not older than 3 months. Failure to adhere to the directive zero points will be allocated

Description, size, capacity, etc.	**Allocate Points if owned**	**Quantity Required**	**Quantity owned**	**Points Scored**
Motor grader (Cat 14H or Similar)	4.0	1		
Excavator (20 ton)	2.0	1		
Vibratory Roller	2.0	1		
Water Tanker (8000 Littre)	2.0	1		
Tipper Truck (10 m^3 or above)	4.0	4		
TLB (48 kw Capacity)	1.0	1		
Total	**15.0**			
Total Points Allocated				

*Attached additional pages if more space is required.

FORM S: FINANCIAL RESOURCES BANKING INFORMATION

The tenderer will receive a maximum of 10 points based on information provided in this schedule.

Bank rating: A = 10 POINTS

B = 6 POINTS

C = 4 POINTS

NB: the bank rating must be based on the amount reflected on the form of offer. No points will be allocated on the rating below the tendered amount. The City reserves the right to verify the information with the Financial Service Provider. In case of a JV, Consortium or partnership only the details of the lead partner will be considered

DETAILS OF TENDERERS BANKING INFORMATION

Notes to tenderer:

- The tenderer shall attach to this form a letter of intent for 10% guarantee from a financial institution.
- In the event that the tenderer is a joint venture enterprise, the bank guarantee will be expected from the lead partner.

BANK NAME:	
ACCOUNT NAME: *(e.g. ABC Civil Construction cc)*	
ACCOUNT TYPE: *(e.g. Savings, Cheque etc.)*	
ACCOUNT NO:	
ADDRESS OF BANK:	
CONTACT PERSON:	
TEL. NO. OF BANK / CONTACT:	
How long has this account been in existence:	0-6 months ☐ 7-12 months ☐ 13-24 months ☐ More than 24 months ☐ (Tick which is appropriate)

FORM S: FINANCIAL RESOURCES DECLARATION OF PROCUREMENT ABOVE R 10 MILLION (MBD5)

For all procurement expected to exceed R10 million (all applicable taxes included), tenderer must complete the following questionnaire:

- Are you by law required to prepare annual financial statements for auditing?

  YES / NO

1.1. If yes, submit audited financial statements for the past three years or since the date of establishment if established during the past three years.

……..

……..

2. Do you have any outstanding undisputed commitments for municipal services towards any municipal for more than three months or any other service provider in respect of which payments is overdue for more than 30 days?

YES / NO

……

……

2.1 If no, this serves to certify that the tenderer has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for then 30 days?

……..……..……

……..…

2.2 If yes, please provide particulars

…..……

……..

2.1 Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

YES / NO

.....

……

a. If yes, furnish particulars

……

……

4.1 Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion of payment from the municipality / /municipal entity is expected to be transferred out of the Republic?

YES / NO

4.1 If yes, furnish particulars

……

……

CERTIFICATION

I, THE UNDERSIGNED (NAME) ……..……..…

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE

Signature	Date
Capacity under which Tender is Signed	Name of Tenderer

FORM S: FINANCIAL RESOURCES
DOCUMENTATION OF INTENT TO PROVIDE A PERFORMANCE GUARANTEE

*The Tenderer must attach hereto an **Original Letter** from a financial institution with whom he has made the necessary arrangements, to the effect that the said financial institution will be prepared to provide the required performance guarantee when asked to do so. (Letter of Intent)*

A Pro forma follows herewith for the tenderer to use.

PRO-FORMA FOR A PERFORMANCE GUARANTEE PERFORMANCE GUARANTEE

Employer

(Name and Address) _____

_____

Contract No _____

Contract Title _____

WHEREAS _____

(hereinafter referred to as "the Employer") entered into, a Contract with:

_____

(hereinafter called "the Contractor") on the _____ day of _____ 20 _____ for the construction of (Contract Title)

_____

at _____

AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of a guarantee for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS WE _____ (hereinafter referred to as the Guarantor") has/have at the request of the Contractor, agreed to give such guarantee;

NOW THEREFORE WE do hereby guarantee and bind ourselves jointly and severally as Guarantor and Co-Principal Debtor to the Employer under renunciation of the benefits of division and exclusion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1) The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extension of the Completion Data of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor or liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Completion Date which the Employer may make, give, concede or agree to under the said Contract.

2) This guarantee shall be limited to payment of a sum of money.

3) The Employer shall be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.

However, upon receipt by us of an authenticated copy of the Certificate of Completion in terms of the Contract, the amount of liability shall be reduced by 50% which shall be in force until the issue of the Final Approval Certificate at expiry of the Defects Liability Period

This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of Completion

4) His intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid of liquidated,

5) Our total liability hereunder shall not exceed the sum of

_____

_____ (in words)

R _____(in figures)

(10% of the tender sum) that amount I/we agree to hold at your disposal.

6) The Guarantor reserves the right to withdraw from this guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon the Guarantor's liability hereunder shall cease.

I/We declare that I/we, on behalf of the Guarantor, waive the legal exceptions available to a guarantor and undertake to pay the said amount or such portion thereof as may be demanded, immediately on receipt of a written demand from you.

A certificate under your hand shall be sufficient and satisfactory evidence as to the amount of the Guarantor's liability for the purpose of enabling provisional sentence or any similar relief to be obtained against the Guarantor.

This guarantee is neither negotiable nor transferable, and must be surrendered to the Guarantor in the event of the full amount of the Guarantee being paid to the Employer.

7) I/We hereby choose our address for the serving of all notices for all purposes arising here from as

_____

_____

IN WITNESS WHERE OF this guarantee has been executed by us at _____

_____ on the _____ day of _____ 20

As witness:

1. _____ Signature _____

2. _____ Signature _____

Duly authorized to sign on behalf of
(Guarantor) _____

Address _____

_____

_____

FORM T: KEY PERSONNEL EXPERIENCE AND QUALIFICATIONS

The Tenderer will receive a maximum of 25 points based on information provided in this Schedule

Notes to tenderer:

1. The intention of this form is to demonstrate the tenderer's project structure, as well as the lines of responsibility between members of the project team and the overall company structure. Attach own organogram to this form.
2. State the city or town where the company's head office is located. The locality of regional or satellite offices, regardless of degree of autonomy or size is not required. Only submit the number of offices other than the head office. Do not count offices outside RSA.
3. Registered professional engineers, technicians or technologists means those who are involved in the construction of roads and streets with related storm water structures. Registered professionals of other disciplines (e.g. Engineers) are considered as employees only.
4. For all foreign nationals must attach SAQA accreditation, certified IDs and certified proof of work permit

CONSTRUCTION PERSONNEL

i) Contracts Manager (5 Points)

Contract manager is required to have a minimum of NQF Level 7 in Civil engineering or equivalent and a minimum of 10 years in roads and bridges construction, and who is registered with SACPCMP as Pr.CM or ECSA as Pr.Eng or Pr.Tech.Eng shall be required as a minimum, as indicated below.
:

EXPERIENCE	10	11	12	13	14
POINTS	1	2	3	4	5

ii) Site Agent (10 Points)

Site Agent is required to have a N.D Civil engineering; or equivalent to a NQF 6 qualification and a minimum of 10 years in roads and bridges construction, as indicated below:

EXPERIENCE	10	11	12	13	14
POINTS	2	4	6	8	10

iii) Site Foreman (5 Points)

Site Foreman on permanent/contract basis, with at least NQF 4 qualification or related qualification with experience in roads and bridges projects of not less than seven (7) years. Points will be allocated on a pro-rata basis for experience between 7 to 10 years, as indicated below:

EXPERIENCE	**7**	**8**	**9**	**10**
POINTS	**2**	**3**	**4**	**5**

iv) Safety Officer (5 Points)

Safety officer on permanent/contract basis, to have a minimum qualification of Safety Management Training Course (SAMTRAC) or National Diploma in Safety Management or equivalent minimum NQF Level 5 qualification with a valid certificate issued by SACPCMP for registration as CHSO and with experience in road projects of not less than three (3) years. Points will be allocated on a pro-rata basis for experience between 3 to 5 years, as indicated below:

EXPERIENCE	**3**	**4**	**5**
POINTS	**2**	**3**	**5**

Experience	Points
Provide detailed CVs, certified IDs and certified qualifications for all Key Personnel for each category stated above.	**25**

N.B Points to be allocated based on the relevant experience provided in the CV's. The appointed contractor is to provide such personnel as attached or one with equivalent qualifications and experience. Failure to do so will result to termination of contract

Roads – Roads Projects &

Vehicle Bridges

ATTACH CV'S AND CERTIFIED QUALIFICATIONS OF KEY PERSONNEL TO THIS PAGE

Note: Only CV's and Certified Qualifications of Key personnel that were named and shown on the organogram to be attached.

COMPETENCE ACHIEVEMENT SCHEDULE (QUALITY)

		MAXIMUM POINTS TO BE ALLOCATED	POINTS CLAIMED BY TENDERER	ALLOCATED POINTS
Company Experience:	Form Q	50		
Plant and Equipment:	Form R	15		
Financial References:	Form S	10		
Key Personnel :	Form T	25		
	Sub- Total	100		
	TOTAL	**100**		

Note:

Total allocated for Quality is 100 points. The minimum threshold required to qualify for the next stage of evaluation is 70 points. Only those tenders that achieve the minimum number will proceed to the price and preference evaluation stage**.**

SUPPLY CHAIN POLICY USING 80/20 PREFERENCE POINT SYSTEM

DESCRIPTION	MAXIMUM POINTS TO BE ALLOCATED
Price	**80**
Specific Goals	**20**
TOTAL	**100**

FORM U: SCHEDULE OF TENDER COMPLIANCE

Note to tenderer:

This Table has been created as an aid to ensure a tenderer's compliance with the completion of the returnable forms and schedules and subsequent placement in the correct envelope.

FORM NO / GBD NO	FORM DESCRIPTION	TICK IF COMPLETED
A	CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING	
B	RECORD OF ADDENDA TO TENDER DOCUMENTS	
C	PROPOSED AMENDMENTS AND QUALIFICATIONS	
D	PREFERENTIAL PROCUREMENT REGULATIONS 2022	
E	COMPULSORY DECLARATION	
F	MUNICIPAL DECLARATION AND RETURNABLE DOCUMENTS	
G	CERTIFICATE OF INDEPENDENT TENDER	
H	DECLARATION OF GOOD STANDING REGARDING TAX	
I	DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES	
J	REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIER DATABASE	
K	DECLARATION OF TENDERER'S LITIGATION HISTORY	
L	AUTHORITY OF SIGNATORY	
M	SCHEDULE OF SPECIALIST SUBCONTRACTORS	
N	PROOF OF GOOD STANDING WITH COMPENSATION COMMISSIONER	
O	SCHEDULE OF CURRENT COMMITMENTS	
P	REGISTRATION WITH CIDB	
Q	COMPANY EXPERIENCE IN RELATION TO SCOPE OF WORKS	
R	PLANT & EQUIPMENT	
S	FINANCIAL RESOURCES	
T	KEY PERSONNEL, EXPERIENCE AND QUALIFICATIONS	

THE CONTRACT

PART C1 AGREEMENT AND CONTRACT DATA

PART C2 PRICING DATA

PART C3 SCOPE OF WORKS

PART C4 SITE INFORMATION

PART C1 AGREEMENT AND CONTRACT DATA

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C1.1 FORM OF OFFER C1.1-1

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C1.5 PERFORMANCE GUARANTEE ..... C1.5-1 to C1.5-4

C1.6 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993) ..... C1.6-1 to C1.6-3

C1.7 CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993) ..... C1.7-1 to C1.7-2

C1.1 FORM OF OFFER

C1.2 FORM OF ACCEPTANCE

C1.3 SCHEDULE OF DEVIATIONS

C.1.1 FORM OF OFFER

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of: **UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20)**

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

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

The offered total of the prices, inclusive of any value added tax or sales tax which the law requires the employer to pay, is _____

_____(in words) R_____(in figures)

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

for the TENDERER

Signature: _____

Name: _____

Capacity: _____

Witness:

Name: _____

Signature:_____

Date: _____

C1.2: FORM of ACCEPTANCE

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 C 1: Agreements and contract data, (which includes this agreement) Part C 2:

Pricing data
Part C 3: Scope of work.
Part C 4: Site information

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

Deviations from and amendments to the documents listed in the tender data and any addenda thereto 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.

The tenderer shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the employer's agent (whose details are given in the contract data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five working days of the date of such receipt, notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

for the EMPLOYER

Signature: _____ Date: _____

Name: _____

Capacity: _____

Witness:

Name: _____

Signature: _____ Date: _____

C1.3: SCHEDULE of DEVIATIONS

1 Subject
Details
2 Subject
Details
3 Subject
Details
4 Subject
Details

By the duly authorized representatives signing this agreement, 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 returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

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

for the TENDERER

Signature: _____

Name: _____

Capacity: _____

for the EMPLOYER

Name: _____

Signature: _____ Date: _____

Capacity: _____

Witness:

Name: _____

Signature: _____ Date: _____

C1.4 CONTRACT DATA

C1.4: CONTRACT DATA

CONDITIONS OF CONTRACT

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works, Third Edition, 2015, published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, are applicable to this contract and is obtainable form www.saice.org.za.

CONTRACT SPECIFIC DATA

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Third Edition, 2015, are applicable to this Contract.

PART 1: DATA PROVIDED BY THE EMPLOYER

The following contract specific data are applicable to this Contract:

Clause	Description
1.1.1.13	The Defects Liability Period is **12 months**
1.1.1.15	The Name of the Employer is the **City of Mbombela**.
1.1.1.16	The Name of the Employer's Agent is **Engineering Aces**
1.1.1.26	The pricing strategy: **Re-Measurement Contract**
1.2.1.2	The Employer's address for receipt of communications is: Physical address: **1 Nel Street MBOMBELA 1200** Postal address: **PO Box 45 MBOMBELA 1200** Telephone: **013 759 9111** Fax: **013 759 2070** E-mail: nhlanhla.dhlamini@mbombela.gov.za
1.2.1.2	The address of the Employer's Agent is: Physical address: **13 Alcrest Building MBOMBELA 1200** Postal address: **PO Box 1752 HAZYVIEW 1242** **Telephone: 013 752 7104** **Fax: 086 544 2328** **Cell 082 335 4213** **E-mail: bongani@sindiconsulting.co.za**
2.4	**Variations to the Conditions of Contract are:** Add the following at the end of sub clause 2.4.1: " The several documents forming the Contract shall rank in the following order of precedence: 1. Contract Agreement, 2. Form of Offer and Acceptance,

Clause	Description
	3. Contract Data, 4. Specification Data, 5. Standardized Specifications, 6. Drawings, 7. Bill of Quantities, 8. Statutory Regulations, 9. Other standard specifications. If the contents of any part of the documents contradict any other part, the document in the highest position on the above order of precedence shall have preference and apply.”
4.3.3	Add the following at the end of sub clause 4.3.2: "4.3.3 The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Amendment 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: (i) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act. (ii) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with. (iii) The Contractor 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 himself 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. (iv) The Contractor agrees that any duly authorized officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to monitor that the Contractor has conformed to his undertakings as described in paragraphs (i) and (ii) 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 any appropriate records or safety plans held by the Contractor. (v) The Contractor shall be obliged to report forthwith to the Employer and Employer’s Agent 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, to the Employer and Employer’s Agent, of such investigation, complaint or criminal charge. The Contractor shall furthermore, in compliance with Constructional Regulations 2003 to the Act: (vi) Acquaint himself with the requirements of the Employer’s health and safety specification as laid down in regulation 5(1) of the Construction Regulation 2014, and prepare a suitably and sufficiently documented health and safety plan as contemplated in regulation 6(1) of the Construction Regulation 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 seven (7) days after acceptance of the bid. and shall be implemented and maintained from the Commencement of the Works.

Clause	Description
	(vii) The Employer, or his assigned agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations 2003, to ensure that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the 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 that the Employer or his agents are satisfied that the issues in which the Contractor has been in default have been rectified." **(viii) Acquaint himself with the requirements of COVID-19 OCCUPATIONAL HEALTH AND SAFETY MEASURES IN WORKPLACES COVID-19 (C19 OHS), 2020, and prepare a suitably and sufficiently documented COVID-19 health and safety plan as contemplated in COVID-19 (C19 OHS), 2020 for approval by the Employer or his assigned agent. The Contractor's health and safety plan and risk assessment which includes the COVID-19 safety plan shall be submitted to the Employer for approval within seven (7) days after acceptance of the bid. The COVID-19 safety plan shall be implemented and maintained from the Commencement of the Works for as long as the declaration of a national disaster published in *Government Gazette* 43096 on 15 MARCH 2020 remains in force.** The Employer and Contractor agree that the Contractor will comply with the provisions of "The Mine Health and Safety Act, (Act 29 0f 1996) as amended by the Mine Health and Safety Amendment Act (Act 72 of 1997). The following arrangements and procedures will apply: (i) The Contractor shall himself obtain the Mining Authorization for the sites. (ii) Contractor shall assume responsibility for the Environmental Management Programs (EMP) in respect of the sites and shall ensure that the sites are rehabilitated at the conclusion of the Contract. (iii) The Contractor shall comply with the provisions of the Act and the requirements of the Director: Mineral Development of the Department of Minerals and Energy in making the necessary financial provisions to mine optimally and safety and to rehabilitate the surface of the land concerned satisfactory and to carry out the EMP. All costs incurred in providing a guarantee or other financial provision shall be borne by the Contract. (iv) This Agreement shall hold good from the date on which the Mining Authorization is issued until the date on which a Closure Certificate is issued in terms of the Minerals Act, 1991. (v) Nothing in this Agreement shall exonerate the Contractor from compliance with any requirements of the Employer's Agent regarding the rehabilitation of sites prior to the issue of a Final Approval Certificate in terms of clause 5.16.2 of the General Conditions of Contract (2010). (vi) The Contractor shall undertake all the duties and accept all the responsibilities of the owner in compliance with the requirements of the Act as amended. (vii) The Contractor accepts responsibility for compliance with the Act, as amended, by all his sub-contractors whether or not selected and/or approved by the Employer.
5.3.1	The documentation required before commencement with Works execution are: • Health and Safety Plan (refer to clause 4.3.1) • Initial programme (Refer to clause 5.6.1) • Security (Refer to clause 6.2.1) • Insurance (Refer to Clause 8.6.1)
5.3.2	The time to submit the documentation required, before commencement with Works execution is **14 calendar days**.
5.4.2	The access and possession of site shall not be exclusive to the Contractor.

Clause	Description
5.8.1	The non-working days are public holidays and Sundays. The special non-working days are: The year-end break from **22-Dec-2023 to 08-Jan-2024 OR AS PER SAFCEC TBA**
5.13.1	The penalty for failing to complete the Works is: is **0.05 %** of the Total Tender Sum per Calendar Day
5.14.1	Practical completion is reached when: The completed paving streets can be opened to traffic for use.
5.16.3	The latent defect period is **10 years** after date of completion
6.5.1.2.3	The percentage allowances to cover all charges for the Contractor's and subcontractor's profits, timekeeping, clerical work, insurance, establishment, superintendence and the use of hand tools is **15%**.
6.8.2	This contract does include for contract price adjustment
6.8.3	Price adjustments for variations in the costs of special materials are **not** allowed.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is **80%**
6.10.3	The limit of retention money is **10%**
8.6.1.1.2	Not required.
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum will be calculated at **12%** of the claim value.
8.6.1.2	A coupon policy for Special Risks Insurance issued by the South African Special Risks Insurances Association is required.
8.6.1.3	The limit of indemnity for liability insurance is R 5 000 000.00 for any single liability claim
10.5.2	Dispute resolution shall be **ad-hoc** adjudication.
10.5.3	The number of Adjudication Board Members to be appointed is **one**.
10.7.1	The determination of disputes shall be by **arbitration.**
10.7.2	The value of payment certificates is to be adjusted in accordance with the Contract Price Adjustment Schedule, where The value of “x” is 0,150 The values of the co-efficients are: $(1-x)\left[\frac{aLt}{Lo}+\frac{bEt}{Eo}+\frac{cMt}{Mo}+\frac{dFt}{Fo}-1\right]$ **CPA : Estimate more than R10 000 000.** New Road Construction / Rehabilitation / Labour Intensive x = 0,150 / … / … a = 0,25 / 0,26 / 0.42 b = 0,30 / 0,30 / 0.40 c = 0,37 / 0,37 / 0.13 d = 0,08 / 0,07 / 0.05

	"L" is the "Labour Index" and shall be the "Consumer Price Index" for the urban area specified in the Contract, as published in the Statistical Release P0141.1 in table 21 of Statistics South Africa. "P" is the "Plant Index" and shall be the "Civil Engineering Plant" index as published in the Statistical Release P0142.1 in table 16 of Statistics South Africa. "M" is the "Materials Index" and shall be the price index for "Civil Engineering (Materials)" as published in the Statistical Release P0142.1 in table 15 of Statistics South Africa. "F" is the "Fuel Index" and shall be the index for "Civil Engineering" as published in Statistical Release P0142.1 Table 16 of Statistics South Africa. The suffix "o" denotes the basic indices applicable to the base month, which shall be the month prior to the month in which the closing date for the tender falls. The suffix "t" denotes the current indices applicable to the month in which the last day of the period falls to which the relevant payment certificate relates. If any index relevant to any particular certificate is not known at the time when the certificate is prepared, the Engineer shall estimate the value of such index. Any correction, which may be necessary when the correct indices become known, shall be made by the Engineer in subsequent payment certificates. The urban area nearest the site is **City Of Mbombela**. The base month **is June 2023**
10.7.3	The Works shall be completed within **12 months** as envisaged by the employer.
Special Clause	The Contractor's CIDB grading must remain active at the same of higher level as at time of appointment, should the grading be suspended, downgraded and or expire the Contractor will only be allowed 21 days to remedy such and failure could result in termination of the Contract.
	Thirty percent (30%) of the contract value shall be made Non-compulsory for subcontracting to local people/companies (CoM) irrespective of the *domicilium et exicutandi* of the contractor. However contractors will be a allocated points for the proposal of social responsibility/social development plan (Form V of returnables) within CITY OF MBOMBELA

PART 2: DATA PROVIDED BY THE CONTRACTOR

The Contractor is advised to read the *General Conditions of Contract for Construction Works,* Third Edition (2015) published by the South African Institution of Civil Engineering, in order to understand the implications of this Data which is required to be completed.

Each item of data given below is cross-referenced to the clause of Conditions of Contract to which it mainly applies.

<table>
<tr><th>Clause</th><th>Description</th></tr>
<tr><td>1.1.1.9

1.2.1.2</td><td>The Contractor is ……..
……..
The Contractor's address for receipt of communications is:
Physical address: Postal address:
…….. …….
…….. …….
…….. ……
…….. …….
Telephone: ……..……..……
Fax: ……. ……..……..
E-mail: ……..……...</td></tr>
<tr><td>1.1.1.14</td><td>The time for achieving Practical Completion of the whole of the Works is.....weeks after Commencement Date (site handover).</td></tr>
<tr><td>6.2.1</td><td>The security to be provided by the Contractor shall be one of the following
<table>
<tr><th>Type of Security</th><th>Contractor to choose: Indicate “ Yes” or “ No”</th></tr>
<tr><td>Cash deposit of 10% of the contract sum</td><td></td></tr>
<tr><td>Performance guarantee of 10% of the contract sum</td><td></td></tr>
</table></td></tr>
</table>

C1.5 FORM OF GUARANTEE

PRO FORMA PERFORMANCE

GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

Physical address: .....

"Employer" means: .....

"Contractor" means: .....

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

"Works" means: .....

"Site" means: .....

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

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

Amount in words: .....

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

Amount in words.....

"Expiry Date" means.....

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Employer's Agent of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
3. The Guarantor hereby acknowledges that:
   - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
   - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
   - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or

5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and

5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

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

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

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

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

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

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

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

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

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

Signed .....

Date .....

Guarantor's signatory (1) .....

Capacity .....

Guarantor's signatory (2) .....

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

C1.6 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

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

THIS AGREEMENT made at .....

on this the ..... day of ..... in the year …….....

between CITY OF MBOMBELA (hereinafter called "the Employer") of the one part, herein represented by

in his capacity as .....

and .....

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

.....

in his capacity as .....

WHEREAS the Employer is desirous that certain works be constructed, UPGRADING OF PENNYWHISTLE AND SWAN STREET-KANYAMAZANE (WARD 20) and has accepted a Tender by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1 The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.

2 This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Employer's Agent requiring him to commence the execution of the Works, to either

(a) the date of the Final Approval Certificate issued in terms of Clause 52.1 of the General Conditions of Contract (hereinafter referred to as "the GCC"),

(b) the date of termination of the Contract in terms of Clauses 54, 55 or 56 of the GCC.

3 The Mandatory declares himself to be conversant with the following:

(a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:

(i) Section 8 : General duties of employers to their employees;
(ii) Section 9 : General duties of employers and self-employed persons to persons other than employees;
(iii) Section 37 : Acts or omissions by employees or Mandatory, and
(iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.

(b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

(c) All the requirements, regulations and standards of the COVID-19 Occupational Health and Safety Measures in Workplaces, COVID-19 (C19 OHS), 2020.

4 In addition to the requirements of Clause 33 of the GCC and all relevant requirements of the above-mentioned Volume 3, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, plant and equipment in accordance with the Act.

5 The Mandatory is responsible for the compliance with the Act by all his subcontractors, whether or not selected and/or approved by the Employer.

The Mandatory warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993, which cover, shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.

6 The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:

(a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.

(b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.

(c) The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of section 32 of the Occupational Health and Safety Act into any incident involving the Mandatory and/or his employees and/or his subcontractors.

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

SIGNED FOR AND ON BEHALF OF THE EMPLOYER: _____

WITNESS 1_____ 2_____

NAME 1_____ 2 _____

(IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATORY: _____

WITNESS 1_____ 2 _____

NAME 1_____ 2_____

(IN CAPITALS)

C1.7 CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

The signatory for the company that is the Contractor in terms of the above-mentioned Contract and the Mandatory in terms of the above-mentioned Act shall confirm his or her authority thereto by attaching to this page a duly signed and dated copy of the relevant resolution of the Board of Directors.

An example is given below:

"By resolution of the Board of Directors passed at a meeting held on _____ 20____,

Mr/Ms _____ whose signature appears below, has been duly authorised to sign the AGREEMENT in terms of THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT 85 of 1993) on behalf of:

_____

SIGNED ON BEHALF OF THE COMPANY: _____

IN HIS CAPACITY AS: _____

DATE: _____

SIGNATURE OF SIGNATORY: _____

WITNESS: 1. _____ 2. _____

NAME (in capitals): 1. _____ 2. _____

PART C2 PRICING DATA

C2.1 PRICING INSTRUCTIONS

C2.1: PRICING INSTRUCTIONS

1 The Tender Data, the Contract Data, the Scope of Work, the Site Information and the Drawings shall be read in conjunction with the Schedule of Quantities.

2 The Schedule comprises items covering the Contractor's profit and costs of general liabilities and of the construction of Temporary and Permanent Works.

Although the Tenderer is at liberty to insert a rate of his own choosing for each item in the Schedule, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Employer's Agent is obliged to base his assessment of the rates to be paid for such additional work on the rates the Contractor inserted in the Schedule.

The measurement and payment clauses of each Specification, read together with the relevant clauses of the Specification Data, all set out which ancillary or associated activities are included in the rates for the specified operations.

3 Descriptions in the Schedule of Quantities are abbreviated and may differ from those in the Standardized and Specification Data. No consideration will be given to any claim by the Contractor submitted on such a basis. The Schedule has been drawn up generally in accordance with the latest issue of Civil Engineering Quantities[1]. Should any requirement of the measurement and payment clause of the appropriate Standardized or Specification Data be contrary to the terms of the Schedule or, when relevant, to the Civil Engineering Quantities, the requirement of the appropriate Standardized Specification or Specification Data as the case may be, shall prevail.

4 Unless stated to the contrary, items are measured and paid for net, in accordance with the Drawings, without any allowance having been made for waste.

5 The amounts and rates to be inserted in the Schedule of Quantities shall be the full inclusive amounts to the Employer for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based.

6 An amount or rate shall be entered against each item in the Schedule of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Schedule.

The Tenderer shall also fill in a rate against the items where the words "rate only" appears in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the tender rates shall apply should work under these items actually be required.

Should the Tenderer group a number of items together and tender one sum for such group of items, the single tender sum shall apply to that group of items pro rata and not to each individual item, or should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.

The tender rates, prices and sums shall, subject only to the provisions of the General Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.

7 The quantities of work as measured and accepted and certified for payment in accordance with the General Conditions of Contract, and not the quantities stated in the Schedule of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by **any** differences between the quantities in the Schedule of Quantities and the quantities certified for payment.

The ordering of materials shall **not** be based on the quantities in the Schedule of Quantities. Materials ordered from the Schedule of Quantities without prior confirmation by the Employer's Agent shall be at the risk of the Contractor. No compensation shall be paid for materials ordered erroneously and all costs shall be borne by the Contractor.

---

1 The standard system of measurement of civil engineering quantities published by the South African Institution of Civil Engineers.

8 The quantities of work as measured and accepted and certified for payment in accordance with the General Conditions of Contract, and not the quantities stated in the Schedule of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by **any** differences between the quantities in the Schedule of Quantities and the quantities certified for payment.

The ordering of materials shall **not** be based on the quantities in the Schedule of Quantities. Materials ordered from the Schedule of Quantities without prior confirmation by the Employer's Agent shall be at the risk of the Contractor. No compensation shall be paid for materials ordered erroneously and all costs shall be borne by the Contractor.

9 For the purposes of this Schedule of Quantities, the following words shall have the meanings hereby assigned to them:

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

Quantity: The number of units of work for each item

Rate : The payment per unit of work at which the Tenderer tenders to do the work Amount

: The quantity of an item multiplied by the tender rate of the (same) item Sum :

An amount tender for an item, the extent of which is described in the Schedule of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units

10 The units of measurement indicated in the Schedule of Quantities are metric units. The following abbreviations may appear in the Schedule of Quantities:

mm	=	millimetre
m	=	meter
km	=	kilometre
km-pass	=	kilometre-pass
m^2	=	square metre
m^2-pass	=	square meter-pass
ha	=	hectare
m^3	=	cubic meter
m^3-km	=	cubic meter kilometre
kW	=	kilowatt
kN	=	kilo-Newton
kg	=	kilogram
l	=	litre
kl	=	kilolitre
Ml	=	mega litre
t	=	ton (1 000 kg)
%	=	per cent
MN	=	mega-Newton
MN-m	=	mega-Newton-meter
PC Sum	=	Prime Cost Sum
Prov Sum	=	Provisional Sum
Sum	=	Lump Sum

C2.2 SCHEDULE OF QUANTITIES

C2.2: BILL OF QUANTITIES

SCHEDULE OF QUANTITIES C2.2-2 to C2.2-19

SUMMARY OF SCHEDULE OF QUANTITIES C2.2-20 to C2.2-20

SCHEDULE OF QUANTITIES

PART C3 SCOPE OF WORKS

PART C3: SCOPE of WORK

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C3.1: DESCRIPTION of WORKS

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Employer requires the Upgrading of Pennywhistle and Swan Street (ward 20). This road is situated at the Kanyamazane Township falling within Ward 20 of the City of Mbombela in the Ehlanzeni District, Mpumalanga Province.

The Employer desires that the work required be of a high standard and be completed in the shortest practical time whilst creating jobs for local labourers and contractors.

Thirty percent (30%) of the project need to be executed by local sub-contractor/s as far as possible.

C3.1.2 OVERVIEW OF THE WORKS

The contract entails the Upgrading of Pennywhistle and Swan Street (ward 20). The road is currently in the worst state which necessitated the upgrading from gravel to surfaced road using the 80mm Paving bricks.
Pennywhistle and Swan Street 2.7 km (2700m) long. The road requires upgrading of the gravel road to a surface road. The road is currently an access street which carries passengers from the nearby communities to the existing surfaced road. Once this road is upgraded, there will be a significant increase in the amount of traffic that will use this road.

The street surfaced width shall be 6 meters between the kerbs. The paving shall be 80 mm bricks. The edge protection of the paving shall be pre- fabricated Type 8b mountable kerbs or concrete edge beams. The storm water infrastructure shall entail V drains on the lower side of the road.

The Scope of this Contract shall require that the "Contractor" as defined in the GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS: THIRD EDITION - 2015, hereinafter referred to as GCC 2015; Clause 1.1.25 to have included in his/her tender price for, and is not limited to, the supply of all materials, Labour, tools, plant, workmanship, supervision, transport, water, compressed air, electrical power, and whatever else is deemed necessary to ensure due and proper construction and Completion of the Works. The Works shall be completed in accordance with the terms as specified in this Contract Document.

C3.1.3 EXTENT OF WORKS

The approximate length of the road to be upgraded is 2.7 km (2700m). The road is a single carriageway within a built-up area where there are a number of encroachments by household yards. The lane width will be 3.m from beginning of the road to the end.

The pavement design includes the Roadbed 150m in-situ G9, 150mm selected layer G7, 150mm C4 Subbase course, Base 150mm C4 and 80mm paving bricks as a surface layer. A 150mm selected and 150mm fill layers will not be mandatory. Delete after agreement as per the design

The Works to be carried out by the Contractor under this Contract comprise mainly the following:

a. General requirement and provision
b. Contractor's establishment on site and general obligations.
c. Housing, offices and laboratories for the engineer's site personnel
d. Accommodation of traffic
e. Overhaul
f. Clearing and grubbing including (Site clearance and removing of fences)
g. Drains
h. Concrete kerbing, concrete channeling, chutes and downpipes, and concrete lining for open drains
i. Borrow materials
j. Mass earthworks
k. Pavement layers of gravel material
l. Stabilization
m. Breaking up existing pavement layers.

n. Removal of existing asphalt layer.
o. 80mm thick concrete brick paving layer
p. Road sings and markings
q. Finishing the road and road reserve and treating old roads
r. Testing material and workmanship
s. Locating, moving and protection of existing services
t. Placement of kerbs and kerbing channel according to the drawings
u. Construction of concrete edge beams according to the drawings;
v. Correction of defects in the Works in accordance with the requirements specified in the Contract Documents.

This description of the Works is not necessarily complete and shall not limit the work to be carried out by the Contractor under this Contract.

Approximate quantities of each type of work are given in the Schedule of Quantities.

C3.1.4 LOCATION OF THE WORKS

The project is located in Kanyamazane, a township in the Mbombela area within the City of Mbombela under the jurisdiction of the Ehlanzeni region of the Mpumalanga Province. The existing gravel road under investigation is Upgrading of Pennywhistle and Swan Street. The road falls within ward 20.

The centre coordinates for the proposed site are Latitude:

Road 1 (Pennywhistle Street)

Start of Road: S 25° 27’ 13,77’’ E 31° 10’ 04,24’’.
End of Road: S 25° 27’ 25,45’’ E 31° 10’ 14,82’’.

Road 2 (SWAN Street)

Start of Road: S 25° 27’ 13,80’’ E 31° 09’ 55,96’’.
End of Road: S 25° 27’ 39,00’’ E 31° 10’ 05,07’’.

C3.1.5 TEMPORARY WORKS

The Contractor shall, as relevant,

a) provide temporary drainage works, temporary pumps and other equipment as might be necessary for the protection, draining and dewatering of the works; and
b) Construct and maintain haulage, temporary access and construction roads, subject to the approval of the Employer, and permit the Employer, other Contractors, statutory bodies or any other person who might require legitimate access to or through the site for the purpose of executing legitimate business, free and unhindered usage of such roads.
c) Temporary water connections, Contractor’s offices, storage sheds, latrines, barricading of Works shall be located in an approved position and subject to the approval of all authorities concerned.
d) Safety and Security of the Contractors’ temporary works shall be at the Contractors’ discretion.
e) The camp shall be adequately guarded during or outside working hours.

C3.2: ENGINEERING

C3.2 ENGINEERING

C3.2.1 DESIGN

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

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

(c) The Contractor shall supply all details necessary to assist the Engineer in the compilation of the record drawings.

C3.2.2 EMPLOYER'S DESIGN

The Employer's Design is contained in the Tender Documentation and Drawings. Amendments to the design, if necessary, will be issued during the construction phase.

C3.2.3 CONTRACTOR'S DESIGN

Where the Contractor is to supply the design of designated parts of the permanent Works or temporary Works, he shall supply full working drawings supported by a professional engineer's design certificate.

C3.2.4 DRAWINGS

The Contractor shall use only the dimensions stated in figures on the Drawings in setting out the Works, and dimensions shall not be scaled from the Drawings, unless required by the Employer's Agent. The Employer's Agent will, on the request of the Contractor in accordance with the provisions of the Conditions of Contract, provide such dimensions as may have been omitted from the Drawings.

The Contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the contract. The position of pipe bends, junction boxes, duct ends, and all other underground infrastructure shall be given by either co-ordinates or stake value and offset. Where necessary, levels shall also be given. A marked-up set of drawings shall also be kept and updated by the Contractor. This information shall be supplied to the Employer's Agent's Representative on a regular basis.

All information in possession of the Contractor, required by the Employer's Agent and/or the Employer's Agent's Representative to complete the as-built/record drawings, must be submitted to the Employer's Agent's Representative before a Certificate of Completion will be issued.

The Drawings prepared by the Employer for the permanent Works are listed below and are bound in a separate document or is attached at the back of this volume. The Employer reserves the right to issue and/or amended additional drawings during the Contract.

No	DRAWING TITLE	PURPOSE
1	KEY PLAN (THIS DRAWING)	FOR TENDER
2	LAYOUT PLAN: SWAN STREET	FOR TENDER
3	LAYOUT PLAN: UMCULO UMGWACO, HLABELA UMGWACO, SITER & STREET A	FOR TENDER
4	LAYOUT PLAN: PENNYWHISTLE, MEZZO AND MINUET STREET	FOR TENDER
5	LONGITUDINAL SECTION: SWAN STREET	FOR TENDER
6	LONGITUDINAL SECTIONS: PENNYWHISTLE AND MEZZO STREET	FOR TENDER

7	LONGITUDINAL SECTIONS: UMCULO UMGWACO, HLABELA UMGWACO & SITER STREET	FOR TENDER
8	LONGITUDINAL SECTIONS: STREET A AND MINUET STREET	FOR TENDER
9	CROSS-SECTIONS: SWAN STREET	FOR TENDER
10	CROSS-SECTIONS: SWAN STREET & UMCULO UMGWACO STREET	FOR TENDER
11	CROSS-SECTIONS: HLABELA UMGWACO, SITER & STREET A	FOR TENDER
12	CROSS-SECTIONS: PENNYWHISTLE STREET	FOR TENDER
13	CROSS-SECTIONS: MEZZO & MINUET STREET	FOR TENDER
14	PIPE CULVERTS DETAILS	FOR TENDER
15	ROAD SIGNS AND PLACING DETA	FOR TENDER
16	ROAD MARKINGS AND SIGNS DETA	FOR TENDER
17	ACCOMMODATION OF TRAFFIC AND SPEED HUMP DETAIL	FOR TENDER
18	INFORMATION DETAILS, SHEET 1 OF 2	FOR TENDER
19	INFORMATION DETAILS, SHEET 2 OF 2	FOR TENDER

C3.2.5 **DESIGN PROCEDURES**

Not applicable.

C3.3: PROCUREMENT

C3.3 PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT

C3.3.1.1 Requirements

Tenders will be evaluated in terms of the City of Mbombela Preferential Procurement Policy. Points will be awarded for price and specific contract participation goals as contained in the Tender Data.

C3.3.1.2 Resource standard pertaining to targeted procurement

The Preferential Procurement Policy (PPP) of the City of Mbombela is applicable to this project. Refer to the Tender Data.

C3.3.2 SUBCONTRACTING

C3.3.2.1 Scope of mandatory subcontract works for LI items (Labour Rates)

a) Paving - R55-R60/ m^2

b) Kerbing – R45-R50 / m

c) V – Drains - R80-R90 /m^3 (15% -20% of total price)

d) Gabions – R150-R180/ m^3

e) Back filling Water lines – R35-R40/ m^3

f) Erect diamond fences – R60/m

g) Brick wall – R60-R80/m^2

h) Speed humps – R2,650/ Speed hump

i) Plastering – R70-R80/ m^2

j) Hiring of Mobile toilets – R2500-R3000/Toilet

k) Guard Rails – R 420 / m

However, local subcontractors should be considered provided they are capable.

C3.3.2.2 Preferred subcontractors/suppliers

Where possible, local subcontractors should be considered for subcontract work provided they are capable.

C3.3.2.3 Subcontracting procedures

The contractor is solely responsible for negotiating with local subcontractors.

C3.3.2.4 Attendance on subcontractors

Not applicable.

C3.4: CONSTRUCTION

C3.4 CONSTRUCTION

C3.4.1 WORKS SPECIFICATIONS

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

C3.4.1.1 Standard Specifications

The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 Edition) and COTO Standard Specifications for Roads and Bridge Works for South African Road Authorities (2020 Edition) shall apply for the construction of the Works.

The term "project specification" must be replaced by "scope of works" wherever it appears in these standardised specifications.

The term “Engineer” must be replaced by “Employer’s Agent” wherever it appears in these standardised specifications.

C3.4.1.2 National and International Standards

The SANS or BS Specifications and Codes of Practice shall apply for the construction of the Works.

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

C3.4.1.3 Particular Specifications

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

Various other specifications specified in the COTO Standard Specifications for Roads and Bridge Works for South African Road Authorities (2020 Edition) or the Project Specifications.

Latest Sabita Manual, Manual 25 entitled “*Quality Management in the Handling and Transport of Bituminous Binders*”.

TG2 Second Edition May 2009, “*Technical Guideline for Bitumen Stabilised Materials (BSM)*” issued by the Asphalt Academy.

C3.4.1.4 Variations and Additions to the COLTO 1998 Edition Standardized Specifications

All references to the COTO General Conditions of Contract 2020 in the COLTO *Standard Specifications for Road and Bridge Works for State Road Authorities, 2020* are to be deleted and replaced where applicable by references to the Conditions of Contract stated in this clause as detailed in the table hereunder. The context of the reference to the GCC is also noted.

The Contractor shall note that 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 Conditions of Contract specified in this clause and amended in the Contract Document shall apply and the Contractor shall be responsible for interpretation of the equivalent clause.

COLTO Standard specifications		COTO General Conditions of Contract, 2020 (GCC)		General Conditions of Contract for Construction Works, Third edition, 2015	
Clause number	Page number	Clause number	Description or reference	Clause number	Description or reference amended to
1115	1100-2		Definition of GCC		Definition GCC 2015
1202	1200-2	15	Construction programme	5.6	Programme
1204	1200-2		General reference to GCC		Applicable to GCC 2015
1206	1200-3	14	Setting out of works		Clause amended in 1206 of specifications
1209(a)	1200-4		General references to GCC		Applicable to GCC 2015
1209(e)	1200-5	52	Valuation of material brought onto site	6.10	Valuation of material brought onto site

COLTO Standard specifications		COTO General Conditions of Contract, 2020 (GCC)		General Conditions of Contract for Construction Works, Third edition, 2015	
Clause number	Page number	Clause number	Description or reference	Clause number	Description or reference amended to
1210	1200-5	54	Certificate of practical completion	5.14	Certificate of practical completion
1212(1)	1200-7	49	CPA on alternative designs	6.8	CPA on alternative designs
1215	1200-9	45	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for completion due to abnormal rainfall.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(ii)	1300-1		General reference to GCC		Applicable to GCC 2015
1303(iii)	1300-1	49	Price adjustment item 13.01(a)	6.8	Price adjustment item 13.01(a)
1303(iii)	1300-2	49	Price adjustment item 13.01(b)	6.8	Price adjustment item 13.01(b)
1303(iii)	1300-1	53	Variations exceeding 15%	6.11	Variations exceeding 15%
1303(iii)	1300-2	53	Variations exceeding 15%	6.11	Variations exceeding 15%
1303	1300-2	12	Payment item 13.01(c)	5.3	Payment item 13.01(c)
1303	1300-2	45	Payment item 13.01(c)	5.12	Payment item 13.01(c)
1403(c)(ii)	1400-4	40(1)	Variation for rented accommodation	6.4	Variation for rented accommodation
1505	1500-3	40	Variation for temporary drainage	6.4	Variation for temporary drainage
Item 15.08	1500-8	48	Payment of provisional sum	6.6	Payment of provisional sum
Item 15.09	1500-8	48	Payment of provisional sum	6.6	Payment of provisional sum
Item 15.11	1500-8	48	Payment of provisional sum	6.6	Payment of provisional sum
Note (2)	3100-4	40	Payment for prospecting for materials	6.4	Payment for prospecting for materials
3204(b)(iii)	3200-2	40	Payment for oversize material	6.4	Payment for oversize material
3303(b)	3300-2	2	Engineer's decisions, with reference to materials classification	3	Engineer's decisions, with reference to materials classification
Item 44.06	4400-3		General reference to GCC, PC sums		General reference to GCC, PC sums
Item 45.06	4500-3		General reference to GCC, PC sums		General reference to GCC, PC sums
5803(c)	5800-3	40	Variation, for landscaping	6.4	Variation, for landscaping
5805(d)	5800-4	40	Variation, for grassing	6.4	Variation, for grassing
Item 58.10	5800-10	48	Payment for extra work	6.6	Payment for extra work
8103(c)	8100-1	40	Variation, for testing material	6.4	Variation, for testing material
Item 81.02	8100-26		General reference to GCC, provisional sums		General reference to GCC, provisional sums
Item 81.03	8100-26	22	Clearance of site on completion, with reference to core drilling	5.15	Clearance of site on completion, with reference to core drilling

C3.4.1.5 <u>Amendments to the COTO 2020 Edition Standardized Specifications</u>

Amendments made to COTO are included in the following Chapters:

CHAPTER 1 : GENERAL
CHAPTER 2 : SERVICES
CHAPTER 3 : DRAINAGE
CHAPTER 4 : EARTHWORK AND PAVEMENT LAYERS: MATERIALS
CHAPTER 5 : EARTHWORK AND PAVEMENT LAYERS: MATERIALS
CHAPTER 6 : CONCRETE LAYERS
CHAPTER 7 : MAINTAINANCE AND REPAIR OF CONCREETE LAYERS
CHAPTER 8 : PRETREATMENT AND REPAIR OF EXISTING LAYERS
CHAPTER 9 : ASPHALT LAYERS
CHAPTER 10 : SURFACE TREATMENTS
CHAPTER 11 : ANCILLARY ROAD WORKS
CHAPTER 12 : GEOTECHNICAL APPLICATIONS
CHAPTER 13 : STRUCTURES
CHAPTER 14 : REPAIR AND REHABILITATION OF STRUCTURES
CHAPTER 15 : Reserved for future use
CHAPTER 16 : Reserved for future use
CHAPTER 17 : Reserved for future use
CHAPTER 18 : Reserved for future use
CHAPTER 19 : Reserved for future use
CHAPTER 20 : QUALITY ASSURANCE

C3.4.2 <u>PROJECT SPECIFICATIONS RELATING TO STANDARD SPECIFICATIONS</u>

This part of the project specifications deals with matters relating to the standard specifications. Where reference is made in the standard specifications to the project specifications this part shall

also contain the relevant information e.g. the requirements where a choice of materials or construction methods are provided for the standard specifications.

In certain clauses, the Standardized Specifications allow a choice to be specified in the Specification Data between alternative material 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 Specification Data. It also contains such additional specifications as are required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix “B” followed by a number corresponding to the number of the relevant clause or payment item in the Standardized Specifications. New clauses and payment items not covered by clauses or payment items in the Standardized Specifications if included here are also designated “B”, followed by a number. The new numbers follow on the last clause or item number used in the relevant section of the Standardized Specifications.

Clauses and pay items referring to labor intensive methods are prefixed by “L” in the project specifications.

COTO SERIES

CHAPTER 1: GENERAL

SECTION B1100 : DEFINITIONS AND TERMS

"B1156 OTHER DEFINITIONS

The COTO Standard Specification for Roads and Bridges has been written for all Contractors, Employers and Employers Agents. Similarly, the works and the site are not defined and the general nature of the entities and elements that collectively constitute construction under a contract are characterized by the use of lower-case letters throughout.

