UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS

TENDER NUMBER: 01/2022

TENDERER:	

CLOSING DATE: 28 MARCH 2022

EMPLOYER:	**ENGINEER:**
P.O Box 45 Mbombela 1200 TEL: 013-759 9111 FAX: 013-759 2070	**Nathoo Mbenyane Engineers (Pty) Ltd** P.O Box 4267 White River 1200 Tel : 013-752 3122 E-mail : info.mp@nme.co.za

UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS
TENDER NUMBER: 01/2022

SUMMARY FOR TENDER OPENING PURPOSES

NAME OF TENDERER : _____

ADDRESS : _____

_____

_____

_____

TELEPHONE NUMBER : _____

FAX NUMBER : _____

E-MAIL ADDRESS : _____

CLOSING DATE : _____

CONTRACT PRICE : R _____
(Amount brought forward from the Form of Offer and Acceptance) *

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

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 though it and writing the correct information above it. Tenderer to sign next to the correction. The use of erasing fluid or strips are not allowed.
3.	It may not be taken apart.
4.	It is not available in electronic format except PDF.
5.	It is compulsory to attach required documents to the relative page (where requested). Any other form of presentation (loose pages or separate documents) will not be accepted.

2. STANDARDS APPLICABLE TO THIS DOCUMENT

Available from the South African Federation of Civil Engineering Contractors (SAFCEC), the South African Institution of Civil Engineering (SAICE) and the South African Bureau of Standards (SABS), 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.	SANS1200	Standard Specifications for Civil Engineering Construction
7.	This Document, as presented.	

CONTENTS

THE TENDER

THE CONTRACT

PART T1: TENDERING PROCEDURES

PART T2: RETURNABLE DOCUMENTS

PART T1 TENDERING PROCEDURES

UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS
TENDER NUMBER: 01/2022

T1.1 TENDER NOTICE AND INVITATION FOR PROPOSALS

Bids are hereby invited from potential services providers for the **UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS.**

Tender No	Description	CIDB Grading	Compulsory Meeting and Site Inspection Date	Closing Date
01/2022	UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS.	7CE	09 March 2022	28 March 2022

It is compulsory that service providers download a copy of the bid document that will ONLY be available as from 28th February 2022 on the etenders website: www.etenders.gov.za on the tenders and notices board free of charge.

Duly completed bid documents and supporting documents which are, **COPY OF TAX CLEARANCE CERTIFICATE AND PIN, CERTIFIED COPY OF B-BBEE CERTIFICATE, RATES AND TAXES CLEARANCE FROM RELEVANT LOCAL AUTHORITY and CSD REGISTRATION FULL REPORT,** together with the bid document must be sealed in an envelope clearly marked: **"TENDER NUMBER: 01/2022, UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS for the City of Mbombela, CLOSING DATE: 28 March 2022** 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

A compulsory Site Inspection with representatives of the Employer will be held with prospective tenderers on 09 March 2022 at 10:00. Tenderers will be meeting at the Existing Waste Water Treatment Works in Rocky's Drift on the following co-ordinates **Lat 25º 22' 4" S Long: 30º 58' 10" E.**

The Engineer will not be available for inspection purposes on any other occasion. Prospective tenderers are to confirm their attendance to the compulsory site inspection in e-mail by the latest before end of business [07 March 2022]. *Only persons that confirmed will be allowed into the meeting*. Send confirmation email to info.mp@nme.co.za Only one person per tenderer will be allowed and if more than 50 persons confirm a second meeting will be arranged to take place directly after the 1st meeting ends. During site briefing all tenderers must adhere to all COVID-19 regulations set by the command council wherever there's gatherings.

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, 2017, where 80 points will be allocated in respect of price and 20 points in respect of B-BBEE status level of contribution.

Procurement Enquiries	:	Nomsa Ndubuya	(013) 759 9052
Technical Enquiries	:	Peter Morata	(013) 752 6187
Employer	:	Municipal Manager, City of Mbombela P. O. Box 45, Mbombela, 1200	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**
3.2	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) **Part C3 Scope of Works** C3.1 Scope of Works (Blue) C3.2 Engineering (Blue)

<table>
<tr><th>Clause Number</th><th>Data</th></tr>
<tr><td></td><td>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
Appendix A Health and Safety Specification (White)
Appendix B Geotechnical Investigations (White)
Appendix C Environmental Management Plan EMPr (White)
Appendix D Flood Assessment Report (White)
Appendix E Book of Drawings for Tender Purposes (Issued Separately)</td></tr>
<tr><td>3.4</td><td>The Employer's Agent is:
Name: Nathoo Mbenyane Engineers (Pty) Ltd
Address: P O Box 4267,
White River
1240
Tel: 013 752 3122
E-mail: info.mp@nme.co.za</td></tr>
<tr><td>3.5</td><td>The language for communications is English.</td></tr>
<tr><td>3.6</td><td>The competitive negotiation procedure shall not be applied.</td></tr>
<tr><td>4.1</td><td>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 so 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 class 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.
<table>
<tr><th>Category of tender</th><th>Upper limits per CIDB Table 8 Regulation 17</th></tr>
<tr><td>CE 5</td><td>R10m</td></tr>
<tr><td>CE 6</td><td>R20m</td></tr>
<tr><td>CE 7</td><td>R60m</td></tr>
<tr><td>CE 8</td><td>R200m</td></tr>
</table>
Joint Ventures are eligible to submit bids provided that:
(1) every member of the joint venture is registered with the CIDB;
(2) the lead partner has a contractor grading designation in the 7CE or Higher class of construction work; and
(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</td></tr>
</table>

Clause Number	Data
	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 organisation 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. c) National Treasury Central Supplier Database Tenderers who are not registered on the National Treasury Central Supplier Database at close of tender, shall submit a copy of their application of registration, with their tender submission. Tenders received from such tenderers who have not submitted proof of their registration within 21 days after the closing date for tender submissions, will not be considered.
4.6	Failure to apply instructions contained in addenda may render a tenderer's offer non-responsive in terms of Condition of Tender 5.8.
4.7	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 latecomer may enter and 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; (b) close the door and not allow any latecomers to enter. 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.
4.8	Request clarifications at least **7 working days** before the closing time.

Clause Number	Data
4.12	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 demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's Agent. 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 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 01/2022, Upgrading of Rocky's Drift Wastewater Treatment Works** 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 V).
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 12 weeks.
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

Clause Number	Data
	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 addenda until 5 working days before tender closing time.
5.4	The time and location for opening of the tender offers are: Time 11h00 on 28 March 2022 Location: 1 Nel Street, Mbombela 1200
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.

Clause Number	Data
	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.
5.11	The procedure for the evaluation of responsive tenders is Method 4: Financial offer, quality and preferences.
5.11.5	Method 4 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: $T_{EV} = N_{FO} + N_P + N_Q$ 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.

<table>
<tr><th>Clause Number</th><th>Data</th></tr>
<tr><td></td><td>
A = the number calculated using Formula 2 (Option 1)
Table 1: Formulae for calculating the value of A_a
<table>
<tr><th>Formula</th><th>Comparison aimed at achieving</th><th>Option 1[a]</th><th>Option 2[a]</th></tr>
<tr><td>1</td><td>Highest price or discount</td><td>$A = (1 + \frac{(P - P_m)}{P_m})$</td><td>$A = P / P_m$</td></tr>
<tr><td>2</td><td>Lowest price or percentage commission /fee '</td><td>$A = (1 - \frac{(P - P_m)}{P_m})$</td><td>$A = P_m / P$</td></tr>
</table>
[a] P_m is the comparative offer of the most favourable comparative offer.
P is the comparative offer of the tender offer under consideration.
</td></tr>
<tr><td>5.11.8</td><td>
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 (2017) to the Preferential Procurement Policy Framework Act (PPPFA, Act 5 of 2000).

Points awarded will be according to a tenderer's B-BBEE status level of contributor and summarised in the table below:
<table>
<tr><th>B-BBEE Status Level of Contributor</th><th>Number of Points for Financial Value up to and including R50 000 000.00</th><th>Number of Points for Financial value above R50 000 000.00</th></tr>
<tr><td>1</td><td>20</td><td>10</td></tr>
<tr><td>2</td><td>18</td><td>9</td></tr>
<tr><td>3</td><td>14</td><td>6</td></tr>
<tr><td>4</td><td>12</td><td>5</td></tr>
<tr><td>5</td><td>8</td><td>4</td></tr>
<tr><td>6</td><td>6</td><td>3</td></tr>
<tr><td>7</td><td>4</td><td>2</td></tr>
<tr><td>8</td><td>2</td><td>1</td></tr>
<tr><td>Non-compliant Contributor</td><td>0</td><td>0</td></tr>
</table>
Eligibility for preference points will be determined as follows:

 A tenderer's scorecard shall be a B-BBEE Verification Certificate issued in accordance with the revised Notice of Clarification published in the Notice 444 of 2015 published in Government Gazette 38799 on 15 May 2015 by the Department of Trade and Industry; and
 The scorecard shall be submitted as a certificate attached to Returnable Schedule Form D; and
 The certificate Shall:
 Be an original or an original certified copy of the original; and
 Have been issued by a Verification Agency accredited by the South African National Accreditation System (SANAS); or
 Have been issued prior to 30 September 2016 by a registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA); or
 Have been issued prior to 30 September 2016 by a registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA); or
</td></tr>
</table>

<table>
<tr><th>Clause Number</th><th>Data</th></tr>
<tr><td></td><td>

Be valid at the tender closing date; and
Have a date of issue less than 12 (twelve) months prior to the tender closing date (see Tender Data 4.15); and
Compliance with any other information requested to be attached to Returnable Schedule Form D; and
If a tenderer claims a preference score without submitting an acceptable Verification Certificate(s) and/or all of the information in compliance with Returnable Schedule Form D, a period of 1 (one) working day will be granted to submit this information; and
Failure to submit a valid Verification Certificate(s) and/o all the information incompliance with Returnable Schedule Form D, will result in the award of 0 (zero) points for preference; and
In the event of a Joint Venture (JV), a consolidated B-BBEE Verification Certificate in the name of the JV shall be submitted, as well as a valid B-BBEE Verification Certificate for each member of the JV; and
If the tender documents indicate that the tenderer intends sub-contracting more than 25% of the value of the contract to any other person not qualifying for at least the points that the tenderer qualifies for, 0 (zero) points for preference will be awarded, unless the intended sub-contractor is an EME that has the capability to execute the sub-contract.

</td></tr>
<tr><td></td><td>
The quality criteria and maximum score in respect of each of the criteria are as follows:
<table>
<tr><th>Description of Quality Criteria</th><th>Maximum No of Points</th></tr>
<tr><td>Plant and Equipment</td><td>15</td></tr>
<tr><td>Key Personnel</td><td>45</td></tr>
<tr><td>Wastewater Treatment, Sewer Reticulation and Bulk Sewer Infrastructure Construction Experience</td><td>40</td></tr>
<tr><td>Total evaluation points for quality (M_s)</td><td>100</td></tr>
</table>
“(d) 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 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 45 points)

Details of key personnel and their experience and qualifications are to be entered in Form T of the Returnable Schedules.
</td></tr>
</table>

Clause Number	Data
	iii.) Wastewater Treatment, Sewer Reticulation and Bulk Sewer Infrastructure Construction Experience (Maximum 40 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.
5.13	**In addition to the requirements of the Condition of Tender, offers will only be accepted if:** • An original valid Tax Compliance Status issued by the South African Revenue Services; and a valid Tax Status Pin. • 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. Full CSD Report not older than **10 days** from the closing date summary will not be accepted. • Company Registration Documentation • the tenderer submits an **Origina**l 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 • the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; • Bidder to submit annual financial statements for the past three years or since the date of establishment if established during the past three years. • 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; • Rates and taxes from the company and all company directors • 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; • All members in the Joint Ventures (JV's) must also attach the Mandatory Documentation above. • 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.
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.
Special Clause	Thirty percent (30%) of the contract value shall be made compulsory for subcontracting to local people/companies (CoM) irrespective of the *domicilium et exicutandi* of the contractor.

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	PREFERENCING SCHEDULE: BROAD BASED BLACK ECONOMIC EMPOWERMENT STATUS
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
FORM Q	FINANCIAL RESOURCES DECLARATION OF PROCUREMENT ABOVE R 10 MILLION
FORM R	FINANCIAL RESOURCES DOCUMENTATION OF INTENT TO PROVIDE A PERFORMANCE GUARANTEE
RETURNABLE FOR QUALITY CRITERIA	
FORM S	PLANT & EQUIPMENT
FORM T	MANAGERIAL CAPACITY, EXPERIENCE AND QUALIFICATIONS
FORM U	COMPANY EXPERIENCE IN RELATION TO SCOPE OF WORKS
CERTIFICATE FOR TENDER COMPLIANCE	
FORM V	SCHEDULE OF TENDER COMPLIANCE

COMPULSORY TENDER DOCUMENTS

FORM A: CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING

NOT APPLICABLE TO THIS TENDER

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	

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: PREFERENCING SCHEDULE: BROAD BASED BLACK ECONOMIC EMPOWERMENT STATUS (SIPDM) (MBD 6.1)

Preamble

Section 10(b) of the Broad-Based Black Economic Empowerment Act of 2003 (Act No. 53 of 2003) states that "*Every organ of state and public entity must take into account and. as far as is reasonably possible. apply any* ***relevant code of good practice*** *issued in terms of this Act in developing and implementing a preferential procurement policy:"*
A number of codes of good practice have been issued in terms of Section 9(1) of the B-BBEE Act of 2003 including a generic code of good practice and various sector codes. The sector codes vary the metrics, weightings and targets used in the generic code of good practice to establish the overall performance of an entity and its B-BBBEE status. The B-BBEE status needs to be assessed in accordance with the applicable code.

1. Conditions associated with the granting of preferences
Tenderers who claim a preference shall provide sufficient evidence of their B-BBEE Status in accordance with the requirements of section 2 in respect of the applicable code as at the closing time for submissions, failing which their claims for preferences will be rejected.