These project specifications continue to use lowercase spellings in order to avoid the appearance of the capitalised and non-capitalised words to describe or prescribe the same elements of work required on this project. However, for the purposes of this contract, the following definitions shall apply:

Contractor
The Contractor and contractor is the same persona defined under clause 1.1.1.9 of the General Conditions of Contract, but who will only be formally identified by the completed Form of Acceptance C1.1.2 in this document and which will be bound into the final contract document.

Employer
The Employer and employer is the same persona and is defined in C1.2.2 Contract Data, and clause 1.1.1.15 of the General Conditions of Contract.

Employers Agent
The Employers Agent and employer's agent is the same persona and is defined in C1.2 Contract Data, and clause 1.1.1.16 of the General Conditions of Contract.

Site
The site is defined in clause 1.1.1.29 of the General Conditions of Contract. It is bound by the limits of construction as shown in the drawings (if any) or the title of the project and extends to also include the following:

- Areas outside the construction zone areas where accommodation of traffic is placed.
- All haul roads constructed by the Contractor for purposes of access.
- Any non-adjacent sites specified in the contract documentation.
- The Contractors and his Sub-Contractors camp sites
- Site used for storage of material and equipment for use in the permanent works.
- Areas required for temporary access roads only when approved by the Employers Agent.

Works
The works is described in Part C3 of this document and is as defined in clause 1.1.1.33 of the General Conditions of Contract.

Prime cost
Is a specific type of Provisional Sum for which payment is made on the production of invoices showing the cost price of the implementation or installation of the service required. Services rendered in this manner carry a mark-up for which a rate is offered at tender stage to cover all the tenderer's handling, supervision and liability costs and profit in providing the item or services as per sub-clause 6.6.

Provisional Sum
Is a sum which is specified in the contract as a provisional sum, for the execution of any part of the works or the supply of plant, materials or services under sub-clause 6.6

B1157 SABS/SANS SPECIFICATIONS

Where reference is made in this specification or the standard specifications to SABS/SANS 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 for the most up-to-date versions of the various standards.

B1158 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

B1159 COMMERCIAL SOURCE

A source of supply of materials which is chosen by the Contractor. The Contractor shall take full responsibility for the quality of all materials and services supplied from commercial sources.

B1160 LABOUR-OPTIMISING CONSTRUCTION

The cost-effective employment of as great a portion of Labour as is practically and technically feasible to produce the standard of construction required by the specifications. Therefore, the economic substitution of plant and mechanical equipment with available Labour using hand tools, on condition that this method is not more expensive than the conventional construction practices.

B1161 STRESS-ABSORBENT MEMBRANE INTERLAYER (SAMI)

A layer of stone chippings and bitumen rubber constructed between successive pavement layers for the purpose of absorbing stress.

B1162 PROCESS CONTROL

Process control means all testing required to be carried out 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 Employers Agent. The contractor is responsible for process control testing. The cost of testing for process control is deemed included in the rates tendered for each item. The minimum frequency of testing for process control should comply with Section 8300 of the standard specifications: Quality Control.

B1163 ACCEPTANCE CONTROL

Acceptance control means whatever testing the Employers 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. Such testing will be carried out at the cost of the employer.

Both the process control testing carried out by the Contractor and acceptance control testing by the Employers Agent shall be carried out by an accredited laboratory.

B1164 PRE-TREATMENT

Treatment of the existing surfacing and base prior to a bituminous overlay or reseal. Pre-treatment can include but is not limited to the following actions:

- Patching, inclusive of saw cutting, excavation, priming and/or tacking, and backfilling with asphalt
- Milling out existing asphalt surfacing and/or base layer, priming and/or tacking, and backfilling with paver-laid asphalt
- Repairing edge breaks, inclusive of saw cutting, excavation, priming and/or tacking, and repairing with asphalt
- Crack sealing, inclusive of cleaning, and applying herbicide, primer and sealant

- Slurry seal surface treatment."

B1165 FREE HAUL DISTANCE

The free-haul distance in regard to any material which is moved shall be 1,0 km.

B1166 CLASSES OF EXCAVATION

No distinction will be made between soft and intermediate excavation."

CHAPTER 1: 1.1GENERAL PREAMABLE

B1202 SERVICES

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

In the final paragraph, replace "clause 15" in the second line with "clause 5.6"

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

Drawings provided indicate all known services on the site. However, before any work can commence the Contractor shall verify the actual position of each station and bring to the attention of the Employers Agent any service that is not recorded. As the Contractor is not authorized 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 station. The Contractor shall advise the service provider of

a) The number of services, their locations and station ID numbers and
b) The proposed dates when work will commence in the vicinity of each service.

ii) In addition to the above preliminary notice, give the service provider 14 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.

No payment will be made for inconvenience to the Contractor due to services crossing the site or any authority working on such services, not will delays caused by such works be accepted as a basis for claiming an extension of time for completing the works.

"BC1.2.4.1 COMMUNITY LIASON AND COMMUNITY RELATIONS Unit: month

a) A total amount of R 9 500.00 is to be paid to the community liaison officer for the duration of the construction of this project.

Add this new clause:

"4.23 Community participation"

Community participation consists of engagement of Project Steering Committees (PSC).

A PSC will be established for the project, by the Ward Councillor.

The functions of the PSC will be to:
- Assist in monitoring the project.
- Ensure that the community provide assistance to the contractor to ensure that he can execute the contract in accordance with the specifications and within time.
- Encourage the community to participate in the Labour-Intensive construction.
- Identify skills, skilled personnel and suppliers in the towns.

The PSC will not have the power to:
- Give any instructions to the contractor, except through the engineer.
- Become involved in the daily operations of the contractor or interfere with the contract works.

b) A monthly meeting will be held with the PSC to discuss relevant matters. The site agent and resident engineer will attend the meetings. The contractor will have to report on progress, deviations from the programme, financial matters community related aspects, general problems and

co-operation at the meeting. The PSC members will not receive any remuneration for attending, and they must provide their own transport."

This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance."

"BC 1.2.4.2 Training of Targeted Labour

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

b) The cost of the formal training of targeted labour will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible. The contractor, must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.

c) The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he she is employed for 4 months or more.

d) The contractors shall do nothing to dissuade targeted labour from participating in the above-mentioned training programmes.

e) An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of d) above.

f) Proof of compliance with the requirements of a) to f) above must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

(i)	Technical Training	Prov. Sum
(ii)	HIV/AIDS	Prov. Sum
(iii)	Handling cost and profit in respect subitem B12.04(i) and (ii)	

BA1.2.7.1 PROGRAMME OF WORK

(a) General requirements

CHANGE THE WORDING OF THE FIRST SENTENCE TO READ AS FOLLOW: "The contractor shall base his initial programme of work on the scope of work when the contractor receives an appointment and defined scope of work, and…."

AMEND THE WORD "network" *IN THE FOURTH LINE OF THE FIRST PARAGRAPH TO READ* "bar (Gantt) chart".

ADD THE FOLLOWING AS A CONTINUATION OF THE FIRST PARAGRAPH:

"In drawing up the programme the Contractor shall make allowance for the following:

i) All special non-working days defined in the Contract Data.

ii) The expected delays defined in B1215: Extension of time resulting from inclement weather as a terminal float.

iii) The following restricted working conditions:

- During the Contractor's annual shutdown period between December and January, the Contractor shall maintain two-way traffic within the contract **limits.**
- No Sunday works

iv) Meeting the requirements of the Environmental Management Plan (EMPl).

v) The time needed for preparation and approval of the various mix designs specified in the relevant construction sections of the Scope of Works.

This initial programme shall realistically account for the forecast cashflow within the defined contract period."

ADD THE FOLLOWING AFTER THE THIRD PARAGRAPH:

"The bar-chart programme to be provided by the contractor shall show the various activities in such detail as may be required by the Employers Agent. Progress in terms of the programme shall be updated monthly by the contractor in accordance with the progress made by the contractor.

In compiling the programme of work, the contractor shall indicate and make due allowance for the following, as specified elsewhere in the contract documents:

The requirements regarding the accommodation of traffic and areas that may be occupied at any time for construction purposes (as indicated on the drawings and specified in Section 1500 of the specifications)

Requirements regarding the training of labourers and Emerging Contractors (ECs).

The requirements for work to be undertaken by labourers and work to be undertaken by ECs as tendered in T2.2.5(6)."

INSERT THE FOLLOWING PARAGRAPHS:

"**c) Additional programme requirements**

In addition to the requirements of clauses B1204(a) and B1204(b), 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 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
ix) A risk assessment schedule with mitigating plans of issues that could prevent the due completion date being met.

A Gantt chart programme shall be provided, showing the various activities in such detail as the Employers Agent may require. Should the Employers Agent require an electronic version of the programme for review purposes, the Contractor shall supply the programme in a format compatible with the Employers Agents 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 original approved programme. Failure to comply with these requirements entitles the Employers Agent to use a programme based on his own assumptions to evaluate claims for extension of time for completion of the works, or for additional compensation. The Contractor shall indicate what resources and programme changes he intends to implement in order to remedy any activity that may have fallen behind. The Employers Agent may demand from the Contractor a major revision of the programme. Such a revision shall be submitted for approval within fourteen days of the demand."

BA1.2.8 WORKMANSHIP AND QUALITY CONTROL

INSERT THE FOLLOWING HEADING AFTER THE TITLE:

"**a) General**

INSERT THE FOLLOWING AS SUB-CLAUSES 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.

The Contractor shall submit the quality assurance system he proposes using to the Employers 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 Employers Agent the Contractor shall not deviate from it unless written notification of proposed changes have similarly been submitted and approved.

The system shall provide for a method statement for each construction activity for which a pay item is provided in the Pricing Schedule. Each method statement shall be submitted to the Employers 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 Employers Agent has approved the Contractor's quality assurance system."

ADD THE FOLLOWING AT THE END OF THE THIRD PARAGRAPH:

"The Employers Agent shall, however, undertake acceptance control tests for the judgement of workmanship and quality, without accepting any obligations vested with the contractor in terms of the contract with specific reference to quality of materials and workmanship. Such acceptance control test done by the Employers Agent shall not relieve the contractor of his obligations to maintaining his own quality control system."

ADD THE FOLLOWING AT THE END OF THIS CLAUSE:

"The Employers Agent shall for the purpose of acceptance control and products and workmanship, assess test results and measurements in accordance with provisions of Section 8300 of the standard specifications (quality control scheme 2). Where small quantities of work are involved, a lot shall mean a full day's production for a specific item of work subject to acceptance control testing."

BA1.2.7.2 THE SETTING OUT OF WORK AND PROTECTION OF BEACONS

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

"The contractor shall comply with all legal provisions in regard to surveying and setting out work.

The particulars of the basic reference pegs and benchmarks are recorded on the drawings. Additional reference pegs and benchmarks may be established from time to time by the Employers Agent, as deemed necessary. The Contractor shall be responsible for the true and proper setting-out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith.

The Contractor shall carefully protect and preserve all benchmarks, site-rails, pegs and other things used in setting out the works. The checking of any setting-out or of any line or level by the Employers Agent shall not relieve the Contractor of his responsibility for the correctness thereof."

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

ADD THE FOLLOWING PARAGRAPH:

"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 Employers 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 Employers Agent shall be the Contractor's responsibility and included in the tender rates".

ADD THE FOLLOWING AS THE PENULTIMATE PARAGRAPHS:

"The road, bridge position and other access/service roads have not been set out. The horizontal alignments shown on the drawings reflect the centre line of the new roads. The contractor shall appoint an experienced and reputable land surveyor to stake the road at 20 m intervals using these alignments and shall take cross-sections of the road formation and adjacent area at 10 m intervals in mountainous areas and 20 m intervals in other areas to a distance of at least 10 m wider than the new road toe-lines. The cross-sections shall clearly define shoulder break lines, drains and batter slopes of existing cuts and fills. The cross-sections of a particular section of the road to be constructed shall be submitted to the Employers Agent for his approval at least 7 days before the time envisaged by the contractor when such a section of road will be constructed. These cross-sections shall then be used for the calculation of quantities.

The reference beacons shown on the drawings shall be used for the purpose of staking and taking cross-sections. The appointed land surveyor shall in addition also construct sufficient reference markers corresponding to the staked line to ensure that accurate measurements can be made.

No additional or extra over payment will be made for staking the road centre line or for taking cross-sections and full compensation therefore shall be deemed to be included in the rates tendered and paid for the various items of work included in this contract."

BA1.2.3.10 NOTICES, SIGNS AND ADVERTISEMENTS

DELETE THE FOURTH PARAGRAPH AND REPLACE WITH THE FOLLOWING:

"All signboards erected in accordance with the drawings shall be removed at the same time as the de-establishment of the Contractor's camp. Payment under subitem B13.01 for the final instalment of 15% of the tendered lump sum shall not be made unless all the advertisements, notices and temporary signs have been removed. A typical signboard layout is included as part of the tender drawings".

BA1.12 TAKING-OVER CERTIFICATE

ADD THE FOLLOWING PARAGRAPHS AFTER ITEM (H):

"In addition to the above itemized 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 Employers 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 Employers Agent and has been requested in writing, has been supplied.

If any of the listed criteria (i) through (iii are not met at the date of the Contractor's notice of application, the Employers 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."

BA1.2.3.2 CONTRACTOR'S ACTIVITIES IN RESPECT OF PROPERTY OUTSIDE THE ROAD RESERVE AND OF SERVICES MOVED, DAMAGED OR ALTERED

ADD THE FOLLOWING AS LAST PARAGRAPH TO SUB-CLAUSE (d):

"These written statements shall be handed to the Employers Agent before the final certificate will be issued. Failing to obtain these written statements from all landowners and authorities concerned, the Defects Notification Period will be extended including all conditions related to such an extension, until such time that all these statements 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 Employers Agent."

UNDER SUB CLAUSE (e) REPLACE THE OPENING PARAGRAPH WITH:

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

AND ADD THE FOLLOWING SUBSUBCLAUSE:

"(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 Employers Agent prior to signature by the signing parties, and copies lodged with the Employers Agent after signing. Notwithstanding the Employers 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 SUB-CLAUSE:

"**f) Cleaning of public roads**

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

BA1.2.3.4 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFAILL

*CHANGE THE EXISTING HEADING OF CLAUSE 1215 TO READ AS FOLLOWS: "***EXTENSION OF TIME RESULTING FROM INCLEMENT WEATHER"** *AND REPLACE THIS CLAUSE WITH THE FOLLOWING:*

"Delays caused by inclement weather events may be considered as extension to the time for completion only if the Employers Agent agrees that the event (and not the consequence of the event) occurred during the working hours of a working day (based on a twenty-three (23) day working month) within the contract period and caused all progress on an item or items of work on the critical path of the Contractor's approved programme (including revisions thereof) brought to a halt. Each day, or portion of a day so agreed will accrue as 'n' days of delay over the duration of the contract. The summary of accrued agreed 'n' delays shall be recorded at each site meeting.

In the case of the inclement weather event being rainfall, no limitation is placed on the quantity, severity or duration of the event as being the cause of delay except, if it is an exceptional climatic condition then it shall not be measured as a delay event under this clause, but shall be considered for delay under the general conditions of contract clause 5.12. Expressly excluded from the

measurement of 'n' days are consequential delays, which are taken to mean delays to critical path activities attributable to the weather event but occurring after (i.e. outside of and distinctly separate from) the duration of the weather event itself.

The Contractor shall make provision in his approved programme (including revisions thereof) of work for expected N working days caused by inclement weather. This provision shall be shown as a terminal float on the approved programmes. Any extension to the time for completion caused by inclement weather delays will only apply once the agreed cumulative 'n' delays exceed N = ∑n days. On this contract N = 24

"For the purpose of calculation and extension of time due to climatic conditions in terms of clause 5.12.2.2 of the General Conditions of Contract the number of days in excess of the number of working days anticipated to be lost due to climatic conditions shown in Table B1215/1 shall be taken into account:

Table B1215/1: ANTICIPATED DAYS LOST DUE TO CLIMATIC CONDITIONS

MONTH	WORKING DAYS
January	3
February	4
March	4
April	2
May	1
June	1
July	1
August	1
September	1
October	2
November	3
December	1

The Employers Agent will certify a day lost due to climatic conditions only if:

a) No work on the critical path according to the latest approved programme for completion of the works could be carried out during that specific working day or if;

b) Only 30% or less of the work force and plant planned for that specific day, could work.

The extension of time as a result of climatic conditions will be calculated monthly as being equal to the absolute value of the number of days certified by the Employers Agent as lost due to climatic conditions, less the number of days in Table B1215/1. The total extension of time for the contract will be the sum of the monthly extensions.

Extensions of time for a six day working week and portions of a month shall be calculated pro rate.

If approved extensions of time extend the completion date beyond the start of the Christmas shut-down as defined in the Appendix to Tender, the holiday period shall not be considered as working days. Any remaining extension of time shall be calculated from the first working day in January the following year."

BA1.2.3.22 WAYLEAVES/AGREEMENTS AND PERMITS

Add the following after paragraph 3:

"Although the information provided here will assist the Contractor in selecting the necessary machinery and construction water requirements, it is still the responsibility of the Contractor to ensure that he familiarize himself with the condition on site. No claims relating to the improper use of equipment or the compaction of sand will be entertained."

BA1.2.3.21 WATER

ADD THE FOLLOWING:

"Water for use on site other than municipal, shall be subject to the required permit from Department of Water Affairs (DWA). 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

		Water Quality Classification Code						
		H0	H1	H2	H3	H4	H5	
Property	Unit	Pure water (AR)	Clean water (Rain)	Treated water (Municipal)	Silty (muddy) water with low salt content	Highly mineralised chloride sulphate water (brackish)	Waste brack, sewage, marsh, sea, etc. water	Method
PH*	-	7.0	5.7 – 7.9	4.5 – 6.5	4.5 – 8.5	9.0	-	SABS M113 SM 11 - 1990
Dissolved solids*	ppm	0	1000	1500	3000	-	-	SABS 213 SM213 - 1990
Total hardness*	-	None	None	Temporary	Temporary	Permanent	-	SABS 215 SM 215 – 1971
Suspended matter	ppm	0	2000	2000	5000	-	-	SABS 1049 SM 1049 – 1990
Electrical conductivity	mS/m	0	200	200	500	-	-	SABS 1057 SM 1057 – 1982
Sulphates (SO4)	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 (CO3) & Bicarbonates (HCO3)	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

BA1.2.7.5 USE OF EXPLOSIVES

REPLACE PARAGRAPH (g) WITH THE FOLLOWING:

"The contractor shall, seven (7) days before each blasting operation is carried out, advise the Employers Agent thereof in writing. Any such blasting operation shall be confirmed with the Employers Agent twenty-four (24) hours prior to execution. The contractor shall make all the necessary arrangements to keep the public and the provincial traffic authorities fully informed with regard to the closures of the road for blasting purposes."

ADD THE FOLLOWING PARAGRAPH:

"Where blasting needs to be carried out within the road reserve of the existing road, it shall only be allowed between 11:00 and 14:00. The road may not be closed for a period longer than thirty (60) minutes during which time all blasting shall be carried out, debris removed from the road surface and the road made safe and passable for traffic. Where blasting operations are undertaken in close proximity of temporary deviations, the contractor shall implement all such safeguarding measures as may be required and instructed by the Employers Agent."

B1223 WORK ON, OVER, UNDER OR ADJACENT TO RAILWAY LINES

ADD THE FOLLOWING:

"The official specifications referred to shall be the latest edition of Specification E7, Part 2, of Transnet Limited.

The contractor shall prepare detailed drawings to indicate exactly which methods (including any phased work required) will be used to dismantle the existing road-over-rail bridge and to construct the new road-over-rail bridge.

Site work in connection with structures over railway lines shall not commence before the said drawings have been approved by Transnet Limited. No additional payment will be made nor will any claims be considered due to delays or inconvenience that may arise if the provisions of the E7 Specification of Transnet Limited have not been complied with.

The contractor shall make provision in his tendered rates and sums for arrangements to accommodate the rail traffic and occupy the railway reserve, and to prepare and submit the drawings as specified."

BA1.2.3.5 HANDING OVER OF ROAD RESERVE

ADD THE FOLLOWING PARAGRAPH:

"The total length of the road reserve between the specified limits of construction will be handed over to the contractor on the commencement date. Reference shall, however, be made to the requirements of Section 1500 of these specifications where limitations in respect of work-areas are specified. In the event of the non-adherence by the contractor in terms of the mentioned specifications, the Employers Agent shall withdraw such sections of the road reserve as may be justified to ensure suitable progress of the works or safe passage of traffic.

In addition to the specified repairs, the Contractor shall also carry out any maintenance work within the road reserve that the Employers Agent may require. Such maintenance shall typically comprise the clearing and repair of drainage, any structural damage caused by traffic during the contract period and the maintenance of existing road signs.

Any such work shall be as ordered by the Employers Agent and shall be carried out as daywork."

BA1.2.3.7 LEGAL AND CONTRACTUAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC AND THE EMPLOYER

ADD THE FOLLOWING NEW PARAGRAPH:

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2014 (the regulations) as promulgated in Government Gazette No 37305 and Regulation Gazette No 10113 of 7 February 2014. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this contract are detailed in the project specifications, bill/schedule of quantities/pricing schedule and drawings, as well as in the employers' health and safety specifications (regulation 4(1) of the Construction Regulations 2014, which are bound in the contract document/will be issued separately by the employer.

The Contractor shall in terms of regulation 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the employer.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the above-mentioned plan or regulations.

A payment item is / Payment items are included in the bill/schedule of quantities/pricing schedule to cover the Contractor's cost for compliance with the OHS Act and the above-mentioned regulations".

B1229 SABS CEMENT SPECIFICATIONS

DELETE THIS CLAUSE.

ADD THE FOLLOWING TO THIS SUBCLAUSE:

"Where reference is made in this Specification or the Standard Specifications to the cement specifications, eg SANS 471: Portland cement and rapid hardening Portland cement, it shall be replaced with the new specification:

SANS ENV 197-1 Cement composition, specifications and conformity criteria Part 1: Common cements.

On this contract CEM II/B-L 32.5N cement shall be used.

ADD THE FOLLOWING NEW CLAUSES:

"BA1.2.5 MATERIALS

(a) General

The Contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the Employers Agent with certificates showing that the materials do so comply.

Where so specified, materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the Employers 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 Employers 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.

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

Earth, stone, gravel, sand, and all other materials excavated or present on the site or 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.

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 Employers Agent (or other persons authorized by the Employers Agent) at all reasonable times, and the Employers

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 REPORTING OF ACCIDENTS/INCIDANTS

The Contractor shall report every accident/incident which occurs on the road, within the extent of the works, to the Employers Agent, within twenty-four (24) hours of such accident occurring, irrespective of whether such accident has a bearing on damage to the works or to persons, property or thins. The report must be in writing and must contain full particulars of the accident. Photographs of each accident shall also be included in the report. The Employers Agent has the right to conduct any or all enquiries, either on the site or elsewhere, as to the causes and consequences of any such accident. The Contractor shall also keep a comprehensive record of all accidents which occur on the road and shall make such record available to the Employers Agent on demand.

BA1.2.5.2 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 Employers 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 Employers Agent's approval of the mix design(s) and trial section(s).

1.1.2 LABOURENHANCEMENT

(a) General

The following provisions shall apply in respect of those portions of the works that are specified in C3.1.3 to be executed using labour-optimising construction methods.

(b) Restrictions on the use of electrical and mechanical plant and equipment

Except to the extent specified in Part C1.2 Annexure D, Part C3.1.3 and Part 3.3, and notwithstanding anything to the contrary which may be stated in, or be reasonably inferred from any provisions elsewhere contained in the contract, the contractor shall use only Labour and non-mechanically or non-electrically powered hand tools, equipment or plant in the execution and completion of all such portions of the works listed in Part C3.1.3 and Part 3.3 that are to be constructed by labour-optimising construction methods; provided always that the Employers Agent may at his sole discretion and at any time, or upon receipt of a fully motivated written application from the contractor, instruct or authorize the contractor to use such electrical or mechanical plant and equipment as he may deem appropriate or necessary under the circumstances, in the execution of such portions of the works otherwise required, in terms of Part C3.1.3 and Part 3.3, to be constructed using labour-optimising construction methods only.

(c) Classification of excavations

Notwithstanding anything to the contrary which may be contained elsewhere in the Specifications, excavations shall be classified according to the specified method of excavation as follows:

(i) Excavations which are:

- not specified in Part C3.1.3 and Part 3.3 as required to be executed using labour-optimising construction methods; and

- specified in Part C3.1.3 and Part 3.3 as required to be executed using labour-optimising construction methods but which, notwithstanding, are executed by the contractor using mechanical plant and equipment prohibited in terms of the project specifications, either with the prior authorisation of the Employers Agent or in breach of the provisions of the specifications, shall be classified in accordance with the provisions of the standard specifications.

(ii) Excavations which are specified in Part C3.1.3 and Part 3.3 as being required to be executed using labour-optimising construction methods and which are so executed, shall be classified in accordance with table B1233/1.

TABLE B1233/1: CLASSIFICATION OF EXCAVATION

Classification	**Number of blows required for a DCP penetration of 100 mm**	
	Granular soil	**Cohesive soil**
Soft	≤30	≤ 10
Hard	> 30	> 10

(iii) Where only excavation in soft material is required in terms of Part C3.1.3 to be executed using labour-optimising methods, the classification for the purposes of determining the cut-off point for labour-optimising excavation shall be made in terms of sub subclause (ii) above, and the excavation beyond the cut-off point shall be in terms of sub subclause (i) above.

(iv) Classification of material specified to be excavated using labour-optimising construction methods, but not in fact excavated by such methods, whether in compliance with an instruction from the Employers Agent, or in accordance with a concession granted by the Employers Agent or through default of the contractor, shall be made in terms of sub subclause (i) above.

B1234 TRAINING

Structured training shall be provided to temporary personnel involved in the contract in accordance with the provisions set out in elsewhere in this document. The contractor's selection of the candidates shall be approved by the project liaison committee and the Employers Agent, subject to the required entrance levels. All training courses must be offered through approved accredited training organizations.

The contractor shall provide the following for the training:

(a) A venue with sufficient lighting, electric power points and furniture

(b) All necessary stationery, consumables and study material

(c) Transport to and from the training venue if the training is not delivered on site

(d) Wages for candidates attending Engineering (technical) skills training during working hours

(e) Payment to approved training organizations for the provision of training.

NB: Only technical skills may take place during normal working hours. All training courses shall commence within one month of handing over the site and be complete before the end of the contract period.

BC2.1.30 PROJECT LIAISON OFFICER (PLO)

The contractor or his appointed agent will appoint a project liaison officer (PLO) after consultation with the local communities, the Employers Agent and the employer. The contractor shall direct all his liaison efforts with the local communities through the appointed officer. The contractor shall, however, accept the appointed as part of his management personnel.

(a) Duties of the project liaison officer

The project liaison officer's duties will be:

(i) To be available on site daily between the hours of 08:00 and 12:00 and at other times as the need arises. His normal working day will extend from 08:00 in the morning until 17:00 in the afternoon.

(ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.

(iii) To communicate daily with the contractor and the Employers Agent to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.

(iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a “labour desk”.

(v) To attend all meetings in which the community and/or labour are present or are required to be represented.

(vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor’s requirements.

(vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.

(viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.

(ix) To keep a daily written record of his interviews and community liaison.

(x) To attend monthly site meetings to report on labour and RDP matters.

(xi) All such other duties as agreed upon between all parties concerned.

(xii) To submit monthly returns regarding community liaison as illustrated in this document (forms to be provided by CoM).

(b) Payment for the project liaison officer

A special pay item is incorporated in Section 1200 of the bill of quantities relating to payment of the liaison officer on a provisional sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required. The remuneration of the PLO shall be determined by the employer in terms of the Sectorial Determination 2: Civil Engineering Sector (Task Grade 3).

(c) Period of employment of the project liaison officer

The period of employment of the project liaison officer shall be as decided upon jointly by the contractor, Employers Agent and employer at a maximum period of a six months basis, but with the option of renewal.

B1235 SUBCONTRACTORS

Over and above the stipulations of the Conditions of Contract, regarding subletting of part of the works, it is a condition of the contract that an approved subcontractor shall not sublet part of his work, covered in his appointment by the main contractor, to another subcontractor without the consent and approval of the Employers Agent. Subletting shall in all cases be critically considered by the Employers Agent.

In addition to the provisions of the Conditions of Contract regarding subcontracting of the works, it is a requirement of this contract that an approved subcontractor shall not further subcontract work subcontracted to him by the main contractor, to another subcontractor without the consent and approval of the Employers Agent. Subcontracting shall in all cases be critically considered by the Employers Agent. The Employers Agent reserves the right to limit the extent or the volume of work subcontracted by the contractor, should he deem it necessary in terms of progress or quality of workmanship.

B1236 WORKMEN'S COMPENSATION ACT

All labour employed on the site shall be covered by the Compensation for Occupational Injuries and Deceases Act (COIDA). The contractor shall pay in full, including the payment of the necessary levies, such amounts, as are due in terms of the Act. The contractor at the commencement of the contract shall resolve the manner in which Workmen's Compensation will be handled. Amounts paid by the contractor shall not be included in the wage rates but shall be covered by the contractor to be deemed as included in his General Obligations rates in Section 1300 of the bill of quantities.

B1237 OWNERSHIP OF REDUNDANT ROAD SIDE FURNITURE AND OTHER MATERIALS

Ownership of all redundant road side furniture and other materials will remain the property of the Employer unless otherwise specified by the Employers Agent and shall be taken to the City of Mbombela.

B1238 MEASURMENT AND PAYMENT

Item Unit

BC2.1.29 Training

(a) Engineering (technical) skills ……..provisional (Prov) sum

(b) Training venue ……..Lump Sum

(c) Remuneration of workers undergoing technical skills training……...provisional (Prov) sum

(d) Construction handling costs, profit and all other charges in respect of subitems B12.01 (a) & (c)

(i) Engineering (technical) skills……..……..percentage (%)
(ii) Remuneration of workers undergoing technical skills training…… percentage (%)

Payment under subitems B12.01(a), shall be the amounts actually paid to the training institutions and shall be made in accordance with the provisions of the Conditions of Contract.

The lump sum tendered for subitem B12.01(b) shall include full compensation for the provision of a suitable training venue, for all necessary lighting, furniture, stationery, consumables and study material, and for transportation of the workers to and from the training venue. Payment of the lump sum will be made in two instalments as follows:

(i) The first instalment, 75% of the lump sum, will be paid after the contractor has met all his obligations regarding the provision of the training venue as specified.

(ii) The second and final instalment, 25% of the lump sum, will be paid after the contractor has met all his obligations regarding the provision of all the training programmes specified in the document.

Payment under subitem B12.01(c) shall be the actual sum paid to workers undergoing technical skills training. The contractor will not be reimbursed directly for his administrative costs which will be deemed to be included in the rates tendered for item B13.01.

The percentages tendered for subitem B12.01(d) shall be the percentages of the amounts actually reimbursed to the contractor under subitems B12.01(a), and (c) and shall be in full and final compensation in respect of the contractor's handling costs, profit, mentoring, record-keeping, reporting and all other charges in connection with providing the services.

BC2.1.30 Remuneration of the Project Liaison Officer

(a)Project Liaison Officer .....provisional (Prov) sum

The provisional sum provided shall cover the salary of the duly elected and approved CLO.

The tendered percentage is a percentage of the amounts actually spent under the items, which shall include full compensation for the handling costs of the Contractor, and the profit in connection with the remuneration of the Project Liaison Officer.

BC2.1.31 Penalties

a)Targeted Labour..... percentage point

The penalty for item (a) for not attaining at least the tendered number of person-days (refer to Part T2: Returnable Documents) will be calculated as follows:

In the event that the Tenderer fails to substantiate that any failure to achieve the Contract Participation Goal was due to quantitative under runs, the elimination of items, or any other reason beyond the Contractor's control which may be acceptable to the Employer, it shall be liable to pay to the Employer a financial penalty calculated in the following manner:

The penalty for failure to achieve the Contract Participation Goal shall be applied at a rate of 100% of the value by which the accumulative value of the measurable elements fails to meet the tendered CPG in the table below and shall be applied on a pro-rata basis according to a monthly evaluation of achievements against the targets tendered by the contractor in T2.3.5 item 6 broken down to monthly expenditure.

A further penalty for failure to achieve the Contract Participation Goal in terms of training shall be applied at a rate of 100% of the value by which the accumulative value of the measurable elements fails to meet the planned training targets, based on the Provisional Sum amount, as submitted by the Contractor within 22 working days as specified in clause 5.3.1 of the contract data. The training penalty shall be applied on a pro-rata basis according to a monthly evaluation, starting the second month of the contract, of achievements against the targets planned by the contractor.

BC2.1.32 Excavation for existing services:

(a) Excavation and carting away of excavated material in search of existing services in soft material situated in the following depth ranges:

(i) 0m to 2m…….. cubic metre (m^3)
(ii) 2m to 3m……. cubic metre (m^3)

(b) Extra over B12.04(a) for excavation in hard material in close vicinity of services using picks, jackhammers, powertools etc. where no blasting or machine excavation is permitted…….cubic metre (m^3)

The unit of measurement shall be the cubic metre of material excavated between the various depth ranges to locate existing services.

The tendered rate shall include full compensation for plant, equipment to carry out the work, loading, transporting (including all haul), unloading and disposing of the material at approved dumping sites provided by the contractor.

BC2.1.33 Protection, removal, realignment and replacement of services

(a) Utility Services/Telkom, Fibre Optic Cables:

(i) The protection, removal, realignment and replacement of Services ……prime cost (PC) sum

(b) Utility Services/ City of Mbombela

(i) The protection, removal, realignment and replacement of Services ……prime cost (PC) sum

(c) Utility Services/ City of Mbombela

(i) The protection, removal, realignment and replacement of Services ……prime cost (PC) sum

(d) Handling costs and profit with respect to item B12.04(a), (b) & (c)……..…%

The prime cost items shall be paid in accordance with the provisions of the General Conditions of Contract as amended by Particular Conditions of Contract. The tendered percentages are percentages of the amount actually spent under the prime-cost items, which shall include full compensation for the profit in connection with providing the specified service.

C1.3.2 Contract sign boards

BC1.3.2 Contract Sign Boards …….… Number (No)

The unit of measurement for item BC1.3.2 of Contract sign board is Numbers (No) the total numbers of the approved contract sign boards must be 2 (Two) provided and erected by the Contractor in the positions on site indicated by the Engineer. The contract rate for item C1.3.2 shall include full compensation for all costs associated with providing, erecting and for the later removal of the contract signboards as soon as the Works have been completed. Refer to Drawing 1086-CIV-DRG-108

BC2.1.36 Installation of new street lights complete including cabling, excavations and backfill to Electrical Engineer's Specification ..... provisional sum

The unit of measurement shall be the above items is for payment to service providers and their sub-contractors for the installation and relocation of the street lights.

The tendered rate shall include full compensation for furnishing and erection of the street lights, including the cabling, excavations and backfill as detailed on the drawings.'

BC2.1.37 Handling Cost and Profit on Item B12.07…… %

The percentages tendered for subitem B12.08 shall be the percentages of the amounts actually reimbursed to the contractor under subitems B12.07 and shall be in full and final compensation in respect of the contractor's handling costs in connection with providing the service.

BC2.1.38 Signalized intersection ..... provisional sum

The unit of measurement shall be the above items is for payment to service providers and their sub-contractors for the installation of traffic signals.

The tendered rate shall include full compensation for furnishing and erection of the traffic lights, including the sleeves, cabling, excavations and backfill as detailed on the drawings and setting of the traffic signals according to the approved drawings.'

BC2.1.39 Handling Cost and Profit on Item B12.07…… %

The percentages tendered for subitem B12.010 shall be the percentages of the amounts actually reimbursed to the contractor under subitems B12.08 and shall be in full and final compensation in respect of the contractor's handling costs in connection with providing the service."

CHAPTER 1: 1.3 CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

GENERAL REQUIREMENTS

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

ADD THE FOLLOWING AFTER THE FIRST PARAGRAPH:

"Before the establishment of the Contractor's camp at an approved site, the area will first be fenced off and, if required by the Employers Agent, 150 mm of topsoil and vegetation removed to temporary stockpiles as described in Section 1700

ADD THE FOLLOWING AS A SECOND PARAGRAPH

"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 C3.3 of the Scope of Works contains provisions that regulate the Contractor's construction methods for compliance with Government's initiatives towards black economic empowerment. It also contains information on criteria used in the procurement process. No separate payment mechanism has been made available for the Contractor to allow for his compliance with relevant black economic empowerment legislation. The Contractor shall include such costs in the existing payment items under section B1303: Payment. However, non-compliance with the provisions of this section may lead to the imposition of penalties."

Section C4.3 of the Site Information contains the Environmental Management Plan (EMPl) for this project. Its provisions regulate the Contractor's construction methods to ensure responsible conduct and treatment of the environment relevant to the project. Payment subitem B13.01(d) makes allowance for the Contractor to price for environmental compliance duties as well as the duties of the Designated/dedicated Environmental Officer (DEO) as prescribed in this section The contractor shall comply with all statutory and contractual requirements of the Environmental Management Programme.

Section C1.2 Annexure C of the Contract Data contains the specifications that regulate the Contractor's construction methods so far as to ensure health and safety of his employees and of the public. New pay item has been made available under this section to allow the Contractor to make separate provision for the cost of health and safety measures during the construction process.

ADD THE FOLLOWING NEW SUBCLAUSES:

"**(d) Safety of Contractor's and sub-Contractor's workforce**

The Contractor is responsible for the safety of its workforce and for the safety of subcontract employees employed on the site.

(e) Contractor's ablution facilities

"The Contractor shall, at each area where work is being undertaken, provide on a daily basis at least one (1) portable chemical latrine unit per thirty (30) workers for use by construction workers employed on the project. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the satisfaction of the Employers Agent. No separate payment shall be made for this requirement and it shall be deemed to be included in the rates tendered for the Contractor's time-related obligations."

(f) 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 shall submit and update on a monthly basis all the appendices to the site meeting minutes and a cash flow forecast for the works.

The Contractor shall complete monthly reports regarding training, empowerment, capacity building, small Contractor development, labour and staff returns and any such aspects on the Employer's standard forms. This information shall also be reported on monthly for all sub-Contractors employed.

The above information shall form part of supporting documentation required for making interim payments in terms of the General Conditions of Contract.

Allowance has been made for these requirements in the Pricing Schedule under pay item B13.01(e) Monthly Reporting. Failure to comply may result in payments being withheld"

PART C MEASUREMENT AND PAYMENT

Item **Unit**

BC1.2.1 The Contractor's establishment including general obligations

ADD THE FOLLOWING PAY SUB-ITEM:

"(2.1) Environmental obligation ..... month

(2.2) Monthly reporting cost ..... month

(2.5) Security on site ..... month

INSERT THE FOLLOWING PARAGRAPH AFTER THE FOURTH PARAGRAPH:

"Should the combined total tendered for subitems (a), (b), and (c) exceed 15% of the tender sum (excluding CPAF, contingencies and VAT), the tenderer shall state his reasons in writing for tendering in this manner."

ADD THE FOLLOWING SUB-SUB-CLAUSE DEFINING THE CONTRACTOR'S GENERAL OBLIGATIONS:

"(iv)Complying with the requirements and conditions of the additional specifications relating to the Government's Black Economic Empowerment and the Environmental Management Program.

Replace "clause 49" *in the 4th, 8th and 10th paragraphs with* "sub-clauses 6.8".

DELETE THE FOURTH LAST PARAGRAPH COMMENCING "The tendered rate per month for sub-item B13.01(c) …" *AND REPLACE WITH:*

"The tendered rate per month for sub item B13.01 (c) represents full compensation for that part of the Contractor's general obligations that are mainly a function of construction time. The tendered sum will be paid monthly, pro rata for parts of a month, from the Commencement Date until the end of the period for completion of the works, plus any extension thereof as provided in Clause 5.12 of the General Conditions of Contract.

Payment for time related costs arising from extensions of time granted by the employer, where the Contractor is fairly entitled to such compensation in terms of Clause 5.12 of the General Conditions of Contract, will be calculated by taking account only of pay items for which the unit of measurement is "month". All pay items for which the unit of measurement is "month" are deemed to be based on 23 working days per month."

The Contractors' annual holiday period in December / January as provided for in the Contractor's program shall be non-working days and shall not form part of the period of Time for Completion, and measurement and payment for time related items and costs shall not apply to this period."

ADD THE FOLLOWING AT THE END OF THE LAST SECTION ON PAYMENT:

"Payment of the rate per month for subitems B13.01(d), (e), and (f) shall include full compensation for all the Contractor's obligations relevant to environmental compliance, monthly reporting and security on site (as per clause 4 of the GCC 2015).

The tendered rates for subitems 13.01(d), (e), and (f) shall apply in the same manner as pay subitem B13.01(c).

A Contractor who tenders zero for this pay item shall not be relieved of his statutory obligations. A nil rate offered shall be deemed not to be an omission, but to be a deliberate notice that costs have been included in the tendered rates for individual items of work, or in other preliminary and general pay items.

CHAPTER 1: 1.4 FACILITIES FOR THE ENGINEER

A1.4.3 General

ADD THE FOLLOWING AT THE END OF THE FIRST PARAGRAPH:

"Burglar-proofing shall comply with the requirements of CKS 338.

The facilities to be provided for the engineer in terms of these specifications shall be fenced off by a two metre high veranda type security fence with diamond mesh on the vertical portion and barbed wire on the overhang. A security gate shall be provided in the fence which shall be guarded at all times by an acceptable watchman provided by the contractor.

The engineer's establishment may be incorporated within the contractor's establishment provided that the preceding requirements are met to the satisfaction of the engineer.

Separate payment shall be made for the provision and erecting of the security fence and gate as indicated on the drawings, but the cost in respect of the provision of a watchman at all times by the contractor shall be deemed to be included in the contractor's tendered rate for item B13.01(c)."

(b) Offices

ADD THE FOLLOWING SUBSUBCLAUSES:

"(xiv) General-purpose steel cupboards with four shelves.

(xvi) The electric refrigerator shall have a capacity of at least 200 litres.

(xvii) Bookcases with four shelves.

(xviii) Voltage stabilizer.

(xix) Steel plan cabinets shall be able to accommodate one/two hundred and fifty A0-sized drawings hanging vertically from approved holders.

(xx) Floodlights at the offices and laboratory of the supervisory staff shall be controlled by a photocell for security purposes.

(xxi) The cellphones and car kits supplied to the engineer's site staff shall be supplied for the duration of the contract. The prime cost sum shall also include for the cost of all telephone calls in connection with contract administration."

ADD THE FOLLOWING SUBCLAUSE:

"(i) Computers and printers

When instructed by the Employers Agent, the contractor shall provide approved new computer equipment, including software and printers for use by the Employers Agent 's site personnel. The type of equipment and software shall be as instructed by the Employers Agent and payment for equipment and maintenance shall be made through item B14.12.

All equipment provided shall be kept fully serviceable at all times by the contractor. The contractor shall repair/replace any defective equipment within 48 hours after notification by the Employers Agent's staff. The contractor shall also be responsible to provide all paper and ink cartridges required by the Employers Agent.

At the end of the contract, the equipment and software shall revert back to the contractor."

BC1.4.7.3 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. Payment for the voltage regulator shall be deemed to be included in the rates tendered for the supply of power. 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."

(c) Maintenance

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The contractor shall supply all labour, equipment and materials required for keeping the offices, ablution units, car-ports at the offices, in a neat and clean condition, and shall immediately undertake repairs requested by the Employers Agent to the offices, ablution units, car-ports, rented houses. The contractor is not responsible for keeping rented houses in a clean and neat condition, nor for tending to or caring for the gardens."

PART C: MEASUREMENT AND PAYMENT

Item Unit

BC 1.4.3 Office and laboratory fittings, installations and equipment:

(a) Items measured by number:

CHANGE SUBITEM (i) TO READ AS FOLLOWS:

" (i) 220/250 volt power points including voltage stabilizers and regulators as specified .....number (No)"

ADD THE FOLLOWING SUBSUBITEMS:

"(xiv)General-purpose steel cupboards with four shelves…….number (No)

(xvi) The electric refrigerator shall have a capacity of at least 200 litres……..……..…....number (No)

(xvii) Bookcases with four shelves……....number (No)

(xviii) Voltage stabilizer……....number (No)

(xix) Steel plan cabinets shall be able to accommodate one hundred and fifty A0-sized drawings hanging vertically from approved holders…….…..number (No)

(xx) Floodlights at the offices and laboratory of the supervisory staff shall be controlled by a photocell for security purposes……...…number (No)

(xix) Steel plan cabinets..... ……..number (No)

(xx) Floodlights complete with poles and minimum 500 watt globes .....….number (No)

The tendered rate for subitem BC1.4.3(a)(xx) shall include for the operation of the lights from sunset to dawn for the full duration of the contract."

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

REPLACE THE DESCRIPTION OF SUBSUBITEM BC1.4.3(b)(i) WITH THE FOLLOWING:

"(i) Provision of cellphones complete with car kits fitted to vehicles as directed, including all fees and the cost of phone calls in connection with the administration of the contract ……..Prime Cost (PC) Sum

(ii) Handling costs and profit in respect of subitem 14.03(b)(ix) above .....percentage (%)"

Item Unit

BC1.4.1.1 Provision of Photostat facilities

AMEND THIS PAYITEM DESCRIPTION TO READ “provision of copying facilities” *AND IN THE PAYMENT PRESCRIPTION, AMEND* “photocopier” *TO READ* “combination colour printer/copier/scanner/facsimile machine”.

Item Unit

BC1.4.1.2 Supply of computer hardware and software:

(a) Supply of computer equipment and software Prime Cost (PC) sum

(b) Handling cost and profit in respect of subitem B14.12(a) percentage (%)

Expenditure under this item shall be made in accordance with the Conditions of Contract.

The tendered percentage is a percentage of the amount actually spent under subitem B14.12(a), which shall include full compensation for the handling costs of the contractor, and the profit in connection with providing the specified equipment."

CHAPTER 1: 1.5 ACCOMMODATION OF TRAFFIC

A1.5.1 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. elsa.herbst@gpw.gov.za.

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

A1.5.3.2 GENERAL REQUIREMENTS

(a) Safety

ADD THE FOLLOWING PARAGRAPH:

"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 Employers 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."

(b) Providing temporary deviations

ADD THE FOLLOWING PARAGRAPH:

"The contractor shall keep the provincial traffic police, the municipal traffic department and the Employers Agent fully informed of changes in the normal traffic flow and obtain their approval for these changes."

(e) Access to properties

ADD THE FOLLOWING:

"Where the alignment of the new road coincides with the alignment of the existing road, accesses to private properties will have to be operational and maintained during the constructional period. No separate payment will be made for providing acceptable and safe access across the new road at all times during construction of the road."

(f) Approval of temporary deviations

ADD THE FOLLOWING:

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

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

The contractor shall keep the provincial traffic police, the municipal traffic department and the Employers Agent fully informed of changes in the normal traffic flow and obtain their approval for these changes"

(i) Traffic Safety Officer

ADD THE FOLLOWING AFTER SUBCLAUSE (viii):

"(ix) be responsible for contacting all the relevant authorities in the event of an accident on the site of the works

(x) arrange for the removal of broken-down vehicles that obstruct the normal traffic flow

The contractor shall provide the traffic safety officer with all the necessary resources to carry out his duties as specified, inter alia, light delivery van (LDV), personnel, warning signs and revolving amber flashing lights. A warning sign with the words "CONTRACTOR TRAFFIC CONTROL" in clearly legible letters shall be mounted on the vehicle at least 1,5 m above ground level to be clearly visible. The vehicle shall be equipped with two revolving amber-coloured flashing lights with a minimum intensity of 55 W. The flashing lights shall be switched on and the warning sign be displayed at all times when the vehicle is used on the site.

No separate payment will be made for the traffic safety officer, his vehicle, personnel and equipment and the cost thereof shall be included in the contractor's cost for his establishment and general obligations (section 1300)."

ADD THE FOLLOWING SUB-CLAUSES:

"**(j) Site Personnel**

The Contractor shall ensure that all his personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and that these are worn at all times when working on or near to the travelled way. Any person found not wearing a reflective jacket under these circumstances shall be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets shall be kept in good condition and any jackets that are, in the opinion of the Employers Agent, ineffective shall be immediately replaced by the Contractor.