2 Sufficient evidence of qualification

2.1 Exempted micro enterprises

Sufficient evidence of qualification as an Exempted Micro-Enterprise is a:

a) a registered auditor's certificate or similar certificate issued by an accounting officer as contemplated in the Close Corporation Act of 1984 in respect of the entity's last financial year or a 12-month period which overlaps with its current financial year; or a certificate issued by a verification agency and which is valid as at the closing date for submissions; or.

b) a sworn affidavit - B-BBEE Exempted Micro Enterprise (see www.thedti.gov.za/gazzettes/Affidavit_EME.pdf

2.2 Enterprises other than micro exempted enterprises

Sufficient evidence of B-BBEE Status is:

a) an original or certified copy of the certificate issued by a verification agency accredited by the South African National Accreditation System (SANAS) or registered auditors approved by Independent Regulatory Board for Auditors (IRBA) and which is valid as at the closing date for submissions; or.

b) a sworn affidavit – B-BBEE Qualifying Small Enterprise (see www.thedti.gov.za/gazzettes/BBEE_QUALIFYING_SMALL_ENTERPRISE.pdf)

3 Tender preferences claimed

The scoring shall be as follows:

B-BBEE status determined in accordance with the preferencing schedule for Broad-Based Black Economic Empowerment	**% max points for preference**
Level 1 contributor	100
Level 2 contributor	90
Level 3 contributor	80
Level 4 contributor	50
Level 5 contributor	40
Level 6 contributor	30
Level 7 contributor	20
Level 8 contributor	10
Form not completed or no-complaint contributor	0

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)

FORM E: COMPULSORY DECLARATION (SIPDM) (MBD 4)

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:	
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 4: CIDB registration number

CIDB Registration number *(if applicable)*	

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

Attach 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 b) a member of any provincial legislature c) a member of the National Assembly or the National Council of Province 1. a member of the board of directors of any municipal entity 2. an official of any municipality or municipal entity	☐ 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) ☐ a member of an accounting authority of any national or provincial public entity ☐ 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 e) a member of any provincial legislature f) a member of the National Assembly or the National Council of Province 3. a member of the board of directors of any municipal entity 4. an official of any municipality or municipal entity	☐ an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) ☐ a member of an accounting authority of any national or provincial public entity ☐ an employee of Parliament or a provincial legislature

Name of family member	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 (interest 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:

i) 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)

b) 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;

viii) 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:	
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 number of contracts	Nature of service, e,g, quantity surveying	Service 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 6 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 (MBD 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 Report to this page (Full CSD Report)

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?

If yes, furnish your details in table below.

YES	NO

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 authorise…… Mr/Ms ……., authorised 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 Ehlanzeni District Municipality 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: .....

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

The tenderer will receive a maximum of 5 points based on information provided in this schedule.

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

…..……

…….

3.0 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. 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 STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE

Signature	Date
Capacity under which Tender is Signed	Name of Tenderer

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

The Tenderer will receive a maximum of 2 points based on information provided in this schedule.

*The Tenderer must attach hereto an **Original Letter** from the bank or institution with whom he has made the necessary arrangements, to the effect that the said bank or institution will be prepared to provide 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) _____

_____

TENDER NUMBER _____

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 authorised 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 or 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 WHEREOF this guarantee has been executed by us at

_____ on the _____ day of _____ 20 _____

As witness:

1. _____ Signature _____

2. _____ Signature _____

Duly authorised to sign on behalf of
(Guarantor) _____

Address _____

_____

_____

FORM S: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

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

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

1.1. Preferential Procurement Regulations, 2017 (Regulation 8) make provision for the promotion of local production and content.

1.2. Regulation 8.(2) prescribes that in the case of designated sectors, organs of state must advertise such tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3.

1.4. Where necessary, for tenders referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.5.

1.6. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.7. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where
x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http:/www.thedti.gov.za/industrial development/ip.jsp at no cost.

1.8. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

	Description of services, works or goods	Stipulated minimum threshold
1.2	Nameboard (1no)	100%
1.4	(a) Offices and storage sheds	100%
1.5	(b) Workshops	100%
1.6	(c) Ablution and latrine facilities	100%
1.7	(d) Tool and equipment	100%
3.7	(b) Portland Cement	100%
3.12	a) Mild steel bars diameter 16mm and less	100%
3.13	b) High tensile steel bars diameter 16mm and less	100%
3.31	110 diameter slotted PVC pipe as underdrain	100%
3.32	Bidum A2	100%
3.36	PVC perforated sheeting	100%
5.8	Ref No. 311	100%
5.9	Ref No. 395	100%
7.11	DN 160mmØ uPVC Pipe Class 9	100%
7.12	DN 125mmØ uPVC Pipe Class 9	100%
7.13	DN 110mmØ uPVC Pipe Class 9	100%
7.14	DN 90mmØ uPVC Pipe Class 9	100%
7.15	DN 50mmØ uPVC Pipe Class 9	100%
7.16	DN 32mmØ HDPe Pipe Class 9	100%
7.17	DN 22mmØ HDPe Pipe Class 9	100%
7.18	160mmØ 45º uPVC bend Class 12	100%
7.19	125mmØ 45º uPVC bend Class 12	100%
7.20	110mmØ 45º uPVC bend Class 12	100%
7.21	160mmØ 90º uPVC bend Class 12	100%
7.22	125mmØ 90º uPVC bend Class 12	100%
7.23	90mmØ 90º uPVC bend Class 12	100%
7.24	50mmØ 45º uPVC bend Class 12	100%
7.25	32mmØ 45º uPVC bend Class 12	100%

7.26	22mmØ 45º uPVC bend Class 12	100%
7.27	50mmØ 90º uPVC bend Class 12	100%
7.28	32mmØ 90º uPVC bend Class 12	100%
7.29	22mmØ 90º uPVC bend Class 12	100%
7.30	50mmØ 22.5º uPVC bend Class 12	100%
7.31	32mmØ 22.5º uPVC bend Class 12	100%
7.32	22mmØ 22.5º uPVC bend Class 12	100%
7.33	125 x 125mmØ equal tee Class 12	100%
7.34	90 x 90mmØ equal tee Class 12	100%
7.35	50 x 32mmØ equal tee Class 12	100%
7.36	32 x 22mmØ equal tee Class 12	100%
7.37	22 x 15mmØ equal tee Class 12	100%
7.38	23 160mmØ Class 16 wedge gate valve with cap top	70%
7.39	160mmØ Class 16 or better non-return valve	70%
7.40	110mmØ Class 16 or better non-return valve	70%
7.41	50mmØ Class 16 or better non-return valve	70%
7.42	32mmØ Class 16 or better non-return valve	70%
8.6	Weld Mesh - Ref 193	100%
STEEL FRAME And COVERS To CHAMBERS		100%
9.2	Puddle pipes for inlet work and splitter box DN315 PN10 FF 400mm long	100%
9.3	Overflow weir plate	100%
9.3	Course Screen 20mm bar screen manual rake (Overflow)	100%
9.4	Channel gate 400 x 1000 with penstock + handwheel (inlet splitter box)	100%
9.6	Coarse front rake mechanical screen (15mm bar spacing)	100%
9.7	Fine perforated plate mechanical screen (5mm hole size)	100%
9.8	Screenings duct	100%
9.9	Screenings compactor	100%
9.10	Waste bins with rails for duty standby system	100%
9.11	Pista degritter + self-primer pump	100%

9.12	Grit classifier	100%
9.13	Channel gate 400 x 1000 with penstock + handwheel (inlet splitter box)	100%
9.14	Flume (SS304)	100%
9.15	Ultrasonic Flow Meter	100%
9.18	Submersible Pumps Flyght or similar approved with guide rails (15m Head at 70l/s) as per mechanical specifications	70%
9.19	Ecentric reducers to match selected pump outlet manifold to 200mm Día	100%
9.20	200mm 90 deg Bends FBE	100%
9.21	200mm Non return valves	100%
9.22	200mm RSV	100%
9.24	200mm Tees FBE	100%
9.25	200mm to 300 eccentric reducer FBE	100%
9.26	300 to 315 uPVC adaptor	100%
9.27	Miscellaneous Fittings	100%
9.28	Gantry with 1 tone cradler block	100%
9.29	Mixers 4kw	100%
9.30	Do and TSS probes to control aerator speed	100%
9.32	WAS pump	100%
9.33	Puddle pipes feed to balance tanks DN400 PN10 FF 400mm long	100%
9.34	Mixer with backwards curve impeller	100%
9.36	Sluice gate with handwheel (600mmW x 1200mmH)	70%
9.37	Overflow weir plates (balance flows)	100%
9.38	Grating over splitter box	100%
9.39	Puddle pipes for splitter box to rectors NB400	100%
9.40	Ultrasonic Flow Meter	100%
9.41	Puddle pipe into reactor DN250 PN10	100%
9.42	Mixers 2.2kw	100%
9.43	Mixers 4kw	100%
9.44	Aerators7.5kW	100%
9.45	Axial flow pump	100%

9.46	Axial flow pump weir plate	100%
9.47	Adjustable Overflow reactor Weir (1m wide 200mm adjust)	100%
9.48	Do and TSS probes to control aerator speed	100%
9.49	Estops stands	100%
9.50	Bridge	100%
9.51	End carriage	100%
9.52	Weir plates	100%
9.53	Scum box	100%
9.54	Centre column	100%
9.55	Sterling Well	100%
9.56	Bottom scraper	100%
9.57	Feeder cables	100%
9.58	Feed puddle pipes DN400 PN10	100%
9.59	Gantry with 1 tone cradler block	100%
9.60	RAS pump with guide rails (90m3/hr at 15m head)	70%
9.61	RAS Delivery manifold	70%
9.62	RAS valves (RSV + NRV)	70%
9.63	WAS pump	70%
9.64	WAS Delivery manifold	70%
9.65	WAS valves (RSV +NRV)	70%
9.66	Level controls for pumps	100%
9.67	Feeder cables to equipment	100%
9.75	Booster Pump (duty and standby)	70%
9.76	Chlorine Dosing system	100%
9.77	Gantry Crane (1 tone with chain block)	100%
9.78	Ventilation (forced draft 30min)	100%
9.80	Rectangular Overflow weir	100%
9.82	Ultrasonic Flow Meter with data logger	100%
9.84	Feed puddle pipes DN300 PN10	100%
9.86	Storage pump with guide rails	100%
9.89	Floating mixer 7.5Kw	100%

9.90	Ultrasonic Flow Meter	100%
9.92	External lighting	100%
9.93	Main Distribution board	100%
9.94	Auxiliary distribution boards	100%
9.95	Motor Control Units	100%
9.96	Telemetry	100%

3. Does any portion of the goods or services offered have any imported content?
(***Tick applicable box***)

YES		NO	

3.1. If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	**Rates of exchange**
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

4. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

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

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)
IN RESPECT OF BID NO. .....

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

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

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

I, the undersigned, ……..... (full names),
do hereby declare, in my capacity as …… ……..
of .....(name of bidder entity), the following:

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

(b) I have satisfied myself that:

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

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

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

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.
The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

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

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

ANNEX C

Local Content Declaration - Summary Schedule

(C1)	**Tender No.**
(C2)	**Tender description:**
(C3)	**Designated product(s)**
(C4)	**Tender Authority:**
(C5)	**Tendering Entity name:**
(C6)	**Tender Exchange Rate:**
(C7)	**Specified local content %**

Pula [ ] EU [ ] GBP [ ]

Note: **VAT to be excluded from all calculations**

Calculation of local content							
Tender item no's	**List of items**	**Tender price - each (excl VAT)**	**Exempted imported value**	**Tender value- net of exempted imported content**	**Imported value**	**Local value**	**Local content % (per item)**
(C8)	*(C9)*	*(C10)*	*(C11)*	*(C12)*	*(C13)*	*(C14)*	*(C15)*

Tender summary			
Tender Qty	**Total tender value**	**Total exempted imported content**	**Total Imported content**
(C16)	*(C17)*	*(C18)*	*(C19)*

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

Signature of tenderer from Annex B

Date:

SATS 1286.2011

ANNEX D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	**Tender No.**	
(D2)	**Tender description:**	
(D3)	**Designated Products:**	
(D4)	**Tender Authority:**	
(D5)	**Tendering Entity name:**	
(D6)	**Tender Exchange Rate:**	Pula

	EU	R 9.00	
	GBP	R 12.00	

Note: VAT to be excluded from all calculations

A. Exempted imported content

Calculation of imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT
(D7)	*(D8)*	*(D9)*	*(D10)*	*(D11)*	*(D12)*	*(D13)*	*(D14)*	*(D15)*	*(D16)*

Summary

Tender Qty	Exempted imported value
(D17)	*(D18)*
(D19) **Total exempt imported value**	R 0

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT
(D20)	*(D21)*	*(D22)*	*(D23)*	*(D24)*	*(D25)*	*(D26)*	*(D27)*	*(D28)*	*(D29)*
	`								

Summary: Tender Qty	Total imported value
(D30)	*(D31)*

***(D32)*Total imported value by tenderer** R 0

C. Imported by a 3rd party and supplied to the Tenderer

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT
(D33)	*(D34)*	*(D35)*	*(D36)*	*(D37)*	*(D38)*	*(D39)*	*(D40)*	*(D41)*	*(D42)*

Summary: Quantity imported	Total imported value
(D43)	*(D44)*

R 0

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Calculation of foreign currency payments: Foreign currency value paid	Calculation of foreign currency payments: Tender Rate of Exchange
(D46)	*(D47)*	*(D48)*	*(D49)*	*(D50)*

Signature of tenderer from Annex B

Date:

***(D45)* Total imported value by 3rd party**	

Summary of payments
Local value of payments
(D51)

***(D52)* Total of foreign currency payments declared by tenderer and/or 3rd party**	
***(D53)* Total of imported content & foreign currency payments - *(D32), (D45) & (D52)* above**	R 0

This total must correspond with Annex C - C 23

SATS 1286.2011

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	**Tender No.**	
(E2)	**Tender description:**	
(E3)	**Designated products:**	
(E4)	**Tender Authority:**	
(E5)	**Tendering Entity name:**	

Note: **VAT to be excluded from all calculations**

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	*(E7)*	*(E8)*
		***(E9)* Total local products (Goods, Services and Works)**	R 0

(E10)	**Manpower costs**	(Tenderer's manpower cost)	R 0
(E11)	**Factory overheads**	(Rental, depreciation & amortisation, utility costs, consumables etc.)	R 0
(E12)	**Administration overheads and mark-up**	(Marketing, insurance, financing, interest etc.)	R 0

(E13) **Total local content**	R 0

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

RETURNABLES FOR QUALITY CRITERIA

FORM T: 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 and will have available 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.
   - Plant correctly identified and owned will be calculated according to allocated points.

3. Tenderer to attach Proof of ownership of the plant and equipment in order to score points. Tenderers who attach letters of intent for the hire of plant and equipment will score ½ points.

Description, size, capacity, etc.	Allocated Points if owned	Quantity Required	Quantity owned	Points Scored
Excavator (20 ton)	3.0	1		
Tamping Foot Vibratory Roller (10 ton or above)	2.0	2		
Tipper Truck (10 m^3)	2.0	4		
TLB (48 kw Capacity)	2.0	1		
Crane Truck	3	1		
Mobile Crane	3	1		
Total	**15.0**			
Total Points Scored				

***Attached additional pages if more space is required.**

No points will be allocated for hired/leased plant and equipment. All proof must be certified by a Commissioner of Oaths. All certified copies must have a date and must not be older than 3 months on the date of closing. Tenderers not complying with the requirement will score 0 points.

FORM U: MANAGERIAL CAPACITY, EXPERIENCE AND QUALIFICATIONS

The Tenderer will receive a maximum of 15 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. Joint Venture tenders require each element of the venture to submit separate organograms that show the individual structure of each member company and the lines of responsibility of the proposed personnel involved in the project. In addition, there must also be a combined organogram that indicates how the joint venture itself will function and the proposed share of the work will become a contractual obligation between the members of the joint venture.
3. 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.
4. Registered professional engineers, technicians or technologists means those who are involved in the construction of civil and structural projects, including water and waste water infrastructure.

Head Office: State City/Town: (See note 3.)	
Other Offices: Only list number: (See note 3.)	
Registered Professionals: ECSA or in terms of ECSA approved International Agreements (PrEng, PrTechEng, PrTechniEng)	
Registered Professionals: SACPCMP (Pr CM)	
Total Employees:	
% share in JV agreement: (State 100% if no JV)	

CONSTRUCTION TEAM KEY PERSONNEL - (15 POINTS)

CONTRACTS MANAGER (PART TIME)

Contract Manager is required to be ECSA Registered (Pr Eng or Pr Tech Eng) in Civil Engineering or equivalent to a NQF 7 qualification and a minimum of 5 years in Water and Wastewater. Points will be allocated on a pro-rata basis for experience between 5 to 8 years as indicated below:

YEARS EXPERIENCE	5	6	7	8
POINTS	6	9	12	15

SITE AGENT (FULL TIME)

Site Agent is required to have a BTech in Civil Engineering or equivalent to a NQF 7 qualification and a minimum of 5 years in Water and Wastewater Projects of not less than two (2) years in LIC. Points will be allocated on a pro-rata basis for experience between 5 to 8 years as indicated below:

YEARS EXPERIENCE	5	6	7	8
POINTS	6	8	10	12

FOREMAN (FULL TIME)

Foreman on permanent/contract basis with at least NQF Level 4 or related qualification with experience in Water and Wastewater Projects including concrete works and not less than two (2) years in LIC. Points will be allocated on a pro-rata basis for experience between 5 to 8 years as indicated below:

YEARS EXPERIENCE	5	6	7	8
POINTS	6	8	10	12

SAFETY OFFICER (FULL TIME)

Qualified Safety Officer registered with South African Institute of Occupational Safety and Health (SAIOSH). The officer must have the necessary competence with level 1 first aid and OHSA Construction regulations qualifications. Experienced to perform duties diligently in Roads Projects or projects of similar scope.

Points will be allocated on a pro-rata basis for experience between 1 to 5 years, as indicated below:

YEARS EXPERIENCE	**1**	**3**	**5**
POINTS	0	1	6

All qualifications for key personnel must be certified by a Commissioner of Oaths. All certified copies must have a date and must not be older than 3 months on the date of closing. Tenderers not complying with the requirement will score 0 points.

KEY PERSONNEL EXPERIENCE (CONTRACTS MANAGER)

The tenderer shall provide details of previous experience required for this project. Proof of registration must be attached to this form.

Name	Position in Team	ECSA Reg. No	Category	SACPCMP Reg. No	Category	No. of Years' Experience
	Contracts Manager					

Technical/Managerial Experience
(List only the most recent 5 projects of the key staff that the tenderer considers relevant to the specified scope of works.)

Description of Project	Position Held	Project Start Date	Project Completion Date	Contract Value	Client and Contact Person	Contact No.

KEY PERSONNEL EXPERIENCE (SITE AGENT)

The tenderer shall provide details of previous experience required for this project. Proof of registration must be attached to this form.

Name	Position in Team	ECSA Reg. No	Category	SACPCMP Reg. No	Category	No. of Years' Experience
	Contracts Manager					

Technical/Managerial Experience
(List only the most recent 5 projects of the key staff that the tenderer considers relevant to the specified scope of works.)

Description of Project	Position Held	Project Start Date	Project Completion Date	Contract Value	Client and Contact Person	Contact No.

KEY PERSONNEL EXPERIENCE (FOREMAN)

The tenderer shall provide details of previous experience required for this project. Proof of registration must be attached to this form.

Name	Position in Team	ECSA Reg. No	Category	SACPCMP Reg. No	Category	No. of Years' Experience
	Foreman					

Technical/Managerial Experience
(List only the most recent 5 projects of the key staff that the tenderer considers relevant to the specified scope of works.

Description of Project	Position Held	Project Start Date	Project Completion Date	Contract Value	Client and Contact Person	Contact No.

KEY PERSONNEL EXPERIENCE (SAFETY OFFICER)

The tenderer shall provide details of previous experience required for this project. Proof of registration must be attached to this form.

Name	Position in Team	ECSA Reg. No	Category	SACPCMP Reg. No	Category	No. of Years' Experience
	Safety Officer					

Technical/Managerial Experience
(List only the most recent 5 projects of the key staff that the tenderer considers relevant to the specified scope of works.

Description of Project	Position Held	Project Start Date	Project Completion Date	Contract Value	Client and Contact Person	Contact No.

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.

FORM V: COMPANY EXPERIENCE IN RELATION TO SCOPE OF WORKS

The Tenderer will receive a maximum of 40 points based on information provided in this schedule.

1. Points will be given for projects completed of similar nature and size.
2. The tenderer scores 5 points per project with a value of equal to or more than R 13.5 million completed in the last 5 years.
3. The tenderer scores 6 points per project with a value of equal to or less than R 20 million completed in the last 5 years.
4. The tenderer scores 8 points per project with a value of equal to or less than R 30 million completed in the last 5 years.
5. Only 5 references to be submitted maximum. Only the first 5 references to be considered.
6. The maximum Quality points for each criterion are listed below.
7. Positive feedback from the Consulting Engineer from the designated / listed contact person will contribute toward points allocated for the attached certificates of completion.
8. Positive feedback from the Employer from the designated / listed contact person will contribute toward points allocated for the attached certificates of completion.
9. Points for completion certificates attached will be given for similar projects. Negative feedback will forfeit all points, meaning zero (0) points will be allocated for the attached certificates of completion.
10. Failure to submit all relevant information per project will result in the forfeiture of all points for that relevant project.
11. 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.

Certified Appointment letter as well as Completion Certificate (signed by client and engineer) of Relevant Work (to be attached – zero points if both 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)**	**Points Awarded by the Engineer**
*Attach additional pages if more space is Required		Total Points			

Non-submission/non-compliance of the following documents may result in disqualification

Name of Document that must be submitted	Non-Submission/non-compliance may result in Disqualification
Form of Offer	**YES**
Authority of Signatory	**YES**
Copy of Tax Clearance Certificate	**YES**
CIDB Grading 7CE Proof	**YES**
Company Registration	**YES**
Certified Identity Document Copies of Directors of The Company	**YES**
3 Year Audited Annual Financial Statements	**YES**
Usage of Tippex	**Disqualified**
Price Amendment without signature in the Bills of Quantity	**Disqualified**
Completion of the bid document using pencil	**Disqualified**

COMPETENCE ACHIEVEMENT SCHEDULE (QUALITY)

FOR MUNICIPAL USE (DO NOT COMPLETE)

Quality Criteria No.	Description of Quality Score Criteria	Maximum Number of Quality Score Points		Allocated Points Claimed (Do Not Complete)	
1	**Plant and Equipment**	**15**			
2	**Managerial Capacity**	**45**			
3	**Company Experience**	**40**			
Total Evaluation Points for (Ms)		**100**			
Minimum Required to Qualify		**70**			
Did Tenderer Achieve Minimum Required Points		**YES**		**NO**	

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 points will proceed to the price and preference evaluation stage.

SUPPLY CHAIN POLICY USING 90/10 PREFERENCE POINT SYSTEM

	MAXIMUM POINTS TO BE ALLOCATED
Price	**90**
B-BBEE Status Level of Contribution	**10**
TOTAL	**100**

FORM W: 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	PREFERENCING SCHEDULE: BROAD BASED BLACK ECONOMIC EMPOWERMENT STATUS	
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	FINANCIAL RESOURCES DECLARATION OF PROCUREMENT ABOVE R 10 MILLION	
R	FINANCIAL RESOURCES DOCUMENTATION OF INTENT TO PROVIDE A PERFORMANCE GUARANTEE	
S	DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS	
T	PLANT & EQUIPMENT	
U	MANAGERIAL CAPACITY, EXPERIENCE AND QUALIFICATIONS	
V	COMPANY EXPERIENCE IN RELATION TO SCOPE OF WORKS	

`

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

CONTENTS **PAGE(S)**

C1.1 FORM OF OFFER

C1.2 FORM OF ACCEPTANCE

C1.3 SCHEDULE OF DEVIATIONS

C 1.1: FORM of OFFER

OFFER

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

TENDER NUMBER: 01/2022 - UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS

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: _____

Name and address: _____

_____

_____

_____

Name and _____ Date: _____

Signature of Witness _____

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: _____

Name: _____

Capacity: _____

Name and address: _____

_____

Name and _____ Date: _____

Signature of witness _____

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 and address): _____

_____

_____

Name and _____ Date: _____

Signature of witness _____

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.

SPECIAL CONDITIONS OF CONTRACT

GENERAL

These Special Conditions of Contract (SCC) form an integral part of the Contract. The Special Conditions of Contract shall amplify, modify or supersede, as the case may be, the GCC 2015 to the extent specified below, and shall take precedence and shall govern.

The clauses of the Special Conditions of Contract hereafter are numbered "SCC" followed in each case by the number of the applicable clause or subclause in the GCC 2015, and the applicable heading, or (where a new special condition that has no relation to the existing clauses is introduced) by a number that follows after the last clause number in the GCC 2015, and an appropriate heading.

AMENDMENTS TO THE GCC 2015

SCC 4.1.1 Extent of Contractor's obligations

Add the following new paragraph to the end of Clause 4.1.1:

"If the Contractor fails to achieve the monetary value of the target set by the Employer for local subcontracting in terms if the Contract Data, the Contractor shall be liable to the Employer for a sum calculated in accordance with the Contract Data and the aforementioned Scope of Works as a penalty for such underachievement."

SCC 6.2 Security

SCC 6.2.1 Delivery of security

In the last two lines of Clause 6.2.1, delete the words "the type of security for the due performance of the Contract, as selected in the Contract Data" *and replace them with the words* "a fixed performance guarantees as security for the due performance of the Contract in accordance with the Contract Data Part 1: Data Provided by the Employer"*.*

Delete the entirety of Clause 6.2.2 and replace it with the following:

"SCC 6.2.2 Contractor failing to provide security

If the Contractor fails to provide the required fixed performance guarantee within the time period stipulated in the Contract Data, or if the performance guarantee shall differ substantially from the pro forma, it shall legally be deemed that the Contractor has selected a security of ten per cent retention of the value of the Works without limiting the Employer's right to terminate the Contract in terms of Clause 9.2."

SCC 6.2.3 Validity of performance guarantee

Delete the entirety of the first sentence of Clause 6.2.3 and replace it with the following:

"The Contractor shall ensure that the performance guarantee remains valid and enforceable until the Certificate of Completion is issued."

SCC 6.8.2 Application of the Contract Price Adjustment Factor

Add the following to the end of Clause 6.8.2:

"Referring to Clause 1 of the "CONTRACT PRICE ADJUSTMENT SCHEDULE" *on page 86 of the GCC 2015, delete the paragraph describing the symbols* "L", "P", "M" and "F"*, and replace it with the following:*

"L", "P", "M" and "F" are defined as follows:

"L" is the "Labour Index" and shall be the Consumer Price Index for the province as stated in the Contract Data as published in Table A of the Statistical release P0141 of Statistics South Africa.

"P" is the "Contractor's Equipment Index" and shall be the Producer Price Index for "Civil engineering plant" as published in Table 4 of the Statistical release P0151 of Statistics South Africa.

"M" is the "Materials Index" and shall be the Producer Price Index for the "Building and construction - Civil engineering" industry as published in Table 3 of the Statistical release P0151 of Statistics South Africa.

"F" is the "Fuel Index" and shall be the Producer Price Index for "Diesel fuel wholesale - Total" as published in Table 4 of the Statistical release P0151 of Statistics South Africa."

Additional Special Conditions of Contract

The following additional Special Conditions of Contract clauses SCC 1.1 and SCC 5.3 shall apply only in those circumstances where the Employer is required to apply for a construction work permit in terms of Construction Regulation 3(1):

SCC 5.3 Commencement of the Works

Delete the entirety of Clauses 5.3.1, 5.3.2 and 5.3.3 and replace them with the following:

"SCC 5.3.1 Commencement of the Works

Upon the Employer's Agent's instruction, the Contractor shall, save as may be otherwise provided in the Contract, or be legally or physically impossible, commence carrying out the Works. Such instruction shall be provided not later than 14 days after the Commencement Date. Such instruction shall be subject to:

SCC 5.3.1.1 The timely submission by the Contractor, and approval by the Employer's Agent, of documentation required before commencing to carry out the Works and before the Employer applying for a permit to do construction work, as set out in the Contract Data,

SCC 5.3.1.2 Application by the Employer for a permit to do construction work in terms of Regulations 3(1) and (2) of the Construction Regulations 2014, and

SCC 5.3.1.3 Receipt by the Employer of the permit to do construction work.

SCC 5.3.2 Unacceptable documentation

If the documentation referred to in Clause SCC 5.3.1 is not submitted within the number of days stipulated in the Contract Data from the date that the Agreement, made in terms of the Form of Offer and Acceptance, comes into effect, or if such documentation is found to be unacceptable, the

Employer may terminate the Contract in terms of Clause 9.2.