(k) Liaison with City of Mbombela Traffic Department

The Contractor shall obtain permission and approval of his traffic management plan from the municipality in writing prior to any work starting on any section of the work.

(l) 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.

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.

iii) "Normal working hours" (referred to in Clause 5.8 of the General Conditions of Contract) will, because of heavy peak hour traffic volumes, be restricted to between 30 minutes after sunrise and 30 minutes before sunset.

BA1.5.5.7 TEMPORARY TRAFFIC-CONTROL FACILITIES TRAFFIC ACCOMMODATION FACILITIES AND SAFETY DEVICES

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, channelization 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, Vol 2 (May 2012) 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.

All temporary road signs, devices, sequences, layouts and spacings shall comply with the requirements set out in the National Road Traffic Act, 1996 (Act No 93 of 1996), the National Road Traffic Regulations, 2000 of the relevant authorities and on the drawings or as instructed by the Employers Agent.

The contractor shall indemnify the employer against all proceedings, claims, actions, damages and costs which may arise from or be related to the absence or improper functioning or placement of road traffic signs, barricades, traffic-control facilities, channelization devices and warning devices."

REPLACE THE LAST SENTENCE OF THE SECOND PARAGRAPH WITH THE FOLLOWING:

"Traffic-control facilities lost or damaged by the Contractor shall be replaced at his own cost. Where it can be proved that loss of or damage to such facilities is beyond the Contractor's control and not the result of his actions or omissions, the Employers Agent may order the facilities to be replaced and paid for at scheduled rates."

REPLACE THE THIRD PARAGRAPH WITH THE FOLLOWING:

"The type of construction, spacing and placement of traffic-control devices shall be in accordance with the SARTSM, Vol 2 (May 2012). The recommended arrangements of the traffic control devices illustrated and/or drawings issued by the Employers Agent shall not be departed from without prior approval of the Employers 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 Employers Agent where deemed necessary to accommodate local site geometry and traffic conditions."

b) Road signs and barricades

ADD THE FOLLOWING:

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

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

The covering of permanent road signs, if applicable, shall be by utilizing a 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 15.10."

c) Channelization devices and barricades

ADD THE FOLLOWING:

"The use of drums as channelization devices shall not be permitted. Drums may however be used to set up barriers as provided for in sub-clause 1503(d).

TW 401 and TW402 delineators shall be used at all times and comply with the following requirements:

(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) It shall be nominally 1 000 mm high x 250 mm wide and the bottom edge of the delineator shall not be more than 200 mm 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 0,18m^2 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 centerline 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."

d) Barriers

ADD THE FOLLOWING:

*"*Barriers for preventing vehicles from leaving the permitted lanes shall be movable barriers with an approved safety shape design (e.g. New Jersey, F-shape or single slope). Temporary movable barriers shall be obtained from suppliers and placed between the existing road and 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 cognizance of his liabilities relating to the installation of temporary works to provide protection to the permanent Works and safety to his personnel and select a barrier system appropriate to his chosen work methodology. Particularly pertinent is the working width rating of a barrier system; the displacement width of the system shall not exceed the available safe width to the nearest edge of the construction. All moveable barriers shall be installed in accordance with the manufacturer's instructions or generally accepted best practice and shall be submitted to the Employers Agent for review and comment.

Where instructed by the Employers Agent, 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)."

e) Warning devices

ADD THE FOLLOWING:

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

(i) Vehicle mounted flashing lights

Rotating amber flashing lights (min 55 W) shall have an amber lens of minimum height of 200 mm and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted sections of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area, as the vehicles decelerate to enter a construction area, and as the vehicles accelerate to the general speed when entering the road from a construction area. Lights on plant shall operate continuously while the plant is working alongside sections of road open to public traffic

All LDV's and cars operating on site shall also be equipped with rotating amber flashing lights which shall be placed so as to be highly visible and operated continuously while the vehicles are maneuvering in or out of traffic or are travelling or parked alongside roads open to public traffic.

Rotating lights and the "construction vehicle" signs on the Contractor's vehicles and plant shall not be paid for separately but shall be included in the rates covering the use of the vehicles.

The Contractor shall apply and maintain lights together with temporary mounting brackets, to the approval of the Employers Agent. Vehicles and plant that do not comply with these requirements shall be removed from the site.

It shall be a requirement that the Contractor also provides the Employers Agent's site personnel with warning lights for their vehicles (a maximum of four lights are required) without any additional payment.

(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.

ADD THE FOLLOWING SUB-CLAUSES:

"(g) Safety jackets

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 engineer, ineffective shall be replaced immediately by the contractor.

(h) Other traffic control measures ordered by the Employers Agent

The Employers Agent may instruct the Contractor to provide any other road sign, reflective tape, etc. not measured in standard pay items. Such road signs shall conform to the requirements of the SARTSM, or specification provided by the Employers 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 Employers Agent may arrange for advertising in the press and/or for other forms of publicity.

(i) Flagmen

Flagmen shall be provided where shown on the drawings or required by the specification and payment will be included in the monthly cost for accommodation of traffic. Payment for flagmen will only be done if instructed by the Employers Agent.

Flagmen shall be adequately trained in the standard flagging techniques as described in the SARTSM – Vol 2 (May 2012) (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."

BA1.5.7.10 WIDTH AND LENGTH OF TEMPORARY DEVIATIONS

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

"The effective carriageway width for any two-way traffic accommodated on an existing bituminous surfaced road shall not be less than 6,8 m. No single lane shall be less than 3,4 m wide.

Where the traffic is accommodated in half-widths, the effective lane width for one-way traffic shall not be less than 3,4 m."

B A1.5.7.10 TEMPORARY DRAINAGE WORKS

ADD THE FOLLOWING TO THE LAST PARAGRAPH:

"The construction of temporary culverts shall be in accordance with section 2200. Temporary culverts no longer required shall be removed as directed by the engineer. Excavations shall be backfilled with suitable granular material and compacted to the densities specified by the engineer."

B A1.5.7.10(b) TEMPORARY DRAINAGE WORKS

ADD THE FOLLOWING TO THE LAST PARAGRAPH:

"The construction of temporary culverts shall be in accordance with section 2200. Temporary culverts no longer required shall be removed as directed by the Employers Agent. Excavations shall be backfilled with suitable granular material and compacted to the densities specified by the Employers Agent."

B A1.5.7.10(e) GRAVELLING OF TEMPORARY DEVIATIONS OR OF EXISTING ROADS USED AS TEMPORARY DEVIATIONS

ADD THE FOLLOWING TO THE SECOND PARAGRAPH:

"The gravel material laid on existing roads used as diversions shall comply with the following:

Maximum size	:	37,5 mm
Oversize index (Io)	:	0 (% retained on 37,5 mm sieve)
Shrinkage products (Sp)	:	100 - 240 (linear shrinkage x % passing 0,425 mm sieve)
Grading coefficient (Gc)	:	16 - 34 [(% passing 26,5 mm - % passing 2,0 mm) x % passing 4,75 mm/100]
CBR	:	≥ 15 at 93% of modified AASHTO density."

BA1.5.7.6 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."

BA1.5.7.11 ACCOMMODATION OF TRAFFIC WHERE THE ROAD IS CONSTRUCTED IN HALF- WIDTHS

ADD TO THE FIRST PARAGRAPH:

"Sections where road marking has not been done shall be regarded as being under construction and not fully opened."

DELETE THE FOURTH PARAGRAPH STARTING WITH: "The number of 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. Failure to comply with these specifications will entitle the Employers Agent to apply a lane occupation levy."

ADD THE FOLLOWING CLAUSE:

"B A1.5.7.10(g) RETRO-REFLECTIVE MATERIAL

"Retro-reflective material for temporary signs shall comply with the requirements of SABS 1519-1 for weathered material. Tests shall be carried out with a field retro-reflectometer and the testing procedure and classification are described in clause B8118. The value of the coefficient of Retro-Reflection shall be at least 60% of the values indicated in table B8118/1.

B1519 ACCOMMODATION OF PEDESTRIAN TRAFFIC

The Contractor shall pay specific attention to the accommodation of pedestrian traffic along the cross roads where the safety of pedestrians could be compromised as a result of the works.

Where pedestrians have to cross the site, the Contractor shall ensure that the pedestrians are safeguarded and shall be able to cross the site without being endangered. The pedestrians should not be able to enter areas where works are taking place.

Should a walkway be required, it shall have a clear opening of at least 1,2 m wide and 2,1 m high and shall be uniformly illuminated at all times. The surface of the walkway shall be free from obstructions and shall be clearly signposted to guide the pedestrians towards the walkway. If steps are required to reach the level of the walkway, these shall comply with the OHS act and have proper handrails. No ramps shall be steeper than 1 in 8.

Payment for compliance to this requirement shall be deemed to be included in the rates tendered for accommodation of traffic."

PART C 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."

REPLACE ITEM 15.01 WITH THE FOLLOWING:

"**Item** **Unit**

BC 1.5.13 Accommodating traffic and maintaining temporary deviations…….....month (Month)

The unit of measurement shall be the month measured as per item 13.01(c).

The tendered rate shall include full compensation for the general obligations and incidental cost-items necessary for the accommodation of traffic and the construction and maintenance of diversions, including roads constructed in half widths and existing roads that are being used as diversions, during the construction period and during the maintenance period where such items of cost are not specially paid for under the pay items provided under this section in the Schedule of Quantities. It shall also include full compensation for the provision of all equipment, including tools, transport, labour, supervision, guards, and temporary traffic aids, including all relocation and re erection as may be required for the execution of all the works (including moving and re-erecting temporary plastic New Jersey Barriers), required for the proper and safe accommodation of traffic as specified and as shown on the drawings. It shall also include, where necessary, communications equipment required to regulate traffic, for the provision and maintenance of temporary drainage, arranging for the moving of services, attending to traffic problems, complying with the requirements of the Road Signs Manual, and for providing temporary access to private properties.

The tendered rate shall also include full compensation for flagmen as required in accordance with the drawings.

The provision of temporary traffic control facilities including all road signs will be measured and paid for under Item B15.03. The tendered rate shall include the re use of the signs for all the closures at any locations and full maintenance including the replacement of damaged signs.

The tendered rate shall also include the provision of a full-time traffic safety officer, assistants, special vehicles for 24-hour maintenance, inspection, dealing with all accommodation of traffic related issues including and reporting of accidents."

BC 1.5.4 Earthworks for temporary deviations

ADD THE FOLLOWING:

"Payment under this item will only be applicable to temporary deviations for the accommodation of traffic and will not be used for frontage/service roads used for the accommodation of traffic. Payment for frontage/service roads used for the accommodation of traffic will be made under section 3300."

BC 1.5.7 Temporary traffic control facilities

(a) Flagmen

Replace the 1st paragraph of the payment description to the following:

"The unit of measurement shall be a full day and night worked by flagmen **only when instructed by the Employers Agent**. A man-day shall be deemed to comprise of a number of shifts within a twenty four hour period. Shifts of 12 hours and less shall be measured as half of a man-day."

Add the following to the measurement sub-paragraph "(a) Flagmen":

"For this contract the cost for providing flagmen for traffic accommodation as indicated on the drawings shall be deemed to be included in the tendered rates under item B15.01. Payment under item B15.03(a) will be made only in instances where, **upon an instruction by the Employers Agent**, additional flagmen are to be provided.

Payment for flagmen who assist with the safe entry and exit of the Contractor's vehicles from closures or turning points, or guiding the traffic around the Contractor's plant will be deemed to be included in the Contractor's Safe Work Procedure and shall not be claimed under item B15.03 (a)."

REPLACE THE DESCRIPTION OF SUBITEMS (g) AND (h) WITH THE FOLLOWING:

"(g) Rectangular road signs, TGS-,TIN-, and TW-series (excluding TW-series delineators and barricades) .....square metre (m²)

(h) Delineators TW401/TW402 (250 mm x 1 000 mm sides):
(i) Single (size indicated)..... number (No)
(ii) Double sided blade (size indicated)..... number (No)

ADD THE FOLLOWING NEW SUB-ITEM:

"(n) Other traffic control measures ordered by the Employers Agent
(i) Provision of other traffic control measures ..... provisional (Prov) sum
(ii) Handling costs and profit in respect of sub-item B15.03(n)(i) ..... percentage (%)

Expenditure under this payment item, (e.g. media releases or other signs to deliver information to the public shall be made in accordance with sub-clause 6.6 of General Conditions of Contract for the supply and installation of any additional signs or other traffic control measure ordered by the Employers Agent in accordance with clause B1503(g).

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

Under heading "General", make the following amendment:

Insert "Only items additional to those shown on the drawings are scheduled for payment" *after* "site" *in the fourth last line of this paragraph.*

At the end of the item under the heading "General" *the last sentence shall be replaced by the following:*

"Facilities which are stolen or become unserviceable, in particular delineators, shall be replaced promptly at no additional cost. All signs not in their correct position for whatever reason shall be noted and reported to the Employers Agent daily as part of the Traffic Safety Officer's duties. In this event, the fixed penalty of R5 000 shall not be deducted but the time-related penalty of R500 per hour shall remain applicable as per B1502(k)."

Delete payment items 15.08 and 15.09 as maintenance of the road and/or bypasses are paid under Section 3900

ADD THE FOLLOWING PARAGRAPH TO PAY ITEM B15.03(L) PAYMENT DESCRIPTION:

"The barriers shall be placed at the traffic control facilities to manage traffic and also alongside the work area as instructed by the Employers Agent."

Item

BC1.5.12 Gravelling and repair of temporary deviations and existing gravel roads used as temporary deviations:

ADD THE FOLLOWING:

"Payment under this item will only be applicable to temporary deviations for the accommodation of traffic and will not be used for frontage/service roads used for the accommodation of traffic. Payment for gravelling of frontage/service roads used for the accommodation of traffic will be made under section 3400."

REPLACE ITEM 15.10 WITH THE FOLLOWING:

"Item **Unit**

BC1.5.13 Accommodation of traffic where the road is constructed in half-widths.....kilometre (km)

The unit of measurement shall be the kilometre measured along the centre line of the roads to be constructed, upgraded or rehabilitated in half-widths as directed by the engineer.

The accommodation of traffic in half-widths shall be measured once only along the centre line of the road, irrespective of the number of times necessary to accommodate traffic over any particular part of the road.

This also applies to cases where the traffic is initially accommodated on one half of the road and later on the other half. The limits for any particular part of road on which traffic has to be accommodated in half-widths shall be the distance measured between the beginning and end of the particular work area and not between the two furthermost temporary road signs on either side of the particular section of road under construction.

The tendered rate shall include full compensation for providing all Constructional Plant, equipment, tools, transport, labour, supervision, guards and all other incidentals necessary for the proper and safe handling of traffic as specified, for all additional costs and work resulting from accommodating the traffic in half-widths, and for dismantling, storing and if necessary re-using, moving, transporting and re-erecting temporary road signs, barricades and all other traffic-control facilities necessary to accommodate traffic in half-widths, irrespective of the number of times necessary to move such traffic-control facilities.

Payment will be made in three instalments as follows:

(a) The first instalment, 25% of the length of road where the traffic is accommodated in half-widths, will be paid after the contractor has met all his obligations regarding the widening of the shoulder or any phased construction for the accommodation of traffic.

(b) The second instalment, 35% of the length of road where the traffic is accommodated in half-widths, will be paid after the contractor has met all his obligations regarding the construction of the one half of the road complete to final road levels, excluding the second application of slurry.

(c) The third and final instalment, 40% of the length of road where the traffic is accommodated in half-widths, will be paid after the contractor has met all his obligations regarding the construction of the remainder of the road complete to final road levels, including the second application of slurry to the first half.

Payment for the provision of temporary traffic-control facilities shall be made under item B15.03 and shall be paid for once only, irrespective of the type of work to be executed or the number of times that the temporary traffic-control facilities have to be moved and re-used."

ADD THE FOLLOWING NEW ITEMS:

"Item **Unit**

BC1.5.13. Provision of traffic safety equipment for visitors

(a) Emergency rotating mini light bar for mobile use..... number (No)
(b) 'Construction' sticker for vehicles with 100 mm high lettering..... number (No)
(c) Safety jackets ..... number (No)

The unit of measurement shall be the number of each item provided as specified, and approved by the Employers Agent.

The tendered rates for the various safety items shall include full compensation for provision thereof and maintenance in good working order."

Item **Unit**

BC1.5.13 Media releases and public relations:

(a) Media releases and public relations.....Prime Cost (PC) Sum

(b) Handling costs and profit in respect of subitem B15.15(a).....percentage (%)

The prime cost sum is provided to cover costs related to media releases and public notices as instructed by the Employers Agent."

CHAPTER 1 :1.6 CLEARING AND GRUBBING

BA1.6.1 SCOPE

ADD THE FOLLOWING AFTER "grubbing" *IN THE FIRST PARAGRAPH:*

"including the demolishing and disposal of structures, shelters, dwellings and out-buildings within the new road reserve".

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."

BA1.6.2 DEFINITION

ADD THE FOLLOWING TO SUBCLAUSE (i):

"Clearing of material shall also include the following:

Any material, irrespective of type which is removed from existing pavements and spoiled, or material within the road reserve and the working space may be clear and hauled directly to other parts of the site or to approved stockpiles or from stockpiles to a working area."

ADD THE FOLLOWING TO SUBCLAUSE (i):

"Grubbing of material shall also include the following:

Removal of brick wall fence or concrete wall fencing and or any other material that may form part of the fencing that is within the roadbed area

(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 250mm unless approved by the Employers 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 Employers 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."

PART C MEASUREMENT AND PAYMENT

Item

BC1.6.1 Clearing and grubbing

REPLACE THE LAST PARAGRAPH WITH THE FOLLOWING:

"The tendered rates shall include full compensation for all work necessary for the clearing and grubbing of the surface, the demolishing and disposal of structures, shelters, dwellings and out-buildings, the removal of all vegetation, shrubs, trees and tree stumps (except large trees and stumps as defined in item 17.02), cutting of branches, backfilling of cavities, the removal, transporting (including all haul) and disposal of material at approved dumping sites provided by the contractor, and all additional costs incurred to clear and grub the surfaces to the Employers Agent's satisfaction."

C1.6.4. Removal of buildings and structures

ADD TO THE END OF THE LAST PARAGRAPH:

The tendered rates shall include full compensation for all work of removal of brick wall fence or concrete wall fencing and or any other material that may form part of the fencing that is within the roadbed area, procurement of the removed material and reconstruction of the new fencing and any other fencing or wall in in a different position outside the roadbed

ADD THE FOLLOWING PAYMENT ITEM:

"Item		Unit
BC1.6.4.1	Building (concrete and masonry structures)	lump sum

The unit of measurement for each building or structure that is removed shall be the lump sum. The lump sum shall include full compensation for all work necessary for demolishing and removing the buildings or structures, including removal of the foundations and the loading and offloading of all the material, procurement of material and reconstruction of the building or structure (masonry or concrete) in a different position determined by the Employer's Agent. Hauling of the removed building or structural material to a designated spoil area will be measured from the point of loading to the centroid of the designated spoil area following the shortest practical route. Payment for haulage will be made under item

ADD THE FOLLOWING PAYMENT ITEM:

"Item

Unit

BC1.6.9.1 Temporary stockpiling or blading to windrow of topsoil:

(a) Blading to windrow alongside the areas demarcated for side drain excavation..... cubic metre (m^3)

(b) In temporary stockpiles after loading material into trucks including 2,0km freehaul ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of topsoil bladed to windrow or temporarily stockpiled. The volume of topsoil 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 Employers Agent as to the depth of topsoil to be removed. Where, in the opinion of the Employers Agent, material that would normally be classed as in situ material 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 Employers 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 Employers Agent.

The rates tendered shall include for the excavation of the topsoil and blading to windrow or 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."

BC 1.6.10 Demolition, removal and disposal off site of miscellaneous structures consisting of:

(a) Unreinforced concrete ..... cubic metre (m^3)
(b) Reinforced concrete ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of concrete removed from each structure in the road reserve as instructed by the Employers Agent.

The tendered cubic meter rate for each structure shall include full compensation for the complete demolition of the structure (including foundations to 0,5 m below natural ground level) and the transportation (including all haul) and disposal of all debris at approved dumping sites provided by the contractor.

CHAPTER 1 :1.7 LOADING AND HAULING

A1.7.2 DEFINITIONS

(a) Overhaul material

ADD THE FOLLOWING TO SUBCLAUSE (i):

"Overhaul material shall also include the following:

Any material, irrespective of type which is removed from existing pavements and spoiled, or which is hauled direct to other parts of the site or to approved stockpiles or from stockpiles to a working area."

REPLACE THE LAST PARAGRAPH WITH THE FOLLOWING:

"No overhaul shall apply to materials from commercial sources. The contractor's tendered rates for all materials from commercial sources shall be deemed to include full compensation for hauling the materials to its point of use on the site."

b) Overhaul

ADD THE FOLLOWING PARAGRAPHS:

"All haul within the boundaries of the site will be regarded as free haul, and no payment will be made for overhaul on this contract unless provision is made therefore in specific items. Payment for overhaul will only be considered for material disposed of, or hauled beyond the limits of the site, in which case a free-haul distance of 1,0km measured from the site boundaries will be applicable and shall be measured as the product of the volume of material hauled and the overhauled distance.

No overhaul will be payable for materials imported from commercial sources and from designated borrow pits alongside the road."

A1.7.3.1 MEASUREMENT AND PAYMENT

DELETE "(restricted overhaul)“ *FROM PAYMENT ITEM B16.01*

COTO - CHAPTER 1.2.8
SECTION B 1800: DAYWORKS

ADD THE FOLLOWING NEW SECTION

BC1.2.1 SCOPE

This section covers the listing of day work items in accordance with the Conditions of Contract, determining payment for work which cannot be quantified in specific units in the bill/schedule of quantities/pricing schedule, or for work ordered by the Employers Agent during the construction period which was not foreseen at tender stage and for which no applicable rate exists in the bill/schedule of quantities/pricing schedule.

BC1.2.1 ORDERING OF DAYWORK

No day works shall be undertaken unless written authorization has been obtained from the Employers Agent.

BC1.2.1 MEASUREMENT AND PAYMENT

Item **Unit**

BC1.2.8 Personnel during normal working hours:

(a)Unskilled labour..... hour (h)
(b)Semi-skilled labour.....hour (h)
(c)Skilled labour.....hour (h)
(d)Ganger .....hour (h)

Item **Unit**

BC1.2.8.2 Personnel outside normal working hours:

(a)Outside normal working hours and on Saturdays:

(i)	Unskilled labour	hour (h)
(ii)	Semi-skilled labour	hour (h)
(iii)	Skilled labour	hour (h)
(iv)	Ganger	hour (h)

(b)Sundays and public holidays:

(i)	Unskilled labour	hour (h)
(ii)	Semi-skilled labour	hour (h)
(iii)	Skilled labour	hour (h)
(iv)	Ganger	hour (h)

Item Unit

BC1.2.8.2 Equipment/Plant:

(a) LTB .....hour (h)
(b) Tipper truck 6m3.....hour (h)
(c) Grader (111.9 kilowatts or equivalent).....hour (h)
(d) Compressor and 2 jack hammers .....hour (h)
(e) Excavator (25 TON).....hour (h)
(f) Front-end loader.....hour (h)
(g) Vibrating pedestrian roller (Bomag 60).....hour (h)

Item Unit

BC1.2.8.4 Materials:

(a) Procurement of materials…… Provisional sum(Prov sum)

(b) Contractor's handling costs, profit and all other charges in respect of sub item B18.04(a).....percentage (%)

Item Unit

BC 1.2.8..3 Transport:

(a) .....LDV kilometre (km)

(b)Flatbed truck(min 5 tonne) .....kilometre (km)

The unit of measurement for items B18.01 and B18.02 shall be the hour for the item of equipment/plant or personnel. Non-working hours for transport breakdown, lack of operator or any other reason shall not be measured. The time shall be taken from the time that the personnel and/or plant/equipment depart until return.

Measurement shall only be for work instructed and directed by the Employers Agent, where the Employers Agent considers no other appropriate rate is available in the bill/schedule of quantities/ pricing schedule. Prior to the commencement of any work by the personnel described under items B18.01 and B18.02, the Contractor must obtain written consent from the Employers Agent regarding the classification of all labourers in terms of ‘unskilled’, ‘semi-skilled’ and ‘skilled’ personnel.

The tendered rates for labour for items B18.01 and B18.02 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 and for all administrative, supervisory, operative and contingent costs relating to the supply of personnel.

The tendered rates for plant for item B18.03 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 Employers Agent, for all administrative, supervisory, operative and contingent cost and profit relating to the running of the Plant.

The unit of measurement for sub item B18.04(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 Conditions of Contract. Only the actual quantities of materials used, as verified by the Employers Agent, shall be paid for.

The percentage tendered for sub itemB18.04(b) shall be the percentage of the amounts actually paid for the procurement of materials as ordered under sub item B18.04(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 B18.05 shall be the kilometer distance that the vehicle travelled for transporting personnel and/or plant. All travelling shall be approved by the Employers Agent.

The tendered rate for item B18.05 shall include full compensation for the cost of the vehicle including fuel, maintenance, depreciation and running costs.

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

COTO SERIES

CHAPTER 3: DRAINAGE

SECTION B 2100 1.3 DRAINS

BC3.1.1 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 Employers Agents, and the test flushing of subsoil drains."

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, banks and dykes at the locations and to the sizes, shapes, grades and dimensions as shown on the drawings or as directed by the Employers Agent, and the test flushing of subsoil drains."

BA3.1.5.2 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

AMEND THIS SUBCLAUSE BY ADDING THE FOLLOWING TO THE END OF THE THIRD PARAGRAPH:

"(category - heavy duty) or SABS 1601 (stiffness class 350)

The pipes to be used shall be either slotted uPVC pipes or perforated HDP pressure pipes, 100 mm ID."

(ii) Natural permeable material

ADD THE FOLLOWING TO THE 3rd PARAGRAPH:

"The crushed stone shall be coarse (19 mm nominal) and shall be washed clean of all fines."

REPLACE THIS SUBSUBCLAUSE WITH THE FOLLOWING:

(iii) Synthetic-fibre filter fabric

(1) Composition and manufacturing

The geotextile shall be a synthetic polymer material manufactured in a continuous permeable homogeneous sheet (in rolls) by one of the following methods:

- Non-woven, mechanically bonded (continuous fibre spunbonded, needle-punched)

The synthetic material polymer shall be one or more of the following:

- Polyester
- Polypropylene
- Polyethylene

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

(2) Classification

Geotextiles shall be classified into the following main grades according to typical usage.

Grade 1: Very good installation conditions, e.g. subsurface drains with relatively smooth trench walls, small to medium size filter stone (9,5 mm to 19 mm) dumped from the edge of a shallow drain, and where careful handling of the geotextile is expected.

Grade 2: Normal installation conditions, not as good as grade 1, eg. larger subsurface drains with rough trench walls, large size filter stone (37,5 mm) dumped from a height onto the geotextile-lined drain, and where normal handling of geotextile is expected.

Grade 3: Adverse conditions, eg. foundation drainage, gabions and gabion mattresses, light rock protection, rock fills and light separation of materials, separation and reinforcement of fill layers, light river protection works, and where rough handling of the geotextile is expected.

Grade 4: Adverse conditions where strength is more important than permeability, eg. foundation drainage, gabions and gabion mattresses, rock protection, earth encapsulation, separation and reinforcement of fill and rockfill layers, heavier river protection works, and where rough handling of the geotextile is expected.

Grade 5: As for grade 4 but where additional strength is required, eg. in heavy separation, earth and rock encapsulation, river protection works and shore revetment works.

Grade 6: As for grade 5 but where maximum strength is required and where permeability will be relatively unimportant.

The minimum requirements for each grade are listed below in table B2104/2. Under normal circumstances grades 1, 2, 3, 4 and 5 will be specified while grade 6 will be specified in special cases where maximum strength is required by special design considerations.

The various grades and the corresponding typical usage above shall be regarded as a guideline only. The actual grade of geotextile to be used on the work will be as stated in the bill/schedule of quantities/pricing schedule as required by the Employers Agent.

(3) Durability

A geotextile is required to comply with the following 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:

Soil and ground water with a pH in the range of 4 to 12 (pH to be determined by Method A20, TMH1, 1986).

Soil (as paste) and ground water containing salts with a conductance of up to 1,0 S/m (conductivity to be determined by Method A21T, TMH1, 1986).

- Resistance to ultra-violet light

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

- Resistance to rot

The geotextile shall be entirely rot-proof and shall not support the growth of algae, bacteria or fungi.

(4) Selection

The geotextile required shall satisfy the criteria for the grade of geotextile as specified in the bill/schedule of quantities/pricing schedule or project specifications.

The contractor shall, at least 45 days before the installation of the geotextile, submit to the Employers Agent samples of the geotextile he proposes to use, so that the Employers Agent may carry out the appropriate tests specified in subsubclause B2104(a)(iii)(6) and in clause 8114, and confirm the use thereof if he is satisfied that the geotextile meets the specified requirements. No extra payment shall be made for providing the samples for testing.

(5) Properties

The various grades of geotextile as classified above shall comply with the general requirements as listed below in table B2104/2.

TABLE B2104/2: GRADES OF GEOTEXTILES

Properties		**Limiting values***					
		Grade 1	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**
Thickness		As specified by the manufacturer					
Mass per unit area	g/m²	100	140	200	240	300	350
Tensile strength	kN/m	6	10	13	18	25	30
Penetration load	kN	1,0	1,5	2,5	3,0	4,0	5,0
Penetration resistance* (max)	mm	35	30	25	18	16	10
Permeability	litre/s/m²	25	20	15	15	10	5

*Notes:
*(1) The minimum values of properties are listed, except for penetration resistance where the maximum values are given.
(2) Thickness shall be as specified by the manufacturer for the specific product offered.
(3) The values given in the table shall apply to all geotextiles, irrespective of the type of material used. Where these values differ from the values in Table 1 of the Code of Practice SANS 10221: The Testing of Geotextiles, the values of Table B2104/2 shall apply.

(6) Testing

The tests to be carried out on geotextiles relate to the material and the method of manufacture and are used mainly to ascertain that the correct grade of geotextile is supplied, and that the material is equivalent in quality to that selected and specified for use on the works. The contractor shall, on instruction of the Employers Agent, submit a certificate by an approved laboratory to prove compliance with the specified qualities without additional cost to the employer.

Thickness (mm): The thickness of the material shall be specified by the contractor (or supplier). Thickness and compressibility tests shall be carried out in accordance with SANS 10221 to check that the material supplied conforms to the thickness specified by the contractor.

Mass per unit area (g/m²): Testing shall be carried out in accordance with SANS 10221.

Tensile strength (kN/m): Testing shall be carried out in accordance with SANS 10221.

Penetration load (kN): Testing shall be carried out in accordance with SANS 10221.

Puncture resistance (mm): Testing shall be done in accordance with test procedures laid down by the CSIR, Pretoria, and repeated in Clause 8114.

Permeability (litre/s/m²): Testing shall be carried out in accordance with SANS 10221."

(vi) Galvanized woven wire mesh

REPLACE THE CONTENTS OF THIS SUBSUBCLAUSE WITH THE FOLLOWING:

"Galvanized woven wire mesh manufactured from 3,5 mm diameter wire, 250 mm x 250 mm in area with 12 mm x 12 mm maximum mesh size, and fitted with a frame made from 25 mm x 5 mm galvanized flat steel, shall be secured at the outlets of subsoil drainage systems with 4 x M6 galvanized bolts, in accordance with the details on the drawings. The mesh shall be welded to the frame before the whole unit is galvanized."

(c) Construction of subsoil drainage system

ADD THE FOLLOWING SUBCLAUSE:

"(v) Proving of pipes in subsoil drainage systems

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

REPLACE THE HEADING OF CLAUSE 2106 WITH THE FOLLOWING:

"BA3.1.7.5 MANHOLES, OUTLET STRUCTURES, JUNCTION BOXES AND CLEANING EYES"

INSERT ", junction boxes" *AFTER* "manholes" *IN THE FIRST LINE.*

PART C MEASUREMENT AND PAYMENT

Item

BC3.1.1 Excavation for open drains:

ADD THE FOLLOWING TO THE PENULTIMATE PARAGRAPH:

"The tendered rate shall also include full compensation for trimming the open drains."

ADD "subclause B1231(c) and in" *AFTER* "in" *IN THE LAST LINE OF THE LAST PARAGRAPH.*

"Item
Unit

BC3.1.2 Excavation for subsoil drainage systems:

ADD THE FOLLOWING SUBITEM:

"(c) Extra over subitem B21.03(a) for excavating
through stabilized layers of existing pavement .....cubic metre (m^3)"

ADD "Subclause B1231(c) and in" *AFTER* "in" *IN THE SIXTH LINE OF THE SECOND PARAGRAPH.*

ADD THE FOLLOWING TO THE SECOND PARAGRAPH:

"Excavation in stabilized pavement material shall be paid only in subitem (c) and shall not be paid as an extra over for hard material in subitem (b). For subitem (c), the tendered rate shall also include full compensation for backfill with soilcrete."

REPLACE ITEM 21.04 WITH THE FOLLOWING:

"Item
Unit

BC3.1.5 Impermeable backfilling to subsoil drainage systems:

(a) Using the excavated material ..... cubic metre (m^3)

(b) Using imported selected material ..... cubic metre (m^3)

(c) Extra over subitems B21.04(a) and (b) for soil cement (soilcrete) backfilling (percentage of cement indicated) ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of completed backfill, measured in place in the subsoil drainage systems and calculated in accordance with the authorized dimensions.

If excavations are carried out in excess of the dimensions authorized by the Employers Agent, the quantity of backfilling will nevertheless be based on authorized dimensions.

The tendered rates shall include full compensation for procuring, furnishing, transporting, placing and compacting the backfilling to 90% of modified AASHTO density. The tendered rate for subitem B21.04(b) shall, in addition, include full compensation for supplying selected material from approved sources, including a free haul of 1,0 km.

The tendered rate for subitem B21.04(c) shall be additional to the rates tendered for subitems B21.04(a) and (b) and shall include full compensation for all incidentals required for the complete backfilling with soil cement as specified by the Employers Agent."

Item

BC3.1.13 Concrete outlet structures, manhole boxes, junction boxes and cleaning eyes for subsoil drainage systems

ADD THE FOLLOWING TO THE PAYMENT PARAGRAPH:

"The tendered rate shall also include full compensation for procuring and finishing the galvanized 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."

ADD THE FOLLOWING ITEMS:

"Item Unit

CHAPTER 3: PREFABRICATED CULVERTS

BA3.2.1 SCOPE

ADD THE FOLLOWING:

“This section also covers work in connection with retaining existing culverts, the extension of existing culverts and the cleaning of the in- and outlets and barrels of existing culverts, as well as the installation of new culverts in existing roads and access roads.

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

BA3.2.5 MATERIALS

ADD THE FOLLOWING:

"Numbered precast culverts to be constructed in accordance with this section of the specifications are measured and paid for under Schedule B: Structures of the bill of quantities."

b) Portal and rectangular prefabricated concrete culvert units

REPLACE THIS SUB-CLAUSE WITH THE FOLLOWING:

"Precast concrete units shall comply with the requirements of the latest SANS 986:2006 specification.

Prior to the manufacture of any units the manufacturer shall submit his Quality Plan to be approved by the Employers Agent before delivery of any units to site. As part of the Quality Plan submitted for approval copies of calibration certificates of both gauges used for proof loads and cover meters used at the factory shall be supplied to the Employers Agent. The originals of these certificates shall at all stages also be available for inspection at the factory premises. The manufacturer shall check each precast unit for cover compliance, and random checking of units shall not be permitted. The Employers Agent's representative may visit the factory at any stage to ascertain adherence to the quality plan as well as to check covers before delivery to site. Any substandard cover shall result in the batch being rejected. Should the manufacturer not be adhering to their Quality Plan the Employers Agent may exercise the right to reject the use of products from the manufacturer concerned. The Employer shall also be informed in all such cases.

For durability requirements due to the reduced cover provided for pre-cast culverts all durability testing shall be done in accordance to Clause B6404(h) shall fall within the severe category."

ADD THE FOLLOWING SUB-CLAUSE:

“**(j) Unplasticised Poly-vinyl chloride pipes (PVC-U)**

All PVC-U pressure pipes shall comply with the requirements of SANS 966-1 and PVC-U solid wall sewer pipes shall comply with SANS 791.Pipe ends will be spigot with integral socket and rubber ring seals.”

BA3.2.7.1 CONSTRUCTION METHODS

ADD “ AND SEQUENCE *” TO THE HEADING*

REPLACE THE 2ND PARAGRAPH WITH THE FOLLOWING:

"Culverts shall generally be lengthened 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 expense.

New culverts shall generally be constructed according to the “trench method” unless otherwise indicated on the drawings.

The bottom of the excavation for culverts that are to be replaced or lengthened shall be inspected by the Employers Agent prior to the placing of the bedding material. If the material is found to be suitable, it shall be ripped to a depth of 150mm below the bottom of bedding level and re-compacted to at least 93% Mod. AASHTO density.

When instructed by the Employers Agent, measures shall be taken to reduce the effect of unsuitable material at the positions of prefabricated culverts. This will entail the additional excavation of a minimum of 1 m of in-situ material to a minimum width of 4 m, the even chamfering of the sides of the excavation to a grade of 1:4 and backfilling the excavation with imported fill material with at least G10 quality compacted to 90% of modified AASHTO density. Additional excavation as described above will be paid for under item 33.07. Backfilling of the excavation will be measured and paid for under item 33.01."

DELETE THE THIRD PARAGRAPH AND SUBSTITUTE WITH THE FOLLOWING:

“For the purposes of this contract, culverts shall be installed according to the “trench method.”

ADD AT THE END:

All pipework and respective backfilling, including ducts and any water pipes laid under this contract, shall be completed and tested and approved, before the commencement of the sub-base layer.

BC3.2.7.2 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

(a) Depth of excavation

ADD THE FOLLOWING AFTER THE FIRST SENTENCE OF THE FIRST PARAGRAPH:

"The maximum overall depth of the trench shall, however, not exceed 2,0 m."

ADD THE FOLLOWING SUB-CLAUSE:

“**(c) Extension of existing culverts**

The requirements of this clause are also applicable to the extension of existing culverts.”

BC3.2.7.7 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(a) Concrete pipe culverts

ADD THE FOLLOWING AFTER THE FIRST PARAGRAPH:

"When instructed by the Employers Agent or when measures are required to reduce the effect of unsuitable material below culverts, the pipe joints shall be sealed with a 500 mm wide strip of Bituthene 3000 or an approved equivalent material glued symmetrically around the joint, using an adhesive recommended by the manufacturer of Bituthene. A 150 mm wide strip of adhesive shall be applied to the edges of the Bituthene. An overlap of 150 mm shall be provided and the two layers of Bituthene at the overlap shall be glued together over the full area of 150 mm x 500 mm."

(i) Class A bedding

ADD THE FOLLOWING:

"12 mm thick Flexcell or an approved equivalent material shall be placed in the concrete bedding below all pipe joints."

(b) Portal and rectangular culverts

(i) Cast in situ floor slabs

ADD THE FOLLOWING:

"Where the bottom of the excavation consists of soft material, suitable for the founding of culverts, such material must be compacted to a minimum of 93% of Mod AASHTO density, to a depth of 150 mm, before the screed and/or cast in situ floor slab is constructed thereon."

(iii) Placing the portal portions of culverts

ADD THE FOLLOWING:

"When instructed by the Employers Agent or when measures are required to reduce the effect of unsuitable material below culverts, the culvert joints shall be sealed with a 500 mm wide strip of Bituthene 3000 or an approved equivalent material glued symmetrically around the joint, using an adhesive recommended by the manufacturer of Bituthene. A 150 mm wide strip of adhesive shall be applied to the edges of the Bituthene."

(f) General

ADD THE FOLLOWING:

"Where the grade of the culvert is such that it would require a trench deeper than 2,0 m, the culvert shall be constructed in stages as the fill progresses. The construction shall normally begin at the outlet or downstream end of the culvert and backfilling shall be done in horizontal layers starting at the lower end.

No additional payment will be made under section 3300 or under this section for constructing the fill or culverts in stages as described above."

BC3.2.7.10 BACKFILLING OF CULVERTS

Substitute the portion of the second sentence in the ninth paragraph reading: "…approved soil or gravel mixed with 5% of Portland cement…" *with the following:*

"…approved gravel of G6 or better quality and CEM V S-V 32,5 cement mixed in proportion of 1:12..."

"BC3.2.7.11 INLET AND OUTLET STRUCTURES, CATCHPITS, MANHOLES AND SKEW-END PIECES FOR PORTAL AND RECTANGULAR CULVERTS

Inlet and outlet structures for prefabricated culverts, catchpits, manholes, and skew-end pieces for portal and rectangular culverts shall be constructed in accordance with the details on the drawings."

(i) Prefabricated energy dissipaters in outlet structures

REPLACE THE PARAGRAPH WITH THE FOLLOWING:

"When shown on the drawings or instructed by the Employers Agent, the contractor shall supply and install prefabricated reinforced-concrete blocks in outlet structures. The blocks shall be Class 20/19 concrete manufactured to the dimensions shown on the drawings or listed in the bill/schedule of quantities/pricing schedule. All concrete work shall comply with the requirements of Series 6000."

ADD THE FOLLOWING SUBCLAUSES:

"(j) Prefabricated concrete cover slabs for kerb inlets

Prefabricated reinforced-concrete cover slabs for kerb inlets, complete with steel supporting structures, shall be manufactured and installed in accordance with the details on the drawings. All concrete work shall comply with the requirements of Series 6000.

(k) Building in pipework

Pipework shall be built into concrete as shown on the drawings. The pipework shall be set into exact position in the shutters before the concrete is placed and the concrete thoroughly compacted and worked around the pipework. Alternatively, at the discretion of the Employers Agent and at no extra cost, unless specifically provided for in the bill/schedule of quantities/pricing schedule, holes

may be left or formed in the concrete into which the pipework shall be set, whereupon the space around the pipework shall be caulked with concrete having just sufficient water to ensure water tightness and thereafter the caulking shall be properly cured.

The joint between the old and fresh concrete shall be made in accordance with clause 6408: Construction joints.

Where pipes enter brickwork they shall be caulked into the wall and rendered with mortar.

(l) Manholes for Telkom

Manholes required for Telkom shall be for jointing, pulling or for change of direction and shall be constructed in accordance with the details shown on the drawings. As these manholes generally finish somewhere in the layerworks of the pavement, these layerworks shall first be constructed to the level of the top of the manhole roof slab. Excavation for the manhole shall then be carried out as neatly as possible, the manhole constructed and the minimal backfill space filled with either soil cement for brick walls or combined with the concrete if the walls are concrete. Finally, once all structural concrete has attained its design strength, the overlying layerworks shall be constructed, then the manhole shaft/opening constructed so that the cover is completely flush with the adjacent asphalt surfacing.

The contractor shall allow in his programme for a suitable delay in the layerworks while the various Telkom manholes are being constructed."

(a) Excavation and backfilling

AMEND THE FIRST PARAGRAPH OF CLAUSE 2212(A) TO READ AS FOLLOWS:

“The width of excavation shall be the net external dimensions of structure plus 0,5 metre working space along or around the structure. The specifications given elsewhere in this section for backfilling the culverts shall apply mutatis mutandis to inlet and outlet structures, catchpits and manholes. If wet soilcrete is used with vibrators, the extra working space shall be reduced to 150 mm.”

BC3.2.7.14 SERVICE DUCTS SLEEVING OR LINING OF EXISTING CULVERTS

INSERT THE FOLLOWING AT THE END OF THE 1ST PARAGRAPH:

“(v) **HDPE Sleeve Pipes**

HDPE sleeve pipes shall be:

1. Corrugated cable ducts complying with the requirements of SANS IEC 61386-24: 2005 for sleeves to be laid in trenches.
2. HDPE pipes for drilling shall be manufactured from PE63 – PN4 and shall comply with the requirements of SANS 427.”

INSERT THE FOLLOWING AS A NEW 4TH PARAGRAPH

“Where drilling is required for installation of service ducts, a drilling pit shall be excavated on the one side of the road from where drilling is to be conducted. The pit shall be of adequate size to permit free standing of the operator and drilling equipment. On the other side of the road, a receiving pit is to be excavated. Both pits shall be backfilled after completion of the drilling, using the excavated material compacted in 150mm layers to a minimum density of 93% of modified AASHTO. Drilling shall be carried out from the one side of the road in positions and to levels as shown on the drawings and/or as instructed by the Employers Agent. The hole shall be of adequate size to accommodate the required service duct. The permissible deviation in level of the hole between the two sides of the road shall not exceed 500mm. The service duct shall be installed through the drilled hole and shall be extended to above ground.”

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).”

REPLACE THE LAST PARAGRAPH WITH THE FOLLOWING:

"The end of each duct shall be marked with a 300 mm x 300 mm x 100 mm Class 20/19 concrete marker block. A 200 mm x 100 mm galvanized steel or aluminium plate with the size, number and depth of pipes stamped on the surface shall be affixed to the top of the marker block. Each duct marker shall be at least 50 mm proud of the finished surface level."

ADD THE FOLLOWING TO THE SEVENTH PARAGRAPH:

"The Telkom uPVC ducts for the optical fibre cable are required to be placed in special bedding, padding and backfilling as specified in clause B2219."

ADD THE FOLLOWING NEW CLAUSES:

(a) This clause specifies the characteristics, testing and installation of bedding, padding and backfilling material for Telkom uPVC ducts.

The following conditions apply:

Bedding : The material constituting the even floor of an excavated trench onto which a pipe or a bank of pipes are laid being either undisturbed in-situ material or an imported layer of suitable material as specified hereinafter.

Padding : The material installed around and/or between pipes up to a level of at least 150 mm above the pipe or bank of pipes: The padding material must be 150 mm below and to the sides of ducts.

Backfilling : The material installed above the padding material layer to complete the refilling of an excavated trench.

(b) Bedding, padding and backfill material shall be installed with a moisture content as near to optimum as possible to ensure that optimum compaction is achieved. The Employers Agent may, if he considers it necessary, direct the contractor to carry out tests, which the Employers Agent shall specify, to determine the optimum and actual moisture content of any material being used. Should the results of such tests require it, the Employers Agent may direct the contractor to add water to material which is too dry or to dispose of material which is too moist or import suitable material.

(c) Under no circumstances shall material, which is saturated with water, be used for bedding, padding and backfill.

(d) The contractor shall pay particular attention to the proper compaction of bedding, padding and backfilling material.

A higher standard of compaction effort will be insisted upon in all cases where fine materials are approved as bedding and padding.

(e) The bedding shall cover the full width of the trench in a uniform layer of the required thickness and shall be compacted by means of one pass by a vibratory plate compactor.

(f) Care must be taken to ensure that the ducts are completely surrounded by the padding material.

On completion of the placement of the padding material, the top surface shall be compacted by means of one pass by a vibratory plate compactor.

(g) The compaction of backfill shall be by means of a vibratory plate compactor.

(h) During the compaction of padding and backfill material, the contractor shall exercise due care to ensure that pipes and pipe joints are not disturbed or damaged in any way.

The material to be used for the bedding and padding shall be coarse-grade crushed stone as specified in clause 2104(a) of the standard specifications.

ie The crushed stone shall be graded crushed stone conforming to the following grading requirements:

Sieve size	% Passing
26,5 mm sieve	100%
13,2 mm	60 - 85%
6,7 mm	Minimum 15%
2,36 mm	Maximum 15%

Note: The following items will be supplied by Telkom and delivered to site:

(i) uPVC pipes
(ii) copper earth conductor wires
(iii) danger tape conductor

The contractor must inform Telkom at least three weeks before the pipes are required for installation.

(i) Where directed by the Employers Agent, copper earth conductors shall be installed. Joints in conductors shall be by means of approved clamps.

(ii) Where indicated on the drawings, ducts shall be protected with precast concrete slabs.

PIPE JACKING

The basis of payment for a jacked pipeline takes cognizance of the fact that, although the Employers Agent may design and specify the pipeline, he cannot provide detailed drawings and dimensions for the jacking structure and its thrust and reception pits, because these depend on equipment and methods that the contractor intends to use for carrying out the work. Therefore, the Employers Agent will require, prior to the commencement of any work, a method statement which will include a schedule of the dimensions of the pits, equipment to be used and construction methodology which will be applicable to all operations from the excavation of the thrust pit to the end of the operation and the subsequent removal of temporary works, and making good.