SCC 5.3.3 Time to instruct commencement of the Works

Where the Contractor delays the submission by the Employer of the application for a permit to do construction work and such permit is not received within 14 days following the Commencement Date such that the Employer's Agent's instruction to commence carrying out the Works cannot be given, without prejudice to the Employer's rights to terminate the contract under Clause 9.2, the Employer's Agent shall delay issuing the instruction to commence carrying out the Works until such time as the permit to do construction work has been received. The Contractor shall have no entitlement under Clause 5.12 to an extension of time for Practical Completion.

Where the permit to do construction work is not received within the 14 day period following Commencement of the Contract for reasons not attributable to the Contractor, the Employer's Agent shall delay the instruction to commence the Works and the Contractor shall be entitled to make a claim in accordance with Clause 10.1."

6.10 Payments

SCC 6.10.4 Delivery, dissatisfaction with and payment of payment certificate

In the first three lines of Clause 6.10.4, delete the word "days" *and replace them with the words* "working days"*.*

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**
1.1.1.14	The "Due Completion Date", or time for achieving Practical Completion is **30 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 Nathoo Mbenyane Engineers (Pty) Ltd.
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: peter.marota@mbombela.gov.za
1.2.1.2	The address of the Employer's Agent is: Physical address: **Office G001 Potion 5 of Plot 173, The Ranch off Provincial Road R538 White River 1240** Postal address: **P O Box 4267 White River 1240** Telephone: **013 752 3122** Fax: **013 752 3155** E-mail: **info.mp@nme.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:

Clause	Description
	1. Contract Agreement, 2. Form of Offer and Acceptance, 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."
3.2.3	The Employer's Agent is required to obtain the specific approval of the Employer for the following functions or duties: a) Approve extension of time for practical completion in terms of Clause 5.12.1; b) Approve imposition of penalty for delay in terms of Clause 5.13.1; c) Issue of a Variation Order in terms of Clause 6.3.2; and d) Approve the use of contingency funds.

Clause	Description
	The Contractor shall furthermore, in compliance with Construction 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. (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." 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).
4.3.3	The following arrangements and procedures will apply: (i) The Contractor shall himself obtain the Mining Authorisation for the sites. (ii) Contractor shall assume responsibility for the Environmental Management Programmes (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 Authorisation 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. 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.

Clause	Description
5.1.1 and 5.8.1	The special non-working days are public holidays, Saturdays, Sundays and the days on which the contractor grants the majority of his permanent workforce leave around the 15th December and the first Monday of the subsequent year.
5.3.1	The Contractor shall submit within 14 days from the Commencement Date the following documentation for approval by the Employer's Agent: a) Health and Safety Plan (Refer to Clause 4.3); b) Initial programme (Refer to Clause 5.6) and estimated cash flow; c) Security (Refer to Clause 6.2); d) Insurance (Refer to Clause 8.6); e) Proof of registration with the Workman's Compensation Commissioner; f) Valid original copy of Tax Clearance Certificate; and Written acceptance of appointment.
5.3.2	The time to submit the documentation required, before commencement with Works execution is **14 calendar days.**
5.4.2	The Site is located within inhabited areas, is generally accessible to the public and is not exclusive to the Contractor. The Contractor shall safeguard the public as statutorily required and shall coordinate assistance from the Community Liaison Officer (CLO) as nominated by the Employer.

5.12

Formula For Extension Of Time In Respect Of Abnormal Rainfall

Extension of time in terms of Clause 5.12 of the General Conditions Of Contract in respect of abnormal rainfall shall be determined in terms of the method below for each calendar month or part thereof, unless the project specifications determine otherwise:

$$V = (N_w - N_n) + (R_w - R_n)/20$$

Where:

V: Extension of time in calendar days for the calendar month under consideration.

N_w: Actual number of days during the calendar month under consideration on which a rainfall of 10mm and more is recorded.

R_w: Actual total rainfall in mm recorded during the calendar month under consideration.

N_n: Average number of days, derived from rainfall records, on which a rainfall of 10mm and more was recorded during the relevant calendar month as per the data tabulated hereinafter.

R_n: Average total rainfall in mm for the relevant calendar month, derived from rainfall records, as tabulated hereinafter.

Where the extension of time due to abnormal rainfall has to be calculated for portion of a calendar month, pro rata values shall be used. Should V be negative for any particular month, and should its absolute value exceed the corresponding value of N_n, then V shall be taken as being equal to minus N_n. The total extension of time to be granted shall be the algebraic sum of all the monthly extensions, provided that if this total is negative then the time for completion shall not be reduced due to subnormal rainfall.

The Contractor shall, at its own cost, provide and erect on the Site at a location approved of by the Employer's Agent, an approved rain gauge, which shall be fenced off in a manner which will prevent any undue interference by workmen and others. The Contractor shall, at its own cost, arrange for the reading of the rain gauge on a daily basis for the duration of the Contract. The gauge readings, as well as the date and time at which the reading was taken shall be recorded in a separate record book provided by the Contractor for this purpose. All entries in the rainfall record books shall be signed by the person taking the reading and the gauge shall be properly emptied immediately after each reading has been taken. If required, the Employer's Agent shall be entitled to witness the reading of the gauge.

The rainfall records applicable to this Contract are those recorded at Nelspruit (historic data). The following values of N_n and R_n shall apply:

MONTH	Nn (Days)	Rn (mm)
January	14.2	125.6
February	11.0	79.8
March	13.0	77.2
April	7.6	43.7
May	2.8	14.2
June	0.6	1.0
July	1.7	3.3
August	3.8	5.1
September	5.3	32.8
October	14.2	96.2
November	16	106.2
December	16.5	159.8
Total	106.7	744.9

5.13.1	The penalty for failing to complete the Works is: **R 10,200-00** per calendar day
5.14.1	The requirements for achieving Practical Completion are set out in the Scope of Works Part C3.1.2.1.
5.14.7	This contract does not contain multiple "Due Completion Dates".
5.16.3	The latent defects liability period for civil engineering works is 10 years.
6.2.1	The type of security for the due performance of the Contract shall be a Fixed Performance Guarantee of 10% of the value of the Works. The Performance Guarantee shall follow the suggested wording according to the pro-forma included in the Performance Guarantee.
6.5.1.2.3	The percentage allowance on the net cost of workmen and materials actually used in the completed work is 15%.

Clause	Description

6.8.2	The Contract Price Adjustment Factor shall be applied to this Contract.
	
	• The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values:
	  ○ The value of x = 0.10
	  ○ The values of the coefficients are (and the sum thereof is unity):
	  ▪ a = 0.15 Labour
	  ▪ b = 0.20 Contractor's equipment
	  ▪ c = 0.55 Material
	  ▪ d = 0.10 Fuel
	  ○ The base month "0" is January 2022.
	
	The applicable month for the statement is denoted by "t".

6.8.3	Price adjustment in the cost of special materials shall be applied to this Contract.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%. The percentage advance on Plant not yet supplied to Site 80% (if plant is fabricated or stored on other places than the Site).
6.10.3	The limit on retention is 5% of the Contract Price
8.6.1	The following insurances shall be effected and maintained in the joint names of the Employer and Contractor:
8.6.1.1	Insurance of the Works, Plant and materials for the period of Care of the Works for a sum insured that is the aggregate of:
8.6.1.1.1	The Contract Price
8.6.1.1.2	The value of Plant and materials supplied by the Employer to be included in the insurance is R 0.00 and
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	The Contractor is responsible for Special Risks Insurance.

8.6.1.3	Liability insurance of at least R 10 000 000.00 with the number of events being unlimited.
8.6.5	The insurances shall be effected with an insurance company registered in South Africa.
10.5.2	Dispute resolution shall be by ad-hoc adjudication.
10.5.3	The number of Adjudication Board Members to be appointed is one or three.
10.7.1	In the event of disagreement with the Adjudication Board's decision the determination of disputes shall be by arbitration.
10.8.1	In the event of disagreement with the Arbitrator the determination of disputes shall be by court proceedings.

Clause	Description
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.
Special Clause	Thirty percent (30%) of the Contract Value shall be made compulsory for subcontracting to local people/companies (CoM) irrespective of the *domicilium et exicutandi* of the Contractor.

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 .....months after Commencement Date (site handover).</td></tr>
<tr><td>6.2.1</td><td>The security to be provided by the Contractor shall be:

<table><tr><th>Type Of Security</th><th>Contractor’s Choice. Indicate “Yes” or “No”</th></tr><tr><td>Fixed 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, viz **UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS** 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.

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.

6 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.

7 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) (IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATORY: _____

WITNESS 1 _____ 2 _____

NAME 1 _____ 2 _____

(IN CAPITALS) (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/HER 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.

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

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.

8 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 SANS 1200Civil Engineering Specification.

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

9 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 A - PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
1	SANS 1200A	PRELIMINARY AND GENERAL					
		NOTE: A rate or price must be entered in the amount column for each item. Items which are included should have the word "included" written in the appropriate amount column.					
	8.3	FIXED-CHARGE ITEMS & VALUE RELATED ITEMS					
1.1	PSA 9.1	Contractual requirements	Sum				
	8.3.2	Establish Facilities on the Site:					
	8.3.2.1	Facilities for Engineer					
1.2	PSAB 1	(a) Nameboards (1no)	Sum				
1.3		(b) Offices for Engineer (12m2)	m	1.00			
	8.3.2.2 PSA 2	Facilities for Contractor					
1.4		(a) Offices and storage sheds	Sum				
1.5		(b) Workshops	Sum				
1.6		(c) Ablution and latrine facilities	Sum				
1.7		(d) Tool and equipment	Sum				
1.8		(e) Water supplies, electric power, and communications	Sum				
1.9		(f) Dealing with water (see 5.5)	Sum				
1.10		(g) Access (see 5.8)	Sum				
1.11		(h) Plant	Sum				
1.12	8.3.3	Other fixed-charge obligations	Sum				
1.13	8.3.4	Removal of site establishment on completion	Sum				
		CONSTRUCTION REGULATIONS - OHS ACT					
1.14	PAP 10.2.2	Compliance with OHS Act and Regulations (including the Construction Regulations 2003)	Sum				
Total Carried Forward							

SCHEDULE A - PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	8.4 PSA 9.1	TIME-RELATED ITEMS					
1.15	8.4.1	Contractual requirements	Sum				
1.16	8.4.2	Operations and maintenance of facilities on site	Sum				
	8.4.2.1	Facilities for Engineer					
1.17	PSAB 1	(a) Nameboards (1no)	Sum				
1.18		(b) Offices for Engineer (12m2)	Sum	1.00			
	8.3.2.2 PSA 2	Facilities for Contractor					
1.19		(a) Offices and storage sheds	Sum				
1.20		(b) Workshops	Sum				
1.21		(c) Living Accommodation	Sum				
1.22		(d) Ablution and latrine facilities	Sum				
1.23		(e) Tool and equipment	Sum				
1.24		(f) Water supplies, electric power, and communications	Sum				
1.25		(g) Dealing with water (see 5.5)	Sum				
1.26		(h) Access (see 5.8)	Sum				
1.27		(i) Plant	Sum				
1.28	8.4.3	Supervision for duration of Construction	Sum				
1.29	8.4.4	Company and head office overhead costs for the duration of the Construction	Sum				
1.30	8.4.5	Other time-related obligations	Sum				
	8.5	SUMS STATED PROVISIONALLY BY ENGINEER					
1.31		Testing of material by a nominated laboratory on instruction of the Engineer	Prov Sum	1.00		80,000	00
1.32		Overhead costs on item above	%	80,000.00			
1.33		Testing of material by a nominated laboratory on instruction of the Engineer	Prov Sum	1.00		100,000	00
		Overhead costs on item above	%	100,000			
Total Carried Forward							

SCHEDULE A - PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
1.34		Community Liaison Officer	R	1.00		324,000	00
1.35		Overhead costs on item above	%	324,000.00			
		Provisional Allowances for Training					
1.36		(i) Basic Life Skills Training for targeted labour	Prov Sum	1.00		80,000	00
1.37		(ii) Basic Construction Skills training	Prov Sum	1.00		80,000	00
1.38		(iii) Health & Safety Management	Prov Sum	1.00		120,000	00
1.39		(iv) Contractor Development	Prov Sum	1.00		80,000	00
1.40		(v) Extra Over for administration of payment of training allowances.	%	360,000.00			
1.41		(vi) Transport and accommodation of workers for training where it is not possible to undertake the training in the close proximity to the site (Provisional) (x No. of Trainees)	Sum				
1.42		Engineers Staff Costs of Calls	Month	36.00			
1.43		Engineers Staff Costs of Rental accommodation	Month	36.00			
1.44		Engineers Staff Costs of travel	Month	36.00			
		Employment of Local Students	PC Sum	1.00		324,000	00
1.45	8.7	Dayworks	Prov Sum	1.00		160,000	00
		Labour (including overhead charges and profit)					
1.46		(a) Labourer	hr			Rate Only	
1.47		(b) Gang leader/Foreman	hr			Rate Only	
1.48		(c) Tradesman/Artisan	hr			Rate Only	
		Materials				Rate Only	
1.49		Overheads, charges plus profit on materials	%			Rate Only	
1.50		Plant (including overheads, charges, fuel and profit)					
1.51		(a) Backactor	hr			Rate Only	
1.52		(b) TLB excavator	hr			Rate Only	
Brought Forward							

SCHEDULE A - PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
1.53		(d) Tip truck 5m3	hr			Rate Only	
1.54		(e) Flatbed truck, 7t	hr			Rate Only	
1.55		(f) Dewatering pump, including hoses and operator	hr			Rate Only	
1.56		(g) Bulldozer	hr			Rate Only	
1.57		(h) Concrete mixer, 250l capacity	hr			Rate Only	
1.58		(i) Tractor + 2 wheel trailor	hr			Rate Only	
1.59		(j) Items not specified (to be completed by tenderer)	hr			Rate Only	
1.60		(1)	hr			Rate Only	
1.61		(2)	hr			Rate Only	
1.62		(3)	hr			Rate Only	
1.63		(k) Additional markup for standing time (provisional)	%			Rate Only	
	PSA 5	Location and Protection of Existing Services					
1.64		(a) Excavation by hand in soft material to expose existing services	m^3	80.00			
1.65		(b) Temporary protection of existing services	Sum				
1.66		(c) Relocation of Existing Services	Prov Sum	1.00	160,000	160,000	00
		CONSTRUCTION REGULATIONS - OHS ACT					
1.67	PSA 9.4	Compliance with OHS Act and Regulations (including the Construction Regulations 2003)	Sum				
Total Carried Forward To Summary							