The contractor is responsible for the complete design of the jacking structure and of the jacked pipeline and all subsequent costs must be priced and included in the priced schedule. This will include the following:

(i) The design and the preparation of all drawings.

(ii) All labour, plant, tools, equipment, materials, transport, consumable stores, services, samples, temporary excavations, and everything of a temporary or permanent nature required to carry out the work.

B2218 MEASUREMENT AND PAYMENT

Item **Unit**

BC3.2.1 Excavation culvert structures:

ADD THE FOLLOWING SUB-ITEM:

"Item **Unit**

BC (c) Extra-over sub-item B22.01C3.2.1 (a) for excavation by hand ..... cubic metre (m^3)

The unit of measurement 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 Employers 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 extra-over rate shall include full compensation for all additional costs in excavating the material using hand held tools."

BC3.2.2 Backfilling:

REPLACE THE DESCRIPTION OF SUBITEM 22.02(c) WITH THE FOLLOWING:

"(c) Extra over subitems B22.02(a) and (b) for soil cement (soilcrete) backfilling (percentage of cement indicated)"

ADD THE FOLLOWING SUBITEMS:

"(d) Special backfilling for Telkom optical fibre, uPVC ducts all as specified ..... cubic metre (m^3)

(e) Special bedding and padding for Telkom optical fibre uPVC pipes as specified . cubic metre (m^3)

(f) Installation of earth wire in backfilling (including ..... jointing) and danger tape as supplied by Telkom ..... metre (m)"

ADD THE FOLLOWING PARAGRAPHS:

"The payment shall also apply to backfill adjacent to and over corrugated metal arch culverts. The quantity shall be calculated in accordance with the details of backfilling as indicated on the drawings.

The backfilling against concrete footings shall be paid for under item B61.04.

The tendered rate shall include full compensation for all additional work necessitated by working in the confined area, special equipment required to achieve the specified compaction and the material as described in clause B2211."

Item

BC3.2.3 Concrete pipe culverts

ADD THE FOLLOWING TO THE SECOND PARAGRAPH:

"The tendered rates shall also include full compensation for supplying and installing 500mm wide Flexcell or an approved equivalent material in the concrete bedding below pipe joints."

Item

BC3.2.5 Portal and rectangular culverts

ADD THE FOLLOWING TO THE SECOND PARAGRAPH:

"The tendered rates shall also include full compensation for supplying and installing 500mm Flexcell or an approved equivalent material."

Item Unit

BC3.2.7 Cast in situ concrete and formwork:

ADD THE FOLLOWING SUBITEM:

"(f) In concrete collars at the joints between new and existing prefabricated pipe culverts, including formwork, as shown on the drawings (class of concrete indicated) cubic metre (m^3)"

REPLACE ITEM 22.14 WITH THE FOLLOWING:

"Item Unit

BC Removing and stacking existing prefabricated culverts (all sizes).....metre (m)

The unit of measurement shall be the metre of existing culvert removed and stacked as instructed by the Employers Agent.

The tendered rate shall include full compensation for lifting, loading, transporting to stack, off-loading and stacking the culverts. The free-haul distance is 5,0 km.

Payment for the excavation and backfilling (including all layerworks) required to remove and stack existing prefabricated culverts will be made separately under items B22.01 and B22.02."

REPLACE ITEM 22.26 WITH THE FOLLOWING:

"Item Unit

B22.26 Hand excavation:

(a) To determine the positions of existing services:

(i) In roads cubic metre (m^3)
(ii) In all other areas ..... cubic metre (m^3)

(b) To expose existing services to 0,6 m on either side of the service..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of material excavated within the lengths and widths authorised by the Employers Agent and the depth required to expose the service. Excavation in excess of the authorised dimensions will not be measured for payment.

The tendered rates shall include full compensation for all excavation, backfilling, compacting to 90% of modified AASHTO density, disposing of surplus excavated material, demarcating excavations with approved safety tape, keeping the excavations safe, dealing with surface or subsurface water, taking special care to ensure that services are not damaged in any way, and all other operations required to complete the work. The tendered rates shall also include for transporting surplus excavated material for a free-haul distance of 1,0 km.

No distinction will be made between hard and soft materials, nor will distinctions be made between the various types of service to be exposed or the depths to which excavations are taken.

When instructed by the Employers Agent, the reinstatement of the pavement layers, surfacing and kerbing will be measured for payment under item 22.27.

NB The contractor shall supply adequate supervision of labourers excavating to expose services. Damage to a service caused by the contractor shall be repaired at his expense, to the satisfaction of the owner of the service and the Employers Agent."

REPLACE ITEM 22.28 WITH THE FOLLOWING:

"Item Unit

B22.28 Extra over items B22.03 and B22.05 for supplying end units for culverts with a skew angle:

(a) Pipe culverts (type and diameter indicated) ..... number (No)

(b) Portal and rectangular culverts (type and size indicated) ..... number (No)

The unit of measurement for providing manufactured end units for skew culverts shall be the numbers of such skew-end units supplied for each type and size of prefabricated culvert, irrespective of the angle of skew.

The tendered rate shall be an extra over the prices for items B22.03 and B22.05 and shall include for all additional costs involved in manufacturing, supplying and laying the skew-end units."

ADD THE FOLLOWING ITEMS:

"Item Unit

BC3.2.23 Breaking into existing drainage structures and building in pipes of the following diameter (pipe diameter to be stated) number (No)

The unit of measurement shall be the number of each size of pipe built into existing drainage structures in accordance with the details on the drawings or as instructed by the Employers Agent.

The tendered rates shall include full compensation for supplying all labour, constructional plant and materials required, for all excavation, breaking into existing drainage structures, building pipes into the newly formed accesses, sealing around the pipes and making the joints watertight, breaking out existing benching and channelling where required and reconstructing them complete with granolithic rendering to suit the new pipe arrangement, backfilling and compacting to 90% of modified AASHTO density, transporting (including all haul) and disposing of all surplus excavated material and debris to approved dumping sites provided by the contractor, and dealing with the flows in the existing structures.

No distinction will be made between different types of structure.

Item Unit

BC3.2.23 Breaking into existing stormwater pipes of the following sizes to construct new drainage structures (pipe diameter to be stated) ..... number (No)

The unit of measurement shall be the number of each size of pipe which is broken into to construct a new drainage structure.

The tendered rates shall include full compensation for supplying all labour, constructional plant and materials required, for breaking into the existing pipes, transporting (including all haul) and disposing of the debris at approved dumping sites provided by the contractor, dealing with the flow in the existing pipes during breaking into the pipes and during construction of the drainage structures, and for all additional costs incurred when building new drainage structures around existing pipes. The drainage structures are measured for payment under other items.

Item Unit

CHAPTER 3: 3.3 CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES AND CONCRETE LINING FOR OPEN DRAINS

B A3.3.1 SCOPE

ADD THE FOLLOWING TO THIS CLAUSE:

“This section also covers the replacement of damaged concrete kerbing, channeling and lining.”

B A3.3.7 EXECUTION OF THE WORKS

b) Prefabricated concrete kerbing and channeling

ADD "plinths," *AFTER* "concrete" *IN THE FIRST LINE OF THE FIRST PARAGRAPH.*

ADD "and prefabricated concrete plinths" *AFTER* "kerb units" *IN THE SECOND LINE OF THE SECOND PARAGRAPH*.

ADD "and prefabricated concrete plinths" *AFTER* "concrete kerbs" *IN THE FIRST LINE AND* "plinths" *AFTER* "kerbs" *IN THE SECOND LINE OF THE LAST PARAGRAPH*.

REPLACE "1:4:8/25" *IN THE SECOND LINE OF THE LAST PARAGRAPH WITH* "1:4:8/38".

ADD THE FOLLOWING:

"A 10 mm wide joint formed in inert filler shall be provided every 10 metres through the kerbing and channelling. The colour of the filler shall match the colour of the kerbing.

Curved kerbing of radius less than one metre shall be cast in situ. Units for curved kerbing of radius greater than 1 m up to 4 m shall be of nominal length 0,3 m. Units for curved kerbing of radius greater than 4 m up to 20 m shall be of nominal length 0,5 m. Units for radius exceeding 20 m shall be of nominal length 1 m. Any associated channelling shall also comply with the above requirements."

(e) Cast in situ kerbs and channels

ADD THE FOLLOWING:

"Cast in situ kerbs, channels and edge beams shall be provided with a contraction joint every 2 m and an expansion joint every 20 m. The contact area of the contraction joint shall be painted with two coats of bitumen. Alternatively, joints may be cut and finished to a depth of 50 mm. The expansion joint shall consist of 12 mm thick Flexcell or an approved equivalent placed between adjoining concrete sections. The top part of the joint shall be sealed with a 12 mm x 12 mm silicone sealant. All joints shall be provided for the full depth of the concrete."

g) Concrete-lined open drains

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/m^2 unless otherwise instructed by the Employers Agent."

(k) Cutting existing bituminous surfacing and pavement layers

REPLACE THE PARAGRAPH WITH THE FOLLOWING:

"Where the Employers Agent instructs kerbing, edge beams, channelling or concrete-lined drains to be constructed against existing bituminous surfacing and pavement layers, the full depth of the bituminous surfacing and pavement layers shall be accurately cut with a mechanical saw to the required line and level before the kerbing, edge beams, channelling or concrete-lined drain is

constructed. The cut edge shall be vertical for kerbing, edge beams, concrete-lined drains and channelling. The concrete shall be placed directly against the cut edge without formwork. All material outside the cut edge shall be removed to the required depth before the concrete is placed, and the debris shall be disposed of at approved dumping sites provided by the contractor. The bituminous surfacing shall be protected and kept clean to the Employers Agent's satisfaction."

ADD THE FOLLOWING SUBCLAUSE:

"(l) Removal of existing kerb and channel

Where shown on the drawings and/or indicated by the Employers Agent, the existing kerb and channel shall be removed and transported to spoil as directed."

PART C MEASUREMENT AND PAYMENT

REPLACE THE DESCRIPTION OF ITEM 23.02 WITH THE FOLLOWING:

"Item **Unit**

BC3.3.2 Concrete kerbing-channelling combination, including joints (class of concrete indicated for cast in situ concrete):

(a) (Description of type with reference to drawing)

(i) Radius 1 m to 4 m ..... metre (m)

(ii) Radius 4.01 m to 20 m ..... metre (m)

(iii) Straight and to radius not less than 20 m ..... metre (m)

(b) (Etc for other types) ..... metre (m)

(i) Radius 1 m to 4 m ..... metre (m)

(ii) Radius 4.01 m to 20 m ..... metre (m)

(iii) Straight and to radius not less than 20 m ..... metre (m)

The unit of measurement shall be the metre of concrete kerbing or kerbing and channeling combination complete as constructed, measured along the front face of the kerb.

The tendered rate shall include full compensation for the additional costs involved in setting out, preparing and constructing as specified on curves with radii less than 20 m."

AMEND ITEM B23.14 AS FOLLOWS:

"**Item** **Unit**

B C3.3.14 Cutting bituminous surfacing and pavement layers for concrete kerbing, channelling or concrete-lined drains"

DELETE IN LINE 3 OF THE 1ST PARAGRAPH OF THE PAYMENT ITEM DESCRIPTION:

"irrespective of the depth cut".

REPLACE THE DESCRIPTION OF ITEM 23.15 WITH THE FOLLOWING:

"Item
Unit

B C3.3.15 Energy dissipaters in outlet structures(indicate class of concrete and size)**, complete as shown on the drawings** .....number (No)"

ADD THE FOLLOWING:

"The tendered rate shall include full compensation for procuring, furnishing and installing the precast concrete blocks as specified."

ADD THE FOLLOWING PAYMENT ITEMS:

"Item **Unit**

B C3.3.16Demolition and removal of existing kerbs and/or channel (specify maximum size) ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre (m^3) of material 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 300mm 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. Overhaul will be paid under item 23/B16.02.

Item **Unit**

B23.17 Pedestrian ramps at intersections…….. number (No)

The unit of measurement is the number of pedestrian ramps.

The tendered rate shall include full compensation for removing existing kerbing if required, for procuring and placing the precast concrete blocks, placing with finishing and contraction joints in the concrete surround and all other incidentals to complete the construction all in accordance with the drawings."

Item **Unit**

B23.18 Tactile pedestrian kerb ramp complete as per National Technical Requirements 1: Pedestrian Crossings.....number (no)

This item includes all items to construct one tactile pedestrian ramp complete and in accordance with the National Technical Requirements 1: Pedestrian Crossings, 15 December 2016, Version 6.

The tendered rate shall include full compensation for all labour, constructional plant and materials required for the construction of one tactile pedestrian ramp, complete, as shown on the details in Annexure C5.4. The tendered rate shall also "

Item **Unit**

B23.19 Accessories

(a) 400mm wide tactile warning tiles…….. Number (No)
(b) 400mm wide tactile guidance tiles…….. Number (No)
(c) Bollards. Supply and installation of concrete bollard. 25MPa Concrete and reinforced with 4 X Y10's. Installed at depth of 400mm below NGL.
(i) 250mm diameter, 1200mm long, Exposed aggregate finish…….. Number (No)
(ii) 250mm diameter, 1200mm long, Smooth finish…….. Number (No)

The tendered rate shall include full compensation for procurement, delivery and installation as per the approved drawings and as shown on the details in Annexure C5.4.

B23.20 **Cutting concrete sidewalk surfacing to a depth exceeding 50 mm but less than 100 mm**…….. ...metre (m)

The unit of measurement shall be the metre of concrete cutting kerbing or kerbing and channeling combination complete as constructed, measured along the front face of the kerb.

The tendered rate shall include full compensation for the additional costs involved in setting out, preparing and constructing as specified on curves with radii less than 20 m.”

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

B3203 STOCKPILING THE MATERIAL

COTO SERIES – CHAPTER 4: EARTHWORKS AND PAVEMENT LAYERS:MATERIALS
SECTION B 3300: MASS EARTHWORKS

B3302 MATERIALS

b) Fill

ADD THE FOLLOWING UNDER ITEM (IV):

"The maximum swell at 100% Mod AASHTO compaction shall not be more than 2%."

B3303 CLASSIFICATION OF CUT AND BORROW EXCAVATION

CLASSIFICATION OF CUT AND BORROW EXCAVATION SHALL BE REVISED AS FOLLOWS:

"**a) 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."

B3305 TREATING THE ROADBED

a) Removing unsuitable material

REPLACE "or" IN THE EIGHT LINE OF THE THIRD PARAGRAPH WITH "and" AND ADD THE FOLLOWING:

"for the purpose of this contract, excavation and removal of in situ clayey material over areas where the road is in a fill condition shall be classified as removal of unsuitable material, irrespective of the stability or moisture condition of the in-situ material".

(c) Preparing and compacting the roadbed

DELETE THE LAST SENTENCE OF THE FIRST PARAGRAPH "If necessary, roadbed …. depth of compaction." *AND REPLACE AS FOLLOWS:*

"Where demarcated by the Employers Agent, prior to the roadbed being scarified, the excess in situ material forming part of the present roadway, and within the limits of the roadbed, and in close proximity of the layer works, but falling within the limits of the layer works, shall be bladed to controlled level in order to achieve the required level and necessary depth of compaction."

d) In situ treatment of roadbed

ADD THE FOLLOWING AFTER THE SECOND PARAGRAPH:

"Shales and mudstone shall be treated as directed by the Employers Agent."

B3306 CUT AND BORROW

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 Employers 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."

B3307 FILLS

a) General

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.

In addition the material in the fill widening shall, unless otherwise instructed by the Employers Agent, be compacted as follows:

(i) where the thickness exceeds 1,5 m, it shall be compacted to a minimum of 93% modified AASHTO density to a depth of at least 1,5 m below the final road level; or

(ii) where the thickness is less than 1,5 m, the in situ roadbed and fill material shall be compacted to 93% modified AASHTO density."

c) Constructing a pioneer layer

ADD THE FOLLOWING AT THE END OF THE FIRST PARAGRAPH:

"Where instructed by the engineer or shown on the drawings, the pioneer layer shall be wrapped in a Grade 5 geotextile."

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 Employers 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 Employers 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."

ADD THE FOLLOWING SUBCLAUSES:

"(k) Constructing a coarse fill layer

Coarse fill (so-called pioneer/rock fill layer as indicated on the drawings) shall consist of material which conforms with G10 specifications as per TRH 14: table 13 and shall be compacted to 90% of modified AASHTO density. The coarse fill shall be constructed to a specified thickness as indicated on the drawings.

(l) Construction of fabric-reinforced fill

The fabric used shall be Grade 3 or approved equivalent and the fill (placed and compacted over the length of the fabric, perpendicular to the face of the fill), shall be weathered sandstone. The fabric shall be folded over at 300 mm vertical intervals as shown on the drawings. The edge of the fill shall be satisfactorily shored or supported to enable compaction to be achieved."

B3308 FINISHING THE SLOPES

(d) General

ADD THE FOLLOWING:

"Where existing cut and fill slopes are excessively eroded or where slippages occurred in slopes, the slopes are to be reinstated by means of backfilling with suitable gravel material. All loose material and vegetation shall first be removed from the eroded cut and fill slopes before backfilling may commence from the bottom of the cut or fill. The backfill material shall be benched into the existing slopes and compacted to 90% of modified AASHTO density, using suitable small compaction equipment eg Bomag walk-behind rollers or hand-held compaction tools. Benching shall be executed to the dimensions shown on the drawings. Upon completion of the backfilling operation the cut and fill slopes shall be neatly finished as specified."

B3310 CONSTRUCTION TOLERANCES

ADD THE FOLLOWING SUBCLAUSE:

"(c) Layer thicknesses

The thickness tolerances referred to in clauses 8205 and 8305 for the 150 mm natural gravel fill layer compacted to 93% of modified AASHTO density, shall be as follows:

	D_{90}	D_{max}	$D_{average}$
Fill layer	30 mm	40 mm	10 mm"

B3312 MEASUREMENT AND PAYMENT

General directions

(3) Work in restricted areas

DELETE THE CONTENTS OF THIS SUBCLAUSE AND REPLACE IT WITH THE FOLLOWING:

"No additional or extra over payment will be made for work in restricted or confined areas."

AMEND THE DESCRIPTION OF ITEM 33.01 AS FOLLOWS:

"Item

B33.01 Cut and borrow to fill, including all haul (source borrow pit, cut, side drain, and stockpile)"

REPLACE THE FIFTH MEASUREMENT AND PAYMENT PARAGRAPH WITH THE FOLLOWING:

"The tendered rates shall include full compensation for procuring, furnishing and placing the material, including excavating as if in soft excavation, the cutting of benches, the transporting of material over the haul distance, for preparing, processing, shaping, watering, mixing, and compacting the materials to the densities or in the manner specified herein and for removing and disposing of up to 5% oversize material from the road after processing, including all haul."

AMEND THE DESCRIPTION OF ITEM 33.04 AS FOLLOWS:

"Item

B33.04 Cut to spoil, including all haul.Material obtained from:"

REPLACE THE FOURTH MEASUREMENT AND PAYMENT PARAGRAPH WITH THE FOLLOWING:

"The tendered rates for cut to spoil shall include full compensation for excavating from the road prism and roadbed in the various classes of excavation, for loading, transporting the material over the haul distance, off-loading and disposing of the material as specified, including shaping and levelling-off any piles of spoil material."

ADD THE FOLLOWING ITEMS:

"Item Unit

B33.20 Extra over item B33.01 for fill (G7) constructed from material obtained from commercial source, including all haul……. cubic metre (m^3)

The unit of measurement shall be as measured in item B33.01.

The tendered rate shall be paid extra over the rates applicable to item B33.01, and shall include full compensation for procuring, irrespective of hardness of excavation, furnishing, and transporting the material from an approved source irrespective of distance hauled."

B33.21 Roadbed constructed with material obtained from commercial sources or sources provided by the Contractor, including all haul

(a) Compaction to 93% of modified AASHTO density (G7) ..... cubic metre (m^3)

The unit of measurement is the cubic metre of material measured in the compacted roadbed. The quantity measured shall be calculated by the method of average end areas from levelled cross-sections prepared from the ground line after clearing and grubbing and the removal of topsoil and the completion of any preparatory roadbed treatment which may have been ordered by the Employers Agent, but prior to the construction of the fill, and the final specified or authorised cross-section superimposed at 20 m intervals along the centre line of the road. All measurement shall be neat and no payment will be made for that part of the roadbed placed in excess of the authorised cross-section shown on the drawings or instructed by the Employers Agent, irrespective of the tolerances in workmanship allowed under the contract. Where the roadbed has subsided under the fills, the quantities shall be adjusted to make allowance for such subsidence, as set out in the note at the beginning of clause 3312. Measurement of fill shall distinguish between the alternative methods of processing and compacting.

Where measurement by cross-sections is considered by the Employers Agent to be impractical, the compacted volume of the material may be taken as equal to 70% of the loose volume of material in the hauling vehicles as an alternative method of measurement.

The tendered rates shall include full compensation for the procuring, furnishing and transporting the materials over an unlimited free-haul distance from the sources to the site, for placing, preparing, processing, shaping, watering, mixing and compacting the materials to the densities or in the manner specified, and for removing and disposing of all oversize material from the road after processing, including transport for the haul distance to approved dumping sites provided by the Contractor.

Payment shall distinguish between the various methods of processing and compacting specified, as itemised above.

SECTION B 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

a) General

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

"Gravel material shall be obtained from approved commercial sources or approved sources provided by the contractor."

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 B3402/6"

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.”

REPLACE THE GRADING SECTION IN TABLE 3402/1 WITH:

	Nominal aperture size of sieve (mm)	Percentage passing through sieve by mass			
		Crushed material Nominal max size		Uncrushed material	
		37,5 mm	28 mm		
Grading	53			100	The percentage by mass passing the 2,00mm sieve shall not be less than 20% not more than 70%
	50			95 - 100	
	37,5	100		85 – 100	
	28	86 - 95			
	20	73 - 86	87 - 96	61 - 91	
	14	61 - 76	73 – 86		
	5	37 - 54	43 - 61	31 - 66	
	2	23 – 40	27 – 45	20 – 50	
	0,425	11 – 24	13 – 27	10 – 30	
	0,075	4 - 12	5 - 12	5 - 15	

Note:
Refer to standard COLTO table for COLTO grading if required

REPLACE TABLE 3402/5 WITH:

"TABLE B3402/5: REQUIREMENTS FOR CHEMICALLY STABILISED LAYERS

Classification	C1	C2	C3	C4

Material before treatment	At least G2 quality	At least G4 quality	At least G5 quality	At least G6 quality
PI after treatment	Non-plastic	Non-plastic	6 max. *(1)	6 max. *(1)
UCS (MPa) *(2)	6 min.	4 min.	1,5 min	0,75 min.
ITS (kPa) *(3)	-	-	250 min.	200 min.
WDD (% loss)	5 max.	10 max.	20 max.	30 max.

Note:

* (1) For materials derived from the basic crystalline rock group, the Plasticity Index after stabilization shall be non-plastic.
* (2) Unconfined Compressive Strength @ 100% Mod. AASHTO density
* (3) Indirect tensile Strength @ 100% Mod. AASHTO density (Rapid Curing)
* (4) Wet/Dry Durability according to Method B 8110"

b) Compaction requirements

AMEND THE COMPACTION REQUIREMENTS AS FOLLOWS:

“The compaction requirements for the layers to be constructed under this contract are:

New Road construction:

Selected layer 150mm (G6)	93% of mod AASHTO density
Lower Subbase layer 150mm (G6)	95% of mod AASHTO density
Lower Subbase layer 150mm (C4)	96% of mod AASHTO density
Upper Subbase layer 150mm (C3)	97% of mod AASHTO density
Shoulder & gravel wearing course 150mm (G6)	95% of mod AASHTO density

Rehabilitation of existing road

Subbase layer 150mm (C3)	96% of mod AASHTO density

CHANGE THE COMPACTION REQUIREMENTS FOR STABILIZED SUBBASES TO READ AS FOLLOWS:

"96% and 97% as required for lower subbase and upper subbase respectively, for chemically stabilized material."

ADD THE FOLLOWING SUBCLAUSE:

"(d) Material requirements

When the values listed in tables 3402/1, 3402/2, 3402/3 and 3402/4 cannot be attained with the type and quantity of stabilizing agent specified in section 3500 in the project specifications and on the borrow pit plans, the Employers Agent will authorise the contractor to vary and/or amend the quantity and possibly the type of stabilizing agent as well in order to obtain the required values."

ADD TABLE B3402/7 AFTER TABLE 3402/6:

"TABLE B3402/7: REQUIREMENTS FOR EMULSION TREATED MATERIALS

Criteria	**E1**	**E2**
Material before treatment	**G1 to G3**	**G4 to G5**
After treatment:		
- Minimum CBR @ 100% modified AASTHO density	150%	100%
- Minimum UCS @ 100% modified AASHTO density	1 200 kPa	700 kPa

“

B3403 CONSTRUCTION

ADD THE FOLLOWING SUBCLAUSES:

"(f) Treatment of in situ material or existing pavement layers as new pavement layers

Where the in situ material or existing pavement layers are classified as suitable for new pavement layers and have to be reconstructed as prescribed by the Employers Agent, the material or layers shall be scarified, watered and compacted to a percentage of modified AASHTO density. The density and compaction depth will be prescribed by the Employers Agent.

When additional material has to be imported to obtain the required level and layer thickness, and when the thickness of the layer of imported material would be less than the specified layer thickness after compaction, the in situ material or existing pavement layers shall be scarified, the necessary imported material placed, and this combined material mixed and compacted to the full specified depth of the layer.

The imported material will be measured and paid for under item 34.01 and the in situ material will be measured and paid for under item B34.04.

(g) Temporary stockpiling of material

The contractor shall plan his activities so that materials excavated from borrow areas and cuttings or imported from commercial sources 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 Employers 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 material is to be used.

This subclause does not apply to the excavation and temporary stockpiling of existing pavement layers as instructed by the Employers Agent, in terms of subclause B3403(h), as these will be measured and paid for separately under item 32.06.

(h) Storing recovered pavement material

Excavated pavement material intended for reprocessing but which cannot be reprocessed in place or cannot, in the opinion of the Employers Agent, be placed in a windrow next to the excavation, nor directly placed in position anywhere else, shall be transported to approved stockpile or dumping sites with written permission from the Employers Agent.

Stockpile sites for material to be recycled or reprocessed shall be located as approved by the Employers Agent.

The stockpile site shall be cleaned, and all stones, vegetation and other materials which may cause contamination shall be removed. The site shall be graded smooth with an adequate slope to ensure proper drainage of water. If instructed by the Employers Agent, the surface shall be watered and compacted to a depth of at least 150 mm and to a density of 90% of modified AASHTO density. 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 Employers Agent's approval.

Upon completion of the work, the stockpile sites shall be rehabilitated in accordance with the Employers Agent's instructions.

(h) Existing asphalt base or surfacing

Existing asphalt base or surfacing which cannot be broken down effectively to be used as part of the recovered pavement material, shall be separately excavated from the existing pavement layers and disposed of at approved dumping sites"

B3405 CONSTRUCTION TOLERANCES

(a) Level

REPLACE THE TABLE IN THE SUB-SUB-CLAUSE WITH THE FOLLOWING:

“	*H90*	*Hmax*
Selected layers	*25 mm*	*33 mm*
Sub-base layers	*15 mm*	*20 mm*
Base layers	*12 mm*	*15 mm*
Shoulders		*25 mm*
Subbases and shoulders below precast concrete interlocking paving blocks	*15 mm*	*20 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

ADD THE FOLLOWING AT THE END OF THE CLAUSE:

"If a selected subcontractor lays the precast concrete interlocking block paving, the contractor shall nevertheless be responsible for ensuring that the top levels of the subbases comply with the specifications. This could entail removing high spots and filling in depressions as specified in clause B7304."

(b) Layer thicknesses

REPLACE THE TABLE IN THE SUB-SUB-CLAUSE WITH THE FOLLOWING:

“	*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		*30 mm*	*0 mm"*

ADD THE FOLLOWING:

"The construction tolerances of clause 3405 shall apply to layers constructed from reprocessed material, but when a gravel layer is placed on top of an existing layer without the existing layer being trimmed to prescribed levels, the thickness tolerances of subclause (b) do not apply."

(e) Cross-section

DELETE THE SECOND PARAGRAPH AND REPLACE WITH THE FOLLOWING:

"The normal cross-fall of the road wearing course where the road is in a straight horizontal alignment, is specified as shown on the drawings.

At any cross-section the measured cross-fall between any two points shall be at least 2,8% and not more than 3,5%. At any cross-section the actual level at any point shall not be higher than 10 mm above the computed level from the cross-section as specified and the actual level, if lower than the computed level, shall not be lower by more than that derived from the specifications for longitudinal grade and cross-fall deviations.

(f) Surface regularity

ADD THE FOLLOWING:

"Where transverse construction joints in base layers are made between newly and previously constructed sections, the contractor shall exercise level control at such joints by installing level poles at 5 m intervals on either side of the joint of the layer covering at least a 30 m length into the newly constructed section."

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 8300"

B3407 MEASUREMENT AND PAYMENT

DELETE THE FIRST PARAGRAPH AND REPLACE IT WITH THE FOLLOWING:

“Note: No additional or extra over payment shall be made for work in restricted or confined areas. Provision is also made for the construction of pavement layers with material procured from commercial sources. The costs of procuring and transporting the material from the source to the required position on site, shall be included in the tendered rates.”

.

ADD THE FOLLOWING ITEMS:

“Item **Unit**

B34.14 Pavement layers constructed from gravel supplied from commercial sources or sources provided by the Contractor, including all haul

(a) Gravel selected layer (G6) compacted to:

i) 93% of modified AASTHO density
for a compacted layer thickness of 150mm ..... cubic metre (m^3)

(c) Gravel subbase (unstabilised gravel G6) compacted to:

i) 95% of modified AASTHO density
for a compacted layer thickness of 150mm ..... cubic metre (m^3)

ii) 97% of modified AASTHO density
for a compacted layer thickness of 150mm ..... cubic metre (m^3)

(d) Gravel subbase (chemically stabilised material) compacted to:

i) 95% of modified AASTHO density
for a compacted layer thickness of 100mm C4 ..... cubic metre (m^3)

ii) 96% of modified AASTHO density
for a compacted layer thickness of 100mm C3 ..... cubic metre (m^3)

(e) Gravel base (unstabilised gravel G6) compacted to:

i) 98% of modified AASTHO density
for a compacted layer thickness of 150mm ..... cubic metre (m^3)

ii) 100% of modified AASTHO density
for a compacted layer thickness of 150mm ..... cubic metre (m^3)

(f) Gravel base (chemically stabilised material) compacted to:

i) 97% of modified AASTHO density
for a compacted layer thickness of 150mm C4 ..... cubic metre (m^3)

ii) 98% of modified AASTHO density
for a compacted layer thickness of 150mm C3 ..... cubic metre (m^3)

(g) Gravel shoulders compacted to:

(ii) 95% of modified AASHTO density for a compacted
layer thickness of 200 mm.....cubic metre (m^3)

(h) Gravel wearing course compacted to:

(ii) 95% of modified AASHTO density for a compacted
layer thickness of 150 mm.....cubic metre (m^3)

The unit of measurement is the cubic metre of compacted pavement layer and the quantity shall be calculated by the method of from the authorized dimensions of the completed layer.

The tendered rates shall include full compensation for procuring, furnishing and transporting the materials over an unlimited free-haul distance from the sources to the site, for placing, preparing, processing, shaping, watering, mixing and compacting the materials to the densities or in the manner specified, and for removing and disposing of all oversize material from the road after processing, including transport for the haul distance to approved dumping sites provided by the contractor."

COTO SERIES - CHAPTER 5: STABILISATION

B5.4.1 SCOPE

Add the following as a 3rd paragraph:

“The use of recyclers for cold in situ recycling purposes is also covered in this section, which includes cement, and lime stabilisation of base and subbase layers consisting of gravel and/or crushed stone material as described in sections 3400 and 3600.

This section also covers the selection supply and construction of in-situ recycled bitumen emulsion and foam bitumen stabilized materials.””

BB5.4.5 MATERIALS

a) Chemical stabilizing agents

DELETE SUB-CLAUSES (II) ORDINARY PORTLAND CEMENT *AND* (III) PORTLAND BLAST-FURNACE CEMENT *AND REPLACE WITH THE FOLLOWING*:

"Cement shall comply with the relevant requirements of SANS 50197-1:2000. The use of strength classes greater than 32,5 shall not be permitted.

On this contract CEM II A-S (32.5) N shall be used for stabilization purposes.”

ADD THE FOLLOWING:

"The stabilizing agents for the gravel selected layer, the gravel subbase and the gravel base, and the modifying agent for the gravel base shall be as indicated on the design sheets. The quantities of stabilizing and modifying agents indicated in the bill of quantities are based on the percentages indicated on the design sheets.

The upper selected layer in cuts shall be stabilized with lime or cement if necessitated by moisture or other conditions.

The Employers Agent may instruct the contractor to alter the type or percentage of stabilizing or modifying agent after tests on the site during construction."

(i) Road lime

ADD THE FOLLOWING:

"Road lime shall be calcium type lime."

(e) Water

REPLACE THE ENTIRE SUBCLAUSE WITH THE FOLLOWING:

“Water for the foaming process or emulsion dilution shall not contain any deleterious material in harmful concentrations that could be detrimental to the foaming process or cause emulsions to break prematurely. Only approved sources of water shall be used and shall be tested for compatibility with the bitumen before approval shall be given. Generally water suitable for human consumption shall be regarded as suitable.”

ADD THE FOLLOWING SUBCLAUSE:

"(f) Chemical modifying agents

The modifying agent under normal circumstances shall be slaked road lime, calcium type. The nominal rate of application for tender purposes as a percentage of the mass of the material to be modified and compacted to the required modified AASHTO density shall be as follows:

Gravel base (temporary works) : 2%

The Employers Agent will instruct the contractor to amend the percentage and possibly the type of modifying agent after tests on the site during construction."

A5.4.7.3 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.”

ADD THE FOLLOWING:

"The material to be stabilized shall be spread and pre-shaped, so that a true cross-fall is obtained. The upper level of the spread material shall be such that any indentations and depressions caused by construction equipment shall be above or at final cutting level. Enough extra material must be allowed for, so that no filling whatsoever is carried out. The final operation on the base prior to final compaction will be cutting and never making up of levels."

b) Applying the stabilizing agent

REPLACE THE SECOND SENTENCE OF THE SECOND PARAGRAPH WITH THE FOLLOWING:

“Spreading shall only commence when the Employers 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 the stabilizing agent

ADD THE FOLLOWING:

"The contractor shall prepare a trial section for each type of material without any extra payment to demonstrate his proposed mixing process before extensive mixing commences.

After approval has been obtained, the mixing process and equipment shall remain unaltered unless otherwise instructed by the Employers Agent.

The fact that the Employers Agent has approved the mixing process shall not relieve the contractor of his obligations in respect of the mixing specified elsewhere in the specifications. It will serve only as a guideline to ensure that the specified mixing requirements can actually be met."

(f) Compaction

ADD THE FOLLOWING:

"Where the gravel base is chemically modified with road lime to modify certain physical properties of the gravel material and not for purposes of cementation, the base shall be compacted by means of two roller passes with a heavy pneumatic roller after the stabilizing agent has been mixed in and the material watered as specified in subclauses 3503(d) and (e) respectively. After twenty-four (24) hours the base shall be loosened by ploughing to its full depth, and be shaped, compacted and finished in accordance with the specifications.

When cutting final levels, the top of the layer shall be lightly watered to reduce the risk of dragging the material and cause shear cracks. The blade of the grader shall be tilted forward to reduce the dragging effect. Under no circumstances shall material be imported from the windrow to make up for low spots or depressions caused by any construction equipment."

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.”

ADD THE FOLLOWING TO PARAGRAPH (iv):

"As soon as the prime has sufficiently dried out and ball penetration tests allow so, and no longer than two weeks after the application of the prime, the layer must be surfaced or covered with the subsequent layer."

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).

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. When wet weather occurs, checks shall be conducted between initial testing and work commencing on any section.

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) General

The contractor shall at all times supply all workers exposed to chemical stabilizing or modifying agents with approved protective apparel, eyewear and masks, and no person without such apparel, eyewear and masks may be permitted to work with or be exposed to the chemical agents. Precautionary measures shall also be taken to ensure that any livestock and the public will not be exposed to the chemical agents, for instance when they are carried by the wind.

Any biscuit layers or bowls, identified by the hollow sound caused when a chain is dragged over the stabilized layer, shall be removed and repaired prior to surfacing. The repairs shall be for the account of the contractor. Before surfacing is allowed, ball penetration tests shall be carried out."

A5.4.8 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following after the second paragraph:

“The test results and measurements will be judged in accordance with the provisions of Section 8300.”

Add the following paragraphs:

"The Employers Agent shall be notified 24 hours in advance 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.

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 Employers Agent. No payment will be made for repairs.

ADD THE FOLLOWING CLAUSES:

"BA5.4.6 PLANT AND EQUIPMENT FOR COLD IN SITU RECYCLING

All cold in situ recycling shall be done utilising purpose-built wheel-mounted in situ recycling machines. The following specifications are applicable to such machines. Where the Contractor intends using any other type of machine to recycle (e.g. a modified track-mounted milling machine) he shall submit for the approval of the engineer a full motivation for using such a machine, including a detailed work plan describing the recycling / mixing process and subsequent compaction / levelling processes that will produce a layer that meets the specified end product requirements.

(a) In situ recycling machines

In situ recycling shall be carried out using a special-purpose recycling machine to break down and recover material from the prescribed horizon in the upper layers of the existing pavement, blended together with any imported material, stabilising agent(s), water and any other specified additives. The machine employed shall be capable of achieving the required grading and consistency of mix in a single pass.

In addition, the recycling machine shall meet the following requirements:
(i) Be factory-built by a proprietary manufacturer having a demonstrable track record and manufacturing history in producing such equipment;
(ii) If older than 10 years, the machine shall be certified by the manufacturer or manufacturer's authorized agent to confirm operational fitness-for-purpose dated not more than 3 months earlier than the date on which it commences work on the contract;
(iii) Have a level-control system to maintain the cut depth within a tolerance of ± 10 millimeters of the required depth during continuous operation;
(iv) The milling / mixing drum (the "cutter") shall have a minimum cut width of 2 metres with a facility to change the speed of rotation. The machine shall be capable of recycling to the maximum depth specified in a single pass;
(v) The cutter shall rotate within an enclosed chamber (the mixing chamber) into which water and any liquid stabilising agents are injected under pressure at the specified application rate relative to the mass of material in the mixing chamber.
(vi) The cutter shall be mounted on a swing arm that is separate from the housing of the mixing chamber, thereby allowing the volume of the mixing chamber to increase as the depth of cut increases.
(vii) Have a liquid application system dedicated to adding water to the material in the mixing chamber;
(viii) Where a bitumen stabilising agent is to be applied, a second separate liquid application system shall be fitted to the mixing chamber. Such system shall be appropriate for the addition of either bitumen emulsion or foamed bitumen;
(ix) All liquid application systems shall be controlled by a micro-processor / flow meter combination that accurately regulates pump delivery (flow rate) with the speed of advance.
(x) All liquid application systems shall include a dedicated spraybar that spans the full width of the mixing chamber. Each spraybar shall be equipped with multiple injection nozzles mounted equidistant along the length of the bar at a maximum interval of 200mm with the ability to close off selected nozzles, thereby allowing the width of application to be preset;

(xi) Where two liquid application systems are used, the water application spraybar shall be mounted below the other spraybar (relative to the direction of rotation of the cutter) such that the recycled material encounters the water spray before the stabilising agent; and

(xii) The recycler shall have sufficient power to recover and mix the existing pavement material together with all additives to produce a homogenously mixed material whilst pushing (or pulling) bulk supply tanker(s).

(xiii) For foamed bitumen the liquid application system mounted on the recycler shall have the following additional features:

- Each injection nozzle on the spraybar shall be fitted with an expansion chamber (the so-called “Mobil system”) for foaming the bitumen;
- Functioning gauges on the bitumen supply line for monitoring temperature and pressure;
- The ability to demonstrate that all expansion chambers are free of blockages in both the water and bitumen feed lines;
- A means of producing a representative sample of foamed bitumen at any stage during normal operations (i.e. a “test nozzle”); and
- The micro-processor shall continuously monitor the actual bitumen consumption whilst working and provide a running total that allows immediate reconciliation with theoretical (calculated) consumption.

Before any recycling work commences, the Contractor shall submit a specification sheet (obtained from the manufacturer) stating the capacity, pressure and temperature limits for each liquid application system that will be used to treat the recycled material.

The recycling machine that the Contractor intends deploying shall be subject to the engineer’s approval and he shall be entitled to reject a machine which, in his opinion, may not be capable of producing a consistent product when recycling to the specified depth(s).

(b) Plant for compacting and finishing the treated layer

The treated material exiting from the rear of the recycler shall be processed using suitable compaction equipment and graders to achieve a layer that meets the specified requirements. Sufficient plant and equipment shall be deployed to enable the treated material to be processed and finished off within the time limitations specified below.

(i) Primary compaction

Initial compaction shall be undertaken immediately behind the recycling machine using a vibrating single-drum padfoot roller selected in accordance with the following guidelines:

TABLE B3511/1 GUIDELINES FOR SELECTION OF PRIMARY ROLLERS

Minimum static mass of roller (tons)	Final layer thickness			
	< 150mm	150 – 200mm	200 – 250mm	> 250mm
	12	14	16	20
Minimum amplitude at frequency range	1.8mm @ 30 – 35Hz			

It will be advantageous if the roller is equipped with an integrated compactometer device to indicate and record the level of density that is achieved with each successive pass of the roller. These records can be used by the Contractor for process control to indicate that the maximum density has been achieved.

(ii) Secondary compaction

After primary compaction and shaping of the layer a smooth drum vibrating roller with a static mass not less than 10 tons and not more than 14 tons shall be used to compact the upper portion of the layer.

(iii) Finishing of the layer

After the final level of the layer has been obtained a pneumatic-tyred roller (PTR) with a minimum static mass of 18 tons and mounted on at least seven (7) tyres shall be used to finish off the layer.

(c) Bulk tankers

Only tankers with a capacity exceeding ten thousand (10 000) litres shall be deployed to supply the recycling machine with water and/or liquid stabilising agents. Tankers containing a bitumen stabilising agent shall be fitted with appropriate tow hitches, one in front and one at the rear, thereby allowing the tanker to be pushed from behind by the recycling machine, and to push a water tanker in front. No leaking tanker will be permitted on the site.

Where a bituminous stabilising agent is added, each tanker shall be equipped with:

(i) A thermometer reflecting the temperature of the contents in the bottom half of the tank; and
(ii) A rear feed valve (minimum internal diameter of 75mm when fully opened) that is capable of draining the contents of the tank.

B3512 CONSTRUCTION OF LAYERS BY MEANS OF COLD IN SITU RECYCLING

(a) Requirements before recycling commences

(i) Stabilization mix design procedure for cold in situ recycling

The following mix design procedure shall be followed as a minimum requirement for each stabilization type:

Within 30 days of the Contractor taking possession of the site, the Contractor shall commence with the mix design process. This process shall be carried out on samples of neat materials extracted from the full depth of the recycling horizon. Bulk samples shall be extracted by means of the recycling machine proposed for the stabilisation work. For each material uniform section identified, two separate bulk samples shall be extracted from the recycling horizon and used in the stabilization mix design process. The location at which such samples are taken shall be indicated by the engineer.

Stabilisation mix designs shall be undertaken by the engineer to determine:
- details for blending the recycled material with imported material (where necessary);
- application rates for stabilising agent(s);
- target strengths achieved from such application rates; and
- impact of material variations (sensitivity analysis)

Stabilisation mix designs shall be carried out in accordance with the latest edition of the following best practice guideline publications:
- Cementitious stabilisation: SAPEM, SANRAL M5 manual and TRH 13
- Bituminous stabilisation: SAPEM and TG2

The Contractor shall construct a trial section for the approved mix design developed for the first uniform section. Recycling work may only commence once the trial section has been approved by the engineer. Thereafter, it will be incumbent on the Contractor to obtain the necessary approval for the relevant mix design for each uniform section ahead of the recycling work. Should the situation arise where the Contractor has not followed the mix design procedure to obtain the required approval of the engineer recycling work shall cease until such time as the prescribed process for approval has been followed. The Contractor shall have no recourse for costs incurred as a consequence of such a delay.

(ii) Setting out and control of the work for cold in situ recycling

Unless otherwise stated in the specifications, the Contractor shall establish his own reference and level beacons for the setting-out and control of the works.

(1) Layers constructed utilising existing levels

The existing horizontal alignment shall be retained and only minor modifications made to the vertical alignment, as described below.

The Contractor shall establish a series of level control poles placed at a constant offset on both sides of the road at a maximum interval length indicated in clause B3405(a). At each level control location, the Contractor shall record the existing road surface levels at the centre-line and at the outer limits of each lane and prepare a series of graphs (for sections not less than 2.0km in length) with the recorded levels plotted at an exaggerated scale against the km distance. Final levels for the new stabilised layer shall be selected in accordance with a “best-fit” principle, taking into account the following:

- the required camber or super elevation details at each location;
- the minimum requirements governing changes in grade (longitudinal grade line);
- the thickness of the existing base layer; and
- minimising the amount of pre-work required (pre-treatment and/or importing new material) before recycling can commence.

At least two weeks before recycling work is scheduled to commence on any specific section, the Contractor shall select the best-fit design levels and submit these proposals to the engineer (both as a schedule of longitudinal grade, cross-fall and final surface levels, as well as a drawing with the design lines superimposed on the existing levels) for approval or amendment.

The engineer will take control measurements to determine the accuracy and adequacy of the reference beacons / control poles, and may instruct the Contractor to correct any faulty work and to take and provide such additional measurements and details as may be deemed necessary.

Survey work will not be measured and paid for separately and compensation for any work involved in staking, setting out, taking levels, determining the final surface elevations and transferring these design levels on to the level control poles (including the cost of all labour materials and reinstatement if required for any reason) will be deemed to be included in the rates for the relevant payment items for cold in situ recycling. No payment will be made for any inconvenience or delay caused by compliance with these requirements.

(2) Layers constructed utilising new levels

Layers shall be constructed according to new design levels as indicated on the drawings.

(iii) Production Plan

Prior to the start of a shift, the Contractor shall prepare a production plan detailing his proposals for the forthcoming shift’s work. As a minimum, this plan shall include a sketch showing:

- the overall layout of the length and width of road intended to be recycled during the day, broken into the number of parallel cuts required to achieve the specified width of treatment;
- the location of and overlap width (minimum 150mm) at each longitudinal joint between adjacent cuts, together with the location of the inner and outer wheel paths of each lane affected by recycling;
- the sequence and length of each cut to be recycled before starting on the adjacent or following cut; and
- an estimate of the time required for recycling each cut and for finishing off the work.

(iv) Preparing the surface

Before any recycling work commences, the surface of the existing road shall be prepared by:

- cleaning all vegetation, garbage and other foreign matter including road studs from the full road width, including any adjacent lanes or shoulders that are not to be recycled;
- removing any standing water;
- pre-milling to remove high-spots and/or pre-pulverising where ordered;
- providing a reference line to assist the operator to accurately steer the recycling machine, and
- record the location of all road marking features (e.g. extent of barrier lines) that will be obliterated by recycling.

(v) Surface shape and level requirements

Where surface defects are to be corrected and/or modifications made to the grade line, instructions will be issued detailing the new surface level requirements. These may be achieved prior to recycling by either pre-milling to remove in situ material, by pre-pulverising, pre-shaping and pre-compacting the pulverised material, or by importing material and accurately spreading on the existing road surface, as described below.

(vi) Pre-milling

Where instructed, pre-milling shall be undertaken using a milling machine (not a recycling machine) to:

- Remove isolated high spots and/or make minor modifications to crest vertical curves by accurate milling. The material resulting from such milling operations shall remain on the road, behind the milling machine, where it shall be spread across the width of recycling and rolled with a smooth-drum roller or loaded onto trucks and disposed of as directed; OR
- Break down (pulverise) badly cracked asphalt layers, and/or sections where thin asphalt overlays are delaminating. To ensure that the milling operation achieves the required degree of pulverisation, the depth of milling shall be constantly monitored and adjusted so that the bottom of the milling drum remains within the lower half of the cracked / delaminating asphalt layer. Where an acceptable degree of pulverisation cannot be achieved, the machine shall be operated in reverse (i.e. down-cutting) with the same controls applied to the depth of milling. If such reverse milling fails to produce an acceptable degree of pulverisation, the asphalt layer shall be milled off and removed. The pulverised asphalt material generated from such pre-milling shall remain on the road, behind the milling machine, where it shall be spread across the width of recycling and rolled with a smooth-drum roller.

(vii) Pre-pulverising existing pavement material

Pre-pulverising shall only be undertaken on instruction from the engineer for the purpose of:

- breaking down excessively hard material;
- loosening the material across the road width so that it can be cross-mixed by grader;
- exposing the loosened (fluffed-up) material to the atmosphere to promote drying; or
- loosening the material in the existing pavement so that it can be loaded and removed from site.

The depth of pre-pulverising shall be carefully controlled throughout the operation to ensure that the cut horizon always remains at least 25mm above the bottom of the subsequent recycling / stabilisation horizon.

Unless the objective of pre-pulverising is to dry the material, a water tanker shall be coupled to the recycling machine and sufficient water added to allow the material to be compacted to a minimum density of 95% of the mod AASHTO density. Except where the material is to be cross-mixed, it shall be compacted immediately behind the recycler before using a grader to pre-shape the material in accordance with final level requirements.

(viii) Cross-mixing

Where cross-mixing is ordered, the material shall be bladed by grader or utilising other mixing equipment to achieve a uniform blend of material throughout the layer. The layer shall be compacted and shaped before being in situ recycled,

(ix) Addition of imported material

Where instructed to import material for blending and/or as make-up material for the purpose of shape, level or material grading correction, the prescribed material shall be imported and spread on the existing road surface prior to recycling. The method of placing and spreading the imported material shall be such as to achieve the required surface levels and will require the use of a paver, motor grader or other such plant. All imported material shall be pre-compacted to a minimum of 95% of the mod AASHTO density.

Nowhere shall the thickness of imported material exceed the recycling depth.

(b) The recycling process

(i) Before starting

Prior to starting to recycle, the production planned for the day shall be approved by the engineer and the following checks carried out:

- All relevant temperatures shall be measured and recorded, including:
- air temperature;
- the material in the recycling horizon; and
- the contents of all bulk supply tankers (including water).
- All plant and equipment is on site and the operators of the different machines are adequately trained and briefed on their particular tasks.
- The recycling machine has been prepared and set up for the first cut. Such preparations shall include:
- checking that the mixing chamber is free of any material build-up that may affect the functioning of the application nozzles on all relevant spraybars;
- the cutting tools have sufficient remaining life to complete the first cut without stopping;
- all relevant liquid application systems are functioning, free of blockages and the in-line filters are clean. Where a bitumen stabilising agent is applied, a relevant check-sheet (similar to the example forms included in the Appendices of SAPEM and TG2) shall be diligently followed, signed off and submitted to the engineer;
- the on-board computer has been correctly set up and the input data verified;
- the spraybar is set up with the correct nozzles selected to achieve the required width of application;
- Bulk supply tanker(s) are coupled correctly to the recycling machine, all feed pipes are properly connected, bled of air and free of leaks. Where a bitumen stabilising agent is applied, the feed pipe shall only be connected immediately before work is about to start. Where the stabilising agent is foamed bitumen, the outlet plumbing on the tanker shall be checked and any “cold plug” of bitumen removed before attaching the feed pipe.
- Where cement or lime is spread by hand on the road surface ahead of the recycling machine, the bag spacing shall be checked at random intervals and recorded.
- A clear guideline is in place for the recycling machine to follow and is correctly aligned relative to the road geometry.
- The integrated compactometer system on the primary roller properly functioning and has been set up to record the correct relevant data.

(ii) Recycling

The recycling machine shall be set up and operated to ensure that:

- The speed of advance is regulated (below the maximum allowable of 10m/min) to achieve;
- adequate pulverisation of all bound materials in the existing pavement to produce a material that meets the grading requirements;
- operating pressures and flow rates in all liquid application systems that remain within the limits prescribed by the manufacturer of the machine.
- The depth of recycling coincides with the line and level specified for the bottom horizon of the new stabilised layer. The bottom of cut horizon shall be checked at least once every 100m of cut using a suitable T-bar to dip from a stringline pulled between the relevant final level reference marks on the level control poles.
- The planned width of overlap along all longitudinal joints is maintained and the line of cut does not deviate laterally by more than 50mm from that required (measured from the operator’s guideline that shall be positioned for each and every cut).
- The process is continuous with a minimum number of stops. Transverse joints that occur every time the recycling machine stops are properly treated to achieve continuity of stabilisation and moisture across the resulting joint.
- The application rate of liquid stabilising agent(s) and water is uniformly continuous across the required width of treatment, including all longitudinal joints.
- The temperature across the width of material exiting the mixing chamber shall be checked at least once every 100m using a digital thermometer with a laser beam target held no more than 100mm above the material. Where the temperature varies consistently by more than 3°C along a particular longitudinal strip ± 200mm wide, the recycling machine shall be stopped and the relevant application nozzles on all spraybars that coincide with the offending strip shall be checked for blockages.

- The moisture content of the treated material is continuously monitored and the application of water adjusted to achieve a uniform moisture content as specified.
- The mixed material exiting from behind the recycling machine is struck off by the rear door of the mixing chamber with sufficient pressure applied to obtain a uniform surface that is free of valley lines, empty pockets and particle segregation.

The advance speed of the recycling machine and the speed of rotation of the recycling drum shall be set to obtain the required grading and sufficient mixing of all components (recycled material and additives) so that a homogeneous material is produced.

(c) Primary compaction

Recycling machines are configured such that their rear wheels run on top of the treated material towards the outer extremities of the cut. To prevent introducing a density differential across the width of cut, primary compaction shall be completed prior to any grader work commencing. If the treated material is pre-shaped by grader prior to being compacted, the work shall be summarily rejected.

A single-drum vibrating roller shall be deployed to compact the recycled material immediately behind the recycling machine. This roller shall travel forwards and backwards at a constant speed (maximum 3km/hr (50m/min)), remaining within the confines of the recycled cut. Recycled material covering the outer extremities of cut shall be moved at regular intervals (± 5m) to expose the cut line, thereby allowing the operator to remain within the cut width.

Successive lengths of recycled / treated material shall be compacted (each approximately 50m in length).

Rolling shall continue on each section until the maximum achievable density has been reached. Where an integrated compactometer device is utilised normally rolling have to continue until the device indicates that no further density is being achieved over at least 80% of the length of the section (i.e. maximum achievable density has been reached). Should the device indicate a consistent loss of density at any point during primary compaction (as indicated over two successive recording passes), rolling on that section normally has to be terminated and the roller moved forward to start compacting the next section.

After each day's production, the Contractor shall provide the engineer with his process control records of the densities achieved for primary compaction. Where a compactometer device was used an electronic copy of the data file containing detailed compaction records for the day's work shall be provided to the engineer. As a minimum, the records shall include the number of passes made on each section of every cut made by the recycling machine, the compaction achieved on every cut as well as the following data for each 2m interval along the length of each cut:

- the compactometer reading (where applicable);
- the amplitude of vibration; and
- the advance speed of the roller.

These records will constitute the Contractor’s Process Control for primary compaction.

A “roller pass” shall be defined as a single unidirectional pass made by the roller. Where the roller travels forwards and backwards over the same point, it would have made “2 passes”.

A “recording pass” is a roller pass where the compactometer readings are stored (recorded) and used for comparison purposes. Recording passes are always in one direction of travel only. Recordings shall be made commencing with the first pass and every alternative subsequent pass that is made (i.e. 1, 3, 5, 7, etc.)

The primary compaction process shall follow at the same rate as the recycling operation. The Contractor shall ensure that a sufficient number of rollers are available to achieve this.

(d) Final levels and secondary compaction

(i) After completing the primary compaction on all adjacent cuts that make up the width of pavement that is recycled in one shift, the surface shall be pre-shaped and final levels cut before final compaction is applied. Pre-shaping shall address the lateral shift of material resulting from the surface inclination (cross-fall). The moisture in the layer shall be controlled during this process. No

roller will be allowed onto the layer during the pre-shaping process to prevent the lamination phenomenon (biscuiting) occurring,

Secondary compaction shall then be applied using the smooth-drum vibrating roller operating in low amplitude vibration mode. The outer cut extremities shall be exposed as a guide for the roller operator to ensure that the compaction effort is directed only on to the recycled material (thereby preventing any “bridging across” from the unrecycled pavement).

B3513 REMEDIAL WORK

Should final mixing or compaction not be completed within the time limits specified in subclause B3505(g), or the layer be damaged, but subject to the provisions of clauses 1220 and 3306(c) of the Standard Specifications, the layer shall be ripped up, broken down and all oversize lumps removed. The procedures outlined in subclauses B3505(d) and (e) shall then be repeated at the contractor's expense, adding half the amount of bitumen originally specified for the initial application.

B3514 PROTECTION AND MAINTENANCE

(a) Trafficking the completed layer

(i) Cementitious stabilization

Under no circumstance shall traffic be allowed to travel on layers of cement stabilized material.

(b) Maintenance of the stabilized layer

Until the surfacing is applied, the Contractor shall maintain the surface integrity of the new layer by deploying staff on a daily basis to visually monitor all sections under traffic and take immediate action as soon signs of raveling are detected. Such action shall include the local application of dilute emulsion (applied by hand using a large paint brush) or the application of a further fog spray.

Where damage occurs as a consequence of the surfacing not being applied within the time limits specified in clause B3513 (c) below, the Employers Agent shall have the right to summarily reject the affected layer and the Contractor will have no recourse for the costs he incurs in removing the layer and replacing it with fresh stabilized material.”

PART C MEASUREMENT AND PAYMENT

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

"No additional or extra over payment shall be made for stabilization work in restricted or confined areas."

Item

C5.4.1 Chemical stabilization extra over un-stabilized compacted layers

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

"The unit of measurement shall be the cubic metre of stabilized material, the quantity of which shall be determined in accordance with the final in-situ authorised dimensions of the layers treated as instructed by the Employers Agent. Additional material preshaped to allow for finishing by cutting only will not be included in the measurement."

ADD THE FOLLOWING TO THE PAYMENT PARAGRAPH:

"The tendered rate shall also include full compensation for working in restricted areas on top of and alongside culverts where necessary."

Item

BC5.4.5 Chemical stabilizing agent

REPLACE THE THIRD PARAGRAPH WITH THE FOLLOWING:

"Subject to the provisions of clause 1220, the quantity of stabilizer will be determined in accordance with the authorised rate of application and layer dimensions. Extra stabilizer added for wastage and higher pre-shaping levels will not be included in the quantity."

REPLACE ITEM 35.07 AS FOLLOWS:

"Item **Unit**

BC5.4.7 Bituminous stabilization:

(a) By conventional construction methods using bitumen emulsion (extra over unstabilized compacted layer)…… cubic metre (m^3)

(b) By in-situ recycling:

(i) Using bitumen emulsion…… cubic metre (m^3)

(ii) Using foam bitumen…… cubic metre (m^3)

The unit of measurement shall be cubic metre of materials stabilized. The quantity shall be determined in accordance with the authorised dimensions of the completed layer.

The tendered rate for bituminous stabilization shall include full compensation for breaking up the existing pavement layer, including existing bituminous surfacing where applicable, to a specified depth, breaking down and preparing the material, mixing in of the stabilizing agent(s) as specified, placing and compacting the material as well as protection and maintenance of the layer, conducting control tests, measuring and demarcating the work where layers are reprocessed partly and protecting the adjacent pavement including its repair should it be damaged.

Material which is temporarily bladed to windrow for the removal of an underlying layer and then bladed back and compacted, will be classified as in-situ reconstruction and paid for under this item.

The tendered rate shall exclude surface enrichment as specified in subsubclause B3511(d)(iv) which shall be paid for under item B35.16."

Item **Unit**

BC5.4.8 Bituminous stabilizing agent:

REPLACE SUBITEM (c) WITH THE FOLLOWING:

"(c) 70/100 penetration-bitumen used in foaming process……. ton (t)"

Item **Unit**

BC5.4.9 Additive for bituminous stabilization:

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

."(a) Cement (CEM II (32.5) N)…….. ton (t)"

ADD THE FOLLOWING ITEMS:

"Item **Unit**

B35.14 Extra over subitem 34.01(d) for complete modification of the gravel base as specified in subclause B3503(f) (thickness indicated).....cubic metre (m^3)

The unit of measurement shall be the cubic metre of gravel base, the physical properties of which have been modified using road lime as specified in subclause B3503(f). The quantity will be

calculated in accordance with the authorised dimensions of the base treated as instructed by the Employers Agent.

The tendered rate shall be extra over the rate tendered for subitem 34.01(d) for constructing the unstabilized layer and shall include full compensation for the complete processing of the base as specified in subclause B3503(f).

The road lime will be paid for under item 35.02.

Item **Unit**

B35.15 Establishment of bitumen emulsion or foam bitumen recycling/milling machines on site ..... lump sum

The tendered lump sum shall include full compensation for the provision of any number of recycling machine(s) on the site, moving on site and the subsequent removal thereof.

This work shall be paid for by way of a lump sum, 75% of which will become payable when all the equipment is on site and the first section of roadway has been recycled. The remaining 25% will become payable after all the in-situ recycling work has been completed and the equipment has been removed from the site.

Payment will not distinguish between the number of machines provided on the site simultaneously or the number of times a machine is brought onto and/or removed from the site or as a replacement for defective plant.

All recycling machine movements needed on site shall be included in the rate for this item.

Item **Unit**

B35.16 Surface enrichment square metre (m^2)

The unit of measurement shall be square metre of completed surface enriched area completed.

The tendered rate shall include full compensation for supplying the diluted bitumen emulsion required, the application of the diluted bitumen emulsion and the slushing of the layer using an appropriate pneumatic tyre roller."

ADD THE FOLLOWING NEW PAYMENT ITEMS:

"**Item** **Unit**

B35.17 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**

B35.18 Removal from site of surplus material ..... cubic metre (m^3)

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 Employers 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."

Item **Unit**

B35.19 In situ recycling

(a) Chemically stabilized sub-base layer compacted to *95*% of modified AASHTO density, using:

(i) Non-cemented material (150 mm layer thickness)..... cubic metre (m^3)
(ii) Cemented material (150 mm layer thickness) ..... cubic metre (m^3)

(b) Chemically stabilized sub-base layer compacted to *97*% of modified AASHTO density, using:

(i) Non-cemented material (150 mm layer thickness)..... cubic metre (m^3)
(ii) Cemented material (150 mm layer thickness) ..... cubic metre (m^3)

The unit of measurement shall be the cubic metre of in situ recycled pavement layer, the quantity of which shall be calculated in accordance with the authorized dimensions of the completed layer.

The tendered rate shall include full compensation for setting out the works, preparing and providing the production plan, preparing the existing road surface where required, breaking up the existing pavement layer to the specified depth, breaking down and preparing the material utilizing a in situ recycling machine, spreading and mixing the stabilizing agent but excluding the cost of supplying the stabilizing agent, any extra water required, placing and compacting (primary and secondary) the material, cutting final levels as well as the protection and maintenance of the layer, conducting process control and daily monitoring, measuring and demarcating the work where layers are reprocessed partly, protecting the adjacent pavement and its repair should it be damaged.

It shall further include for all labour, plant, equipment and incidentals required to in situ recycle the layer as specified.

The engineer reserves to himself the right to vary the thickness of the layer to be stabilized by up to 20 mm, and the contract rate for this work shall not be amended by such change.

The tendered rate shall include full compensation for breaking down the material to comply with the specified grading requirements.

Item **Unit**

B35.20 Extra over item B35.19 for adding extra material:

(a) Sub-base layer (G6)..... cubic metre (m^3)

The unit of measurement shall be a cubic metre of material added on the instruction of the engineer, which quantity shall be taken as 70% of the loose volume measured in trucks, unless instructed by the engineer that the quantity be determined by way of cross-sections.

The tendered rate shall include full compensation for procuring, adding and spreading the material to the existing pavement layer to be in situ recycled, and for haul over a free haul distance of 2,0 km except for material obtained from commercial sources where all haul will be deemed to be included. It shall further include for levelling and compacting the material to a nominal density of 95% of the modified AASHTO density.

COTO SERIES – CHAPTER 4
SECTION B 3600: CRUSHED-STONE BASE

B3602 MATERIALS

a) Requirements for crushed aggregate

AFTER THE FIRST SENTENCE DELETE THE REMAINDER OF THE PARAGRAPH AND REPLACE WITH THE FOLLOWING:

“The aggregate shall not contain more than 0,1% by mass of unwanted material such as wood, coal or similar organic material.

Aggregates containing mica, such as granite, gneiss, mica schist, pegmatite, sandstone shall not contain more than 2% by mass of free mica, especially muscovite, when assessed by visually separating the particles, or more than 4% by volume when assessed by means of microscopic slides.

Aggregate containing easily detectable quantities (more than 1%) of olivine, serpentine and sulphide minerals such as pyrites and marcasite, must be considered with caution, and may warrant additional evaluation to the satisfaction of the Employers Agent. Argillaceous rocks may only be used if specified in the project specifications, or with the Employers Agent’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 TMH1 methods B14 and B15.”

ADD THE FOLLOWING:

"G1 material shall be used for the waterbound macadam base.
G2 material shall be used for the GEMs (also called emulsion-treated bases or ETB)."

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*:

"88% of Apparent Relative Density".

REPLACE THE GRADING SECTION IN TABLE 3602/1 WITH:

Grading	**Nominal aperture size of sieve (mm)**	**Percentage passing through sieve by mass**			
		Nominal max size			
		G1	**G2**	**G3**	
		37.5mm	37.5mm	37,5 mm	28 mm

	37,5	100	100	100	
	28	86 - 95	86 - 95	86 - 95	
	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

Note:
Refer to standard COLTO table for COLTO grading if required

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**

Note:
Refer to standard COLTO table for COLTO grading if required

ADD THE FOLLOWING NEW SUB-CLAUSE:

"**e) Durability**

The durability property of aggregates derived from the basic crystalline group shall be assessed by means of the Ethylene Glycol Durability Index. When tested in accordance with the method prescribed in B 8105(g) the Durability Index shall not exceed four.

In addition, the 10% FACT value obtained after soaking in ethylene glycol for four days shall not be less than 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."

IN THE FOURTH LINE OF THE FIRST PARAGRAPH, REPLACE THE WORDS "after slushing" *WITH* "before slushing".

ADD THE FOLLOWING AT THE END OF THE FIRST PARAGRAPH:

"Provision has been made in sub subclause B8108(b)(iii):

Calculation for the determination and of the apparent density for aggregates having a total water absorption exceeding 1,0% when determined or according with TMH methods B14 and B15."

c) Surfacing preparation of the base

REPLACE THE FINAL PARAGRAPH IN SUBSUBCLAUSE 3604(C)(I) WITH:

"Slushing of the base, is compulsory and shall be carried out within 48 hours after completion of the compaction. Even if the specified density is achieved without slushing or before completion of the slushing process, the full slushing process must still be completed."

DELETE SUB-SUB-CLAUSE (II) MULTI-STAGE PROCESS (WATER OR SLURRY ROLLING).

REPLACE THE HEADING OF SUBCLAUSE (g) WITH THE FOLLOWING:

"(g) Work in restricted areas"

B3605 PROTECTION AND MAINTENANCE

REPLACE "moisture content of the layer" *IN THE FIRST PARAGRAPH WITH* "moisture content of the upper 50mm of the layer."

ADD THE FOLLOWING TO THE END OF THE SECOND SENTENCE:

"as determined according to TMH 1 method A7."

B3607 QUALITY AND WORKMANSHIP

DELETE "8200 or" *IN THE SECOND PARAGRAPH*.

B3608 MEASUREMENT AND PAYMENT

Delete the first paragraph and replace it with the following:

"Note: No additional or extra over payment shall be made for work in restricted or confined areas."

Item **Unit**

B36.01 Crushed-stone base:

ADD THE FOLLOWING SUBITEM:

"(g) Constructed from type G1 material obtained from approved commercial source, bituminous stabilized and compacted to 88% of apparent relative density (E1) (layer thickness indicated).....cubic metre (m^3)"

ADD THE FOLLOWING TO THE PAYMENT PARAGRAPH:

"The temporary stockpiling of material shall not be paid for separately and full compensation shall be deemed to have been included in the rates tendered for the various payment items in which the material is to be used."

The unit of measurement shall be the cubic metre of completed crushed-stone base in place and compacted to the specified density. The quantity shall be calculated from the net authorised dimensions of the layer as shown on the drawings or prescribed by the engineer. No adjustments shall be made to the net specified dimensions for level and thickness tolerances, overbuilding and/or other wastage.

AMEND THE DESCRIPTION OF ITEM 36.03 AS FOLLOWS:

"Item **Unit**

B36.03 Crushed-stone base trial section (thickness indicated) **constructed in accordance with the provisions of clause 3603** cubic metre (m³)"

REPLACE THE FIRST MEASUREMENT AND PAYMENT PARAGRAPH WITH THE FOLLOWING:

"The unit of measurement shall be the cubic metre of completed trial section approved by the engineer."

ADD THE FOLLOWING ITEMS:

"Item **Unit**

B36.16 Granular emulsion mix (GEMs) constructed from type G2 material obtained from commercial sources and compacted to 102% of modified AASHTO density, nominal maximum size ofstone 37,5 mm .....cubic metre (m³)

The unit of measurement shall be the cubic metre of completed granular emulsion mix in place and compacted to the specified density. The quantity shall be calculated from the authorised dimensions of the layer as shown on the drawings or prescribed by the engineer.

The tendered rate shall include full compensation for mixing, placing and preparing the final surface of the GEMs layer. It shall also include compensation for hauling the aggregates over an unlimited free-haul distance from commercial sources and for correcting the layers, as well as for testing, protecting and maintaining the work as specified."

COTO SERIES – CHAPTER 4
SECTION B3700: PLANT-MIXED PAVER-LAID PAVEMENT LAYERS

B3701 SCOPE

ADD THE FOLLOWING:

"This section also covers the selection and supply of materials, mixing and processing of plant-mixed bitumen emulsion stabilised materials. The TG2 Guideline, 2nd addition, May 2009 is referenced."

B3702 MATERIALS

(a) Stabilizing agents

ADD THE FOLLOWING:

"**(vi) Bituminous stabilizing agents**

The bitumen stabilising agent for this project shall be 60% anionic stable-grade bitumen emulsion produced from 70/100 road-grade bitumen complying with the SABS 307 specification.

(vii) Fillers

Where the relevant mix design indicates the use of an active filler to enhance the durability properties of the stabilised material, the stabilising additive shall be one of the following agents depending on the outcomes of mix design results:

(1) Road Lime

Road lime shall conform to the requirements of SABS 824: Lime for soil stabilisation, and the packaging shall bear the SABS mark.

(2) Portland Cement

Portland cement shall comply with the requirements of SABS ENV 197-1: 'Cement Composition, specifications and conformity Criteria Part 1: Common Cements'. The cement to be used for bitumen emulsion stabilisation shall be CEM II 32,5N"

The maximum application rate of active filler shall be 1% by mass or as directed by the Employers Agent."

(b) Aggregates

ADD THE FOLLOWING SUBSUBCLAUSE:

"(1) Recovering of asphalt materials

Where the existing surface consists of asphalt surfacing, it will be milled off to depths indicated by the Employers Agent and the recovered material shall be transported to carefully controlled stockpiles for possible re-use on this contract for the bituminous stabilised base layer.

Reclaimed asphalt material, deemed to be unsuitable for bitumen stabilisation due to the nature of the existing asphalt surfacing, or where the surfacing is too thin or variable, shall be transported to a separate stockpile for future use as gravel material.

(2) Re-use of recovered asphalt materials

Materials for the plant-mixed bituminous stabilised base shall be obtained from approved stockpiles of reclaimed asphalt pavement, screened and blended with new G2 imported aggregate from commercial sources. The quality of the G2 material shall meet the requirements of Table 3602/1 of the Standard Specification. The mix should comply with the grading envelope for BSM1 - emulsion treated materials, Table B37.02/1 below. The blending ratio will be determined experimentally on site for optimum reuse of reclaimed asphalt. The limitations of clause 3402(a) last paragraph will apply.

Table B37.02/1

Sieve Size (mm)*	Percent Passing*
50	100
37,5	87-100
26,5	77-100
19,5	66 - 100
13,2	67 - 100
9,6	49 - 100
6,7	40 - 100
4,75	35 - 95
2,36	25 - 78
1,18	18 - 65
0,600	12 - 54
0,425	10 - 50
0,300	8 - 43
0,150	3 - 30
0,075	2 - 20

*Reference: TG2 Figure 4.2 as amended

In addition, the material to be stabilised shall conform to the following requirements:

Table B37.02/2

Test or Indicator	Value
Soaked CBR*	>80%
Plasticity Index*	<10
Grading Modulus	1,75 min. to 2,5 max

*Reference: TG2 Table 3.2”

(e) Water

ADD THE FOLLOWING:

“Water used for diluting emulsions shall be clean and fee from so many salts as will break the emulsions during dilution, and shall be tested for compatibility with the prescribed stabilizing agent.”

B3703 REQUIREMENTS TO BE MET BEFORE A PAVEMENT LAYER MAY BE CONSTRUCTED

ADD THE FOLLOWING SUBCLAUSE:

“(a) Composition of bitumen emulsion treated material

The rate of application of bitumen emulsion shall be governed by the materials to be used.

The minimum requirements of the treated material on test specimen sizes of BSM1 as per the TG2 Guideline using testing methods 3, 4 and 5 shall be:

Table 3703/1

Sample – diameter	Test Parameter	Minimum	Maximum
100 mm	Unconfined Compressive Strength at 100% of modified AASHTO density	1 200 kPa	3 500 kPa
100 mm	Indirect Tensile Strength at 100% of modified AASHTO density (equilibrium)	225 kPa	
150 mm	Indirect Tensile Strength at 100% of modified AASHTO density (equilibrium)	175 kPa	
100 mm	Indirect Tensile Strength at 100% of modified AASHTO density (wet)	100 kPa	

The application rate of bitumen emulsion will be determined from mix design procedures described in TG2 Guideline for 'Level 2' mix designs, conducted on the various blends and the residual bitumen will vary between a minimum of 1,0% and maximum of 3,0% (by mass). The Employers Agent will carry out these mix designs and determine the required binder content. A nominal application rate of 1,0% (by mass) of cement or lime shall be included as an active filler for the bitumen emulsion."

ADD THE FOLLOWING SUBCLAUSE:

"(b) Setting-out and control of the work

The contractor shall programme his operations so that the paving work progresses in a logic and systematic manner.

The Contractor shall establish his own reference and level beacons for the setting-out and control of the works. The existing horizontal and vertical alignment shall be retained and only minor modifications made to the vertical alignment, as described below.

The Contractor shall establish a series of level control poles placed at a constant offset on either side of the road at 20 m intervals. At each 20 m location, the Contractor shall record the existing road surface levels at the center-line and at the dividing lines between the lanes or as directed by the Employers Agent on either side of the Centre-line and prepare a series of graphs (for sections not less than a section length) with the recorded levels plotted at an exaggerated scale against the km distance. Final levels for the new stabilised layer shall be selected in accordance with a 'best-fit principle, taking into account the following:

- the required camber or super-elevation details at each location;
- the minimum requirements governing changes in grade (longitudinal grade line);
- the thickness of the existing base layer; and
- the existing levels of footways plus accesses to properties.

The Contractor shall select the best-fit design levels and these proposals shall be delivered to the Employers Agent (both as a schedule of longitudinal grade, cross-fall and final surface levels, as well as a drawing with the design lines superimposed on the existing levels) for approval or amendment at least two weeks before paving work is scheduled to commence on any specific section.

The Employers Agent will take control measurements to determine the accuracy and adequacy of the reference/control beacons, and may instruct the Contractor to correct any faulty work and to take and provide such additional measurements and details as may be deemed necessary. Survey work will not be measured and paid for separately and compensation for any work involved in staking, setting out, taking levels, determining the final surface elevations and transferring these design levels on to the level control poles (including the cost of all labour materials and reinstatement if required for any reason) will be deemed to be covered by the rates tendered and paid for the various items of work included in this contract. No payment will be made for any inconvenience or delay caused by compliance with these requirements."

B3704 CONSTRUCTION

(a) Mixing and transporting

ADD THE FOLLOWING:

"The bitumen stabilising agent shall be mixed into the aggregate using plant specifically developed for that process as described in Chapter 6.4.1 of the TG2 Guideline.

No mixing shall be undertaken if the temperature of any of the aggregate materials that will be used in the mix is less than 5ºC. The temperature of the material shall be measured not less than 150 mm below the surface of the stockpile. No mixing shall commence if the threat of rain is present.

Bitumen emulsion treated material may only be stockpiled if the conditions set out in TG2 Guideline Chapter 2.6.1.1 are met.

The mixing plant shall be capable of thoroughly mixing the material, blending the bituminous stabilising agent, active filler and water in approved pre-selected proportions and rates.

Care shall be taken to prevent segregation and excessive loss of moisture between the time the materials are mixed and when they are compacted on the road."

(b) Spreading

ADD THE FOLLOWING:

"The choice of paver shall take into account the constraints imposed by paving width and thickness of the layer as described in Chapter 6.4.3.1 of the TG2 Guideline.

The contractor shall take note of the limitations of paving >200 mm layers as set out in the TG2 Guideline, Chapter 6.4.3.3, and use the trial section to overcome the limitations. Paving of a BSM-emulsion treated base shall be restricted to a single layer."

(c) Compaction

ADD THE FOLLOWING SUBSUBCLAUSE:

"(iv) In plant mixed paver laid base

Paving and compaction shall be in accordance with Chapter 6.4.3.4 of the TG2 Guideline with respect to paver set up, paving the layer, construction joints and compacting the paved BSM1 layer.

The BSM layer shall be compactd to an average density of 100 % modified AASHTO density with not less than 98% modified AASHTO per single test.

Before final compaction, the surface of the emulstion treated base layer shall be enriched with a 1:1 mixture of water from an approved source and 60% Anionic stable grade bituminous emulsion at an application rate of 0.4 to 0,5 l/m2. Payment for surface enrichment shall be done according to pay item B37.06."

(d) Construction joints

ADD THE FOLLOWING:

"The number of construction joints shall be minimised as far as possible within the daily production rate and accommodation of traffic constraints."

ADD THE FOLLOWING SUBCLAUSE:

"(f) Plant and Equipment

The new stabilized base shall be constructed by in-plant mixing and laid by a paver.

(i) Mixing Plant

Only an approved purpose built mixing plant like a high energy pugmill type mixer may be deployed on the site. As a minimum the mixing plant shall have the following features:

- Able to accurately blend pre-determined proportions of different input materials whilst simultaneously adding the correct amount of bitumen stabilizing agent, water and active filler.
- Consistently producing a homogenous product

(ii) Paver and Screed

Only an approved purpose built paver may be deployed on the site. As a minimum the paver shall have the following features:

- A screed attached to the paver, which uniformly pre-compact the material to the highest achievable level of density.
- A screed attached to the paver, which is equipped with tamper bars and vibrators to effect compaction.
- Paver with tracks and not wheels to avoid damage to the geogrid when paving on top.

(iii) Compaction Equipment

The rolling guidelines as set out in TG2 Guideline will apply and the contractor shall determine through the trial section the best technique and equipment to achieve the desired compaction density.

As in the guideline TG2, the following rollers for compacting the paved material will be used:

(a) Primary roller

Primary compaction shall be undertaken using a tandem-smooth-drum vibrating roller static mass not less than 10 tons and not more than 12 tons. The roller shall be fitted with an integrated "intelligent compaction system" (e.g. Hamm HCQ GPS Navigator system, or similar) having the following features:

- an accelerometer device fitted to the frame that continuously measures the rebound emanating from the force applied by the vibration (known as a compactometer);
- a system that continuously determines the location of the roller within an accuracy of 0.1 m in the horizontal plane (a device mounted on the roller that reads signals emanating from satellites (GPS system) or fixed stations (land-based laser system));
- an on-board micro-processor that simultaneously receives, stores and analyses the continuous data streams emanating from the compactometer and the location device. The data stored shall include the following information for each pass made by the roller at intervals not exceeding 2 m in the longitudinal direction (direction of travel) over the width of the roller:

- the time that the data is stored,
- the advance speed of the roller and direction of travel,
- the amplitude of the applied vibration and compactometer reading.

- a display monitor mounted in the cab of the roller that shows the path of the roller for a minimum distance of 50 m, colour-coded to show (for intervals not exceeding 2.0 m) whether the reading from the compactometer is increasing, remaining constant or decreasing;
- a "flash drive" facility for downloading a complete record of the day's compaction, and
- software for analysing the compaction data on a remote computer. Such analyses shall include:

- summary of data for specified lots (lengths varying from 2.0 m to 100.0 m) for each strip (cut width) compacted, and
- summary of data for specific lots for the full half width of road, including the facility to plot contours of compactometer values.

(b) Roller for finishing

A pneumatic-tyred roller with a "load per tyre" rating >1750 kg shall be used to finish off the new layer (mild slushing) and for final compaction."

ADD THE FOLLOWING SUBCLAUSE:

"(g) Construction in confined areas

Some construction work will be carried out in confined areas. No additional payment will be made as described for 'restricted areas' in Clause 3508 of the specifications. The method of construction in these confined areas will depend largely on the contractor's constructional plant. However, the contractor shall note that measurement and payment will be in accordance with the specifications and drawings irrespective of the method used, and that the rates and amounts tendered shall be deemed to include full compensation for any special equipment or construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for payment be considered on account of these difficulties.

Where the construction of paved bitumen stabilised materials (BSM) is to be carried out at existing structures or alongside kerbs and channels and/or traffic islands, no separate payment will be made for working in close proximity to these elements and the contractor shall include for having to work close up to the elements in his tendered rates for the construction of the BSM layers."

ADD THE FOLLOWING SUBCLAUSE:

"(h) Daily production plan

Prior to the start of work every day, the Contractor shall provide the Employers Agent with a production plan detailing his proposals for the forthcoming day's work. As a minimum, this production plan shall include:

details of the section of road to be milled and or paved during the day, the start and end stake values, the sequence of cuts and overlap details for all longitudinal joints"

ADD THE FOLLOWING SUBCLAUSE:

"(i) Opening to traffic and protecting the surface of the new layer

The Contractor shall organise his daily operations such that sufficient time is allowed for the surface of the completed layer to dry back to a moist state after finishing.

Where the constructed sections show signs of travelling, the cause and extent of such travelling shall be investigated and, based on the results of these investigations, the Employers Agent will determine the required remedial measures to be taken by the Contractor."

B3705 CURING

ADD THE FOLLOWING:

"For bitumen stabilised layers, the surfacing layer shall only be placed on the completed layer once the moisture content in the upper 100 mm of the layer is less than 50% of the optimum moisture content."

B3706 PROTECTION AND MAINTENANCE

REPLACE THE FIRST AND SECOND PARAGRAPHS WITH THE FOLLOWING:

"The Contractor shall protect the completed base layers from all damage until the surfacing is applied. Any damage occurring to the completed base or any defects which may develop due to faulty workmanship, shall be made good by the Contractor at his own expense and to the satisfaction of the Employers Agent.

Repairs shall be made in a manner approved by the Employers Agent to ensure an even and uniform surface.

During working and construction of the base, precautionary measures shall be taken to prevent kerbs and channelling and concrete work from being damaged or shifted. Care shall be taken to protect all precast units from chipping and breakage. Concrete kerbing and channelling, as well as other structures adjacent to the road, shall be protected against staining by bitumen. Any work stained by bitumen shall be broken down and replaced, unless all such bitumen is completely removed so as not to show any stains. Painting over stained work will not be allowed.

Where construction is carried out adjacent to existing structures, care shall be exercised to avoid damage to concrete elements, expansion joints, manholes, catch pits, etc. Damage caused to any element forming part of the permanent works shall be repaired at the Contractor's cost.

The Contractor shall make good careless or excessive demolition at his own expense. New construction shall be in accordance with the drawings and the Specifications. The Contractor will be held responsible for the timely adjustment of all covers and frames in advance of surrounding construction, whether they are indicated on the drawings or by the Employers Agent or not. No claims for delays arising from the failure of the Contractor to effect the necessary adjustments in good time will be allowed.

Due care shall be exercised when working around existing gullies or kerb inlets so as not to cause blockages. This shall be achieved either by covering them with steel plates during the recycling process, or by removing all trapped material immediately after the recycling operation."

B3707 TRIAL SECTION

IN THE SECOND PARAGRAPH, REPLACE THE FIRST SENTENCE WITH THE FOLLOWING:

"Where ordered by the Employers Agent, the Contractor shall execute trial sections in accordance with the directives included under Section 6.7 in the TG2 Guideline. Trial sections shall be at least a section length of half the road width and located to suit the Contractor's programme of work. During the trial section, the contractor shall also demonstrate that compliance with the level and thickness tolerances can be achieved, as well as the compaction dry densities specified "

B3708 TOLERANCES

ADD THE FOLLOWING:

"Routine inspection and tests will be carried out by the Employers Agent to determine the quality of the materials and workmanship for compliance with the requirements of this section."

(a) Construction tolerances

ADD THE FOLLOWING:

"Measurements for construction tolerances shall be taken immediately after completion of the layer and before opening to traffic. Where the existing granular base abuts kerbs or channels, the new work shall extend to the edge of these facilities unless otherwise specified by the Employers Agent. The new base shall be constructed in sympathy with the existing levels, cross-section profile and cross-fall, unless otherwise specified."

ADD THE FOLLOWING SUBCLAUSE:

"(c) Bituminous stabilizing agents

The average rate of application of bitumen emulsion as measured from consumption records shall be within 0,3 percentage points of the specified application rate."

ADD THE FOLLOWING SUBCLAUSE:

"(d) Chemical stabilising agents

The average application rate of cement or lime used for chemical stabilisation, and as an active filler for bitumen stabilisation, as determined from application records shall be within 0,1 percentage points of the specified application rate."

ADD THE FOLLOWING SUBCLAUSE:

"(e) Uniformity of mix of bituminous stabilized mixes

For each day's work, two bulk samples of approximately 50kg mass shall be taken prior to being compacted and retained in sealed bags. The samples shall be transported to the laboratory and used immediately to manufacture specimens for Indirect Tensile Strength (ITS) testing. The procedure recommended in paragraph 6.8.3 of the TG2 Guideline shall be followed to manufacture and cure the specimens and determine the relevant ITS values. The minimum ITS values as specified in Table 3703/1 must be achieved.

At least two full samples of the bitumen stabilised material shall be taken daily and tested for compliance. Full records of the sample position, time and date of sampling and results, shall be kept by the contractor and made available to the Employers Agent."

B3709 ROUTINE INSPECTION AND TESTS

REPLACE THE ENTIRE CLAUSE WITH THE FOLLOWING:

"Routine inspection and tests will be made to determine the quality of the materials and workmanship for compliance with the requirements of in plant mixed paver laid bitumen stabilized materials.

The quality of the completed work shall be determined from the results of tests that show:

- The relevant strength of the material in the bitumen stabilized layer; which will be evaluated by the relevant ITS specifications,
- The dry density of the compacted material; and
- The thickness of the completed layer.

The statistical judgement schemes to be used to determine whether the in-situ density requirements specified are being complied with shall be those set out in Section 8200 (Scheme 1). Judgement plan A will be applied for judging measurements of the levels and thicknesses of the pavement layer and Judgement plan B for judging measurements of in-situ densities.

In-situ density measurements shall be taken after completing the recycling operation. Nuclear density gauges can be used on site to determine density. As the recycled mix will contain bitumen, the measured moisture content may be overstated, resulting in lower dry densities being reported. A sample for determining the moisture content in the laboratory shall be taken from each test location and be used in the calculation of the dry density. Random standard sand replacement tests (ASTM D1556 or AASHTO T191) shall also be carried out and compared with the results from the nuclear density gauge.

Despite acceptance of the above properties by the statistical methods, the work submitted may be rejected when other properties (which are not controlled by statistical methods) fail to comply with the requirements of the specifications. Where there are other causes for rejection such as obviously defective workmanship, excessively variable properties, visible signs of poor workmanship, or similar considerations which constitute sufficient ground for rejecting the work without any further testing, the Employers Agent may reject the work. Indirect tensile strength shall not be controlled by statistical methods.

Control samples on the bitumen emulsion or bituminous binder shall be taken daily by the contractor. The date of sampling, and batch number of the binder shall be recorded and kept by the contractor, and made available to the Employers Agent. Data from these samples may be used in quality control by the Employers Agent."

ADD THE FOLLOWING CLAUSE:

"**B3711 WEATHER LIMITATIONS**

No mixing work shall be undertaken during misty or wet conditions, nor shall any work commence if there is a risk that it may not be complete before such conditions set in. Similarly, work shall not be undertaken if the ambient temperature is below 5 °C and the temperature of the material being worked is below 5°C. No further work, other than finishing and compaction, shall be permitted if the ambient temperature drops below 5 °C during operations.

The contractor shall take the necessary precautions to ensure that no layer work is undertaken if cold weather is forecast (temperatures below 4°C) for three days following construction. All stabilized layers damaged by frost or ice shall be removed and replace at the contractor's own cost. The contractor shall allow for these requirements in his programme and no claims in this regard shall be considered."

ADD THE FOLLOWING CLAUSE:

"B3712 OPERATIONAL LIMITATIONS

The Contractor shall arrange his milling and paving operations in such a manner as to minimize the disruption to public traffic. Rehabilitation operations shall be carefully planned and executed in accordance with the following limitations:

(a) Individual work areas shall be clearly demarcated with traffic signs, delineators and traffic control facilities as specified.

(b) The individual work areas shall be planned in such a manner that all paved pavement layers are completed as specified in Clause B3704 (i) for each day's production.

(c) Within individual working areas, the Contractor shall make adequate provision for drainage of water from the road surface during construction. No separate payment will be made for the provision and use of standby pumps, dewatering equipment or cutting of drainage slots and/or channels to effectively drain the roadway surface were instructed by the Employers Agent in the interests of safety for the travelling public. The Contractor shall make due allowance for this drainage in this tendered rate.

(d) Delineators shall be placed along any longitudinal step exceeding 40 mm between adjacent halves of the road. The maximum allowable step within a lane open to traffic shall be restricted to 0 mm. If, due to plant breakdown or other unforeseen circumstances, a longitudinal or transverse step higher than 20 mm occurs within a lane, the strip shall be feathered off by means of compacted asphalt over a distance of 500 mm."

ADD THE FOLLOWING CLAUSE:

"B3713 GEO-REINFORCING LAYER

(a) Quality and standard

A mechanical stabilizing or geo-reinforcing layer shall be installed on top of the treated roadbed after the existing surface and base have been milled off and the roadbed treated. The quality of the stabilizing layer shall conform to the following:

i) The mechanical stabilization element shall be a polypropylene geogrid manufactured in accordance with a management system which complies with the requirement of BS EN ISO 9001:2008. If required by the Employers Agent, the Contractor shall provide evidence of the manufacturer's certification of its Quality Assurance System.

ii) The geogrid class shall be 'punched and stretched' to create ribs having orientations in three equilateral directions. The resulting triangular-shaped apertures are defined by ribs having a high degree of molecular orientation which is continuous through the node.

iii) The rib pitch shall be 40 mm. The open area aspect ratio shall be 85% or more.

iv) The isotropic stiffness ratio of the grid, expressed as the ratio of the minimum / maximum radial stiffness at low strain, shall be greater than 0.75 (5)

v) The junction efficiency shall be 90% (1, 5); aperture stability shall be 610 N.mm/deg at a reference moment of 5.0 kg-cm (2, 5).

vi) The tension strength at maximum strain of 4% shall be 40 kN/m in each direction at Young modulus of 70 GPa.

vii) The reinforcing grid shall be inert to all chemicals naturally found in soils and shall have no solvents at ambient temperature. It shall not be susceptible to hydrolysis, shall be resistant to aqueous solutions of salts, acids and alkalis, and shall be non-biodegradable. The reinforcing grid shall have a minimum of 2% finely divided carbon black, as determined by BS 2782:Part 4:Method 452B:1993, well dispersed in the polymer matrix to inhibit attack by ultra violet light.

Notes:

1. Load transfer capability determined in accordance with GRI-GG2 and GRI-GG1and expressed as a percentage of ultimate tensile strength.
2. In-plane torsional rigidity measured in accordance with US Army Corps of Employers Agents Methodology for measurement of Torsional Rigidity (Kinney, T.C. Aperture Stability Modulus Rev 3.1.2000).
3. Modulus tests carried out within the scope and principle of ISO 10319:1996.
4. All geometrical values are typical
5. Declared at the 95% confidence limits

(b) Construction

i) Subgrade preparation

The subgrade shall be levelled and treated as directed by the Employers Agent after milling out/excavation of the existing base. The geogrid or stabilizing layer shall be laid flat and level.

ii) Placing of the stabilizing layer/geogrid

Heavy-duty gloves shall be worn when handling the geogrid. The geogrid shall be placed parallel to the center line of the road or as directed by the Employers Agent.

iii) Overlap

The minimum overlap shall be 300 mm and not more than 600 mm. Overlaps shall be secured and maintained during the filling operation. If necessary, this is generally achieved by placing small heaps of the filling material locally over the overlaps ahead of the filling operation. For this specific project the filling operation will mean the laying of the BSM1 material.

iv) Placing the overlay/pavement layer

Care shall be taken to avoid damage to the geogrids. A paver machine with tracks shall be used to avoid damage to the grid. "

B3710 MEASUREMENT AND PAYMENT

REPLACE ITEM 37.01 WITH THE FOLLOWING ITEM:

Item **Unit**

B37.01 Stabilized crushed stone G2 base, mixed with RA (reclaimed asphalt) in plant mixed and paver laid, compacted to min 100%(average) of Modified AASHTO density and min 98% (single test):

(a) 150 mm thick…….cubic metre (m^3)

(b) 200 mm thick…… cubic metre (m^3)

The unit of measurement shall be the cubic metre of completed stabilized crushed stone, mixed with RA (reclaimed asphalt), the quantity of which shall be calculated in accordance with the authorized dimensions of the layer as shown on the drawings or as directed by the Employers Agent.

The tendered rate shall include full compensation for procuring, furnishing and placing all materials, which include RA (reclaimed asphalt), including full compensation for compacting, and correcting the stabilized layers, including protecting and maintaining the work, as specified, but shall exclude the provision of the stabilizing agents, fillers and a surface enrichment layer.

The tendered rate shall also include the crushing and screening of the reclaimed asphalt and mixing it with the crushed stone material in an approved plant and for correcting the grading to comply with a BSM1 material as specified in the project specifications.

The tendered rate shall also include full compensation for hauling the material (mixed with reclaimed asphalt) for an unlimited free-haul distance where material is obtained from commercial sources or milling and hauling it from stockpile to the mixing plant to the point on the site where required."

Item **Unit**

B37.03 Stabilizing agent

CHANGE THE UNIT OF MEASUREMENT FOR SUBITEM (e) TO LITRE (l)

"(e) Bitumen Emulsion, 60% anionic stable grade .litre (l)"

ADD THE FOLLOWING TO THE END OF THE FIRST SENTENCE OF PARAGRAPH ONE:

"…, except for item (e) where the unit of measurement shall be litre (l)."

REPLACE ITEM 37.05 WITH THE FOLLOWING:

Item **Unit**

B37.05 Trial section of pavement layer……..square metre (m^2)

The unit of measurement shall be the square metre of paved pavement executed as a Trial Section, as ordered by the Employers Agent. Where the Trial Section is successful, this item shall be measured and paid in addition to the various related work items. Where a Trial Section fails to achieve the specified result for any reason whatsoever, no payment shall be affected under this item, nor shall any payment be made under the various related items for the failed work.

The tendered rate shall include full compensation for all additional costs incurred as a consequence of designating the section of work a Trial Section, including all costs relating to low productivity. The tendered rate for the trial section shall also include for constructing the base layer on top of the mechanical stabilizing layer/ geogrid layer."