SCHEDULE B - SITE CLEARANCE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
2	SABS 1200 DB	SITE CLEARANCE					
2.1	8.2.1	Clear and grub	m^2	30,000.00			
2.2		(ii) Sewer and stormwater routes, not within bulk earthworks, 2.0m wide strip	m	1,750.00			
2.3	8.2.4	Reclear surfaces (only on instruction from the Engineer)	m^2			Rate Only	
	PSC 3.2	Removal of unreinforced and reinforced concrete to existing reactors, chlorine contact Chamber, settling tanks, and chambers/manholes					
2.4		(a) Reinforced	m^3	80.00			
2.5		(b) Unreinforced	m^3	65.00			
	PSC3.3	Dismantle and remove pipelines and manholes, not encased in concrete					
		(a) Excavate, backfilling and					
2.6		compacting in all materials	m^3	190.00			
		(b) Uplifting and disposing of pipes					
		and fittings					
2.7		(i) 110 and 160 diameter PVC pipes	m	210.00			
2.8		(ii) 100 - 300 diameter galvanised pipes	m	110.00			
Total Carried Forward To Summary							

SCHEDULE C: STRUCTURES - AERATION, REACTORS, DIGESTER, and THICKER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
3	SABS 1200D	BULK EXCAVATION					
3.1	8.3.2	(b) Excavate in all materials and dispose of site, excavation depths up 5.0m	m^3	5,780.00			
		Extra over for:					
3.2		i) Hard Rock Excavation	m^3	860.00			
	8.3.3	RESTRICTED EXCAVATION					
3.3		(a) Excavation by hand, and dispose surplus on site. Excavation and hand finishing for wall footings, subsoil drain, as well as channel	m^3	2,270.00			
	SABS 1200 DM	SURFACE PREPARATION					
	8.3.3	Preparation by ripping and compaction to 93% MOD AASHTO in 150 mm layer insitu material					
3.4		a) Foundation	m^2	1,820.00			
	SABS 1200ME	FOUNDATION LAYER					
3.5	8.3.3	Construct the foundation layer - 450mm thick with material obtained from commercial sources	m^3	820.00			
	8.3.5	Process material by:					
3.6		(d) Stabilization	m^3	820.00			
	8.3.8	Stabilizing agent					
3.7		(b) Portland Cement	t	69.00			
Total Carried Forward							

SCHEDULE C: STRUCTURES - AERATION, REACTORS, DIGESTER, and THICKER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200G	CONCRETE					
3.8	8.4.2	Blinding layer, class 15 MPa/19 mm concrete, 50 mm thick for all levels where reinforced concrete will be placed, and below no fines layer, including the necessary shuttering and finishing	m³	112.00			
3.9	8.4.3	Concrete filling, class 15 MPa/19 mm concrete for anchor blocks, filling were ordered by Engineer	m³	250.00			
3.10	8.4.3	Strength concrete, Class W30 MPa/19 mm for the following:	m³	1,670.00			
3.11		No Fines concrete, minimum 150mm thick under floor drains	m³	35.00			
	8.3.1	STEEL REINFORCEMENT CONSISTING OF DEFORMED HIGH-TENSION STEELBARS, INCL. ALL CUTTING, BINDING-WIRE, SPACERBLOCKS ETC.					
3.12		a) Mild steel bars diameter 16mm and less	t	32.00			
3.13		b) High tensile steel bars diameter 16mm and less	t	172.00			
		FORMWORK					
		Rough Formwork					
3.14	8.2.1	a) Vertical	m²	3,950.00			
3.15		b) Horizontal	m²	410.00			
3.16		(c) Sloped	m³	318.00			
		Smooth Formwork					
3.17	8.2.2.	Horizontal to and soffit	m²	1,975.00			
3.18	8.2.2	Vertical	m²	410.00			
3.19	8.2.2	Roofslab soffit	m²	1,975.00			
3.20	8.2.2	Vertical, for valve box walls	m²	25.00			
3.21		Narrow widths - 200mm or less	m	410.00			
	8.2.6	Box out holes/form voids:					
Total Carried Forward							

SCHEDULE C: STRUCTURES - AERATION, REACTORS, DIGESTER, and THICKER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		Small, circular, of diameter up to and including 0.35m					
3.22		(i) 0 m up to and including 0,5 m depth	No.	12.00			
		Large, other than circular, of area over 0,1 m² and up to and including 1 m², and in the following depth ranges:					
3.23		(i) 0 m up to and including 0,5 m	No.	2.00			
		UNFORMED SURFACES AND FINISHES					
	8.4.4	a) Wood floated finish					
3.24		i) Top of slabs	m²	140.00			
3.25		b) Steel floated finish	m²	250.00			
3.26		1) Top of walls	m²	440.00			
3.27		2) Floors	m²	1,350.00			
3.28		c) 20mm Chamfers to tops of walls	m	750.00			
		SPECIAL SMOOTH FORMWORK PREPARED AND RUBBED					
3.29	8.2.3	a) Vertical to outside of all walls	m²	125.00			
3.30	8.2.3	b) Vertical to sides of roof upstand beam and roof slab	m²	0.00		Rate Only	
		UNDER FLOOR DRAINS					
3.31		110 diameter slotted PVC pipe as underdrain in no fines concrete	m	685.00			
3.32		Bidum A2 to underdrains	m²	1,100.00			
3.33		External underdrain	m	40.00			
3.34		Bidum A2 to external drain	m²	180.00			
3.35		External drain, 110mm diameter PVC slotted	m	145.00			
3.36		PVC perforated sheeting	m²	255.00			
		JOINTS					
		Supply and install joints as per joint type specified, details and to manufactures' specifications					
Total Carried Forward							

SCHEDULE C: STRUCTURES - AERATION, REACTORS, DIGESTER, and THICKER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
3.37		Joint Type 1	m	492.00			
3.38		Joint Type 2	m	944.00			
3.39		Joint Type 4	m	300.00			
3.40		Joint Type 5	m	272.00			
3.41		Joint Type 8	m	272.00			
Total Carried Forward							

SCHEDULE D: STRUCTURES - RETENTION POND, RAW WATER CHAMBER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
4	SABS 1200D	BULK EXCAVATION					
4.1	8.3.2	(b)Excavate in all materials and dispose of site, excavation depths up 4.0m	m^3	912.00			
		Extra over for:					
4.2		i) Hard Rock Excavation	m^3	280.00			
	8.3.3	RESTRICTED EXCAVATION					
4.3		(a) Excavation by hand, and dispose surplus on site. Excavation and hand finishing for wall footings, subsoil drain, as well as channel	m^3	210.00			
	SABS 1200 DM	SURFACE PREPARATION					
	8.3.3	Preparation by ripping and compaction to 93% MOD AASHTO in 150 mm layer insitu material					
4.4		a) Foundation	m^2	310.00			
	SABS 1200ME	FOUNDATION LAYER					
4.5	8.3.3	Construct the foundation layer - 600mm thick with material obtained from commercial sources	m^3	380.00			
	8.3.5	Process material by:					
4.6		(d) Stabilization	m^3	190.00			
	8.3.8	Stabilizing agent					
4.7		(b) Portland Cement	t	27.00			
Total Carried Forward							

SCHEDULE D: STRUCTURES - RETENTION POND, RAW WATER CHAMBER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200G	CONCRETE					
4.8	8.4.2	Blinding layer, class 15 MPa/19 mm concrete, 50 mm thick for all levels where reinforced concrete will be placed, and below no fines layer, including the necessary shuttering and finishing	m^3	40.00			
4.9	8.4.3	Concrete filling, class 15 MPa/19 mm concrete for anchor blocks, filling were ordered by Engineer	m^3	5.00			
4.10	8.4.3	Strength concrete, Class 30 MPa/19 mm for the following:	m^3	335.00			
4.11		No Fines concrete, minimum 150mm thick under floor drains	m^3	22.00			
	8.3.1	STEEL REINFORCEMENT CONSISTING OF DEFORMED HIGH-TENSION STEELBARS, INCL. ALL CUTTING, BINDING-WIRE, SPACERBLOCKS ETC.					
4.12		a) Mild steel bars diameter 16mm and less	t	3.00			
4.13		b) High tensile steel bars diameter 16mm and less	t	45.00			
		FORMWORK					
		Rough Formwork					
4.14	8.2.1	a) Vertical	m^2	220.00			
4.15		b) Horizontal	m^2	20.00			
4.16		(c) Sloped	m^3	40.00			
		Smooth Formwork					
4.17	8.2.2.	Horizontal to walls and soffit	m^2	40.00			
4.18	8.2.2	Vertical	m^2	220.00			
4.19	8.2.2	Roofslab soffit	m^2			Rate Only	
4.20	8.2.2	Vertical, for valve box walls	m^2	20.00			
4.21		Narrow widths - 200mm or less	m	100.00			
	8.2.6	Box out holes/form voids:					
Total Carried Forward							

SCHEDULE D: STRUCTURES - RETENTION POND, RAW WATER CHAMBER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		Small, circular, of diameter up to and including 0.35m					
4.22		(i) 0 m up to and including 0,5 m depth	No.	2.00			
		Large, other than circular, of area over 0,1 m² and up to and including 1 m², and in the following depth ranges:					
4.23		(i) 0 m up to and including 0,5 m	No.	2.00			
		UNFORMED SURFACES AND FINISHES					
	8.4.4	a) Wood floated finish					
4.24		i) Top of slabs	m²			Rate Only	
4.25		b) Steel floated finish	m²			Rate Only	
4.26		1) Top of walls	m²	0.00			
4.27		2) Floors	m²	480.00			
		UNDER FLOOR DRAINS					
4.28		110 diameter slotted PVC pipe as underdrain in no fines concrete	m	60.00			
4.29		Bidum A2 to underdrains	m²	350.00			
4.30		External underdrain	m	20.00			
4.31		External drain, 110mm diameter PVC slotted	m³	40.00			
4.32		Bidum A2 to external drain	m²	210.00			
4.33		PVC perforated sheeting	m²	210.00			
Total Carried Forward To Summary							

SCHEDULE E - SLUDGE DRYING BEDS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
5		SLUDGE DRYING BEDS					
		EARTHWORKS					
	SABS 1200 D	BULK EARTHWORKS					
	8.3	Scheduled Earthworks Items					
	PSD 8.3.2	Bulk Excavation					
5.1		Excavate by machine in all materials and use for embankment or backfill or dispose, as ordered	m³	378.00			
		Extra-over for					
5.2		1) Hard rock excavation (Blasting or Pneumatic Drilling)	m³	20.00			
	PSD 8.3.3	Restricted Excavations					
5.3		Excavate in all materials and use for embankment or backfill or dispose, as ordered	m³	65.00			
	SABS 1200 G	CONCRETE					
		SCHEDULED FORMWORK ITEMS					
	8.2.1	Rough					
		Vertical					
5.4		(i) Structure	m²	80.00			
	8.2.2	Smooth					
		Vertical					
5.5		(i) Central Drainage Trench Floor and Walls	m²	445.00			
	8.2.6	Box out holes/form voids:					
		Small, circular, of diameter up to and including 0.35m					
5.6		(i) 0 m up to and including 0,5 m depth	No.	12.00			
		Large, other than circular, of area over 0,1 m² and up to and including 1 m², and in the following depth ranges:					
5.7		(i) 0 m up to and including 0,5 m	No.	2.00			
Total Carried Forward							

SCHEDULE E - SLUDGE DRYING BEDS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	8.3	SCHEDULED REINFORCEMENT ITEMS					
	8.3.2	High Tensile Welded Mesh					
5.8		Ref No. 311	m²			Rate Only	
5.9		Ref No. 395	m²	840.00			
	8.3.1	STEEL REINFORCEMENT CONSISTING OF DEFORMED HIGH-TENSION STEELBARS, INCL. ALL CUTTING, BINDING-WIRE, SPACERBLOCKS ETC.					
5.10		a) Mild steel bars diameter 16mm and less	t	0.50			
5.11		b) High tensile steel bars diameter 16mm and less	t	3.20			
	8.4.2	Blinding Layer:					
	8.4	SCHEDULED CONCRETE ITEMS					
5.12		Class 15/19, minimum 50mm thick	m³	22.00			
	8.4.3	Strength Concrete:					
		Class 20/19					
5.13		(i) Floors / Foundations	m³	92.00			
5.14		(ii) Mass Concrete Ramps	m³	6.00			
5.15		(iii) Central Drainage Trench Floor and Walls	m³	12.00			
5.16		(iv) Concrete Thrust Blocks	m³	2.00			
5.17		(v) Floor slabs of Boxes	m³	6.00			
5.18		(vi) Inlet Concrete Block	m³	8.00			
		Class 20/8					
5.19		(i) Benching	m³	5.00			
	8.4.4	Unformed surface finishes:					
		Wood-floated finishes to:					
5.20		(i) Floors / Foundations	m²			Rate Only	
5.21		(ii) Access Ramps	m²	0.00			
Total Carried Forward							

SCHEDULE E - SLUDGE DRYING BEDS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
5.22		(ii) Trust Blocks	m²	2.00			
		Wood-floated finishes to:					
5.23		(i) Floors / Foundations	m²	250.00			
5.24		(ii) Benching in Boxes	m²	5.00			
5.25		(ii) Trust Blocks	m²	6.00			
	8.5	Joints					
5.26	PSG 5.5.17	Type 1	m	60.00			
5.27		Type 2	m	360.00			
5.28		Type 3	m	360.00			
		FILTER MEDIA					
5.29		Approved aggregate (13,0 to 19,0 mm) in layer varying from 75 mm to 125 mm.	m³	5.00			
5.30		Bidum A2	mm	74.00			
		New Works					
Total Carried Forward To Summary							