ADD THE FOLLOWING PAYMENT ITEM:

Item **Unit**

B37.06 Surface enrichment…….. square metre (m^2)

The unit of measurement shall be square metre of completed surface-enriched area completed.

The tendered rate shall include full compensation of supplying the diluted bitumen emulsion required, the application of the diluted bitumen emulsion and the mild slushing of the layer using an appropriate pneumatic tyre roller."

ADD THE FOLLOWING PAYMENT ITEM:

Item **Unit**

B37.07 Geo-reinforcing layer complete (Triax TX170 or similar)……. square metre (m^2)

The unit of measurement shall the square metre of roadbed covered with the reinforcing layer placed, complete as specified and accepted by the Employers Agent.

The tendered rate shall include full compensation for procuring, providing, placing and fixing all materials (irrespective of the quantity of stabilizing layer required), overlapping and cut-offs included, and for all transport, equipment, tools, labour, tying down the layer, supervision and all other cost necessary for installing and protecting the layer until the base layer has been placed. The tendered rate shall also include full compensation for all special preparatory work required. If it is necessary to repair the roadbed, separate payment will be made therefor under the appropriate items of payment.

COTO SERIES – CHAPTER 4
SECTION B3800: BREAKING UP EXISTING PAVEMENT LAYERS

B3804 PLANT AND EQUIPMENT

(a) Milling equipment

ADD THE FOLLOWING PARAGRAPH:

"No payment shall be made for moving the milling machine on the site."

B3805 CONSTRUCTION

(b) Milling

(iii) Asphalt

ADD THE FOLLOWING NEW PARAGRAPH:

"The material originating from the milling of the existing asphalt layers shall become the property of the employer and shall be stockpiled at sites indicated by the Employers Agent. Overhaul on milled material for distances in excess of 1,0 km shall be paid in accordance with item 16.02 of Section 1600."

(vi) General

ADD THE FOLLOWING:

"The requirements for accommodation of traffic during milling operations shall be as specified in Section 1500 of the standard specifications as supplemented by Part B of the project specifications. In particular, the limitations on barricaded length to a maximum of 2,5 km and only during daylight hours are to be taken into account in programming the milling operations. If traffic is to be accommodated over milled areas overnight it shall be a requirement that the vertical longitudinal edge drop-off is not greater than 25 mm in depth and the transverse drop-off at the start and end of each section of work is tapered to a slope not steeper than 1:5 (vertical: horizontal) and all milled areas have been thoroughly cleaned before opening to public traffic. The total length of lane with milled areas open to traffic shall, at any time, not exceed 1,0 km even if the sections of milled areas are not contiguous.

Where milling depths in excess of 25 mm are prescribed, the contractor shall have the option for partial milling within the depth limitations described above and the work area limitations specified for accommodation of traffic. The payment category, according to depth of milling, shall remain applicable to the prescribed depth. The contractor shall programme the works to ensure that no areas with milled depth in excess of 25 mm will remain exposed overnight. The contractor shall phase the milling operation with the production rates for asphalt backfill and overlays. No standing time will be paid for milling equipment or haulage vehicles where stoppage of the milling operations is necessary to comply with the above requirements.

Where milling is to be done at existing structures, care shall be exercised to avoid damage to concrete elements, expansion joints, nosings to expansion joints, manholes, catchpits etc. Damage caused to any element forming part of the permanent works shall be repaired at the contractor's cost.

The floor of the milled excavation shall be cleaned by brooming out all loose materials. The exposed floor of the excavation shall be lightly sprayed with water to identify cracks. The Employers Agent shall be given the opportunity to inspect the milled surface for cracks and loose patches and any cracks and loose patches shall be repaired in accordance with the relevant sections of the specification."

(c) Treatment of pavement excavation floor

ADD THE FOLLOWING:

"Milled surfaces shall be swept clean by brooming out all loose materials. The exposed floor of the excavation shall be lightly sprayed/sprinkled with water to identify cracks. The Employers Agent shall then be given the opportunity to inspect the milled surface for any cracks. All cracks greater than 3 mm in width shall be sealed as specified in Section 4800 of the standard specifications and Section B4800 of the project specifications. A tack coat of 30% stable-grade emulsion shall then be applied to the milled surface and sides of the excavation before the excavation is backfilled or paved with asphalt in layers not exceeding 40 mm compacted thickness."

B3807 MEASUREMENT AND PAYMENT

(a) General

ADD THE FOLLOWING SUBSUBCLAUSE:

"(vi) Providing the milling machine and moving the milling machine on site

No separate payment shall be made for providing the milling machine on site or for moving the milling machine on site. The size and numbers of milling machines required on site shall be determined by the contractor in accordance with the scope of the work and the approved works programme, noting that approval of the works programme shall be subject to compliance with the accommodation of traffic constraints. Temporary removal of milling machines from site and the re-establishment of the machines shall be subject to the approval of the Employers Agent and shall be in accordance with the approved works programme. No additional payments shall be made for the temporary removal and re-establishment of milling plant."

(b) Overhaul

REPLACE WITH THE FOLLOWING:

"No overhaul shall be paid on material originating from the milling of the existing asphalt layers, irrespective of whether the contractor intends to utilise the material for recycling or reworking or whether the material is transported to a dump site. The contractor shall include for overhaul in the rates tendered."

DELETE SUBCLAUSE (c) AND REPLACE WITH THE FOLLOWING:

"(c) No additional or extra payment shall be made for work in restricted or confined areas."

(d) Items of payment

Item

B38.02 Milling out existing bituminous material with an average milling depth

IN THE SECOND PARAGRAPH INSERT THE WORDS "to any location within the site of the works" *AFTER* "providing milling equipment."

COTO SERIES – CHAPTER 8: ASPHALT PAVEMENTS AND SEALS

SECTION B 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”

B4103 EQUIPMENT

ADD THE FOLLOWING BEFORE THE FIRST PARAGRAPH:

"Before any storage, dilution or spraying operations commence the contractor has to provide a safety and security and environmental protection method statement for approval of the Employers Agent. All personnel involved, including brooming, prime distributor, storage and production yard operators and labour shall wear the necessary protective clothing. Appropriate fire extinguishers and medical aid devices must be provided in working order. The Employers Agent reserves the right to stop the contractor's operation or order any person from the site who does not adhere to the above."

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 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. The Employers Agent 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.

The nominal application rate of the prime shall be 0,7 litre/m².

Unless directed otherwise by the Employers Agent or indicated on the drawings, the edges of the primed surface shall be 150mm wider than the edges of the surfacing. ”

ADD THE FOLLOWING SUB-CLAUSE:

“(j) Application in areas treated by reworking and construction of a new base shall be primed using a mechanical distributor complying with sub-clause 4103(a). The edges of the previously constructed or existing surfacing shall be adequately protected by approved means to ensure that an overlap of prime not exceeding 50mm is sprayed onto the previously constructed or existing surfacing.”

B4108 TOLERANCES

REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:

"The actual spray rates measured at spraying temperature shall not deviate by more than 8.0% from that ordered by the Employers Agent. The Employers Agent may, at his discretion, conditionally accept application rates falling outside this tolerance at reduced payment in accordance with Table B4108/1.

TABLE B4108/1: PAYMENT REDUCTION FACTORS FOR CONDITIONALLY ACCEPTED PRIME COAT

Deviation specified spray rate at spraying temperature. (%)	Payment reduction factor of tendered rate.
±8,0	1.00
±9,0	0.97
±10,0	0.95
±11,0	0.90
±12,0	0.85
±13,0	0.80

Any deviation outside these limits shall not be paid for, however, the Employers Agent shall have the right to instruct the Contractor to make up any deficiency, or blind excessive prime without additional payment. Where so instructed, the material for blinding shall consist of approved, but shall consist of screened 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 Employers Agent, only the actual quantities applied shall be paid for."

B4109 TESTING

ADD THE FOLLOWING:

"No payment will be made if this condition is not adhered to. The Contractor shall provide, at his cost, representative samples of every batch of prime delivered onto site."

B4110 MEASUREMENT AND PAYMENT

ADD THE FOLLOWING BEFORE THE PAYMENT ITEMS:

"No additional or extra over payment will be made for work in restricted or confined areas."

SECTION B 4200: ASPHALT BASE AND SURFACING

B4202 MATERIALS

a) Bituminous binders

(iii) Homogeneous modified binders

REPLACE THE LAST SENTENCE WITH:

"The modified binder to be used in the 40mm continuously graded asphalt shall be A-E2.

The homogeneous modified binder shall be manufactured according to the guidelines contained in "Technical Guideline: The use of Modified Bituminous Binders in Road Construction (TG 1-2007): Asphalt Academy". The base bitumen shall conform to SABS 307, or a blend of SABS 307 grades. The type as well as percentage of modifier is not prescribed, however the contractor shall indicate in the Pricing Schedule what polymer he shall be using. The properties of the homogeneous modified binder shall comply with the relevant requirements for binder class A-E2 as listed in table B4202/12.

TABLE B4202/12: PROPERTIES OF POLYMER-MODIFIED BINDER FOR HOT-MIX ASPHALT

Property	Unit	Test Method	Binder Class
			A-E2
Softening Point1	°C	MB-17	65-85
Dynamic Vicosity@165°C	Pa.s	MB-18	≤0.6
Force Ductility @ 5°C	N	EN 13703	Report3
Elastic Recovery @ 15°C	%	MB-4	>60
Storage Stab @ 160°C)	°C	MB-6	≤5
Flash Point	°C	ASTM: D93	≥230
Complex shear modulus: G*Sin δ @10 rad/s	°C	AASHTO:TP5	Report
Creep Stiffness	MPa	AASHTO:TP1	Report
Properties after ageing (RTFOT)			MB-3
Diff in Softening Point	°C	MB-17	-2 to +8
Elastic Recovery @ 15°C	%	MB-4	>50
Mass change	%	MB-3	≤1.0
Torsional Recovery @ 25°C	%	MB-5	Report
Dynamic Viscosity @ 165°C	Pa.s	MB-18	Report2

Notes:

1. The prescribed test method is based on not using stirrers although it has been reported that the use of stirrers has shown no difference in test results. For referencing purposes no stirrers should be used.

2. No limits are given and the values should be recorded for reporting purposes only as they may be used in future specifications.

3. No values given but the test can be used to rank various binders according to their low temperature cohesion properties.

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 not be permitted.

All aggregate in excess of 5mm shall consist of individual nominal single sized aggregate.
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 onsite screening. No additional payment shall be made for screening aggregate. The use of crusher run type materials shall not be permitted, with the exclusion of crusher dust (<5mm)."

(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.

(x) Rolled-in chippings

REPLACE TABLE 4202/11 WITH:

TABLE B4202/11

Sieve size (mm)	Chip size - Percentage passing by mass	
	20 mm	**14 mm**
20,0	100	
14,0	0 – 20	100
10,0	0 – 5	0 – 20
7	0 – 1	0 – 5
0,425	0,5 max	0,5 max

Note:
Refer to standard COLTO table for COLTO grading if required

ADD THE FOLLOWING NEW SUB-ITEM:

"(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"

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

	Sieve size (mm)	Maximum nominal size (mm)	
		Continuously graded	
		37,5	28
		Percentage passing sieve by mass	
PERCENTAGE THROUGH SIEVE BY MASS	37,5	100	
	28	86 – 95	100
	20	73 – 86	87 - 96
	14	61 – 76	73 - 85
	10	52 - 68	64 - 79
	5	37 – 54	43 – 61
	2	23 - 40	28 - 44
	1	17 - 32	20 - 35
	0,600		15 – 30
	0,300	9 – 21	11 – 24
	0,150	6 – 17	8 – 19
	0,075	4 - 12	5 - 12
NOM_NA_	Aggregate	95%	94,5%
	Bitumen (grade according to project specifications)	4%	4,5%
	Active filler*	1,0%	1,0%

* Active filler for tender purposes to be hydrated lime.

Notes: 1. For recycled asphalt the nominal miz ratios of recovered asphalt, new aggregate, new bituminous binders, and active mineral filler to be used for tender purposes, shall be as specified in the project specifications.
2. Refer to standard COLTO table for COLTO grading if required

REPLACE TABLE 4202/7 WITH:

TABLE B4202/7

		Continuously graded		
		Coarse	Medium	Fine
PERCENTAGE THROUGH SIEVE BY	28	100		
	20	100		
	14	85 – 97	100	
	10	70 – 92	85 – 100	100
	5	50 – 70	56 – 77	66 – 89
	2	27 – 45	33 – 48	42 – 59
	1	21 - 35	25 - 40	31 - 51
	0,600	16 – 28	18 – 32	24 – 40
	0,300	12 – 20	11 – 23	16 – 28
	0,150	8 – 15	7 – 16	10 – 20
	0,075	4 - 10	4 - 10	4 - 12
NOMI	AGGREGATE	93,5%	93,5%	93,0%
	BITUMEN (GRADE ACCORDING TO PROJECT SPECIFICATIONS)	5,5%	5,5%	6,0%
	ACTIVE FILLER	1,0%	1,0%	1,0%

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
Voids in the mix	4 - 6	4 - 6
Voids in Mineral Aggregates (VMA) (%)	Min 14	Min 14
Voids filled with binder (%)	65 - 75	65 - 75
Binder film thickness (microns)	5.5 – 8.0	5.5 – 8.0
Filler bitumen ratio	1 – 1.5	1 – 1.5
Adhesion (Immersion Index) C5		84% min.
Modified Lottmann @ 7% voids (TSR)	> 0.7	> 0.7
Air permeability @ 7% voids (cm2)	Max 1 x 10–8	Max 1 x 10–8
Indirect tensile strength @ 25°C (kPa)	Min 1000	Min 1000
Dynamic Creep Modules @ 40°C (MPa)	Min 20	Min 20
Marshall Stability @ 60°C (kN)	8 – 18	8 – 18
Marshall Flow (mm)	2 – 6	2 – 6
Stability /Flow (kN/mm)	>2.5	Min 2.5
Wheel tracking test using Model Mobile Load Simulator (MMLS)* (100,000 repetitions)		Max 2 mm
Superpave Gyratory Test**: % Voids @ Nfinal (300 gyrations)		Min 2

B4204 PLANT AND EQUIPMENT

(f) Vehicles

REPLACE THE SECOND PARAGRAPH WITH THE FOLLOWING:

To minimize temperature loss all vehicles used for transporting asphalt to the site shall be fitted with thermal asphalt covers (canvas covers not acceptable) irrespective of the prevailing climatic conditions or distance of transport."

B4205 GENERAL LIMITATIONS AND REQUIREMENTS AND THE STOCKPILING OF MIXED MATERIAL

b) Moisture

AMEND THE LAST PARAGRAPH AS FOLLOWS:

INSERT "and/or primed base" *AFTER* "surfacing" *IN THE THIRD LINE OF THE FIRST SENTENCE.*

REPLACE THE LAST SENTENCE WITH "In such case the base shall be allowed to dry out to meet the above moisture content requirement prior to placing the surface layer."

c) Surface Requirements

(iii) Tack Coat

ADD THE FOLLOWING PARAGRAPH:

"Hand spraying shall only be permitted on areas approved by the Employers 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 SUB-CLAUSE:

"**f) Approval of asphalt mixture**

Before any asphalt is placed on the road, the Employers 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 Employers Agent to carry out check design testing as necessary. The above design and aggregate shall be submitted to the Employers 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 Employers 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 Employers 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 Employers 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 Employers Agent may instruct the Contractor at any time to halt his paving process and to review the whole or part of the above process should a change of aggregate properties occur, the specified asphalt requirements not being met and/or a consistent asphalt mixture not be produced."

B4208 JOINTS

ADD THE FOLLOWING TO THIS CLAUSE:

"Where the difference in level between the new work and the existing road surface exceeds 25mm, joints shall be treated as follows:

Transverse steps at the end of a day's work shall be tapered off at a slope of 1 vertical to 20 horizontal (1:20) to tie in with the existing surface. The tapered section shall be removed before surfacing is recommenced and a joint formed in accordance with clause 4208 of the specification.

Longitudinal joints exposed to traffic shall be provided with a taper of compacted asphalt material over the full length of the exposed joint. The width of the taper shall be at least 5 times the difference in level between the old and new work.

All costs involved in the provision and removal of these temporary ramps shall be deemed to have been included in the rates tendered for the relevant asphalt pay item."

B4210 COMPACTION

ADD THE FOLLOWING TO THIS CLAUSE:

"No traffic shall be allowed on the newly compacted surface before the mat has cooled to ambient temperature.
At least ⅓ of the cores drilled on the completed asphalt base layer to determine the density, should be drilled on joints."

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."

ADD THE FOLLOWING:

"For conventional asphalt, a trial section of about 60 m shall be laid based on the results of the laboratory design mix. The first 20 m shall be 0,5% less than the design binder content, the next 20 m at the design binder content design and the last 20 m at 0,5% over the design binder content. Volumetric properties, indirect tensile strength on briquettes shall all be checked against the criteria set in tables B4203/2 and B4203/3 for all three sections. Gyratory compaction tests should be carried out on the samples obtained from the trial sections at the different binder contents.

B4213 CONSTRUCTION TOLERANCES AND FINISH REQUIREMENTS

(a) Construction tolerances

(v) Surface regularity

DELETE THIS SUBCLAUSE AND REPLACE WITH THE FOLLOWING:

"Roughness of the surfacing will be determined by using a profilometer capable of producing a Class 1 vertical measurement resolution, and a Class 3 longitudinal sampling distance as defined in ASTM standard (E950-94). Prior to using the profilometer it shall have successfully completed a validation trial against the Instrument of Reference (Face Dipstick ®) used by the South African National Roads Agency Limited.

The profilometer shall be used to record the longitudinal profile in both wheel tracks of the traffic lanes. The two wheel tracks shall be 1,75 m apart, and the Employers Agent shall indicate the exact position of the wheel tracks. Should the two tracks not be measured simultaneously during the same pass, then procedures shall be implemented to ensure that the longitudinal profile data recorded for the two wheel tracks are at the same longitudinal location on the road. The measured longitudinal profiles will then be processed using the Quarter-Car simulation model with parameter values as defined in ASTM standard (E1170-92) for Ride Meter-Vehicle Mounted. The simulated suspension mentioned will then be linearly accumulated and divided by the length to yield 100 m IRI (international roughness index) values in units of mm/m or m/km for each wheel track. The last 50 metres, and the joining first 50 metres of adjacent sections will be evaluated as a 100 m section in the direction of vehicle travel.

The left and the right 100 m IRI values will then be averaged to produce the Average IRI as follows:

$$\text{Average 100 m IRI} = \frac{\text{100 m IRI (Left Wheel track)} + \text{100 m IRI (Right Wheel track)}}{2}$$

The average 100 m IRI for surfacings placed on layers which have been milled, or constructed, by the contractor shall be judged differently from surfacings placed as an overlay on existing surfacing.

(1) The average 100 m IRI for surfacing placed on layers that have been milled or constructed by the contractor shall be evaluated and judged according to table B4213/2 to determine whether the 100 m section needs corrective work or payment adjustment.

(2) For surfacing placed as an overlay on existing surfacing the average 100 m IRI values for the new surfacing and the average 100 m IRI values of the existing surfacing shall both be used in table B4213/2 to determine whether the 100 m section needs corrective work or pavement adjustment. For this surfacing the payment adjustment factor applicable shall be the difference between the payment adjustment factors applicable to the new surfacing and the existing surfacing plus 1,0.

TABLE B4213/2: PAYMENT ADJUSTMENT

100 m IRI values (mm/m or m/km)*	**Payment adjustment factor**
< 0,90	1,050
0,91 to 0,95	1,040
0,96 to 1,00	1,030
1,01 to 1,05	1,020
1,06 to 1,10	1,010
1,11 to 1,20	1,000
1,21 to 1,30	0,990
1,31 to 1,40	0,975
1,41 to 1,50	0,955
1,51 to 1,60	0,930
1,61 to 1,70	0,900
> 1,70	Not acceptable

* This is the average 100 m IRI value per lane.

For overlay work on existing surfacing, the limits for payment adjustment factors shall be 1,050 and 0,900.

On sections where the average 100 m IRI on the existing surfacing is < 1,20 and the average 100 m IRI on the new surfacing does not worsen to > 1,20 no payment adjustment factor will be applicable. Should the average 100 m IRI value on the new surfacing worsen to > 1,20 payment adjustments will be applicable as shown in table B4213/2. Should the average 100 IRI value on the new surfacing worsen to > 1,70 corrective work will be necessary.

Any corrective work required shall be made by the removal, through milling of the total asphalt layer width placed during a single pass of the paver over the 100 m section in question, followed by reinstatement. The contractor shall submit his method statement for any corrective work to the Employers Agent for approval, prior to commencing with any corrective work. Corrective work shall be done at the contractor's expense and shall be completed prior to determining pavement thickness. After completion of the corrective work, the 100 m sections shall be re-evaluated according to the abovementioned procedure.

Any adjustment in the payment of asphalt surfacing will be made by multiplying the full payment for item B42.11 at contract rates (including pre-coated chippings where relevant) by the payment adjustment factor in or derived from table B4213/2. The payment adjustment shall apply to the total asphalt layer width placed during a single pass by the paver over the 100 m sections in question.

The longitudinal profile and the 100 m IRI values shall be determined using a profilometer furnished and operated by the contractor or on his behalf in the presence of the Employers Agent.

No direct payment will be made to the contractor for measurement and analysis of profiles and all costs shall be included in the rates tendered for the relevant pay items as provided in the bill of quantities schedule. It is recommended that frequent measurements be made during the initial set up of the paver and over the progress of the project. However, as an absolute minimum, measurements shall be provided to the Employers Agent after 10%, 50% and 100% of the surfacing area has been completed."

(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%.

(d) Binder content

DELETE "or clause 8305" *IN THE THIRD LINE.*

ADD THE FOLLOWING:

"The allowable deviation from target value for the bitumen content of SMA asphalt mixes shall be 0,3% as for continuously graded asphalt."

(e) Voids

ADD THE FOLLOWING:

"The void content shall not deviate from the approved production mix void content by more than 1%."

(f) Construction tolerances for overlays

(iii) *REPLACE PARAGRAPHS THREE AND FOUR OF SUB-SUB-ITEM (III) TO READ:*

“The calculated average thickness of the overlay for each day’s production shall be the nominal specified thickness ±3mm. No additional payment shall be made for inlays not adhering to this specification.”

ADD THE FOLLOWING TO THE FIFTH PARAGRAPH:

"The nominal thickness of the asphalt scratch coat shall be as indicated on the drawings."

ADD THE FOLLOWING SUBCLAUSE:

“(g) Construction tolerances for inlays,

USE THE SAME WORDING AS PER CLAUSE 1513 (F) WITH THE FOLLOWING CHANGES:

REPLACE PARAGRAPHS THREE AND FOUR OF SUB-SUB-ITEM (III) TO READ:

“The calculated average thickness of the inlay for each day’s production shall be the nominal specified thickness ±5mm. No additional payment shall be made for inlays not adhering to this specification.”

REPLACE THE WORD “overlay” *WITH* “inlay” *FOR THE ENTIRE SUBCLAUSE*.

(h) Air-void tolerance

The actual air voids may not deviate by more than 1 percentage point from the air voids in the approved production mixture."

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 Employers Agent. The test results of cores shall be submitted to the Employers 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 8300.”

ADD THE FOLLOWING SUB-CLAUSE:

d) Special tests

n-Heptane-Xylene Equivalent (Spot test) (AASHTO-T102)

If the Employers 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."

ADD THE FOLLOWING CLAUSES:

"B4216 RUMBLE STRIPS

300 mm wide prefabricated rumble strips with 10 mm nominal-sized aggregate (Petrocol, Freyssinet or approved equivalent) shall be placed as instructed by the Employers Agent.

B4217 COLD PREMIX

Cold premix should preferably be mixed in a concrete mixer, but may be mixed by hand. When a concrete mixer is used, the mixing process must be stopped as soon as the mixture is evenly black. Further mixing may result in stripping.

(a) Mixture ratios

To prepare a cold continuously graded premix with ± 5% nett bitumen content (per weight) the following volumetric method can be used:

Mix 1 part 13,2 mm aggregate,
two parts 6,7 mm aggregate, and
one part coarse river sand.

Then use 7½ parts of the above mixture, dampen lightly, and 1 part KMS 60% (cationic premix grade emulsion) and mix with spades or in a concrete mixer.

By covering the mixture with a canvas, it can be stored for ± 5 days.

The contractor shall make a test section for approval and it should be noted that an accurate grading and surfacing is required."

B4215 MEASUREMENT AND PAYMENT

AMEND THE FOLLOWING PAYMENT ITEM:

"**Item** **Unit**

B42.08 100mm cores in asphalt paving ..... number (no)

AMEND THE 1ST SENTENCE BY ADDING THE FOLLOWING AFTER THE WORD "drilled….":

"irrespective of depth of core."

Item **Unit**

B42.11 Asphalt layer constructed for rehabilitation purposes in accordance with the provisions of sub clause 4213(f)(ii) or 4213(f)(iii):

REPLACE SUBITEMS (a), (b), (c) AND (d) WITH THE FOLLOWING:

"(a) Base or inlays constructed with asphalt 40/50 penetration bitumen, 26,5/20,0 mm maximum aggregate size:

(i) Continuously graded:

(1) In layers not exceeding 50 mm average thickness ton (t)

(2) In layers exceeding 50 mm average thickness but constructed in multiple layers not exceeding 50 mm in thickness ton (t)

(b) Base or inlays constructed with asphalt A-E2 homogeneous modified binder, 26,5/20,0 mm maximum aggregate size:

(i) Continuously graded:

(1) In layers not exceeding 50 mm average thickness .....ton (t)

(2) In layers exceeding 50 mm average thickness but constructed in multiple layers not exceeding 50 mm in thickness ton (t)

(c) Surfacing, overlay or inlay constructed with asphalt 50-70 penetration grade bitumen, 14 mm maximum aggregate size:

(i) Continuously graded:

(1) Up to 35 mm nominal thickness .....ton (t)

(d) Surfacing, overlay or inlay constructed with new asphalt A-E2 homogeneous modified binder, 14 mm maximum aggregate size:

(i) Continuously graded:

(1) Up to 50 mm nominal thickness.....ton (t)"

INSERT THE FOLLOWING PARAGRAPHS AFTER THE 1ST PARAGRAPH:

"The unit of measurement for subitem (a) shall be the ton of asphalt base placed in compacted layer thickness not exceeding 40mm, and measured according to certified weighbridge tickets issued in respect of the mixture used.

The unit of measure for subitem (b) shall be the ton of asphalt overlay placed to the nominal thickness specified if placed in terms of B4213(f)(iii) and placed to the specified level if placed in terms of B4213(f)(ii), and measured according to certified weighbridge tickets issued in respect of the mixture used.

No payment shall be made for excess width and wastage of asphalt, and the mass of such excess or wasted material shall be deducted from the recorded delivery for payment purposes. For layers constructed in terms of clause B4213(f)(iii) no payment shall be made for asphalt in excess of the mean spread rate(s), which shall be determined as follows:

$S = \frac{1000}{AXB}$ m^2/ton where,

S = Mean spread rate in m^2/ton

A = Average bulk relative density achieved on the road in ton/m^3

B = (specified asphalt thickness in mm) + 5mm"

ADD THE FOLLOWING TO THE 3RD PARAGRAPH:

"The tendered rate shall also include full compensation for joint forming, temporary ramping of construction joints between paving operations when new work is opened to traffic (including ramping material), breaking up and disposal of temporary ramps and waste material, weighing the material on the specified weighbridge and cleaning the surface."

ADD THE FOLLOWING PAYMENT ITEMS:

Item **Unit**

B42.21 Rumble strips.....metre (m)

The unit of measurement shall be the metre length of 300 mm wide, approved rumble strip placed in accordance with the Employers Agent's instructions.

The tendered rate shall include full compensation for procuring and furnishing all materials, manufacturing the strips, applying the tack coat and placing the strips in accordance with the manufacturer's instructions on the instruction of the Employers Agent.

Item **Unit**

B42.22 Removal of existing bituminous material by milling as directed by the Employers Agent.....cubic metre (m^3)

The unit of measurement shall be the cubic metre of material removed by milling. The quantity shall be calculated in accordance with the authorised dimensions or as directed by the Employers Agent.

The tendered rate shall include full compensation for providing a milling machine on the site and all additional measure, adjustments and costs for the removal of material by milling, for loading and transporting (including all haul) to approved spoil sites provided by the contractor and for cleaning of the milled area.

Item **Unit**

B42.23 Cut longitudinal joints in asphalt surfacing(state specified thickness and type of asphalt mix):

(a) (Thickness, mm), (mix type).....metre (m)

(b) (Thickness, mm), (mix type).....metre (m)

The unit of measurement shall be the metre of longitudinal joint cut in asphalt surfacing constructed to the thickness specified. No payment will be made for providing transverse joints.

The tendered rates shall include full compensation for providing a cutting wheel mounted on a suitable and stable vehicle, pre-marking the position of the joint to be cut, cutting and removal of cut-off portion of asphalt and for the asphalt discarded during the cutting process. The tendered rates shall also include for the application of a tack coat along the vertical face of the joint and the application of the surface seal of mineral-filled bitumen emulsion as specified."

Item **Unit**

B42.24 Traffic calming measures:

(a) 3.5m wide speed hump as per drawings .....number (No)

(b) Raised pedestrian crossing as per drawings .....number (No)

The unit of measurement shall be the number of speed bumps or raised pedestrian crossings completed as per the drawings and instructed by the employers agent.

The tendered rates shall include full compensation for providing all material, labour and plant to complete the speed bumps or raised pedestrian crossings. Rate to exclude the road markings and road signs that will be measure and paid for under the respective sections.

SECTION B4600: BITUMINOUS SINGLE SEAL WITH SLURRY (CAPE SEAL)

B4602 GRADES OF BINDER TO BE USED

(a) Tack coat

ADD THE FOLLOWING:

"The tack coat shall be a 70/100 penetration-grade bitumen."

(b) Second application of binder

ADD THE FOLLOWING:

"The binder used in the second application shall be a 60% spray-grade emulsion."

B4603 CONSTRUCTION BEFORE SLURRY APPLICATION

(a) Application of tack coat and aggregate

ADD THE FOLLOWING AFTER THE FIRST PARAGRAPH:

“If the bituminous binder used for the tack coat is of 70/100 penetration-grade bitumen, the 19 mm aggregate for the first layer shall be pre-coated with a bituminous based pre-coating fluid, at 12 litre/m³ as specified in subclause 4302(d).

A second application of a 60% -65%% spray-grade emulsion shall then be applied to the surface of the 19 mm aggregate.

The aggregate to be used with the tack coat shall conform to the grading requirements for a 19,0 mm nominal size Grade 1 surfacing aggregate.”

(b) Initial rolling

DELETE "subsubclause 4307(b)(ii)" *AND REPLACE WITH* "subsubclause B4307(b)(ii)".

(c) Broom drag and final rolling of aggregate

DELETE "subsubclause 4307(b)(iii) *AND REPLACE WITH* "subsubclause B4307(b)(iii)".

B4604 SLURRY

(c) Composition of slurry

ADD THE FOLLOWING TO THE FIRST PARAGRAPH:

"The slurry shall be applied and spread by hand. Under no circumstances will the application of the slurry by means of a spreader box be allowed."

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 'fine' grade. For tender purposes the mix proportions of the slurry shall be based on mass.”

ADD THE FOLLOWING AFTER THE SECOND PARAGRAPH:

"The slurry consistency when measured in accordance with ASTM D3910 Section 6.1 shall be between 30 mm and 40 mm."

(d) Mixing of slurry

REPLACE THE LAST SENTENCE IN THE FIRST PARAGRAPH WITH:

"Only the use of batch mixers will be permitted."

(e) Application of slurry

IN THE FIRST SENTENCE OF THE THIRD PARAGRAPH INSERT THE WORDS "one or" *BEFORE* "two layers".

DELETE THE FIFTH AND SIXTH PARAGRAPHS AND REPLACE 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 1st slurry layer is applied, and 15 kg/m² in total if the 1st and 2nd slurry layers are applied. Payment for slurry application variations shall be based only on the actual total rate of slurry application of the completed Cape Seal."

ADD THE FOLLOWING AFTER THE EIGHTH PARAGRAPH (NOW THE SEVENTH PARAGRAPH):

"Both the first and second layer of slurry shall be spread to the full final width of the primed surface."

CHANGE THE EIGHTH LINE OF THE TENTH PARAGRAPH (NOW THE NINTH PARAGRAPH) AS FOLLOWS:

"….. pneumatic–tyred roller. However, each layer of slurry shall be ….."

ADD THE FOLLOWING TO THE NINTH PARAGRAPH:

"This layer of slurry shall be compacted thoroughly by pneumatic tyred roller to the satisfaction of the Employers Agent. The compaction shall be carried out as soon as the emulsion has cured sufficiently so that there will be no picking up of the slurry by the tyres of the roller and not later than on the first working day following that on which that slurry seal was placed."

ADD THE FOLLOWING BEFORE THE FIRST SENTENCE OF THE TENTH PARAGRAPH:

"As soon as possible, but not later than four (4) weeks after the first layer of slurry has been applied, the second layer of slurry shall be placed. The second application of slurry shall not be applied less than four (4) days or more than four (4) weeks after the second application of bituminous binder. The binder shall be given sufficient time to dry before the second layer of slurry is applied."

ADD THE FOLLOWING TO THE FOURTEENTH PARAGRAPH:

"A moist burlap drag shall be drawn behind the squeegees in order to ensure an even textured finish."

ADD THE FOLLOWING PARAGRAPH AFTER THE EIGHTEENTH PARAGRAPH:

"The road shall not be opened to traffic until the slurry has, in the opinion of the Employers Agent, completely cured and the bitumen has set sufficiently so as not to be picked up by the wheels of passing traffic. The contractor shall not allow construction equipment, which is likely to cause damage, over the completed surface."

B4605 MEASUREMENT AND PAYMENT

ADD THE FOLLOWING BEFORE THE PAYMENT ITEMS:

"No additional or extra over payment will be made for work in restricted or confined areas."

REPLACE THE DESCRIPTION OF PAYMENT ITEM 46.01 WITH THE FOLLOWING:

"Item Unit

B46.01 Bituminous single seal with 20,0 mm aggregate and slurry (double layer)

(a) 70/100 penetration grade bitumen as a tack coat and
60% or 65% spray-grade emulsion in the penetration spray……. square metre (m²)

ADD THE FOLLOWING AT THE END OF THE PAYMENT CLAUSE FOR THIS ITEM:

"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."

COTO SERIES – CHAPTER 11: ANCILLARY ROADWORKS

SECTION B 5100: PITCHING, STONEWORK AND PROTECTION AGAINST EROSION

B5102 MATERIALS

a) Stone

REPLACE THE 2ND PARAGRAPH WITH THE FOLLOWING:

"Unless suitable stone can be located on site, the stone for pitching shall come from commercial sources but, from whatever source, its use shall be subject to the prior approval of the Employers Agent."

c) Sand

(ii) Sand for bedding

Replace this sub-sub-clause with the following:

Sand for bedding used for paving blocks shall not contain any deleterious impurities and shall comply with the requirements given in table B5102/1.

TABLE B5102/1

Sieve size (mm)	Percentage passing
10	100
5	95 – 100
2	73 – 86
1	43 - 78
0,600	25 – 60
0,300	10 - 30
0,150	5 – 15
0,075	5 - 10

Note:
Refer to standard COLTO table for COLTO grading if required

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 B 5600: ROAD SIGNS

B5601 SCOPE

REPLACE “South African Road Traffic Signs Manual” *IN THE SECOND PARAGRAPH WITH*:

“SADC Road Traffic Signs Manual”

B5602 MATERIALS

(a) Structural steel

REPLACE THE SECOND PARAGRAPH WITH THE FOLLOWING:

"All structural steel, including tubes, shall be galvanized in accordance with the requirements of SABS 763 for type A1 or B1 articles, as applicable."

REPLACE THE SECOND SENTENCE OF THE FIRST PARAGRAPH WITH THE FOLLOWING:

"Channels, square tubes, angle irons and other steel members on the reverse side of the sign boards and steel tubes for sign supports shall be painted in accordance with the following specifications : SABS 926 for a two-pack zinc-rich epoxy primer, SABS 681 for the undercoat, and SABS 1413 for a chloro-rubber finishing coat."

(g) Retro-reflective material

IN THE FIRST SENTENCE REPLACE “SABS 1519" *WITH* “SANS 1519-1:2014" *AND DELETE* "and the adhesion requirements of CRS 191".

REPLACE THE THIRD LAST PARAGRAPH WITH THE FOLLOWING:

"The contractor shall provide proof that Classes I and III of the retro-reflective commercial products to be used have been generally and successfully used in South Africa during the last three years.

Classes I and III retro-reflective materials shall be warranted against any abnormalities as described in SABS 1519 for 7 and 10 years respectively."

ADD THE FOLLOWING AFTER THE SECOND LAST PARAGRAPH:

"Should a contractor manufacture signs without the necessary approval it shall be deemed that the contractor unconditionally guarantees the sign for the full period of seven years. Should failure of the sign due to suspected incompatibility of materials (in the opinion of the Employers Agent) occur within seven years, the contractor shall remanufacture the sign and re-erect the sign at no cost to the employer."

ADD THE FOLLOWING TO THE LAST PARAGRAPH:

"Reflective sheeting shall be applied to sign faces strictly in accordance with the retro-reflective material manufacturer's specifications. Legend and background materials shall be supplied by the same manufacturer. Every batch of material used for signs on the contract shall be identified by a batch number. A certificate of all materials' compliance with SANS 1519-1:2014 shall be submitted to the Employers Agent within 3 months of the material being used. An outdoor weathering test will not be required."

ADD THE FOLLOWING:

"Retro-reflective materials shall comply with the requirements of SANS 1519-1:2014.

Mixing 3M Scotchlite, Kiwalite or any other approved products on the same sign will not be permitted. The contractor will also be required to produce lifespan guarantees as well as SANS approved certificates with regard to the retro-reflective material specified or tendered for.

When measured in accordance with SANS 1519-1:2014, the coefficient of retro-reflection of a retro-reflective material shall not be less than the appropriate value given in Table 1 of SANS 1519-1:2014 (duplicated as table B8118/1 in these specifications).

The colour of the retro-reflective material shall match the specified colour and shall not be faded to such an extent that its effectiveness is unacceptably impaired in the opinion of the Employers Agent. The surface of the material shall be undamaged and free from scratches, stains or other marks.

When, in the opinion of the Employers Agent, the retro-reflective material does not comply with the above requirements, the contractor shall replace the defective material at his own cost, to the satisfaction of the Employers Agent.

When measured in accordance with SANS 1519-1:2014, the coefficient of retro-reflection of a retro-reflective material shall not be less than the appropriate value given in Table 1 of SANS 1519-1:2014."

(k) Back vinyl

IN THE SECOND SENTENCE REPLACE "SABS 1519" *WITH* "SANS 1519-1:2014" *AND DELETE THE REST OF THE SENTENCE.*

ADD THE FOLLOWING SUBCLAUSES:

"(l) Chromadek sections

Chromadek sections shall be 1,2 mm thick and shall comply with the details on the drawings.

(m) Temporary covers for road signs

When required, existing road signs shall be fully or partially covered with burlap or 0,5 mm thick black plastic or other approved material to obscure destinations that are temporarily inapplicable or irrelevant. As reflective material loses its retro-reflective and adhesive qualities in poorly ventilated conditions, 25 mm diameter holes spaced at maximum intervals of 300 mm shall be cut in the plastic to render it permeable.

The covers shall be neatly applied and firmly fixed in position so that they will be able to withstand strong gusts of wind or eddies caused by passing traffic."

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 Employers Agent with a 100mm x 150mm colour photograph of each sign face for approval of the correctness of the legend. Such approval will not imply final acceptance of the board. If the Contractor is in any doubt as to the correctness of the sign detail, the sign designer shall be contacted for verification.”

(ii) Steel profile road signboards

ADD THE FOLLOWING:

“Chromadek section shall be assembled in accordance with the details of Standard Plans SP-B-12-Sheets 4 and 5 and SP-B-4-Sheets 33E and 34E.

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.”

B5604 ROAD SIGN FACES AND PAINTING

(b) Preparing surfaces and applying paint and retro-reflective sheeting

ADD THE FOLLOWING TO THE FIRST PARAGRAPH:

"and shall conform to the requirements of TYPE A signfaces, as indicated on the drawings."

ADD THE FOLLOWING SUB-CLAUSE:

"**e) Application of retro-reflective material**

All sign faces shall be faced with retro-reflective material. Painted front sign faces shall not be used.

Where applied to Chromadek sections, retro-reflective material shall be applied as specified for aluminium section in Clause 5603(d) of the Standard Specification, and of Clause B5603(a)(ii) of this Project Specification."

B5605 STORAGE AND HANDLING

ADD THE FOLLOWING:

"The following shall not be allowed on the sign face:

- Drilling of holes, except for the fastening of overlays
- Application of any form of adhesive
- Cleaning with any chemicals that are not specifically approved by the manufacturer of the retro-reflective material.
- Covering the sign face with an impermeable material that does not allow free circulation f air."

B5606 ERECTING ROAD SIGNS

(b) Excavation and backfilling

ADD THE FOLLOWING AFTER THE FIRST SENTENCE OF THE FIRST PARAGRAPH:

"A 300 mm thick gravel drainage layer shall be placed at the bottom of the excavations and shall be compacted before the excavations are backfilled.

The dimensions of the excavation for the drainage layers shall be over and above that for the footings as shown on the drawings."

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.

On completion of signs on the road section, the contractor shall clear an area immediately around the sign. The area shall be 10 m wide at the side closest to the road and 5 m wide at the side farthest from the road. The area so cleared shall be treated with an approved chemical growth-retarder in accordance with the supplier's application instructions.

No separate payment shall be made for the clearance, or the procurement and application of the growth retarder."

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.

Pay items are provided in the Pricing Schedule. Payment will differentiate between different types of sign panels."

B5609 MEASUREMENT AND PAYMENT

Item **Unit**

B56.01 Road sign boards with painted or coloured semi-matt background. Symbols, lettering, and borders in semi-matt black or in Class I retro-reflective material, where the sign board is constructed from

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."

ADD THE FOLLOWING PAYMENT ITEMS:

Item **Unit**

B56.10 Hazard plates (size indicated)**:**

(a) 600 mm x 150 mm ..... number (No)

(b) 800 mm x 200 mm…….. number (No)

The unit of measurement shall be the number of each size of hazard plate supplied and erected complete in accordance with the details on the drawings.

The tendered rates shall include full compensation for procuring and furnishing all materials, excavating, disposing of excavated material, erecting and painting the hazard plates and posts, and for placing and compacting the soilcrete backfilling.

Item **Unit**

B56.11 Dismantling and disposal of road signs:

(a) Hazard marker signs ..... number (No)

(b) Single post signs (other R and W signs) ..... number (No)

(c) Multiple post signs..... number (No)

The unit of measurement shall be the number of signs removed.

The tendered rate shall include full compensation for dismantling the sign boards, removing the supports and foundations of ground-mounted signs, disposing of the material and clearing the removal site. It shall also include for all labour, plant, supervision and all other incidentals.

SECTION B 5700: ROAD MARKINGS

B5701 SCOPE

REPLACE "South African Road Traffic Signs Manual" *IN THE SECOND PARAGRAPH WITH*:

"SADC Road Traffic Signs Manual"

REPLACE THE WORDS "ordinary road marking paint" *with "*solvent borne road marking paint".

Replace "BS 3262" *with* "EN 1436".

Replace "Hot melt plastic road marking" *with* "thermoplastic road marking".

B5702 MATERIALS

INSERT THE FOLLOWING BEFORE SUBCLAUSE (A) PAINT:

"The selection of the appropriate road marking paint and materials for permanent road markings to ensure conformance with the requirements of this specification rests with the Contractor. Such paint and material shall have technical characteristics (brightness, luminance, skid resistance, durability) equal to or greater than road marking paint and materials specified in subclauses 5702(a), (b) and B5702(c).

Where plastic road-marking material (hot-melt plastic (also known as thermoplastic) and two-component (also known as cold plastic)) is used, the Contractor shall obtain an approved guarantee from the manufacturer that the paint complies with the specification. This shall be submitted to the Employers Agent on request."

REPLACE SUB-SUBCLAUSE B5702(A)(I) WITH THE FOLLOWING:

"(i) Road marking paint

Road marking paint shall be Type 1 as specified in SANS 731-1. Only paint, manufactured in a SANS approved and accredited facility shall be accepted. The no-pick-up time of road-marking paint shall comply with the Class 1 requirement in accordance with SANS 731-1.

The paint shall be delivered at the site in sealed containers marked in accordance with SANS 731-1.

The viscosity of the paint shall be such that it can be applied without being thinned down."

(ii) Retro-reflective road-marking paint

ADD THE FOLLOWING:

"When measured in accordance with SABS Method 1261-1998 within a period of two weeks after application, the coefficient of retro-reflected luminance, R_L, shall be at least 150 mcd/m².lx for white markings and 100 mcd/m².lx for yellow markings."

REPLACE SUB-SUBCLAUSE B5702(A)(III) WITH THE FOLLOWING:

"(iii) Thermoplastic road marking material

b) Roadstuds

Replace the clause 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: Ferro Lynx A200 (shanked)."

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 sub-item:

"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 Employers 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.

The machine shall always operate in the direction of the traffic when applying lane markings"

B5705 SURFACE PREPARATION

ADD THE FOLLOWING AT THE END OF THE SECOND PARAGRAPH:

"The onus is on the Contractor to ensure that the surface on which the road markings are to be applied is sufficiently clean and dry to ensure that the quality of the road markings will not be adversely affected. The Contractor is also responsible for protecting road studs from being painted over, and the subsequent cleaning thereof if such over-painting did occur."

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 Employers Agent before the Contractor commences with the road marking."

B5707 APPLYING THE PAINT

INSERT THE FOLLOWING BEFORE THE FIRST PARAGRAPH:

"The Contractor's establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be on site or is required to move within the site.

Provision is also made under item B57.07 for de-establishment and re-establishment in the contract or maintenance period if such action is required by delays not attributable to the Contractor and/or ordered by the Employers Agent."

REPLACE THE SIXTH PARAGRAPH WITH THE FOLLOWING:

"Solvent borne road marking paint shall be applied at a nominal rate of 0,42ℓ/m^2 or as directed by the Employers Agent. Thermoplastic road marking shall be applied at a nominal rate of 2,5 kg/m^2 to achieve a minimum thickness of 1,25mm to 1,5mm or as directed by the Employers 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/m^2 is estimated to achieve a 2,0mm material thickness.

In order to ensure proper coverage on all types of surfaces the Employers 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 Employers 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 Employers 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 Employers 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."

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 in situ glass beads of minimum content of 25% in order to obtain night visibility (reflectivity). The Contractor shall immediately apply additional glass beads at 400g/m^2 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 Employers Agent. Prior to any hand application work, the Contractor shall first request approval from the Employers Agent."

ADD THE FOLLOWING:

"Beads shall be applied in accordance with EN 1424."

B5710 TOLERANCES

ADD THE FOLLOWING PARAGRAPHS TO SUBCLAUSE (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 SUBCLAUSE:

"e) Testing

(1) Plant

Before painting any permanent road markings, the Contractor shall satisfy himself and the Employers 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 Employers Agent."

B5711 GENERAL

INSERT THE FOLLOWING INTO THE LAST SENTENCE OF THE LAST PARAGRAPH BETWEEN "black paint" *AND* "or chemical paint remover":

", bituminous emulsion, slurry"

ADD THE FOLLOWING TO THE LAST PARAGRAPH:

"Where black paint is used, it shall be matt."

ADD THE FOLLOWING CLAUSE:

"The Contractor shall provide temporary traffic control facilities in accordance with Section 1500 of the COLTO's standard specifications for road and bridge works to ensure traffic safety where work is being executed.

Property and/or road signs damaged by the Contractor, his personnel, his agents or sub-Contractors shall be repaired or restored to their condition prior to the damage at his own cost."

B5712 FAULTY WORKMANSHIP OR MATERIAL

ADD THE FOLLOWING PARAGRAPHS TO THIS ITEM:

"The Contractor shall rectify in an acceptable manner and at his own costs; all marking that do not comply with the specified requirements.

While work is in progress, tests shall be carried out on materials and/or the quality of work to ensure compliance with the specified requirements. The sampling methods are specified in SANS 731-1. The sampling methods described in TMH5 shall be followed where applicable."

B5713 PROTECTION

ADD THE FOLLOWING PARAGRAPH

"Traffic cones shall not be smaller than 750mm in height and shall be placed on the road not further than 48m apart. Cones shall not be removed before the paint on the road has hardened to such an extent that it will not be damaged by traffic and the adhesive of the road studs has hardened to such an extent that the studs will not turn or become loose. All marks on the road caused by traffic driving over wet paint shall be removed by the Contractor at his own cost."

B5714 MEASUREMENT AND PAYMENT

AMEND PAY ITEM B57.05 AS FOLLOWS:

"**Item Unit**

B57.05 Roadstuds (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 Notification Period."

Item Unit

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."

SECTION B 5800: LANDSCAPING AND PLANTING PLANTS

B5801 SCOPE AND DEFINITION

a) Scope

DELETE THIS PARAGRAPH AND REPLACE WITH

"This section includes all areas affected by construction activities. It includes landscaping, grassing, rehabilitation, erosion protections and planting trees and shrubs.

b) Definition

Weeds

DELETE THE FOLLOWING:

"(as listed in bulletin 413 issued by the Department of Agriculture, Directorate of Agricultural Information)"

AND REPLACE IT WITH:

"(as listed in the Conservation of Agricultural Resources Act)"

B5802 MATERIALS

(a) Fertilizer/soil-improvement material

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The fertilizer/soil-improvement materials to be used shall be one or more of the following types, or as prescribed by the Employers Agent:

(i) Lime
(ii) Superphosphate (10,5)
(iii) Limestone ammonium nitrate
(iv) 2:3:2(22) + Zn
(v) 3:2:1(25)
(vi) Monophosphate
(vii) Ureum (46)
(viii) Potassium chloride (50)."

c) Grass seeds

ADD THE FOLLOWING:

"The grass seed mixture shall be as follows:

(i)	Eragrostis teff	1,5	kg/ha
(ii)	Eragrostis curvula	2,0	kg/ha
(iii)	Cenchrus ciliaris Molopo	10,0	kg/ha
(iv)	Chloris gayana Katambora	15,5	kg/ha
(v)	Cynodon dactylon	16,5	kg/ha
		45,5	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 PARAGRAPH:

"The topsoil shall be kept free of all foreign material generated during construction. This shall include all stone and bituminous products. Topsoiling shall not be accepted should it contain any of the above material."

B5804 PREPARING 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"

ADD THE FOLLOWING SUB-CLAUSE:

"**g) Removal of undesirable vegetation**

During the course of the Contract the Employers 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 Employers Agent, but shall not relieve the Contractor of his obligation towards weeding sodded, grassed areas as described under 5806(a) and any area directly affected by any construction activity. Should the Contractor fail to respond to the written instruction from the Employers 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

c) Hydroseeding

REPLACE THE FIRST SENTENCE OF THE SECOND PARAGRAPH WITH THE FOLLOWING:

"The seed shall be fresh and of good quality. The contractor shall provide samples of the seed for germination tests at an early stage. Hydroseeding shall preferably be carried out in the spring or early summer, and the Employers Agent's prior approval of the programme shall be obtained. The seed mixture shall consist of the following species in the stated proportions:

(i)	Eragrostis teff	1,5	kg/ha
(ii)	Eragrostis curvula	2,0	kg/ha
(iii)	Cenchrus ciliaris Molopo	10,0	kg/ha
(iv)	Chloris gayana Katambora	15,5	kg/ha
(v)	Cynodon dactylon	16,5	kg/ha
		45,5	kg/ha

Eragrostis curvula shall be obtained from the University of Potchefstroom and shall be of the ecotype recommended for revegetation of slopes in harsh conditions.

"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 Employers 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 Employers Agent of seed mixtures intended for use by the Contractor shall not relieve him of his responsibility".

B5807 TREES AND SHRUBS

a) Positions of trees and shrubs

ADD THE FOLLOWING:

"(x) No median shall be planted with shrubs, should the median width be less than 10m wide."

B5808 GENERAL

ADD THE FOLLOWING SUBITEMS:

"**f) 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.

g) Establishment of vegetation within areas disturbed by construction activities

The Employers Agent shall assess any area within the construction boundaries that has been disturbed by construction activities, but which is not scheduled for formal revegetation within the contract. The assessment shall include whether re-vegetation is required. These disturbed areas, none the less remain the Contractor's responsibility for the removal of alien vegetation (see 5807(e))."

B5809 MEASUREMENT AND PAYMENT

Item Unit

B58.03 Preparing the areas for grassing

(c) Topsoiling within the road reserve,
where the following materials are used:

REPLACE SUBSUBITEM (i) WITH THE FOLLOWING:

"(i) Topsoil obtained from within the road

reserve or borrow areas (including all haul) cubic metre (m^3)"

REPLACE SUBITEM (f) WITH THE FOLLOWING:

"(f) Stockpiling topsoil (including all haul) ..... cubic metre (m^3)"

REPLACE THE THIRD PARAGRAPH OF MEASUREMENT AND PAYMENT ITEMS “(c) and (d) Placing the topsoil,” WITH THE FOLLOWING:

"The tendered rates shall include full compensation for excavating and loading the topsoil, any royalties or compensation that may be payable in the case of topsoil under subsubitem B58.03(c)(ii), transport including all haul, off-loading, placing and spreading it to the required thickness, levelling it off to a smooth surface, for removing any stones as specified and for roughening the surface to be topsoiled."

DELETE THE FIRST SENTENCE OF THE LAST PARAGRAPH OF MEASUREMENT AND PAYMENT ITEMS “(c) and (d) Placing the topsoil.”

COTO SERIES - CHAPTER 6: CONCRETE LAYERS

6.2 SEGMENTAL BLOCK PAVING LAYERS

PART C MEASUREMENT AND PAYMENT

ADD THE FOLLOWING PAY ITEM:

"BC6.2.5 EXISTING PAVING

a) Lifting up existing paving blocks including neatly stacking on site designated by the Employers agent
(i) All types and sizes..... Square meter (m²)

b) Lifting up existing paving blocks and spoil material
(i) All types and sizes..... Square meter (m²)

The unit of measurement shall be the square meter of existing paving lifted, and stockpiled or spoiled. The quantity shall be calculated from the dimensions shown on the drawings or authorized by the Engineer.

The tendered rate shall include full compensation for removal of the paving, and stockpiling or spoiling with in a free haul distance of 0,5 km, for all other work necessary to complete specified."

BC6.2.6 TESTING OF BRICKS AS PER SANS 1058:2007. THE TENDERED UNIT RATE SHALL INCLUDE FULL COMPENSATION FOR TESTING PER UNIT BATCH Square metre (m²)

COTO SERIES - CHAPTER 20: QUALITY ASSURANCE

For the purposes of this contract, the acceptance and rejection of material and workmanship shall be according to Quality Control Scheme 2.

PCL: COMMUNITY LIAISON AND COMMUNITY RELATIONS

PCL 1 GENERAL

The construction site is situated in a built-up area and the Contractor shall ensure the least possible disruption of movement of the public during construction. The Contractor shall be responsible for liaison with the Community Liaison Officer (CLO) in respect of construction activities next to private properties and entrances to properties. No separate payment will be made in this regard.

PCL 2 PROJECT STEERING COMMITTEE (PSC)

A Project Steering Committee (PSC) will be established for the project. The functions and powers of the PSC will be as approved by the City of Mbombela Municipality.

In view of the Contract being executed in various Municipal Wards and to limit representation on the PSC, the PSC will consist of the local Ward Councillors and a total of three community representatives appointed by the Ward Councillors affected by the Works.

The Contractor will liaise with the CLO and Ward Councillors for the permanent appointment of local labour workforce for the duration of the Contract, irrelevant of the work being executed in various wards.

PCL 3 PUBLIC LIAISON OFFICER (PLO)

A Community Liaison Officer (CLO)will be appointed by the Contractor only on instruction of the Employer. In the event of an appointment of a CLO, the contractor shall, however, accept the appointment as part of his management personnel.

PCL 3.1 DUTIES OF THE CLO

The CLO's duties will be the following:

a. The CLO will liaise with the PSC for the permanent appointment of local labour workforce for the duration of the Contract, irrelevant of the work being executed in various wards.

b. To be available on site daily between the hours of 07:15 and 10:30 and at other times as the need arises. His normal work day will extend from 07:15 in the morning until 16:45 in the afternoon inclusive of a thirty minute lunch interval.

c. To determine, in consultation with the Contractor, the needs of the local labour for relevant technical training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.

d. To communicate with the Contractor and the Engineer to determine the labour requirements with regard to numbers and skill, to identify possible labour disputes and to assist in their resolution.

e. To attend all meetings in which the community and/or labour is present or is required to be represented. In particular he will attend the first part of the monthly Site Meeting to report on local community labour involvement.

f. To report to and liaise with the Project Steering Committee.

g. To inform local labour of their conditions of employment and to inform local labourers as early as possible when their period of employment will be terminated.

h. To ensure that all labourers who are involved in activities where tasks have been set are fully informed regarding the principle of task work.

i. To attend disciplinary proceedings to ensure that hearings are fair and reasonable.

j. To receive and attend to any complaints lodge by PSC and members of the community.

k. To keep a daily written record of his interviews and community liaison.

l. All such other duties as agreed upon between all parties concerned.

m. To prevent any interference with any matter that is in conflict with the relevant contract as approved by the Municipality, that could have a direct influence on the technical specification or the conditions of contract as set out in the relevant contract documents.

n. To ensure that no member of the PSC or any member of the community put any pressure on the consultant and/or the contractor involved to make any financial or other contribution to individuals or the community as a whole without the knowledge of the Mbombela municipality Municipality.

PCL 3.2 PAYMENT FOR THE CLO

Remuneration of the CLO will be R9 500.00 per month unless otherwise ordered by the Engineer. A special item is incorporated in the Schedule of Quantities relating to payment of the CLO on a monthly basis.

The Contractor shall give to the CLO, at the earliest opportunity, written notice of the termination of the project, provided always that such notice shall not be less than one month.

PCL 3.3 LOCAL SUB-CONTRACTING

City of Mbombela requires that all tenders with a value exceeding R10 million including VAT will be subjected to subcontracting a minimum of 30% of contract value. The Contractor is required to identify and list the all the items that are to subcontracted to local SMME'S in Form T2.2.6, which is also part of the main contractors value of work excluding Chapter 1 and Part C of the Bill of Qauntites.

The Contractor is required to add their additional charges as set out in the bill of quantities on the items below. The Preliminary and General for Local Sub-Contracting are limited to 8% of the total cost of the sub-contracting activites and the handling charges must be inline with the Contractors handling cost.

Measurment and Payment

Preliminary and General for Local Sub-Contracting lump sum

Handling cost and profit in respect of subitem above and value of works to be completed by local SMME's %

"The tendered rate shall include full compensation for Complaince for the appointed sub-contractor in accordance with the Construction Regulation and Health and Safety Act of 2014 for all other work necessary to complete specified."

PES : LOCATING AND PROTECTING EXISTING SERVICES

PES 1 GENERAL

All services are not known and it will be the responsibility of the contractor to locate and protect all services in the vicinity of the construction work.

PES 2 LOCATION OF EXISTING SERVICES

Before underground or excavation work is carried out, the Contractor shall ascertain the presence and position of all services likely to be damaged or interfered with by his activities. He shall obtain up-to-date plans from the Engineer for this purpose, showing the position of services in the area where he intends to work. As services can often not be reliably located from such plans, the Contractor shall determine the exact position of such services by means of suitable detecting equipment and afterwards by careful hand excavation where necessary in order to expose the services at the positions of possible interference by his activities. This procedure shall also be followed in respect of services not shown on the plans but believed to be present.

All such services, the positions of which have been located at the critical points, shall be designated as 'known' services and their positions shall be indicated on a separate set of Drawings, a copy of which shall be furnished to the Engineer.

While he is occupying the Site, the Contractor shall be liable for all damage caused by him to known services as well as for consequential damage, whether caused directly by his operations or by the lack of proper protection.

PES 3 PROTECTION DURING CONSTRUCTION

The Contractor shall exercise all the necessary care to prevent damage to known services during construction operations. Major excavating equipment and other Plant shall not be operated dangerously close to these services. Where necessary, excavation in close proximity to these services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Services left exposed shall be suitably protected from damage.

PES 4 MEASUREMENT AND PAYMENT

Location and protection of existing services:

PES 4.1 Provision of detecting devices for:

(a) Water and sewer pipes Unit : Sum

(b) Electrical and other cables Unit : Sum

The tendered sums shall cover the cost of providing and operating suitable equipment for as long as it is needed to locate all the existing services likely to be affected by the construction activities. Alternatively, an approved specialist firm may be employed to carry out the work.

PES 4.2 Hand excavation necessary for locating and exposing existing services in all material:

(a) In roadways Unit : m^3

(b) In all other areas Unit : m^3

The rates shall cover the cost of excavating by means of hand tools within authorised dimensions, for all precautionary measures to protect the services from damage during excavation and backfilling, and for subsequent backfilling and compacting. Compaction of material in all areas except in roadways shall be to 90% of the modified AASHTO density.

The rate for hand excavation in roadways shall include compensation for compacting excavated or selected backfill material to 93% of modified AASHTO density. Reinstating layerworks and surfacing shall be measured and paid separately.

The tendered rates shall also include for keeping excavations safe, for dealing with surface and subsurface water, for removing surplus excavated material from the Site, for transporting all material within the free-haul distance, and for supplying adequate supervision during both excavation and backfilling operations.

PLIS : LABOUR INTENSIVE SPECIFICATION

PLIS 1 SCOPE

PLIS 1.1. Scope of Specification

All items in the schedule of quantities with a "(L)" added to the item reference, will be classed as a Labour intensive task, and labour intensive principals must be used.

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

(a) trenches having a depth of less than 1.5 metres
(b) storm water drainage
(c) low-volume roads and sidewalks

PLIS 1.2. Precedence

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

PLIS 1.3. Hand excavatable material

Hand excavatable material is material :

(a) granular materials :

i. whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense or dense; or
ii. where the material is a gravel having a maximum particle size of 10 mm and contains no cobbles or isolate boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100 mm;

(b) cohesive materials

i. whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
ii. where the material is a gravel having a maximum particle size of 10 mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic con penetrometer is required to penetrate 100 mm;

Note : 1) A boulder, a cobble and gravel material is with a particle size greater than 200 mm.

2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400 mm and drives a cone having a maximum diameter of 20 mm (cone angle of 60° with respect to the horizontal) into the material being used.

TABLE 1.3 STANDARD TASKS

ACTIVITY	TOOLS	TASK	
Bush clearing	Axe, saw, rope	Medium dense bush (4 to 7 bushes per 100 m^2) 350 m^2/md Dense bush (10 to 15 bushes per 100 m^2) 200 m^2/md Very dense bush (20 to 30 bushes per 100 m^2) 100 m^2/md	
Grass clearing	Slasher, spade, hoe, fork, rake.	Dense grass 85 m^2/md	
Stripping ground cover and grubbing out roots, haul to nearby dump and spread	Pick, shovel, fork, rake	Light vegetation, dig to 50 mm deep 150 m^2/md Medium vegetation, dig to 100 mm deep 75 m^2/md Heavy vegetation, dig to 150 mm deep 40 m^2/md Dig in soft ground to remove roots 42 m2/md	
Grubbing out roots to 250 mm deep			
Destumping (removal of stumps and large roots)	Pick, shovel, fork, rake Pick, shovel, axe	Medium dense bush 60 m2/md	
Removal of bush and tree cuttings	Bush hook, rope, axe, saw	Cut, bundle and load branches, tree trunk pieces, other vegetation 8 m3/md	
Boulder removal	Crowbar	Daily paid	
Excavation (measured in place)		Throwing distance: up to 4 m / 4 to 6 m	
Loose soil	Shovel	5 to 6 m3/md / 4.5 to 5 m3/md	
Sticky soil	Spade, fork, forked hoe	2 to 3 m3/md / 1.5 to 2 m3/md	
Firm soil	Pick, shovel, spade, hoe	3 to 4.5 m3/md / 2.5 to 4 m3/md	
Hard stony gravel	Pick, shovel, crowbar	1.5 to 2 m3/md / 1 to 1.5 m3/md	
Loading (measured loose) into:	Shovel	Loose soil or gravel:	
Wheelbarrow		12 to 15 m3/md	
Trailer		7 to 10 m3/md	
Truck		4 to 6 m3/md	
Levelling roadbed (measured loose)	Shovel, spreader	60 m2/md	
Wheel-barrow haul (measured loose; haul and unload only)	Wheelbarrow (Note production increases 30% for good haul route and decreases 30% for poor haul route)	Equivalent haul distance = length + 10(rise + fall) 20 m 40 60 80 100 120 140 160 180 200	Production in loose m3/md over average haul route 4.44 3.16 2.44 2.00 1.70 1.44 1.28 1.15 1.02 0.95

ACTIVITY	TOOLS	TASK
Picking loose roadbed (bank m3)	Pick, shovel, fork	40 m2/md
Spreading loose material (loose m3)	Shovel, spreader, hoe	Soil 12 loose m3/md Gravel 10 loose m3/md
WATER INg, mixing, spreading and levelling	Shovel, spreader, hoe, string-lines, water bowser	Sandy soil 4.5 m3/md Gravel 3 m3/md (measured tight after compaction)
Compaction and re-levelling	Roller, string lines, straightedge, shovel, spreader.	Depends upon chosen roller (see below)
Compaction by pedestrian-controlled double drum vibro-roller	"Stampede" rollers: R75/50 S R90/55 S	Mass kg / Passes / Layer 980 / 5 / 100 mm 1 350 / 4 / 100 mm
Loosen material in trench with pneumatic tools	Compressor, pneumatic tools, team of 4 people	Intermediate 19 m3 for team Rock 12 m3 for team
Screen bedding material	Sieve, shovel	7 m3 loose /md
Offload flat-bed truck or trailer	Shovel	15 m3 loose /md
Trench backfill, hand compaction	Shovel, spreader, hand-stamper, WATER INg can	Backfill, compact, clean-up and load spoil 4.5 m3/md
Collecting loose stone	Gloves, wheelbarrows	Up to 20 m 2.5 m3/md 20 to 50 m 2.0 m3/md
Quarrying, prying out cracked rock	Crowbar, gloves, sledgehammer.	Up to 20 m 0.5 to 1 m3/md
Rock crushing	New Dawn Engineering hand-turned rock crusher, shovel	0.25 m3/md (depends on size of feed-stock and size of product)
Backfill trench and compact	Shovel, WATER INg can, hand stamper	3.0 m3/md
Lay kerbing on level base	Shovel, rubber mallet, string-line, trowel, wheelbarrow	Straight 6.5 to 10.0 m/md Curved 2.0 to 5.0 m/md
Stone pitching: Plain stone pitching Grouted stone pitching Wired and grouted stone pitching	Club hammer, gloves, string-line, shovel, wheelbarrow, stiff broom, pliers, short crowbar	 10 to 15 m2/md, 200 mm thick 6 to 10 m2/md, 200 mm thick 3 to 5 m2/md, 200 mm thick
Block paving: placing bedding sand, laying blocks, compacting, joint filling, clean up	Shovel, screed rails and beam, rubber mallet, plate compactor, bass broom, wheelbarrow, gloves	16 to 20 m2/md
Stormwater drainage pipes: trimming, bedding, laying, backfilling, compaction	Shovel, rake, boning rods, hand stamper, WATER INg can, rope and ground anchors	450 mm dia concrete: 1.2 m/md (needs team of 10) 600 mm dia concrete: 1.0 m/md (needs team of 10) 450 mm dia plastic: 3.5 m/md (needs team of 5)
Concrete base slab: batch, mix, transport, pour and finish off	Batching boxes, wheelbarrow, shovel, screed beam, wood float	0.8 m3/md (needs team of 5)
Stone masonry walls	Wheelbarrow, shovel, trowel, club hammer, string line, spirit level, batching box.	1.0 m3/md
Gabion work	Gloves, string-line, shovel, wheelbarrow, pliers, short crowbar	1.5 m3/md

PLIS 1.4. Trench excavation

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

PLIS 1.5. Compaction of backfilling to trenches (areas not subject to traffic)

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

to 90% Proctor density;
such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10 mm and contains no isolated boulders, or
such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

PLIS 1.6. Excavation

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

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

PLIS 1.7. Clearing and grubbing

Grass and small bushes shall be cleared by hand.

PLIS 1.8. Shaping

All shaping shall be undertaken by hand.

PLIS 1.9. Loading

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

PLIS 1.10. Haul

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

PLIS 1.11. Offloading

All material, however transported, is to be off-loaded by hand, unless tipper trucks are utilised for haulage.

PLIS 1.12. Spreading

All material shall be spread by hand.

PLIS 1.13. Compaction

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

PLIS 1.14. Grassing

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

PLIS 1.15. Stone pitching and rubble concrete masonry

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

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

Grout shall be mixed and placed by hand.

PLIS 1.16. Manufactured Elements

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

GUIDELINES FOR SUBCONTRACTING AND LABOUR ENHANCEMENT

C3.4.1 DEFINITIONS

The community means individual and communal property owners, organised groups of road users, other interest groups and departments or spheres of government that may be affected by the location, construction, operation and maintenance of the road to which this contract applies.

"Conventional contract" means any contract for the execution of civil engineering or building or similar construction works, in which the liabilities and responsibilities of the two parties thereto are assigned essentially in a manner which is consistent with that set out in the General Conditions of Contract for Road and Bridge Works for State Road Authorities, 1998 (as published by the Committee of Land Transport Officials) or other similar documents.

"Conventional subcontract" shall be similarly and appropriately construed.

"Contract Participation Goal" (or CPG), is the value of goods, services and works, excluding VAT, for which the Contractor proposes to engage labour and subcontractors.

"Contractor" means any person or group of persons in association, or firm, or body corporate who is registered with the Construction Industry Development Board (CIDB) and:

a) have a contractor grading designation equal to our higher than a contractor grading designation specified for the Contract, or
b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above

"Subcontractor" shall be similarly and appropriately construed.

Emerging contractor means an ABE that cannot reasonably be categorised as a conventional contractor defined above.

Affirmable Business Enterprise (ABE): a business which adheres to statutory labour practices, is a legal entity, registered with the South African Revenue Service and a continuing and Independent Enterprise for profit, providing a Commercially Useful Function and:

a) Which is at least two thirds owned by one or more previously disadvantaged individuals or, in the case of a company, at least two thirds of the shares are owned by one or more previously disadvantaged individual; and

b) Whose management and daily business operations are in the control of one or more of the previously disadvantaged individuals who effectively own it.

"Key Personnel" means all contracts managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators, and all other personnel in the permanent employ of the Contractor or his subcontractor who posses special skills and/or who play key roles in the Contractor's or subcontractor's operations.

"Worker" for the purposes of this specification means any person, not being one of the defined key personnel of the Contractor or his subcontractor, who is engaged by the Contractor or subcontractor to participate in the execution of any part of the contract works and shall include unskilled labour, semi-skilled and skilled labour, artisans, clerical workers and the like.

"Workforce" means the aggregate body comprising all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all his subcontractors.

"Subcontractor" means any person or group of persons in association, or firm, or body corporate (whether formally constituted or otherwise) not being the Contractor, to whom specific portions or aspects of the works are sublet or subcontracted by the Contractor in accordance with the provisions of the contract.

Level of subcontractor means the level of responsibility carried by and the assistance to be provided to the different grades of subcontractor in the execution of subcontracts.

"**Project Committee**" is the committee comprising out of the Employer's representative, The Engineer or his representative, the Contractor or his representative and the CLO.

"**CLO**" is the Community Liaison Officer as appointed by the Contractor and paid under the Contract.

C3.4.2 LABOUR ENHANCED CONSTRUCTION

The Contractor's attention is drawn to the fact that it is an objective of the contract to maximise the labour content of certain operations or portions thereof. In this regard, where the specified work allows for a choice between mechanical or labour-enhanced means, the former shall generally be kept to the practical minimum.

The Contractor shall submit on a monthly basis on the date as determined by the Employer, daily labour returns on the prescribed templates to the Engineer indicating the numbers of labour employed on the works and the activities on which they were engaged.

It is also an objective to utilize SMME's / ABE's in the vicinity of the project, the development of these resources in the execution of the project, and by maximising the amount of project funds retained within the project locality.

C3.4.3 TEMPORARY WORKFORCE

a) **Record of workforce and subcontractors**

The Contractor shall maintain accurate and comprehensive records of all workers engaged on the contract and shall provide to the Engineer at monthly intervals from the commencement of the contract, interim records substantiating the actual numbers of employment opportunities which have been generated to date and the amounts actually paid in respect thereof. Such interim records shall be in a format approved by the Employer. Labour records of emerging contractors, SMME or ABE subcontractors, where applicable, shall also be provided by the Contractor and shall be deemed to form part of the workforce.

The Contractor shall, on completion of the contract, and as a pre-requisite to the release of any retention money, provide the Engineer with independently audited documentary evidence of the total number of employment opportunities actually generated during the contract.

The value of the target amount (minimum Contract Participation Goal) spent on local labour is prescribed in the *PART T2.1* Contract Data.

b) **Recruitment and selection procedures**

The Contractor shall be responsible for the final selection of workers and subcontractors to constitute the temporary workforce but in doing so, shall adhere to the procedures adopted by the CLO along the following guidelines:

The Contractor shall advise the Engineer in writing, of the numbers of each category of temporary worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall possess (taking due cognisance of the provisions of the contract relating to training).

The CLO shall take the necessary actions to identify potential workers for the temporary workforce from communities in the vicinity of the works. The details of all persons applying for employment shall be recorded, including inter-alia:

- Name, address, age and sex
- Marital status and number of dependants
- Qualifications and previous work experience (whether substantiated or not)

- Period since last economically active
- Preference for type of work or task.

The CLO shall make a selection of workers from amongst the applicants, taking due cognisance of his requirements for the workforce as supplied by the Contractor and the provisions of the contract in regard to the provision of training to selected members of the workforce and in accordance with the following principles:

No potential temporary worker shall be precluded from selection by virtue of a lack of skill in any suitable operation forming part of the works, unless:

- all available vacancies have been or can be filled by temporary workers who already possess suitable skills; or
- the completion period allowed in the contract, or the remaining portion of the contract period (as the case may be) is insufficient to facilitate the creation of the necessary skills;

The Contractor shall make a final selection from the list provided by the CLO using the following criteria:

- preference shall be given to the long term unemployed and single heads of households
- in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected and shall not be prejudicial to youth over the age of fifteen years and women.

The same provisions shall apply as is in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the contract.

c) **Terms and Conditions Pertaining to the Employment of the Temporary Workforce and subcontractors**

The onus shall be on the Contractor to ensure that all the requirements of all the acts relating to the employment of workers and subcontractors are observed.

d) **Labour Relations and Worker Grievance Procedures**

In accordance with the provisions of the General Conditions of Contract, the Contractor shall, at his own cost, be fully responsible for the establishment and maintenance of satisfactory labour relations on site and the resolution of all grievances of temporary workers and subcontractors as may occur.

The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the civil engineering construction industry and shall conduct himself in a fair and reasonable manner, within the constraints as may be imposed upon him by the terms of the contract.

In the event of any temporary worker engaged by the Contractor in terms of the contract, being aggrieved on any issue, he shall have the right to nominate and be supported in any inquiry or disciplinary hearing or investigation instituted by the Contractor, by one member of the temporary workforce.

In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures described above, then either the Contractor or the worker concerned may require that the matter be referred to the PC for further consideration, with a view to facilitating resolution thereof.

C3.4.4 TRAINING OF THE TEMPORARY WORKFORCE

Selected members of the workforce are to be provided at least with structured training by a nominated subcontractor, in accordance with the provisions of this section. The Contractor shall make all necessary allowances in his program of work to accommodate and facilitate the delivery of such structured training.

ABE subcontractor's workforces will be entitled to receive accredited training that will improve on task skills necessary for the execution and successful completion of the various subcontracts. The Contractor, in conjunction with the Engineer, shall monitor each ABE's progress closely and shall identify those who will benefit from structured construction skills training

The technical training shall comprise of items selected from the table in paragraph 7 of this section and which are relevant to this project.

C3.4.5 ACCREDITED TRAINING AND ATTENDANCE

Only qualified trainers employed by training agencies who are accredited by the Civil Engineering Industry Training Scheme (CEITS), or any other institution recognised by the Department of Labour shall deliver all training certificates affirming the successful participation in the various courses and shall be presented to each attendant.

The contractor shall facilitate in the delivery of training, by instructing and motivating the relevant subcontractor regarding his staff's attendance and participation therein.

The contractor shall further make all reasonable efforts to co-ordinate subcontractor's work with that of the delivery of the structured training

The provision of structured training shall not relieve the Contractor of any of his obligations in terms of clause 24 of the General Conditions of Contract and the Contractor shall remain fully liable for the provision, at his own cost, of any other training of the workforce, additional to the structured training, as deemed to be necessary by the Contractor to achieve the execution and completion of the works strictly in accordance with the provisions of the contract.

C3.4.6 PENALTIES FOR NON-COMPLIANCE

Any deliberate failure or neglect by the Contractor to comply with the provisions of this specification, or any deliberate omission or neglect by the Contractor in adhering to or applying the principles as are described and inherent in this specification, shall be deemed to constitute a warrant for the Engineer to act in terms of clause 55.1.5 of the conditions of contract or the penalties specified for non-attaining the prescribed CPG's will be applied and doubled.

C3.4.7 MEASUREMENT AND PAYMENT

ITEM		UNIT
BC 1.2.4.1	(a) **Community Liaison Officer salary**	Month

The provisional sum provided shall cover the salary of the duly elected and approved CLO.

ITEM		UNIT
BC 1.2.4.1	(c) **Training**	
a)	Training of the temporary workforce	
i) Technical training		provisional (Prov) sum
ii)	HIV/AIDS	provisional (Prov) sum

The provisional sums provided shall cover all the cost for the training of the temporary workforce.

ITEM		UNIT
B12.02/4	**Handling costs and profits in respect of items BC1.2.4.1 (a) and BC102.04**	percentage (%)

The tendered percentage is a percentage of the amounts actually spent under the items, which shall include full compensation for the handling costs of the Contractor, and the profit in connection with the training.

SOCIO-ECONOMIC REQUIREMENTS

C1 SCOPE

(a) Government Policy

This section covers aspects that relate to the Contractor's implementation of Broad-Based Black Economic Empowerment (BBBEE), community participation, use and development of Black Enterprises (BEs) and Small Medium and Micro Enterprises (SMMEs), and engagement and training of labour recruited from local communities. These specifications should be read in conjunction with the various statutes and white papers that relate to small businesses.

(b) Applicable Legislation

All tenders will be considered with specific reference to applicable legislation in force from time to time and which are specifically applicable to organs of state for example the following:-

(i) Public Finance Management Act No. 1 of 1999;

(ii) Preferential Procurement Policy Framework Act No. 5 of 2000;

(iii) The Constitution of South Africa

(iv) Broad-Based Black Economic Empowerment Act No. 53 of 2003

(v) National Small Business Amendment Act No. 26 of 2003

(c) Socio-Economic Objectives

The Employer is committed to transformation through the optimisation of socio-economic benefits within its sphere of business influence in terms of the Broad Based Black Economic Empowerment Act, (Act No. 53 of 2003). The general principles are:

(i) Contribute to local and regional economic development by optimising the use of locally available skills, materials and resources;
(ii) Promote transformation, technology and skills transfer through short term employment creation, preferential procurement, enterprise development, training and skills development objectives; and
(iii) Ensure the project is implemented in a socially responsible and sustainable manner.
(iv) The Employer is committed to ensuring that preferential employment, procurement processes, and the promotion of enterprise and skills development meets its targets in a manner that is cost-effective and achieves project oriented socio-economic objectives.

(d) The Employer's Procurement Policy

The Contractor shall only employ SMME contractors currently under training with the Municipality, from the approved list of SMME contractors provided by the Employer or SMME contractors approved by the Employer.

SMME contractors will undergo training through the Employer. The Contractor should take cognisance that the SMME contractors will not always be available and should programme the works on a monthly basis accordingly, by liaising with the course coordinator or Engineer.

C2 DEFINITIONS

(a) Black Enterprise (BE)

A black enterprise (BE) is defined as a company or economic activity that is at least 50.1% owned by black persons and where there is substantial management control by Black People. Ownership refers to economic interest, whilst management refers to the membership of any board or similar governing body of the enterprise.

(b) Black People (BP)

Black people (BP) are defined as Africans, Coloureds and Indians who hold South African Citizenship through their birth-right.

(c) Local

Local or local area means in the Tswelopele Local Municipalities in the Free State Province.

(d) Locals

Locals have a corresponding meaning to Local, in that it refers to the inhabitants of the area designated under local.

(e) Small Medium and Micro Enterprise (SMME)

"Small Medium and Micro Enterprise or "SMME" is defined as a separate and distinct business entity, including cooperative enterprises and non-governmental organisations, managed by one owner or more, including its branches or subsidiaries, if any and which can be classified as a small, medium or macro enterprise by satisfying the criteria mentioned in Table A below in terms of the National Small Business Amendment Act 26 of 2003.

TABLE A

Size	Total Gross asset value (fixed property excluded) (less than)	Total annual turnover (less than)	Total full time equivalent of paid employees (less than)
Medium	R 5 m	R 26 m	200
Small	R 1 m	R 6 m	50
Very Small	R 0.5 m	R 3 m	20
Micro	R 0.1 m	R 0.2 m	5

C3 CONTRACT PARTICIPATION

(a) Contract Participation Targets

Contract participation is a process by which the Employer implements Government's policies on Black Economic Empowerment and small contractor development. The Employer sets targets for construction by specified entities the rand value for which is based on the goods, services and work undertaken by the specified entities and measured as a percentage of the Contractor's tender sum (excluding VAT). The Contractor is obliged to commit to the targets set by the Employer. For this contract the targets are as follows:

In this contract the minimum target values shall be as follows:

(i) Labour maximisation 10%

(ii) SMME/BE utilisation 20% of which at least 90% is to be contributed by BEs

(b) Measurement of performance

The Contractor's participation performance will be measured monthly in order to monitor the extent to which he is striving to reach the contract participation goal (CPG) specified. Regular returns are required from the Contractor and shall be submitted with each payment certificate.

The Contractor's monthly participation performance towards the CPG will be calculated as the sum of labour and SMME/BE achieved, where;

Labour = male labour wages + 1,05 female labour wages and

Utilisation of SMMEs/BEs = ΣValue of work done by SMME/BE [1 + 0,1 (BP equity in SMME/BE) + 0,05 (Equity held by females in SMME/BE)].

Failure to reach the CPG shall render the contractor liable for a penalty. Conversely, achievement greater than the specified CPG may entitle the contractor to a bonus, further described in the following clause 9.

C4 EMPLOYMENT

(a) Objectives

The objectives of the Employer are to:

(i) Preferentially employ Locals through appropriate channels to minimise the chances of an influx of other than Local work seekers;

(ii) Optimise employment and business opportunities of local black people and black women in particular;

(iii) Minimise project related labour accommodation requirements and associated impacts

(iv) Maximise productivity; and

(v) No labour shall be employed on or adjacent to the Site.

To give effect to the above, the Contractor shall, as part of Labour maximisation (refer to clause 3(a)), on a preferential basis recruit staff and labour to meet the employment targets. Preference for recruitment shall be given to black people from the Local area.

(b) Employment Targets

The number of person-hours employed in the following designated groups expressed as a percentage of the workforce person-hours for that specific designated group (including Subcontractor's personnel but excluding head office personnel) employed on the Contract, shall be at least:

Skills level	Criteria	Target (%)
Unskilled labour	Local	100
Semi-skilled labour	Black people	80
Unskilled and semi-skilled labour	Black women	15
Semi-skilled labour	Northern Cape Province	15

The Contractor is to obtain, file and retain suitable proof to support the workers' Local residential status. This may include but not limited to electricity and water accounts, telephone or cell phone accounts, bank statements, copies of vehicle licence documents, reference from a school or church, affidavits, or other suitable evidence.

C5 COMMUNITY PARTICIPATION

(a) Purpose

In order to give effect to the need for participation and transparency in the process of delivering services, the community should participate in the decision-making process throughout the life of the project. This may be achieved through structured engagement between those responsible for the delivery of the project and the communities adjacent to the project.

(b) Structure and composition

A public liaison committee (PLC) is to be established as a communication structure that interacts with all parties involved with the project. The composition of the PLC comprises representation by the Employer, the Contractor, the Engineer and formal structures within the communities. The Contractor is advised to make use of established community communication channels and appoint from among his site personnel a responsible person, (community relations officer, or CRO), to participate in the PLC business.

(c) Use of the PLC

The Contractor is encouraged to utilise the community participative process in order to facilitate harmonious relationships on the project. Some of the suggested elements of construction activity that should be discussed by the PLC are,

(i) SMMEs/BEs with whom the Contractor is already contractually committed prior to the commencement of the Contract,

(ii) Procurement of labour,

(iii) Assistance with general community/project liaison.

C6 UTILISATION OF SMMEs/BEs

(a) Objective

A major objective of the BEE Programme is to extend economic opportunities and entrepreneurial capacity to all localities by the 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.

(b) Requirements

The Contractor is required to commit to the direct participation of SMMEs/BEs in its operations that form part of items of work and of the value of goods and services that are to be preferred under this Contract. The minimum level of commitment is prescribed clause 3(a) hereof and forms part Contractor's commitment of the Contract Participation goals and targets defined in clause 3.

Contractors who are bonafide empowerment companies do not qualify for relief from the obligations created by these requirements. Similarly, contractors who are joint venture entities cannot claim the value of work or services performed by any of the joint venture elements who are classified SMME or BE as contributing towards the prescribed goals or tendered targets.

The Contractor shall only employ SMME contractors currently under training with the Municipality, from the approved list of SMME contractors provided by the Employer or SMME contractors approved by the Employer.

When calculating achievement of the committed targets, the difference between SMMEs and BEs must be clearly understood. The narrower goal of 90% committed expenditure shall only apply to BE companies who are also SMMEs according to the definition of clause 2.

The tendered target value shall be used in calculating the performance of the Contract Participation Goal as described in clause 3(b) and in calculating any penalty.

(c) Accredited Registration

Achievement measured against the SMME/BE target value shall only be accepted if the respective SMME/BE for which services or work is being claimed as having been performed, is registered with an accredited agency such as the Construction Industry Development Board. In addition, documentary evidence that such SMMEs/BEs are registered with the South African Revenue Services shall be lodged with the Engineer before the work or service may be considered as having been performed by a bona fide SMME/BE. The responsibility for producing evidence of the respective registration documentation shall rest with the Contractor.

C7 PREFERENTIAL PROCUREMENT

(a) Objectives

The Employer is committed to preferential procurement of goods and services from enterprises that are at least 50% Black Owned Enterprises (BOE), at least 30% Black Women Owned Enterprises (BWOE), 30% Black Owned Local Enterprises (BOELE), and 30% Black Owned Women Local Enterprises (BWOLE).

In order to give effect to this objective, the Contractor shall on a preferential basis procure goods and services to meet the procurement targets, which shall be included in as part of the Contractor's CPG for SMME/BE minimum target value commitment (refer clause 3(a)).

(b) Targets

The value of goods and services preferentially procured from sources external to the Contractor shall be based on the tendered percent as a percentage of the Accepted Contract Amount excluding VAT, escalation and the cost of the BoQ items. Such percentage shall not be less than 25%.

The following minimum targets are to be met in respect of preferential procurement from Preferential Procurement Beneficiaries:

Preferential Procurement Beneficiaries	Target (%)
Black Owned Enterprise (BOE)	15
Black Owned Local Enterprise (BOLE)	5
Black Women Owned Enterprises (BWOE)	2.5
Black Women Owned Local Enterprise (BWOLE)	2.5

The Preferential Procurement Beneficiaries categories are not mutually exclusive.

C8 TRAINING, MENTORING, GUIDANCE AND ASSISTANCE

The Contractor shall be responsible for training, mentoring, guiding and assisting the SMME contractor and shall be compensated according to pay Item B12.03.

C9 MONITORING OF PROGRESS

(a) Keeping of records

The Contractor shall assume responsibility for the compilation and maintenance of comprehensive records detailing each BE's progress during the construction duration, starting from the award of a subcontract to a BE until the successful completion of the subcontract work or termination of the subcontract. To this end the Contractor shall complete a BE Declaration Affidavit that requires the Contractor to obtain a bona fide statement of details for each BE engaged.

(b) Monthly returns

The Contractor's participation performance will be measured monthly in order to monitor the extent to which he is striving to reach the Contract Participation Goal (CPG) specified (refer to clause 3(c)

Reporting forms shall accompany the Contractor's monthly claim presented to the Engineer for payment of certified completed work. Failure to adhere to this requirement shall result in the delay of any payment due until the Engineer confirms that the forms have been received.

(c) Incentives/Penalties

As an incentive to encourage the contractor to achieve, or exceed, the specified CPG, penalties shall be imposed by the Employer for failure to achieve the specified CPG and a bonus is offered for exceeding the specified CPG.

It is therefore, necessary to monitor progress on the achievement towards the specified CPG. The basis of monitoring shall be the levels of the individual contributions for labour employment and utilisation of SMME/BE. Pro-rata penalties shall be applied under payitem C10.02(b) calculated according to any month-by-month shortfall of each of the targets. Any bonus due shall only be calculated at the completion of the contract according to the minimum targeted CPG (refer to C3).

If a bonus or penalty is to applied, it shall be at the rates shown item C10.02. In the case of penalties, they shall be deducted from monies due to the contractor.

C10 MEASUREMENT AND PAYMENT

Item **Unit**

C10.01 Community participation:

(a) Cost of community participation and support ..... provisional sum (Prov) sum

(b) Handling cost and profit in respect of subitem C10.01(a) .....percentage (%)

The provisional sum shall be used to cover the direct costs incurred by attending members of the PLC that the contractor establishes. The rate of compensation shall be at a fair rate agreed by the engineer. In accordance with clause 13.5 of the General Conditions of Contract, the tendered percentage for subitem C10.01(b) shall include full compensation for all handling costs and profit of the contractor in connection with subitem C10.01(a).

The assistance provided by the contractor to the PLC in the form of in-task training, arranging service providers, appointment and services of a community relations officer shall not be paid from the provisional sum. The contractor's costs to render such assistance shall be deemed to have been included in his rate offered for pay subitem 13.01(c), Contractor's Establishment on Site and General Obligations: Time Related Obligations.

Item **Unit**

C10.02 Incentives/Penalties:

(a) Bonus …….. provisional (Prov) sum

(b) Penalties:

(i) Contract Participation Goal …… rate only

The unit of measurement shall be the specified percent of the value of the excess or shortfall measured against the tendered CPG.

The bonus shall be paid at the rate of 5% of the amount by which the achieved values exceed the CPG up to a maximum of R50 000,00.

The penalty for failure to achieve the Contract Participation Goal shall be applied at a rate of 50% of the value by which the accumulative value of the measurable elements fails to meet the contract CPG and shall be applied on a pro-rata basis according to a monthly evaluation of achievements against the targets specified. (Refer to clause C9(c)).

Note:
No separate payment shall be made for any costs incurred by the contractor, whether direct or indirect, for his efforts in accomplishing the requirements of BEE objectives as specified, and which are not recoverable from the payitems allowed. Such costs shall be deemed to have been included in the rate offered under pay subitem B13.01(c), Contractor's Establishment on Site and General Obligations: Time Related Obligations.

C3.5: MANAGEMENT

C3.5 MANAGEMENT

C3.5.1 MANAGEMENT OF THE WORKS

C3.5.1.1 Applicable SANS and SABS Standards

The COLTO (1998 Edition) Standardized Specifications listed in C3.4.1.1 are applicable.

C3.5.1.2 Particular/Generic Specifications

Not applicable.

C3.5.1.3 Methods and Procedures

(a) Maintenance of access and streets

The operation of construction vehicles on existing roads or streets, or streets that have been completed to the level of subbase, base or surfaced treatment, shall be limited to the traffic with an axle load not exceeding that allowed by the Road Traffic Ordinance of the authority concerned, or any amendment thereof. Hauling is strictly forbidden on sections of road or streets that have been completed as described above. The Contractor shall make use of a temporary haul road, or where not practically possible, program his work in such a manner that the haulage materials shall be restricted to that required for the particular section of street. No additional payment shall be made for the use of temporary haul roads and all relevant costs shall be deemed covered by the appropriate rates.

No additional payment will be made for the construction of temporary access roads to the construction site, borrow areas or the spoil sites, except for payment made under payment item 15.01 in the Bill of Quantities.

Should the Contractor make use of existing roads or streets for haulage, he shall be held responsible to clear the road or street of any spillage caused by his activities within one (1) day after such spillage occurred. No additional payment will be made for the cleaning of the spillage.

(b) Blasting operation

All blasting shall be carried out by a competent, registered blaster. The blaster shall furnish to the Engineer copies of all the permits required to purchase, transport, use and dispose of unused blasting material. The Contractor shall inform the commander of the local SAPS at least 1 day prior to the date and time blasting is about to take place.

No blasting operations shall take place on weekends or holidays or weekdays after 17h00.

The Contractor shall ensure that sufficient suitable material, to the satisfaction of the blaster, is available and in place before the blast is initiated.

(c) Normal working hours

Normal working hours shall be from 07h00 until 17h00 on weekdays from Monday to Friday. It shall be from 07h00 until 13h00 on Saturdays.

Work on other days will only be allowed after written approval has been granted by the Engineer.

(d) Interference with municipal staff and operations

The Contractor shall ensure that none of his staff interfere in any way with any municipal staff member or their functions.

Any person ignoring this shall be removed permanently from site, all at the expense of the Contractor.

(e) Access for other contractors

The Contractor shall provide reasonable access to other Contractors carrying out work on the site from time to time, as and when such access is required. The Contractor is entitled to request reasonable notification of at least 24 hours before access by others is required.

The contractual responsibilities of the Contractor shall remain in full force in spite of the other Contractors having access to the site.

(f) Giving notice of work to be covered up

The Contractor shall give the Engineer at least 24 hours' notice prior to a request for examination of materials or work to be covered up. This request must be made in the request book on site.

Should such a request be made and upon inspection the Engineer found that the works or materials are not yet ready for inspection, the Contractor shall reimburse the Engineer within 30 days of invoice for all expenses incurred as a result.

(g) Sequence of the works

The Contractor shall execute the Works in accordance with the approved programme.

C3.5.1.4 Quality plans and control (Testing)

Refer to Section C3.4.2.5(b).

C3.5.1.5 Environmental Management Plan (EMP)

(a) Demarcation of the site

For the purpose of the EMP, the site shall be demarcated into two distinct areas, viz.;

(i) The construction camp comprising all buildings, hostels, offices, lay down yards, vehicle wash areas, fuel and material storage area, batching areas and other infrastructure that is required for the running of the job.

(ii) The working area in which construction activities are permitted to take place. No infrastructure, permanent lay down or storage areas shall be established in this working are unless specified in the project specification or prior approval is obtained from the Engineer.

(b) Construction camp

The Contractor shall provide the Engineer with a plan showing the positions of all buildings, yards, vehicle wash areas, batching areas and other infrastructure for approval by the Engineer at least ten (10) days prior to the commencement date.

(c) Fencing of site

If a temporary fence is required, the Contractor shall erect and maintain such a fence (demarcating the boundary of the working area, construction camp and access roads) to the satisfaction of the Engineer.

This fence shall be erected before the commencement of any other work on site. The fence shall be removed after completion of the project and the site reinstated to its original state.

(d) Workshops

All workshops shall be located inside the demarcated construction camp area as approved by the Engineer prior to establishment. The workshop shall have a smooth impermeable concrete floor sloped to one side where oil is trapped in an oil trap or sump to contain any spillages of substances such as oil.

Waste material shall be disposed of in accordance with the national, regional and local by-laws regulations and by-laws. The waste shall be regularly removed and disposed of at an approved site.

(e) Eating areas

The Contractor's employees shall eat in a designated eating area indicated on the drawing approved by the Engineer. The Contractor shall provide adequate shade and provide scavenger proof and waterproof refuse bins. Cooking will only take place in this area on well-maintained gas cookers with fire extinguishers present. Open fires other than the gas cookers shall not be allowed.