SCHEDULE F - CHLORINE CONTACT CHAMBERS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
6		NEW CHLORINE CONTACT CHAMBERS					
		EARTHWORKS					
	SABS 1200 D	BULK EARTHWORKS					
	8.3	Scheduled Earthworks Items					
	PSD 8.3.2	Bulk Excavation					
6.1		Excavate by machine in all materials and use for embankment or backfill or dispose, as ordered	m³	105.00			
		Extra-over for					
6.2		1) Hard rock excavation (Blasting or Pneumatic Drilling)	m³	12.00			
	PSD 8.3.3	Restricted Excavations					
6.3		Excavate in all materials and use for embankment or backfill or dispose, as ordered	m³	25.00			
	SABS 1200 G	CONCRETE (STRUCTURAL)					
		SCHEDULED FORMWORK ITEMS					
	8.2.1	Rough					
		Vertical					
6.4		(iii) Surface Bed and Boxes	m²	113.00			
	8.2.2	Smooth					
6.5		Vertical	m²	230.00			
	8.2.6	Box out holes/form voids:					
		Small, circular, of diameter up to and including 0.35m					
6.6		(i) 0 m up to and including 0,5 m depth	No.	3.00			
		Large, other than circular, of area over 0,1 m² and up to and including 1 m², and in the following depth ranges:					
6.7		(i) 0 m up to and including 0,5 m	No.	2.00			
	8.3	SCHEDULED REINFORCEMENT ITEMS					
Total Carried Forward							

SCHEDULE F - CHLORINE CONTACT CHAMBERS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
6.8		High tensile Steel	t	3.50			
	8.4	SCHEDULED CONCRETE ITEMS					
	8.4.2	Blinding Layer:					
6.9		Class 15/19, minimum 50mm thick	m^3	14.00			
	8.4.3	Strength Concrete:					
		Class 20/19					
6.10		(i) Floors / Foundations/Walls	m^3	65.00			
6.11		(iv) Concrete Thrust Blocks	m^3	2.00			
6.12		(vi) Inlet Concrete Block	m^3	4.00			
		Class 20/8					
6.13		(i) Benching in boxes	m^3	2.00			
	8.4.4	Unformed surface finishes:					
		Wood-floated finishes to:					
6.14		(i) Floors / Foundations	m^2	80.00			
6.15		(ii) Trust Blocks	m^2	2.00			
		Steel floated finishes to:					
6.16		(i) Floors / Foundations	m^2	80.00			
6.17		(ii) Benching in Boxes	m^2	6.00			
Total Carried Forward To Summary							

SCHEDULE G - PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
7	SANS 1200 L	WATER RETICULATION					
	PS D	EXCAVATION					
	PSDB 1	(a) Excavate in soft materials for trenches, backfill, compact and dispose of surplus/unsuitable material for pipes for the following:					
7.1		Exceeding 0m but not 1.0m	m	0.00		Rate Only	
7.2		Exceeding 1.0m but not 2.0m	m	500.00			
7.3	8.3.2 PSDB1	Extra over for excavations in hard rock	m^3	50.00			
7.4	8.3.2	Excavate and dispose of unsuitable material in trench bottom (Provisional)	m^3	5.00			
7.5	8.3.3.1	Make up deficiency in backfill material obtained from site	m^3	5.00			
7.6	8.3.3.3	Compaction in road reserves	m^3	20.00			
	SABS 1200LB	BEDDING (PIPES)					
	8.2.1	Provision of Class C bedding material from trench excavations					
7.7		(a) Selected granular material	m^3	50.00		Rate Only	
7.8		(b) selected fill material	m^3	165.00		Rate Only	
	8.2.2.3	Imported from commercial sources					
7.9		(a) Selected granular material	m^3	40.00			
7.10	PSLB 3	Crushed stone bedding, from commercial sources, 19mm single size stone (Provisional)	m^3	12.00			
Total Carried Forward							

SCHEDULE G - PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SABS 1200 L	PIPELINES					
	PSL 4.1	Supply, handle, lay and bed (Class C bedding) complete with couplings, test and disinfect the following pipes:					
7.11		DN 160mmØ uPVC Pipe Class 9	m	70.00			
7.12		DN 125mmØ uPVC Pipe Class 9	m	140.00			
7.13		DN 110mmØ uPVC Pipe Class 9	m	72.00			
7.14		DN 90mmØ uPVC Pipe Class 9	m	120.00			
7.15		DN 50mmØ uPVC Pipe Class 9	m	100.00			
7.16		DN 32mmØ HDPe Pipe Class 9	m	500.00			
7.17		DN 22mmØ HDPe Pipe Class 9	m	500.00			
Total Carried Forward							

SCHEDULE G - PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200 L	SPECIAL AND FITTINGS					
	PSL 8.2.2	Extra over PSL 8.2.1 for supplying, laying, bedding of the following fittings:					
		Bends					
7.18		160mmØ 45º uPVC bend Class 12	No.	2.00			
7.19		125mmØ 45º uPVC bend Class 12	No	2.00			
7.20		110mmØ 45º uPVC bend Class 12	No	2.00			
7.21		160mmØ 90º uPVC bend Class 12	No	5.00			
7.22		125mmØ 90º uPVC bend Class 12	No	2.00			
7.23		90mmØ 90º uPVC bend Class 12	No	3.00			
7.24		50mmØ 45º uPVC bend Class 12	No	10.00			
7.25		32mmØ 45º uPVC bend Class 12	No	12.00			
7.26		22mmØ 45º uPVC bend Class 12	No	15.00			
7.27		50mmØ 90º uPVC bend Class 12	No	20.00			
7.28		32mmØ 90º uPVC bend Class 12	No	20.00			
7.29		22mmØ 90º uPVC bend Class 12	No	20.00			
7.30		50mmØ 22.5º uPVC bend Class 12	No	3.00			
7.31		32mmØ 22.5º uPVC bend Class 12	No	3.00			
7.32		22mmØ 22.5º uPVC bend Class 12	No	2.00			
		EQUALTEES					
7.33		125 x 125mmØ equal tee Class 12	No	2.00			
7.34		90 x 90mmØ equal tee Class 12	No	1.00			
		Reducing Tee's					
7.35		50 x 32mmØ equal tee Class 12	No	15.00			
7.36		32 x 22mmØ equal tee Class 12	No	10.00			
7.37		22 x 15mmØ equal tee Class 12	No	6.00			
		LINE CONTROL VALVES					
		Supply and install the following valves, (Min. 1MPa working pressure)					
Total Carried Forward							

SCHEDULE G - PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		LINE CONTROL VALVES					
		Supply and install the following valves, (Min. 1MPa working pressure)					
7.38		160mmØ Class 16 wedge gate valve with cap top	No	16.00			
		NON-RETURN VALVES					
		Supply and install the following valves, (Min. 1MPa working pressure)					
7.39		160mmØ Class 16 or better non-return valve	No	5.00			
7.40		110mmØ Class 16 or better non-return valve	No	7.00			
7.41		50mmØ Class 16 or better non-return valve	No	5.00			
7.42		32mmØ Class 16 or better non-return valve	No	6.00			
		MANHOLES					
		1.0x1.0x1.0m dep brick manholes with precast covers					
		ANCHOR/THRUST BLOCKS					
		Supply all materials, labour, plant and construct 25MPa concrete Anchor/Thrust blocks and pedestals					
		Marker Posts					
		Permanent Plug Stoppers (Provisional)					
		BULK WATER METERS AND CHAMBERS					
7.43		Supply all materials and labour and construct water meter chamber complete inclusive of all fittings as per drawings	No	2.00			
Total Carried Forward To Summary							

SCHEDULE G - PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
8	8.2.5	CAST IN SITU CONCRETE,FORMORK, AND STEEL REINFORCING					
	SANS 1200 GA	CONCRETE (SMALL WORKS)					
		Formwork					
8.1	8.2.1	Rough	m²	220.00			
8.2	8..2.2	Smooth	m²	110.00			
8.3	8.2.3	Narrow Widths	m	100.00			
	8.3	Reinforcing					
	8.3.1	Steel Bars					
8.4		Mild Steel	t	4.00			
8.5		High Tensile	t	1.00			
8.6	8.3.2	Weld Mesh - Ref 193	m²	210.00			
8.7	8.4.2	Blinding layer in 15/19 Mpa Concrete (75mm thick)	m²	300.00			
	8.4.3	Strength Concrete					
8.8		(i) 20/19 concrete	m³	90.00			
	8.2.9	a) Brickwork					
8.9		1) 220 mm brickwork	m²	30.00			
8.10		2) 110mm brickwork	m²	30.00			
8.11		b) Plaster - 12mm	m²	60.00			
8.12		c) Benching	m²	20.00			
		STEEL FRAME and COVERS to CHAMBERS					
		Using 6mm thick flats, all galvanised, with angle frame consisting of 40x40x5, fixed to concrete with 2no hinges, and locking mechanism					
8.13		(i) 2.x2 chamber opening	No	22.00			
Total Carried Forward To Summary							

SCHEDULE J: PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
9		Supply, install and commission pumps and mechanical equipment, complete with MCC panels - Refer Particular Specifications of the Scope of Works					
		INLET WORKS					
9.1		Provisional Sum for Inlet Works mechanical equipment for existing works	Prov Sum	1.00		6,500,000	00
		NEW INLET WORKS FOR NEW PLANT					
9.2		Puddle pipes for inlet work and splitter box DN315 PN10 FF 400mm long	No	2.00			
9.3		Overflow weir plate	No	2.00			
9.4		Course Screen 20mm bar screen manual rake (Overflow)	No	2.00			
9.5		Channel gate 400 x 1000 with penstock + handwheel (inlet splitter box)	No	2.00			
9.6		Coarse front rake mechanical screen (15mm bar spacing)	No	2.00			
9.7		Fine perforated plate mechanical screen (5mm hole size)	No	2.00			
9.8		Screenings duct	No	2.00			
9.9		Screenings compactor	No	2.00			
9.10		Waste bins with rails for duty standby system	No	8.00			
9.11		Pista degrtitter + self-primer pump	No	2.00			
9.12		Grit classifier	No	2.00			
9.13		Channel gate 400 x 1000 with penstock + handwheel (inlet splitter box)	No	2.00			
9.14		Flume (SS304)	No	2.00			
9.15		Ultrasonic Flow Meter	No	2.00			
9.16		Puddle pipes for inlet work and splitter box DN315 PN10 FF 400mm long	No	3.00			
		NEW PUMP SUMP TO BALANCE TANK FROM NEW INLET WORKS 2					
9.17		Puddle pipes DN315 PN10 FF 400mm long	No	5.00			
Total Carried Forward							

SCHEDULE J: PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
9.18		Submersible Pumps Flyght or similar approved with guide rails (15m Head at 70l/s) as per mechanical specifications	No	3.00			
9.19		Ecentric reducers to match selected pump outlet manifold to 200mm Día	No	2.00			
9.20		200mm 90 deg Bends FBE	No	2.00			
9.21		200mm Non return valves	No	3.00			
9.22		200mm RSV	No	3.00			
9.23		200mm Tees FBE	No	2.00			
9.24		200mm to 300 eccentric reducer FBE	No	1.00			
9.25		300 to 315 uPVC adaptor	No	2.00			
9.26		Miscellaneous Fittings	Sum	1.00			
9.27		Gantry with 1 tone cradler block	No	1.00			
		MECHANICAL REQUIREMENTS TO EXTENTIONS TO EXISTING WORKS					
9.28		Puddle pipe DN315 PN10	No	3.00			
9.29		Mixers 4kw	No	2.00			
9.30		Do and TSS probes to control aerator speed	No	1.00			
9.31		Refurbishment of RAS pumps	No	2.00			
9.32		WAS pump	No	2.00			
		BALANCE TANK + SPLITTER BOX					
9.33		Puddle pipes feed to balance tanks DN400 PN10 FF 400mm long	No	4.00			
9.34		Mixer with backwards curve impeller	No	1.00			
9.35		Puddle pipes outflow from balance tanks DN400 PN10 FF 400mm long	No	2.00			
9.36		Sluice gate with handwheel (600mmW x 1200mmH)	No	6.00			
9.37		Overflow weir plates (balance flows)	No	6.00			
9.38		Grating over splitter box	Sum	1.00			
9.39		Puddle pipes for splitter box to rectors NB400	No	3.00			
Total Carried Forward							

SCHEDULE J: PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
9.40		Ultrasonic Flow Meter	No	2.00			
		2X1.5ML/DAY REACTORS					
9.41		Puddle pipe into reactor DN250 PN10	No	4.00			
9.42		Mixers 2.2kw	No	4.00			
9.43		Mixers 4kw	No	8.00			
9.44		Aerators7.5kW	No	12.00			
9.45		Axial flow pump	No	2.00			
9.46		Axial flow pump weir plate	No	2.00			
9.47		Adjustable Overflow reactor Weir (1m wide 200mm adjust)	No	2.00			
9.48		Do and TSS probes to control aerator speed	No	2.00			
9.49		Estops stands	No	12.00			
		CLARIFIERS					
9.50		Bridge	No	2.00			
9.51		End carriage	No	2.00			
9.52		Weir plates	No	2.00			
9.53		Scum box	No	2.00			
9.54		Centre column	No	2.00			
9.55		Sterling Well	No	2.00			
9.56		Bottom scraper	No	2.00			
9.57		Feeder cables (excluding trenching and back fill)	Sum	2.00			
		RAS/WAS PUMP SUMP					
9.58		Feed puddle pipes DN400 PN10	No	2.00			
9.59		Gantry with 1 tone cradler block	No	1.00			
9.60		RAS pump with guide rails (90m3/hr at 15m head)	No	2.00			
9.61		RAS Delivery manifold	No	2.00			
9.62		RAS valves (RSV + NRV)	No	2.00			
Total Carried Forward							

SCHEDULE J: PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	C
Brought Forward							
9.63		WAS pump	No	2.00			
9.64		WAS Delivery manifold	No	2.00			
9.65		WAS valves (RSV +NRV)	No	2.00			
9.66		Level controls for pumps	No	2.00			
9.67		Feeder cables to equipment (excluding trenching and back fill)	Sum	8.00			
		THICKENER					
9.68		Feed puddle pipes DN400 PN10	No	2.00			
9.69		Bridge	No	2.00			
9.70		End carriage	No	2.00			
9.71		Weir plates	No	2.00			
9.72		Scum box	No	2.00			
9.73		Centre column	No	2.00			
9.74		Feeder cables to equipment (excluding trenching and back fill)	Sum	2.00			
		CHLORINE DOSING					
9.75		Booster Pump (duty and standby)	No	2.00			
9.76		Chlorine Dosing system with change over: Sized for 4.5ML/day (1 tone cylinders) 2x injection points and load cells Connections and all safety equipment for SABS approval	No	1.00			
9.77		Gantry Crane (1 tone with chain block)	No	1.00			
9.78		Ventilation (forced draft 30min)	No.	1.00			
9.79		Feed puddle pipes DN400 PN10	No	2.00			
9.80		Rectangular Overflow weir	No	1.00			
9.81		Feed puddle pipes DN400 PN10	No	2.00			
9.82		Ultrasonic Flow Meter with data logger	No	2.00			
9.83		Feeder cables (excluding trenching and back fill)	Sum	1.00			
		EMERGENCY STORAGE					
9.84		Feed puddle pipes DN300 PN10	No	1.00			
Total Carried Forward							

SCHEDULE J: PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
9.85		Gantry with 1 tone cradler block	No	1.00			
9.86		Storage pump with guide rails	No	4.00			
9.87		Delivery manifold (up to puddle pipe)	No	1.00			
9.88		Valves (RSV +NRV)	No	4.00			
9.89		Floating mixer 7.5kW	No	2.00			
9.90		Ultrasonic Flow Meter	No	2.00			
9.91		Feeder cables to equipment (excluding trenching and back fill)	Sum	1.00			
		ELECTRICAL					
		Design and install complete as per specifications and requirements with equipment suppliers					
9.92		External lighting	Sum	1.00			
9.93		Main Distribution board	Sum	1.00			
9.94		Auxiliary distribution boards	Sum	1.00			
9.95		Motor Control Units	Sum	1.00			
9.96		Telemetry	Sum	1.00			
		PROVISIONAL ALLOWANCES					
9.97		(i) Upgrade of Main feeder supply	Prov Sum	1.00		550,000	00
9.98		(ii) Rewiring and fixtures to existing building	Prov Sum	1.00		45,000	00
9.99		(iii) Extra Over for administration of payment of training allowances.	%	595,000.00			
Total Carried Forward To Summary							

SCHEDULE J: PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
10		OPERATION AND MAINTANANCE					
		Existing Works					
10.1		Temporary maintaining the existing works during construction.	Sum				
		New Works					
10.2		Operate and maintain the works from commission to handing over of entire site, (operator class 2)	month	6.00			
10.3		Transport and removal of sludge to commercial landfill.	m^3	300.00			
10.4		The supply of chlorine to the dosing unit.	kg	450.00			
Total Carried Forward To Summary							

SCHEDULE L: BUILDINGS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
11		ON SITE BUILDINGS Construct complete on site builgs as per drawings					
11.1		Office Building	m²	200.00			
11.2		Chlorine Storage and Dosing	m²	40.00			
11.3		Guard Hut	m²	12.00			
11.4		Provisional Sum for renovations to existing office building conversion	Prov Sum	1.00		90,000	00
		PROVISIONAL ITEMS					
11.5		(a) Provisional allowance for providing security locks with master keys for all valve chambers	Prov Sum	1.00		15,000	00
11.6		(b) Provisional allowance for the supply of furniture, and safety equipment.	Prov Sum	1.00		45,000	00
11.7		Contractor's mark up on provisional item (g).	%	45,000.00			
Total Carried Forward To Summary							

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
12	SANS 1200C	SITE CLEARANCE					
12.1	8.2.1	Clear and grub road reserve using labour intensive methods (areas defined by engineer)	m²	2,000.00			
	SABS 1200DM	EARTHWORKS (ROADS,SUB-GRADE)					
12.2		(a) Roadbed preparation and compaction of material to 90% MOD AASHTO to a depth of 150mm	m³	800.00			
		(b) In place treatment of roadbed in hard material					
12.3		(1) Ripping	m³	80.00			
	8.3.4	Cut to fill, borrow to fill					
12.4	8.3.4	(a) (i) Cut to fill formation level and compacted to 93% MOD AASHTO max. density measured in fill	m³	1,100.00			
12.5		(ii) Borrow to fill for formation and undercuts from stockpile	m³	220.00			
12.6	8.3.6	Extra over item 8.3.4 for excavation and breaking down material in hard rock	m³	10.00			
	8.3.7	Cut to spoil or stockpile from undercuts / embankments.					
12.7		(a) soft excavation	m³	250.00			
12.8		(b) Hard excavation	m³	59.00			
	SANS 1200 GA	CONCRETE (SMALL WORKS)					
12.9		(a) 15 MPa mass concrete	m³	1.00			
12.10		(b) 20 MPa concrete edge beam	m³	4.00			
	SANS 1200 ME	SUB-BASE					
	8.3.3	Construct the subbase course with material obtained from commercial sources:					
12.11	PSME 3	(a) 150mm G5 layer compacted to 95% MOD AASHTO Density in Roadway	m³	250.00			
Total Carried Forward							

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
12.12		(a) 150mm G6 Gravel layer compacted to 95% MOD AASHTO Density in Roadway	m^3	350.00			
	SANS 1200 MF	BASE					
	8.3.3	Construct Base with material from commercial sources					
12.13		(a) Stabilised Base course using a 150mm G6 gravel layer compacted to 98% MOD AASHTO Density in Roadway	m^3	220.00			
	8.3.5	Process Base material by:					
12.14		(d) Stabilization	m^3	220.00			
	8.3.8	Stabilizing agent					
12.15		(a) Road Lime	t			Rate Only	
12.16		(b) Portland Cement	t	20.00			
Total Carried Forward							

SCHEDULE M - INTERNAL ROADS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SANS 1200 LC	SECTION : CABLE DUCTS					
	8.2.2	EXCAVATION					
12.17		(a) Excavate in all materials for trenches, backfill, compact and dispose of surplus	m^3	10.00			
12.18		(b) Extra-over item (a) above for: Hard rock excavation	m^3	5.00			
12.19		(c) Excavate unsuitable material from trench bottom and dispose of it	m^3	5.00			
	8.2.5	SUPPLY, LAY, BED, AND PROVE DUCTS					
12.20		(a) 110 diameter ducts for electrical	m	40.00			
12.21	8.2.6	Imported Bedding, where ordered (Selected granular material)	m^3	3.00			
	8.2.8	CABLE MARKERS					
12.22		(b) Kerb marks	No	5.00			
	SANS 1200 MJ	SEGMENTED PAVING					
		PAVING BRICKS					
12.23	8.2.2	(a) Heavy duty - 80DZZ paving blocks to roadway on 25mm river sand bedding	m^2	1,450.00			
		Cutting units to fit Edge Restraints					
12.24	8.2.3	(a) Straight Cut	m	600.00		Rate Only	
12.25		(b) Raking Cut	m	50.00		Rate Only	
12.26		(c) Circular Cut	m			Rate Only	
	SABS 1200 MK	KERBING AND CHANNELLING					
		The following items below to be constructed complete as per details on drawing					
12.27	8.2.2/PSMK 2.1	(a) Figure 8b barrier kerb and channel with haunch support	m	100.00			
12.28	8.2.2/PSMK 2.1	(b) Figure 8b mountable kerb and channel with haunch support	m	650.0			
Total Carried Forward							

SCHEDULE M - INTERNAL ROADS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
		STORMWATER					
	8.3.2	(a) Excavate in all materials for trenches, compacted to 90% MOD AASHTO and dispose of surplus material (labour intensive methods)					
	SABS 1200DB	EARTHWORKS (PIPES TRENCHES)					
		(i) For 450 diameter pipes					
12.29		(b) Exceeding 1.0m but not 2.0m	m	360.00			
12.30		(c) Exceeding 2.0m but not 3.0m	m	60.00			
	SABS 1200DK	GABIONS					
12.31	8.2.1	Surface preparation for bedding of gabions / Reno mattress	m^2	12.00			
12.32		(a) Construct 150mm thick reno mattress	m^3	2.00			
12.33	8.2.4	Bidum U24 or similar approved	m^2	15.00			
	8.2.5	Pitching					
12.34		(a) 100mm grouted stone pitching in maximum 1:1.5 slopes	m^2	150.00			
	8.2.1	Provision of bedding material from trench excavations					
	SABS 1200LB	BEDDING (PIPES)					
12.35		(a) Selected granular material	m^3	25.00			
12.36		(b) selected fill material	m^3	222.00			
	8.2.2.3	Imported from commercial sources					
12.37		(a) Selected granular material	m^3	15.00			
	SABS 1200LE	STORMWATER DRAINAGE					
	8.2.1	PIPES					
	PSLE 2	Supply,handle,lay and bed `ogee` pipes to SABS 677 on class C bedding					
12.38		(a) 450mm diameter class 100D	m	210.00			
Total Carried Forward							

SCHEDULE M - INTERNAL ROADS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	8.2.6.1	Inlet, outlet, transition and similar structures					
12.39		(c) Manhole (Constructed complete as per details on Drawing)	No	5.00			
		(e) Headwalls for the following items constructed complete as per details on drawing)					
12.40		(i) 450 diameter pipes	No	8.00			
	8.2.7	Trimming of Excavations for concrete-lined open drains in					
12.41		(a) Soft material	m^2	600.00			
12.42	8.28	Cast-In-situ concrete lining to open drains (20/19 concrete	m^3	55.0			
	8.2.9	Formwork to Cast-In-situ Concrete lining of open drains					
		(i) Concrete V Drains					
12.43		(a) To sides with formwork on both internal and external faces	m^2	255.0			
12.44		(b) To ends of slabs	m^2	30.0			
12.45	8.2.12	Sealed joints in concrete lining of open drains	m	60.0			
12.46	8.2.12	Steel Reinforcement (mesh Ref. 193)	kg	1,200.0			
Total Carried Forward To Summary							

SCHEDULE M - INTERNAL ROADS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
13		FENCING					
	PSAA 4.1	Clear fence route					
13.1		a) WWTW Site	m	1,370.00			
13.2	PSSA 4.3	Supply and Erect concrete palisade posts standard duty complete including concrete footings as per Dwg No. D08001/04	m	1,350.00			
	PSAA 4.4	Supply and Erect of Pedestrian gate as per Drawing					
13.3		a) WWTW Site	No	1.00			
	PSAA 4.5	Supply and Erect of Vehicular gate as per Drawing					
13.4		a) WWTW Site	No	1.00			
		Supply galvanised locking chain 600mm long with 50mm links					
13.5		a) WWTW Site	No	1.00			
		Supply 63mm brass five tumbler padlock with four keys					
13.6		a) WWTW Site	No	1.00			
13.7		Remove existing concrete palisade fencing and re-install as directed by the Engineer	m	450.00			
13.8		Remove existing wire mesh fence complete and dispose off	m	210.00			
Total Carried Forward To Summary							

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
14		SEWERS					
	8.3.2	EARTHWORKS (PIPE TRENCHES)					
		(a) Excavate in soft materials for trenches, backfill, compact and dispose of surplus/unsuitable material for pipes:					
		(a) 500mm diameter pipes					
14.1		Exceeding 0m but not 1.0m	m	0.00			
14.2		Exceeding 1.0m, but not 2.0m	m	800.00			
14.3		Exceeding 2.0m but not 3.0m	m	820.00			
14.4		Exceeding 3.0m but not 4.0m	m	200.00			
14.5		Exceeding 4.0m but not 5.0m	m	0.00			
14.6	8.3.2	Extra over for excavations in hard rock	m^3	655.00			
14.7	8.3.2	(c) Excavate and dispose of unsuitable material in trench bottom (Provisional)	m^3	225.00			
14.8	8.3.3.1	Make up deficiency in backfill, material obtained from site	m^3	225.00			
14.9	8.3.3.3	Compaction in road reserves	m^3	10.00			
	SABS 1200LB	BEDDING (PIPES)					
	8.2.1	Provision of flexible bedding material from trench excavations					
14.10		(a) Selected granular material	m^3			Rate Only	
14.11		(b) selected fill material	m^3	2,830.00			
	8.2.2.3	Imported from commercial sources					
14.12		(a) Selected granular material	m^3	345.00			
14.13		Crushed stone bedding, from commercial sources, 19mm single size stone (Provisional)	m^3	20.00			
Total Carried Forward							

SCHEDULE O - BULK SEWER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
	SABS 1200 LD	SEWERS					
		PIPEWORK					
14.14	8.2.1	Supply, lay, joint, bed 500mm diameter (Class 34) heavy duty uPVC sewer pipe on flexible pipe bedding	m	1,730.00			
14.15		Extra Over for supply and lay Steel pipe, with supports at 10m c/c - 40ff	m	80.0			
	8.2.3	MANHOLES ETC.					
		Excavate, supply and install 1250mm diameter precast manholes with light duty cover and frame, complete as per drawings					
14.16		(i) 0m to 1.0m invert	No	0.00			
14.17		(ii) 1.0m to 2.0m invert	No	10.00			
14.18		(iii) 2.0m to 3.0m invert	No	18.00			
14.19		(iv) 3.0m to 4.0m invert	No	2.00			
14.20		(v) 4.0m to 5.0m invert	No	0.00			
14.21	8.2.4	Extra over 8.2.3 above for type 2a cover and frame in surfaced area of roads	No	10.00			
14.22	8.2.4	Extra over 8.2.3 above for construction of backdrop manholes - Type A	No	4.00			
14.23	8.2.4	Extra over 8.2.3 above for construction of ramp manholes - Type A	No	4.00			
14.24	8.2.5	Inspection chambers 1.2m diameter, complete with cover and frame for depth not exceeding 1.5m	No	2.00			
14.25	8.2.7	Encasing of pipes , 500mm diameter (20/26), as per DWG LD 6, SABS 1200LD	m^3	6.00			
14.26	8.2.8	Pipe anchors (20/26) as per DWG LD1, SABS 1200LD	No	8.00			
	8.2.11	Break into and connect into existing live manholes.					
14.27		(a) Reinforced concrete manholes	No			Rate Only	
14.28		(b) Precast manholes	No	0.00			
Total Carried Forward							

SCHEDULE O - BULK SEWER

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Brought Forward							
14.29		(c) Brick manholes	No			Rate Only	
14.30		(d) Construct new manhole in live sewer	No	1.00			
14.31	8.2.12	Raising or lowering manholes	No	2.00			
Total Carried Forward To Summary							

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
1	SCHEDULE A - PRELIMINARY AND GENERAL	.....
2	SCHEDULE B - SITE CLEARANCE	.....
3	SCHEDULE C: STRUCTURES - BIOLOGICAL REACTOR, CLARIFERS and THICKERS	.....
4	SCHEDULE D: STRUCTURES - RETENTION POND, RAW WATER CHAMBER	.....
5	SCHEDULE E - SLUDGE DRYING BEDS	.....
6	SCHEDULE F - CHLORINE CONTACT CHAMBERS	.....
7	SCHEDULE G - PIPEWORK	.....
8	SCHEDULE H: DISTRIBUTION BOXES and CHAMBERS	.....
9	SCHEDULE J - PUMPS MECHANICAL AND ELECTRICAL EQUIPMENT	.....
10	SCHEDULE K - OPERATION AND MAINTANANCE	.....
11	SCHEDULE L: BUILDINGS	.....
12	SCHEDULE M - INTERNAL ROADS	.....
13	SCHEDULE N - FENCING	.....
14	SCHECULE O -BULK SEWER	.....
Total Carried Forward To Summary Of Schedules		

SUMMARY OF SCHEDULE OF QUANTITIES

CALCULATION OF TENDER SUM	AMOUNT	
	Rands	**Cents**
SUBTOTAL A SCHEDULE OF QUANTITIES (Total brought forward from page C2.2-42)		
SUBTOTAL B ALLOWANCE FOR CONTINGENCIES 10% of Total A		
SUBTOTAL C ALLOWANCE FOR ESCALATION 10% of Total A		
TOTAL A + B + C		
VALUE ADDED TAX (15% OF TOTAL A+B)		
TOTAL AMOUNT OF FORM OF OFFER		

SIGNED ON BEHALF OF TENDERER:…….