(f) Watchmen

The Contractor shall have a watchman present on site during non-working hours and on holidays to ensure the safety of plant and materials on site.

(g) Ablution facilities

The exact location of toilets shall be approved by the Engineer. The Contractor shall provide the toilets and maintain and service it on a daily basis. The toilets shall be kept clean. Regular inspections shall be conducted by the Engineer. Burial of waste on site is strictly forbidden. Leaking or broken toilets shall be removed and replaced immediately by the Contractor.

(h) Solid waste

"Solid waste" refers to construction debris, chemical waste, tins, cans, paper, wrappers, excess concrete, waste timber, etc.

The Contractor shall establish a waste control and removal system. He shall submit a method statement to the Engineer for approval prior to commencement.

Appropriate solid waste containers shall be provided for the storage of waste. The containers shall be water proof. The waste shall be removed on a regular basis to prevent the accumulation of waste on site and disposed of at an approved waste site.

(i) Wastewater

Water shall be used sparingly on site. Where possible, wastewater shall be recycled. A wastewater management plan shall be submitted to the Engineer for approval 10 days prior to the commencement date.

The management plan shall detail the expected extent of the contamination of each wastewater stream and how the Contractor plans to deal with it.

Wastewater shall be prevented from flowing into the Olifants River.

(j) Fuel storage area

Fuel shall be stored on site in a depot at a location as agreed with the Engineer. The Contractor shall ensure that liquid fuels are stored in tanks with lids. The tanks shall be placed on a sloped smooth concrete surface with an oil trap on the lower end to collect any spillage.

Fuel shall be kept under lock at all times.

(k) Concrete batching area

Cement and concrete is hazardous to the environment due to the high pH of the material and the chemicals it contains.

The Contractor shall furnish to the Engineer for approval a method statement for the mixing of concrete. Concrete shall not be mixed directly on the ground. Care must be taken to ensure that wastewater and contaminated material is collected and disposed of correctly.

(l) Equipment maintenance and storage

All equipment and vehicles shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from site. Where possible, maintenance and service shall take place only in the workshop. Permission must be obtained from the Engineer if the aforementioned cannot be adhered to.

The Contractor shall demarcate an area in which the equipment and vehicles may be stored. The location shall be approved by the Engineer.

(m) Materials handling, use and storage

The Contractor is responsible to ensure that all material suppliers are aware of the EMP's restrictions and conditions. The Contractor shall be held responsible should deliveries not comply with the EMP requirements.

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous material.

The Contractor shall furnish to the Engineer a list of all hazardous materials to be used on site, together with the handling, storage and disposal procedures of the materials. This information shall be available to all personnel on site.

The location of the hazardous material store shall be within the demarcated construction camp area. The location shall be approved by the Engineer.

Where possible, the Contractor shall ensure that the refueling of vehicles takes place only at the fuel storage area in the construction camp. If this is not possible, the Contractor shall obtain permission from the Engineer to refuel at any other place. Contaminated material and wastewater at the refueling area shall be contained and disposed of correctly.

(n) Emergency procedures

The Contractor shall ensure that emergency procedures for the following situations are submitted for approval to the Engineer;

Fire – the Contractor shall inform the relevant authority immediately as soon as a fire starts. The Contractor shall ensure that his staff and subcontractors are fully aware of the procedures to be followed in the event of a fire.

Spillages – the Contractor shall ensure that his staff and subcontractors are fully aware of the procedures to be followed in the event of a spillage. The Engineer must be informed immediately about a spill. The Contractor shall ensure that the necessary materials and equipment is on site to deal with spills and leaks. The cleanup of spills and leaks shall be for the account of the Contractor.

(o) Care of surrounding areas

The Contractor shall ensure that no contamination of or damage to the surrounding areas or watercourses shall occur as a result of any of his activities during construction.

C3.5.1.6 Planning and programming

The programme to be furnished by the Contractor to the Engineer for approval shall be in the form of a Gantt chart. The critical path shall be indicated in red.

C3.5.1.7 Other Contractors on site

No other road construction contractors will be on site during the implementation of the project.

C3.5.1.8 Recording of weather

The Contractor shall record the weather conditions on a daily basis in the site diary. Rainfall figures and strong wind which could delay the Works shall be noted and recorded.

C3.5.1.9 Format of communications

All communication regarding the Contract shall be channeled through the Engineer or his representative.

C3.5.1.10 Planning and programming

Management meeting shall be held monthly on site for the duration of the project on dates to be agreed upon.

C3.5.1.11 Daily records

Daily records of plant, personnel, materials, etc., shall be kept daily by the Contractor and noted in the site diary to be supplied by the Contractor before commencement date of the project.

C3.6: HEALTH AND SAFETY

C3.6 HEALTH AND SAFETY

C3.6.1 HEALTH AND SAFETY REQUIREMENTS AND PROCEDURES

Before starting work on site, the Contractor shall present to the Engineer his Health and Safety Plan which includes the COVID-19 plan for approval. He shall also appoint a health and Safety Officer in writing and give a copy of the letter of appointment to the Engineer.

The Health and Safety Specification is attached as Appendix B and must be referred to when compiling the Health and Safety Plan.

(a) Construction Regulations, 2003

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 (the regulations) as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this Contract are detailed in the Project Specifications, Schedule of Quantity and Drawings, as well as in the Employers' Health and Safety Specifications (regulation 4(1)) of the Construction Regulations 2003.

The Contractor shall in terms of regulation 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the Employer.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the abovementioned plan or regulations.

Payment items are included in the Schedule of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned regulations.

(b) COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020

The Contractor shall be required to comply with the COVID-19 Occupational Health and safety Measures in Workplaces act: COVID-19 (C19 OHS),2020 for as long as the declaration of a national disaster published in Government Gazette 43096 on xx MARCH 2020 remain in force. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works or termination of contract.

C3.6.2 PROTECTION OF THE PUBLIC

The site is accessible to the general public. The Contractor shall ensure that all personnel entering the construction site is fully informed about the dangers, dos and don’ts on the site. The Contractor shall ensure that non-construction personnel are protected within the guidelines of the OH&S Regulations.

C3.6.3 BARRICADES AND LIGHTING

All excavations, into which a person may fall, shall be securely barricaded at all times in accordance with the requirements of the applicable OH&S Regulations.

C3.6.4 TRAFFIC CONTROL ON ROADS

The Safety Officer shall take full responsibility for the traffic control in and around the site. The personnel on site shall be fully informed and trained by the Safety Officer regarding the construction traffic and general traffic control.

C3.6.5 MEASURES AGAINST DISEASE AND EPIDEMICS

Necessary measures must be adopted and implement occupational health and safety measures to reduce and eliminate the escalations of infections in workplaces against disease, epidemics and pandemics on site as and when directed by the Department of Labour.

C3.6.6 AIDS AWARENESS

All construction personnel shall be given an Aids Awareness briefing session by the Safety Officer.

C3.6.7 COVID-19 AWARENESS

All construction personnel shall be given an COVID-19 Awareness briefing session by the Safety Officer.

PART C4 SITE INFORMATION

PART C4: SITE INFORMATION

GENERAL

This section describes the site at the time of tender to enable the tenderer to price his tender and to decide upon his method of working and programming and risks.

CONTENTS

SI1 Site location
SI2 Climatic Condition
SI3 Geotechnical Investigation
SI4 Photographs of existing information

SI 1 project Location

1.1 Site Location

The proposed site is located about 25km east of Mbombela at Pennywhistle and Swan Street in Kanyamazane currently forming part of the City of Mbombela Local Municipality and City of Mbombela in Mpumalanga Province. The proposed Pennywhistle and Swan is easily accessible by heavy and light moving vehicles through Main Street. The centre coordinates for the proposed site

Road 1 (Pennywhistle Street)

Start of Road: S 25° 27’ 13,77’’ E 31° 10’ 04,24’’.
End of Road: S 25° 27’ 25,45’’ E 31° 10’ 14,82’’.

Road 2 (SWAN Street)

Start of Road: S 25° 27’ 13,80’’ E 31° 09’ 55,96’’.
End of Road: S 25° 27’ 39,00’’ E 31° 10’ 05,07’’.

The proposed site locality map is shown in Figure 1 below.

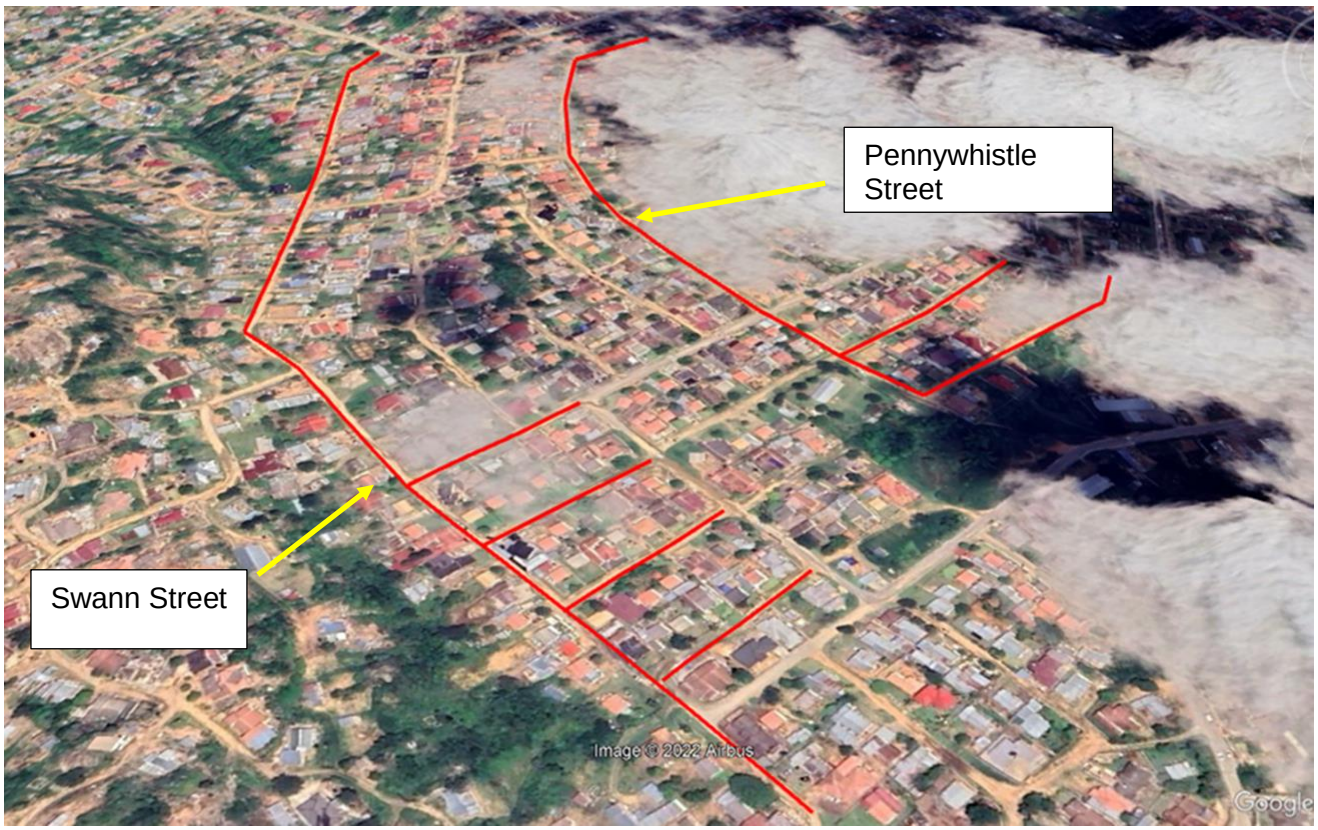


Figure 1: Locality Plan of the Project

SI 2 Climatic Condition

The climate in Mbombela is warm and temperate. In winter, there is more rainfall in the Mbombela area with an average annual rainfall of approximately 953mm per year, most of which occurs in heavy isolated falls between October and March. The greatest amount of rainfall occurs in January with an average of 168.12mm. The average low temperatures 14.7 degrees Celsius (°C) and the average high temperatures is 28.16 degrees Celsius (°C). Weinert developed an N-value which is the ratio of the annual evaporation versus annual precipitation of a region and has been defined for Southern Africa region (Weinert, 1980). Climatic regime of

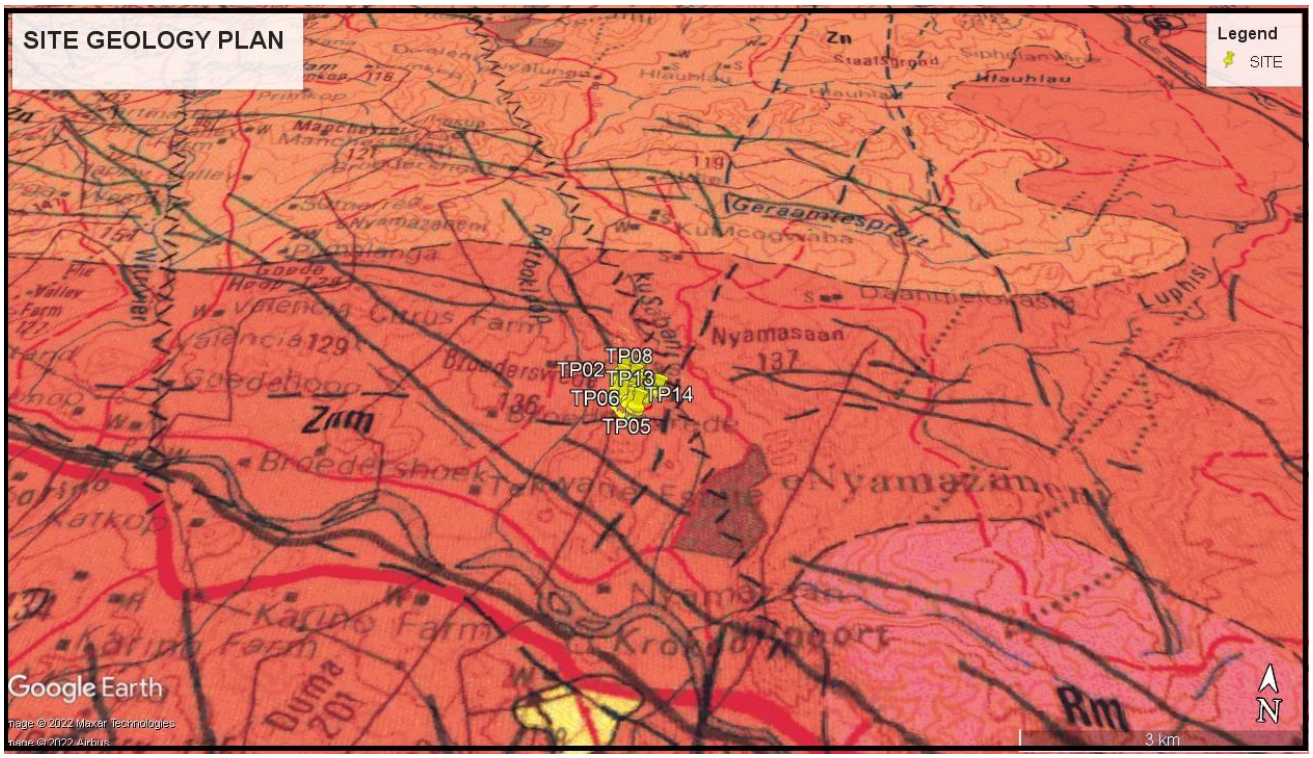
the present and recent past plays an important role in the soil profile below the earth's surface (A.B.A Brink). The N-values are therefore used to characterise mode of weathering of the rocks within the subcontinent.

Weinert demonstrated that chemical decomposition is the predominant mode of rock weathering in areas where climatic "N-value" is less than 2. In areas where climatic N-value is between 2 and 5, disintegration is the predominant form of weathering, although some chemical decomposition of the primary rock minerals still takes place. Where the climatic N-value is greater than 5, secondary minerals do not develop to an appreciable extent and all weathering takes place by mechanical disintegration of the rock. Disintegration is the predominant form of weathering, although some chemical decomposition of the primary rock minerals still takes place.

SI 3 Geotechnical Investigation

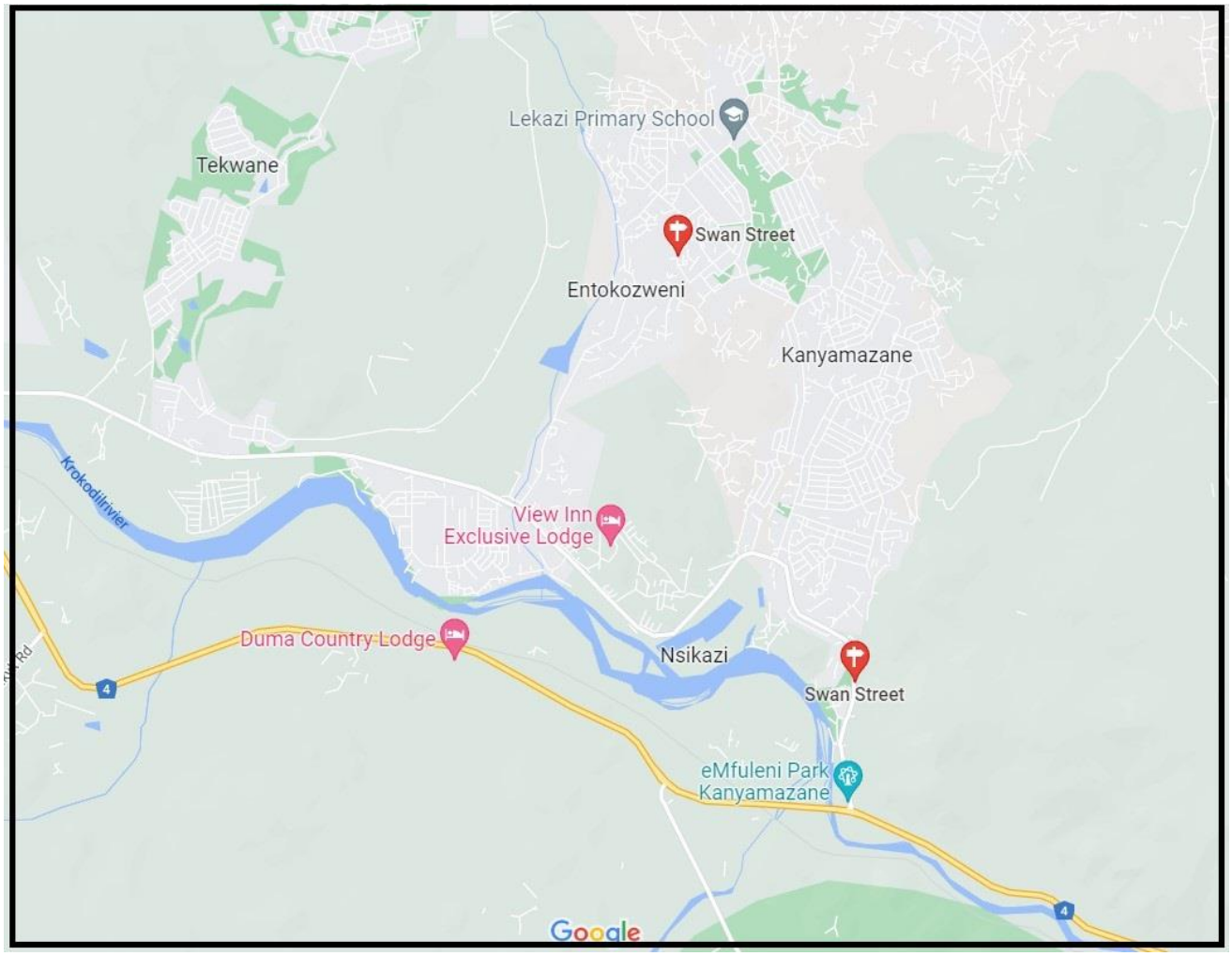
Regional Geology

According to the 1:250 000 Council for Geoscience published geological map, "No 2530 Barberton", the proposed study is underlain by biotite trondhjemite gneiss of the Swazium era indicated as (Zg) on the geological map. Figure 3 below shows an extract of the geological map.



Seismicity

Seismic-hazard can be described as being the physical effects of an earthquake or earth tremor. Examples of such phenomenon include surface faulting, ground shaking and ground liquefaction (Kijko A et al, 2004). The peak ground acceleration (PGA) is the maximum acceleration of the ground shaking during an earthquake. The seismic hazard map of South Africa (Council for Geoscience, 2003) indicates that the proposed site lies within an area where there is a 10% probability that Peak Ground Acceleration (PGA) of between 0.125g and 0.1g will be exceeded in 50years. Based on this information, the risk of seismic events for the study area is low. Figure 4 below indicates the seismic hazard map of South Africa with the location of proposed study area in red.



Site plan

Dolomitic Land

Information obtained from Council for Geoscience (CGS), access to data, maps and information shows that the site is not underlain by dolomite rock at surface or at depth (<100m). The site is therefore not classified as dolomitic land and is not at risk in terms of dolomite related surface subsidence. Generally, soluble rock, such as limestone or dolomite was not found on the site and no instability associated with this rock type is anticipated (https://maps.geoscience.org.za).

Undermining

No indication of the presence of undermined ground was found during the desk study or field investigation. It is certain that the site is not undermined at shallow depth and there is no risk of surface settlements/subsidence that may be caused by mining activities.However, it is advisable for the site engineer to verify this with the Department of Mineral Resources to ascertain if there is any undermined ground in the area.

Geological Fault

Our review of geologic literature/geological map and site investigation indicates that there are no known active, potentially active or inactive faults crossing the proposed site.

Method of Investigation

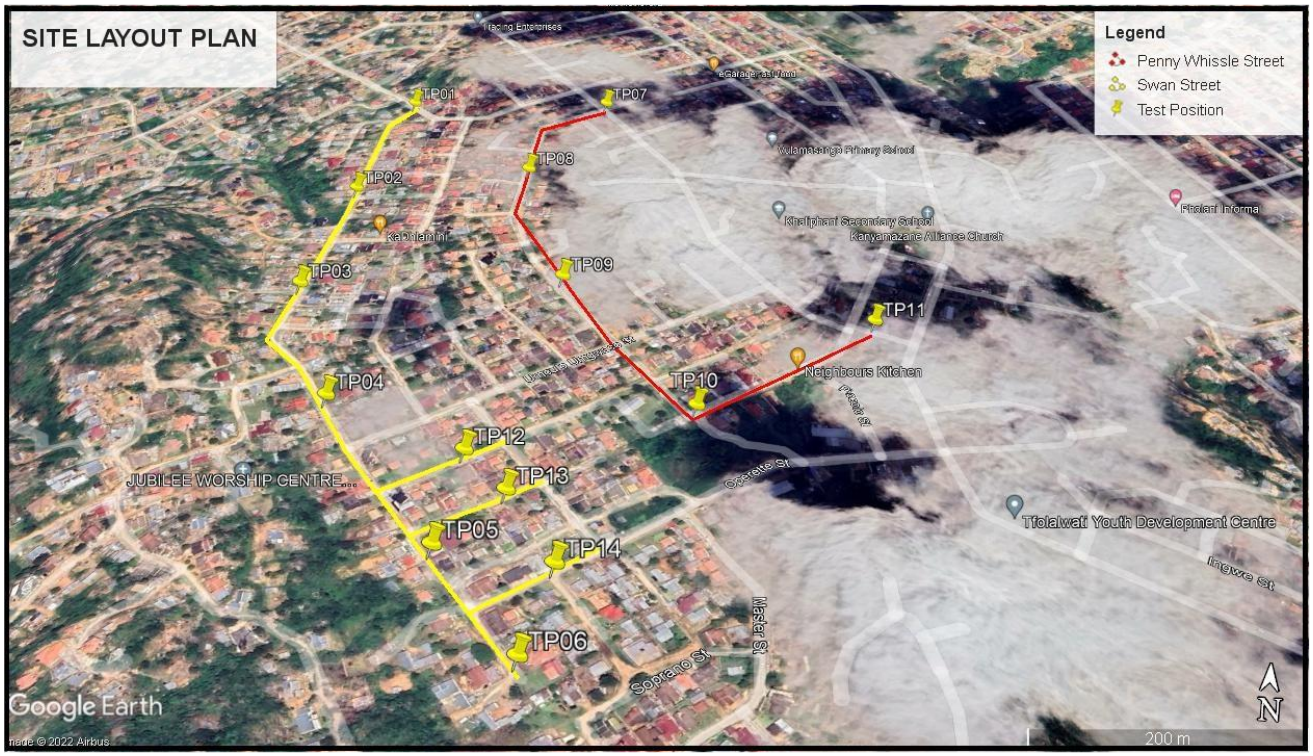
This chapter of the report describes the field work and activities that were conducted in order to assess the geotechnical conditions at the proposed site. These included the following components:

- Excavation of Nine (09) test pits using Tractor Loader Backhoe (TLB) for the proposed road.
- Soil profiling and sampling.

• Dynamic Cone Penetrometer of Nine (09) tests.
• Laboratory testing of disturbed soil samples.

Test Pitting

The field investigation was conducted on the 11th of November 2022 and comprised the excavation of Nine (09) test pits. Nine test pits were excavated along the proposed 1.3km route. The test pits were excavated to obtain good coverage of the entire site. Test pits were profiled according to standard guidelines for Soil and Rock Logging in South Africa by a registered engineering geologist (See Appendix A for standard guidelines) and the soil profiles are presented as Appendix B. The location of test pits was determined using a handheld GPS in WGS84 datum. Table 1 and Figure 5 overleaf shows the coordinates for the test pits excavated at the proposed road and the depth of the test pits.



Dynamic Cone Penetrometer (DCP) Testing

The DCP test is a penetration test for the evaluation of the mechanical strength or consistency of the in-situ materials. The California bearing ratio (CBR) is derived from DCP test data to assess the strength of the underlying structural layers. DCP testing was carried out very close to test pits positions. The DCP test results and derived CBR values are included in Appendix C of this report. DCP positions are shown on Figure 5 above. The coordinates of the DCP tests are presented in Table 2 below together with the final depth of penetration.

Table 1: *Summary of Laboratory results*

TEST POSITION	ZONE (<1m)	DEPTH *(m)*	DESCRIPTION	MODD *(kg/m³)*	OMC *(%)*	PI *(%)*	CBR at 93%	TRH Classification
PENNYWHISTLE & SWAN								
TP 1 &7	1	*0 - 1.0*	*Residual gravel material*	*1939*	10.1	10	*18*	*G7*
TP 2,3 & 4	1	*0 – 1.0*	*Residual gravel material*	*1920*	10.2	11	*20*	*G7*
TP 5,6,8 & 10	1	*0 – 1.0*	*Residual gravel material*	*1968*	11.3	9	*17*	*G7*
TP 11,12 & 13	1	*0 – 1.0*	*Residual gravel material*	*1923*	10.3	12	*21*	*G7*
TP 14 & 9		*0-1.0*	*Residual gravel material*	*1928*	10.2	12	*11*	*G8*

Table 2: *DCP coordinates*

DCP COORDINATES			
		COORDINATES	
DCP	CHAINAGE	S	E
SWAN STREET			
1	DCP (CH 0+000)	25°27'13.08"S	31° 9'55.94"E
2	DCP (CH 0+200)	25°27'18.19"S	31° 9'55.02"E
3	DCP (CH 0+400)	25°27'26.71"S	31° 9'55.10"E
4	DCP (CH 0+600)	25°27'31.12"S	31° 9'57.92"E
5	DCP (CH 0+800)	25°27'36.09"S	31°10'2.31"E
6	DCP (CH 1+000)	25°27'39.26"S	31°10'5.24"E
12	DCP (CH 0+020) LINK 01	25°27'32.73"S	31°10'1.95"E
13	DCP (CH 0+020) LINK 02	25°27'33.99"S	31°10'3.19"E
14	DCP (CH 0+020) LINK 03	25°27'36.12"S	31°10'5.21"E
PENNY WHISSLE STREET			
7	DCP (CH 0+000)	25°27'39.26"S	31°10'5.24"E
8	DCP (CH 0+200)	25°27'12.49"S	31°10'4.14"E
9	DCP (CH 0+400)	25°27'24.46"S	31°10'4.02"E
10	DCP (CH 0+650)	25°27'29.54"S	31°10'8.96"E
11	DCP (CH 0+800)	25°27'24.95"S	31°10'14.95"E

Summary of laboratory test results

Table 3: *Summary of Laboratory results*

TEST POSITION	***DEPTH (m)***	***DESCRIPTION***	***MODD (kg/m³)***	***OMC (%)***	***PI (%)***	***AVERAGE CBR AT 93%***	***TRH Classification***	***Cement Stabilization (Road Cem 32,5N)***	
								2%	***3%***
TP 01	*0.3-3.0*	*Dry, Dark brown orange, residual gravel material*	*2068*	*10.2*	8.0	*26*	*G6*	*C4*	*C3*

Note : geotechnical report can be found on request

SI 4 Photographs of existing information

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ANNEXURE A: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

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PARTICULAR SPECIFICATIONS

SECTION OHS: OHSA 1993: HEALTH AND SAFETY SPECIFICATION

OHS 1 SCOPE

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

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2014, and all other safety codes and specifications referred to in the said Construction Regulations **and the COVID-19 Occupational Health and Safety Measures in Workplaces, COVID-19(C19 OHS), 2020**.

In terms of the OHSA Agreement in Section (C1.4) of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHSA 1993, the Construction Regulations 2014 and **COVID-19(C19 OHS), 2020**.

This safety specification and the Contractor's own Safety Plan, the Construction Regulations 2014 as well as **COVID-19(C19 OHS), 2020**, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

- Please insert the risks associated with the project here

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

OHS 2 DEFINITIONS

For the purpose of this contract the following shall apply:

Employer" where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract and it shall have the exact same meaning as "**client**" as defined in the Construction Regulations 2014. "**Employer**" and "**client**" is therefore interchangeable and shall be read in the context of the relevant document.

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

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

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

(d) "**Engineer**" where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

OHS 3 TENDERS

The Contractor shall submit the following with his tender:

(a) a documented Health and Safety Plan as stipulated in Regulation 7 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and **COVID-19(C19 OHS), 2020** and will be subject to approval by the Employer;

(b) a declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2014;

(c) a declaration to the effect that he made provision in his tender for the cost of the health and safety measures envisaged in the Construction Regulations.

(d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

OHS 4 NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

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

(a) the demolition of structures and dismantling of fixed plant of height of 3,0m or more;

(b) the use of explosives;

(c) construction work that will exceed 30 days or 300 person-days;

(e) excavation work deeper than 1,0m; or

(f) working at a height greater than 3,0m above ground or landings.

The notification must be done in the form of the pro forma included under Section T2 (Forms to be Completed by Tenderer) of the tender document.

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

OHS 5 RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 9 of the Construction Regulations 2014).

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

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

OHS 6 APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

6.1 Health and Safety plan

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

6.2 Health and safety induction training

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo a health and safety induction training course by a competent person before commencement of construction work. No visitor or other person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety training pertaining to hazards prevalent on site.

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

OHS 7 APPOINTMENT OF SAFETY PERSONNEL

7.1 Construction Supervisor

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

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

7.2 Construction safety officer

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

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

7.3 Health and safety representatives

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

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

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

7.4 Health and safety committee

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

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

7.5 Competent persons

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

(a) Risk assessment and induction training as described in Regulation 9 of the Construction Regulations;

(b) Fall protection as described in Regulation 10;

(c) Structures described in Regulation 11;

(d) Temporary works described in Regulation 12;

(e) Excavation described in Regulation 13;

(f) Demolition work described in Regulation 14;

(g) Tunneling as described in Regulation 15;

(h) Scaffolding as described in Regulation 16;

(i) Suspended platforms as described in Regulation 17;

(j) Rope Access Work as described in Regulation 18;

(k) Material hoists as described in Regulation 19;

(l) Bulk mixing plant as described in Regulation 20;

(m) Explosive actuated fastening device as described in Regulation 21;

(n) Cranes as described in Regulation 22;

(o) Construction vehicle and mobile as described in Regulation 23;

(p) Electrical installations and machinery of construction sites as described in Regulation 24;

(q) Use and temporary storage of flammable liquids on construction sites as described in Regulation 25;

(r) Water environments as described in Regulation 26;

(s) Housekeeping and general safeguarding on construction sites as described in Regulation 27;

(t) Stacking and storage on construction sites as described in Regulation 28;

(u) Fire precautions on construction sites as described in Regulation 29, and

(s) Construction employees' facilities as described in Regulation 30.

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

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

OHS 8 RECORDS AND REGISTERS

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

(a) A copy of the OHSA 1993 Construction Regulations 2014;

(b) A copy of this Health and Safety Specification;

(c) A copy of the Contractor's Health and Safety Plan (Regulation 7);

(d) A copy of the Notification of Construction Work (Regulation 4);

(e) A health and safety file in terms of Regulation 5(1)(b) with inputs by the Construction Safety Officer (Regulation 7(1));

(f) A copy of the risk assessment described in Regulation 9;

(g) A full protection plan and the corresponding records of evaluation and training of employees working from elevated positions as described in Regulation 10;

(h) Drawings pertaining to the design of structures (Regulation 11(1)(c)) and formwork and support work structures (Regulation 12) must be kept on site;

(i) Pronouncement of the safety of excavations must be recorded in a register to be kept on site (Regulation 13);

(j) A copy of the certificate of the system design for suspended platforms (Regulation 17(2)(b));

(k) A notice must be affixed around the base towers of material hoists to indicate the maximum mass load, which may be carried at any one time by material hoists (Regulation 19(5));

(l) Maintenance records of material hoists and inspection results must be kept in a record book to be kept on site (Regulation 19(8));

(m) A record of any repairs to or maintenance of a batch plant must be kept on site (Regulations 20(8));

(n) A warning notice must be displayed in a conspicuous manner when and wherever an explosive powered tool is used (Regulation 19(2));

(o) A register for recording of findings by the competent person appointed to inspect construction vehicles and mobile plant (Regulation 23(1)(k)).

OHS 9 CONTRACTORS RESPONSIBILITIES

For this contract the Contractor will be the mandatory of the Employer (Client), as defined in the Act (OHSA 1993), which means that the Contractor has the status of employer in his own right in respect of the contract. The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHSA 1993) and the Construction Regulations 2014.

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

The Contractor's duties and responsibilities are clearly set out in the Construction Regulations 2014 and are not repeated in detail but some important aspects are highlighted hereafter, without relieving the Contractor of any of his duties and responsibilities in terms of the Construction Regulations.

(a) Contractor's position in relation to the Employer (Client) (Regulation 5)

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

(b) The Principal Contractor and Contractor (Regulation 7)

The Contractor is in terms of the definition in Regulation 1 the equivalent of Principle Contractor as defined in the Construction Regulations, and he shall comply with all the provisions of Regulation 7.

Any subcontractors employed by the Contractor must be appointed in writing, setting out the terms of the appointment in respect of health and safety. An independent subcontractor shall however provide and demonstrate to the Contractor a suitable, acceptable and sufficiently documented health and safety plan before commencement of the subcontract. In the absence of such a health and safety plan the subcontractor shall undertake in writing that he will comply with the Contractor's safety plan, the health and safety specifications of the Employer and the Construction Regulations 2014.

(c) Supervision of construction work (Regulation 8)

The Contractor shall appoint the safety and other personnel and employees as required in terms of Regulation 7 and as set out in OHS 7 above. Appointment of those personnel and employees does not relieve the Contractor from any of the obligations under Regulation 7.

(d) Risk assessment (Regulation 9)

The Contractor shall have the risk assessment made as set out in paragraph 7 above before commencement of the work and it must be available on site for inspection at all times. The Contractor shall consult with the health and safety committee or health and safety representative(s) etc. on a regular basis to ensure that all employees, including subcontractors under his control, are informed and trained by a competent person regarding health hazards and related work procedures.

No subcontractor, employee or visitor shall be allowed to enter the site of works without prior health and safety induction training, all as specified in Regulation 7.

(e) Fall protection (Regulation 10)

Fall protection, if applicable to this contract shall comply in all respects with Regulation 8 of the Construction Regulations.

(f) Structures (Regulation 11)

The Contractor will be liable for all claims arising from collapse or failure of structures if he failed to comply with all the specifications, project specifications and drawings related to the structures, unless it can be proved that such collapse or failure can be attributed to faulty design or insufficient design standards on which the specifications and the drawings are based.
In addition, the Contractor shall comply with all aspects of Regulation 11 of the Construction Regulations.

(g) Temporary works (Regulation 12)

The Contractor will be responsible for the adequate design of all formwork and support structures by a competent person.
All drawings pertaining to formwork shall be kept on site and all equipment and materials used in formwork, shall be carefully examined and checked for suitability by a competent person.

The provisions of Regulation 12 of the Construction Regulations shall be followed in every detail.

(h) Excavation work (Regulation 13)

It is essential that the Contractor shall follow the instructions and precautions in the Standard Specifications and Project Specifications as well as the provisions of the Construction Regulations to the letter as unsafe excavations can be a major hazard on any construction site. The Contractor shall therefore ensure that all excavation work is carried out under the supervision of a competent person, that inspections are carried out by a Professional Engineer or Technologist, and that all work is done in such a manner that no hazards are created by unsafe excavations and working conditions.

Supervision by a competent person will not relieve the Contractor from any of his duties and responsibilities under Regulation 13 of the Construction Regulations.

(i) Demolition work (Regulation 14)

Whenever demolition work is included in a contract, the Contractor shall comply with all the requirements of Regulation 14 of the Construction Regulations. The fact that a competent person has to be appointed by the Contractor does not relieve the Contractor from any of his responsibilities in respect of safety of demolition work.

(j) Tunneling (Regulation 15)

The Contractor shall comply with Regulation 15 wherever tunneling of any kind is involved.

(k) Scaffolding (Regulation 16)

The Contractor shall ensure that all the provisions of Regulation 16 of the Construction Regulations are complied with. [Note: Reference in the Regulations to “Section 44 of the Act” should read “Section 43 of the Act”].

(l) Suspended platforms (Regulation 17)

Wherever suspended platforms will be necessary on any contract, the Contractor shall ensure that copies of the system design issued by a Professional Engineer are submitted to the Engineer for inspection and approval. The Contractor shall appoint competent persons as supervisors and competent scaffold erectors, operators and inspectors and ensure that all work related to suspended platforms are done in accordance with Regulation 17 of the Construction Regulations.

(m) Rope Access Work (Regulation 18)

Where rope access work is required on the construction site, the Contractor shall comply with Regulation 18.

(n) Material Hoists (Regulation 19)

Wherever applicable, the Contractor shall comply with the provisions of Regulation 19 to the letter.

(o) Batch plants (Regulation 20)

Wherever applicable, the Contractor shall ensure that all lifting machines, lifting tackle, conveyors, etc. used in the operation of a batch plant shall comply with, and that all operators, supervisors and employees are strictly held to the provisions of Regulation
20. The Contractor shall ensure that the General Safety Regulations (2003), the Driven Machinery Regulations (Government Notice R295 of 26/2/1988) and the Electrical Installation Regulations (Government Notice R2271 of 11/10/1995) are adhered to by all involved.

In terms of the Regulations, records of repairs and maintenance shall be kept on site.

(p) Explosive powered tools (Regulation 21)

The Contractor shall ensure that, wherever explosive-powered tools are required to be used, all safety provisions of Regulation 21 are complied with.

It is especially important that warning notices are displayed and that the issue and return of cartridges and spent cartridges be recorded in a register to be kept on site.

(q) Cranes (Regulation 22)

Wherever the use of tower cranes becomes necessary, the provisions of Regulation 20 shall be complied with.

(r) Construction vehicles and mobile plant (Regulation 23)

The Contractor shall ensure that all construction vehicles and plant are in good working condition and safe for use, and that they are used in accordance with their design and intended use. The vehicles and plant shall only be operated by workers or operators who have received appropriate training, all in accordance with all the requirements of Regulation 23.

All vehicles and plant must be inspected on a daily basis, prior to use, by a competent person and the findings must be recorded in a register to be kept on site.

(s) Electrical installation and machinery on construction sites (Regulation 24)

The Contractor shall comply with the Electrical Installation Regulations (Government Notice R2920 of 23 October 1992) and the Electrical Machinery Regulations (Government Notice R1953 of 12 August 1993). Before commencement of construction, the Contractor shall take adequate steps to ascertain the presence of, and guard against dangers and hazards due to electrical cables and apparatus under, over or on the site.

All temporary electrical installations on the site shall be under the control of a competent person, without relieving the Contractor of his responsibility for the health and safety of all workers and persons on site in terms of Regulation 24.

(t) Use of temporary storage of flammable liquids on construction sites (Regulation 25)

The Contractor shall comply with the provisions of the General Safety Regulations (2003) and all the provisions of Regulation 25 of the Construction Regulations to ensure a safe and hazard-free environment to all workers and other persons on site.

(u) Water environments (Regulation 26)

Where construction work is done over or in close proximity to water, the provisions of Regulation 26 shall apply.

(v) Housekeeping on Construction sites (Regulation 27)

Housekeeping on all construction sites shall be in accordance with the provisions of the environment Regulations for workplaces (Government Notice R2281 of 16 October 1987) and all the provisions of Regulation 27 of the Construction Regulations.

(w) Stacking and storage on construction sites (Regulation 28)

The provisions for the stacking of articles contained in the General Safety Regulations (2003) as well as all the provisions Regulation 28 of the Construction Regulations shall apply.

(x) Fire precautions on construction sites (Regulation 29)

The provisions of the Environmental Regulations for Workplaces (Government Notice R2281 of 16 October 1987) shall apply.

In addition, the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 29 of the Construction Regulations.

(y) Construction employees' facilities (Regulation 30)

The Contractor shall comply with the construction site provisions as in the Facilities Regulations (2004), the provisions of Regulation 30 of the Construction Regulations and **the COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020.**

(z) Non-compliance with the Construction Regulations 2014

The foregoing is a summary of parts of the Construction Regulations applicable to all construction projects.

The Contractor, as employer for the execution of the contract, shall ensure that all provisions of the Construction Regulations and **the COVID-19 Measures in Workplaces** applicable to the contract under consideration are complied with to the letter.

Should the Contractor fail to comply with the provisions of the Regulations 3 to 30 as listed in Regulation 33 **and COVID-19 (C19 OHS),2020,** he will be guilty of an offence and will be liable, upon conviction, to the fines or imprisonment as set out in Regulation 33.

***The Contractor is advised in his own interest to make a careful study of the Act, the Construction Regulations and the COVID-19 (C19 OHS),2020 as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations*.**

OHS 10 MEASUREMENT AND PAYMENT

10.1 Principles

It is a condition of this contract that Contractors, who submit tenders for this contract, shall make provision in their tenders for the cost of all health and safety measures during the construction process. All associated activities and expenditure are deemed to be included in the Contractor's tendered rates and prices.

(a) Safety personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons referred to in clauses 7.1 to 7.5 shall be members of the Contractor's personnel, and no additional payment will be made for the appointment of such safety personnel.

(b) Records and Registers

The keeping of health and safety-related records and registers as described in paragraph 8 is regarded as a normal duty of the Contractor for which no additional payment will be considered, and which is deemed to be included in the Contractor's tendered rates and prices.

AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993

THIS AGREEMENT is made between.....

(hereinafter called the EMPLOYER of the one part, herein represented by:

……
……
……
……

in his capacity as:

……..

AND:

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

……
……
……
……

in his capacity as:

…….. duly authorised to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an agreement between the CONTRACTOR and the EMPLOYER in respect of

CONTRACT:.....

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

NOW THEREFORE the parties agree as follows:

1. **The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.**

2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.

3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's CONSULTING ENGINEERS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.

4. The CONTRACTOR agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.

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

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

on this the …… day of ……...…….…… 20……

SIGNATURE: .....

NAME AND SURNAME: .....

CAPACITY: .....

WITNESSES: 1. .....

2. .....

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

the …….. day of ……..…… 20…….

SIGNATURE: .....

NAME AND SURNAME: .....

CAPACITY: .....

WITNESSES: 1. .....

2. .....

CONTRACTOR'S HEALTH AND SAFETY DECLARATION

In terms of Clause 4(4) of the OHSA 1993 Construction Regulations 2014 (referred to as "the Regulations" hereafter), a Contractor may only be appointed to perform construction work if the Employer is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHSA 1993 Construction Regulations 2014.

To that effect a person duly authorized by the tenderer must complete and sign the declaration hereafter in detail.

Declaration by Tenderer

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHSA 1993 Construction Regulations 2014.

2. I hereby declare that my company has the competence and the necessary resources to safely carry out the construction work under this contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.

3. I propose to achieve compliance with the Regulations by one of the following:

(a) From my own competent resources as detailed in 4(a) hereafter:..... ***Yes / No**

(b) From my own resources still to be appointed or trained until competency is achieved, as detailed in 4(b) hereafter:..... ***Yes / No**

(c) From outside sources by appointment of competent specialist subcontractors as detailed in 4(c) hereafter:..... ***Yes / No**

(***** = *delete whatever is not applicable*)

4. Details of resources I propose:

(Note: Competent resources shall include safety personnel such as a construction supervisor and construction safety officer as defined in Regulation 8, and competent persons as defined in Regulations 9-29, (all or individual regulations) as applicable to this contract)

(a) Details of the competent and qualified key persons from my company's own resources, who will form part of the contract team:

NAMES OF COMPETENT PERSONS	POSITIONS TO BE FILLED BY COMPETENT PERSONS

(b) Details of training of persons from my company's own resources (or to be hired) who still have to be trained to achieve the necessary competency:

(i) By whom will training be provided? .....

(ii) When will training be undertaken? .....

(iii) List the positions to be filled by persons to be trained or hired: .....

.....

.....

(c) Details of competent resources to be appointed as subcontractors if competent persons cannot be supplied from own company:

Name of proposed subcontractor: .....

Qualifications or details of competency of the subcontractor: .....

5. I hereby undertake, if my tender is accepted, to provide, before commencement of the works under the contract, a suitable and sufficiently documented Health and Safety Plan in accordance with Regulation 7(1) of the Construction Regulations, which plan shall be subject to approval by the Employer.

6. I confirm that copies of my company's approved Health and Safety Plan, the Employer's Safety Specifications as well as the OHSA 1993 Construction Regulations 2014 will be provided on site and will at all times be available for inspection by the Contractor's personnel, the Employer's personnel, the Engineer, visitors, and officials and inspectors of the Department of Labour.

7. I hereby confirm that adequate provision has been made in my tendered rates and prices in the schedule of quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHSA 1993 Construction Regulations 2014, and that I will be liable for any penalties that may be applied by the Employer in terms of the said Regulations (Regulation 33) for failure on the Contractor's part to comply with the provisions of the Act and the Regulations.

8. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer will mean that I am unable to comply with the requirements of the OHSA 1993 Construction Regulations 2014, and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer.

SIGNATURE: ..... DATE: .....…….....

(of person authorised to sign on behalf of the Tenderer)

PRO FORMA NOTIFICATION FORM IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993, CONSTRUCTION REGULATIONS 2014

[This form must be completed and forwarded, prior to commencement of work on site, by all Contractors that qualify in terms of Regulation 3 of the Construction Regulations 2014, to the office of the Department of Labour]

NOTIFICATION OF CONSTRUCTION WORK

1. (a) Name and postal address of principal contractor.

   (b) Name and tel. pf principal contractor's contact person:

   ---

2. Principal contactor's compensation registration number:

   ---

3. (a) Name and postal address of client :

   (b) Name and tel. no of clients contact person or agent:

   ---

4 (a) Name and postal address of designer (s) for the project:

   (b) ---

5. Name and telephone number of principal contractor's sub- ordinate supervisor on site appointed in terms of Regulation 8 (1).

   ---

6. Name /s of principal contractor's sub- ordinate supervisor on sire appointed in terms of Regulation 8 (2)

   ---

7. Exact physical address of the construction site or site office:

   ---

8. Nature of the construction work:

---

9. Expected commencement date:

---

10. Expected completion date:

---

11. Estimated maximum number of persons on the construction site.

Total:_____ Male:_____ Female_____

12. Planned number of contractors on the construction:

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13. Name (s) of contractors already selected.

Principal Contractor	Date
Client's Agent (where applicable)	Date
Client	Date

ANNEXURE B: DRAWINGS FOR TENDER PURPOSES