.....
DATE:

PART C3 SCOPE OF WORKS

PART C3: SCOPE of WORK

CONTENTS

C3.1: DESCRIPTION of WORKS

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The primary objective of the project is to upgrade the Rocky's Drift WWTW to accommodate sewage flows from the Msholozi township as well as to provide bulk sewer infrastructure capable of handling effluent produced by the existing waterborne sewerage system serving Phumlani and the new waterborne system that will serve the Msholozi township.

This project falls under the City of Mbombela's (COM) approved Integrated Development Plan (IDP); the purpose of which being to access funding for the implementation of sanitation infrastructure upgrades which will in turn assist the COM to improve service delivery within these sectors.

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 comprises of the Upgrading of The Rocky's Drift Waste Water Treatment Works by supplementing the existing modular systems, with this proposed upgrading primarily focusing on the construction a modular development approach for the new section of the works with each module providing an activated sludge system that can accommodate a set flow.

Labour-intensive works comprise the activities described in SANS 1921-5, Earthworks activities, which are to be performed by hand, and its associated specification data. Such works shall be constructed using local workers who are temporarily employed in terms of this Scope of Work.

Local labourers must be appointed for the project at a remuneration rate in accordance with the latest SAFCEC rates.

The contractor shall be responsible to comply with the specifications and statutory requirements

C3.1.3 EXTENT OF WORKS

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

C3.1.3.1 Upgrading of the treatment Plant

1. 2 new inlet works will be constructed, one to replace the existing inlets works and the other to accommodate flows to the new works. These will be capable of handling design flows of approximately 5.4 Ml/day and 16.2 Ml/day PWWF respectively.
   Excess flows from the inlet works will be diverted to the emergency storage tanks (one new and one existing. Each inlet works will consist of an inlet manhole, a mechanical coarse and fine screening chamber, a vortex de-gritter, a parshall flume and an outlet chamber. Effluent from the outlet chambers on the inlets works will be directed into a balancing tank (one gravitational and the other pumped from a sump).

2. One new balancing tank is proposed to accommodate flows of 5.2 Ml/day ADWF sized to a PWWF of 15.75 Ml/day. This tank shall be equipped with a variable depth paddle mixer. Flows from the balancing tank will gravitate into a splitter box before entering the activated sludge reactors from the new and the existing works. This is to ensure that the flows between all reactors are balanced.

3. The proposed activated sludge reactors have been designed for enhanced Nitrogen and Phosphorus removal and will be interchanged between the Joburg and the UCT configuration depending on the influent composition. These will be modular to facilitate easy future expansion of the works with 2 No. reactor modules planned for construction under this contract. Each reactor will have dimensions of 22 m long by 22 m wide by 3.8 m deep and will be partitioned into the following chambers:
   - Anaerobic chamber (119 m3) equipped with two variable depth mixers,
   - Anoxic chamber 1 (93 m^3) equipped with two variable depth mixers,
   - Anoxic chamber 2 (567 m^3) equipped with two variable depth mixers,
   - Aerobic chamber (940 m^3) equipped with six variable speed surface aerators.

4. The effluent from the reactors will be transferred to 2 No. clarifiers with each clarifier being designed to accommodate a flow of 1.5 Ml/day ADWF. Each tank will be an 11.5 m internal diameter clarifier (water depth of 3.5 m) with a mechanical sludge scraper.

5. Sludge from the reactors will be transferred to 2 No. 2 m deep by 6 m Ø sludge thickeners.

6. 2 No. new sludge drying beds (110 m2 each) will be constructed and will receive excess sludge from the sludge thickeners with the supernatant feeding back into the

7. 2 No. 1.2 m deep by 1.2 m wide by 28 m long chlorine contact chambers will be required to accommodate an ADWF of 3 Ml/day i.e., 1.5 Ml/day per module. A new chlorine storage and dosing room will be constructed in close proximity to the chlorine contact tanks.

8. 1 No. emergency storage tank will be constructed and will receive excess flows that are diverted from the inlet works and the balancing tank during peak flow conditions. The storage tank will be constructed from reinforced concrete and will be sized to accommodate 4 hours of ADWF. The tank will be fitted with a variable depth paddle mixer. Pumps will also be installed in the tank to allow for the pumping of effluent back to the head of the inlet works for further processing.

9. Construction of a new office / control room.

10. Construction of new internal roads to enable access to the new sections of the works including attending to stormwater management issues on the site.

11. Erection of concrete palisade fencing around the entire site of the works.

12. Maintenance assistance at the existing works during the construction period as well as operating and maintaining the works (once the new section has been commissioned) for a period of 6 months.

13. Three new chambers to the existing Activated Sludge reactor to change the configuration to suit enhanced Nitrogen and Phosphorus removal and will be interchanged between the Joburg and the UCT configuration. These will be partitioned into the following units:
   - New anaerobic chamber (134 m^3) equipped with one variable depth mixer,
   - New anoxic chamber 1 (134 m^3) equipped with one variable depth mixer,
   - New anoxic chamber 2 (134 m^3) equipped with one variable depth mixer.

   The 2 existing chambers shall be retained and three new chambers added onto the reactor and recycles changed to suit. Flows from the reactor will be diverted to the existing clarifiers.

C3.1.3.2 Upgrading of Bulk Sewer Pipeline from Msholozi to the Rocky's Drift WWTW

14 Clearing, excavation, laying, jointing, bedding and backfilling of proposed 1 730 m long 500 mm Ø uPVC UG Class 34 bulk sewer pipeline.
15 Construction of pipeline ancillary items such as manholes.
16 Connection of existing Phumlani bulk sewer pipeline to the new bulk pipeline.
17 Tie-in of bulk sewer pipeline to the new inlet works of the Rocky's Drift WWTW.

C3.1.4 LOCATION OF THE WORKS

The project area falls on the outskirts of the town of White River which is located approximately 20km north of Nelspruit and within the boundary of the COM. The project area is accessed from the R40 national road between Nelspruit and White River.

The project area is made up of Rocky's Drift, consisting of an industrial area, the formalised township of Phumlani and the informal settlement of Msholozi. This project deals specifically with the upgrading of the Rocky's Drift Waste Water Treatment Works (WWTW) in order to accommodate the increased sewage flows resulting from the new waterborne sewerage system to be provided within Msholozi.

Project Name	Latitude	Longitude	District Municipality	Local Municipality
Upgrading of the Rocky's Drift Wastewater Treatment Works	25º 22' 4" S	30º 58' 10" E	Ehlanzeni	City of Mbombela

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.

C3.1.6 LABOUR INTENSIVE CONSTRUCTION

Labour Intensive Construction shall mean the economically efficient employment of as great a portion of labour as is technically feasible to produce a standard of construction as demanded by the Specifications with completion by the Due Completion Date, thus the effective substitution of labour for equipment.

Appropriate portions of the Works included in the Contract shall be executed using Labour Intensive Construction methods.

Except where the use of plant is essential in order, in the opinion of the Engineer, to meet the specified requirements by the Due Completion Date, the Contractor shall use only hand tools and equipment in the construction of those portion(s) of the Works that are required in terms of these Project Specifications to be constructed using Labour Intensive Construction methods.

These portions of the Works shall be constructed utilising only locally employed labour and/or the labour of local sub-contractors, supplemented to the extent necessary and unavoidable by the Contractors key personnel as provided for in sub-clause C3.1.3 unless otherwise instructed by the Engineer and in accordance with the further provisions of the relevant sections of Part C3 of the Scope of Works.

The portions of the Works to be executed using Labour Intensive Construction methods are:

- Clearing and grubbing of the Site;
- Excavation for structures up to 1,5 m deep;
- Bedding, selected fill, backfilling and compaction of all pipe trenches irrespective of depth, but assisted by mechanical compaction equipment in order to achieve the specified densities;
- Transportation and spoiling of all trench materials, where the disposal site is located within 20 metres of source;
- Cleaning and tidying up of the Site;
- Dismantling and re-erection of fences;
- Construction of all brickworks required for structures;
- Mixing and placing of concrete work;

In respect of those portions of works which are not listed above, the construction methods adopted and plant utilised shall be at the discretion of the Contractor, provided always that the construction methods adopted and plant utilised by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

C3.1.7 <u>SUB-CONTRACTING</u>

C3.1.7.1 Contractor shall appoint such authorities and/or specialist subcontractors and suppliers as may be designated or nominated by the Employer or the Engineer.

C3.1.7.2 **T**he Contractor shall sub-let to local small sub-contractors appropriate portions of the works that are designated in Clause C3.1.3 as being reserved for labour intensive construction methods.

C3.1.7.3 As required by Clause 4.4.5 of the Conditions of Contract, the Contractor shall be responsible for all work carried out by sub-contractors (whether nominated by the Employer or selected by the Contractor) on his behalf. The Engineer will not liaise directly with any such sub-contractor, nor will he become involved in any problems and/or disputes related to payments, programming, workmanship, etc. unless provided for in the Conditions of Contract. Such problems and/or disputes shall remain the sole concern of the Contractor and his sub-contractors.

C3.1.7.4 The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor, and where he deems the circumstances so warrant, and provided always that the Contractor has complied fully and in all respects with the provisions of the Contract pertaining to subletting to local sub-contractors or has utilised his best endeavours to comply therewith, authorise in writing that the Contractor may employ local residents with the sole intent of executing on-the-job training of such local residents to suitable levels of skill that will enable the Contractor to sub-let appropriate portions of the Works to such local residents.

Without limiting the generality of application of this sub-clause, circumstances, which may be considered by the Engineer to warrant such authorization, include:

a) non-receipt of valid or acceptable tenders/quotations from local sub-contractors;

b) serious default or failure of appointed local sub-contractors;

The Engineer shall not grant such authority in cases where it may reasonably be concluded on the available evidence that the invitation of further tenders/quotations in accordance with the terms of the Contract, is likely to result in the successful completion of the portions of the Works concerned by local sub-contractors.

Should the Contractor, after suitable due endeavour, be unable to identify local residents suitable for and desiring to train as sub-contractors for portions of the Works as specified in Clause 3.1.4.2, then the Contractor shall be permitted to undertake the Works in question with his own workforce as provided for in Clause 3.1.3 above.

The Engineer shall monitor progress achieved with subcontractor training, and successful completion of this training shall be subject to his approval or instruction. The Contractor shall tender rates for the training of sub-contractors and labour.

As specified in Clause C3.1.4, the Contractor shall approach the Labour Desk that is established for purposes of the Contract for assistance and advice regarding conditions of employment, minimum wages, disputes and disciplinary procedures in respect of local sub-contractors.

C3.1.8 CONSTRUCTION AND MANAGEMENT REQUIREMENTS

C3.1.8.1 General

The Contractor is referred to SANS 1921: 2004 parts 1, 2, 3 and 5: Construction and Management Requirements for Works Contracts. These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

C3.1.8.2 Quality Assurance (QA) *(Read with SANS 1921 – 1: 2004 clause 4.4)*

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

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

C3.1.8.3 Management and disposal of water *(Read with SANS 1921 - 1: 2004 clause 4.6)*

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

C3.1.8.4 Disposal of spoil or surplus material *(Read with SANS 1921 - 1: 2004 clause 4.10)*

The Contractor shall dispose all surplus and unsuitable material at a legal and registered landfill sites within the Municipal area. He shall be responsible for all arrangements necessary to obtain such legal and registered landfill sites from the Municipality.

C3.1.8.6 Testing *(Read with SANS 1921 – 1: 2004 clause 4.11)*

Process control

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

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

Acceptance control

The process control test results submitted by the Contractor for approval of materials and workmanship may be used by the Engineer for acceptance control. However, before accepting any work, the Engineer may have further control tests carried out by a laboratory of his choice. The cost of such additional tests will be covered by a provisional sum provided in the schedule of quantities, but tests that failed to confirm compliance with the specifications, will be for the account of the Contractor.

C3.1.8.7 Survey beacons *(Read with SANS 1921 - 1 : 2004 clause 4.15)*

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

C3.1.8.8 Existing Services *(Read with SANS 1921 - 1 : 2004 clause 4.17)*

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

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

C3.1.9 PROGRAMME TO BE SUPPLIED BY THE CONTRACTOR

The Contractor's programme shall be essentially in accordance with the overall requirements of the project.

The programme shall not be in the form of a bar chart only but shall show clearly the anticipated quantities of work to be performed each month, together with the manner in which the listed plant and other resources are to be used, as well as the anticipated earnings for the various sections of work.

A network-based programme according to the precedence method shall be required by the Engineer. The programme shall be updated monthly in accordance with the progress made by the Contractor. The updated programme shall be submitted to the Engineer at least two working days prior to monthly meetings.

Failure to comply with these requirements will entitle the Engineer to use a programme based on his own assumptions for the purpose of evaluating claims for extension of time or additional payments.

If, during the progress of the work, the quantities of work performed per month fall below those shown on the programme, or if the sequence of operations is altered or if the programme is deviated from in any other way, the Contractor shall, within one week of having been notified by the Engineer, submit a revised programme and network.

If the programme has to be revised by reason of the contractor falling behind his programme, he shall produce a revised programme showing how he intends to regain lost time in order to ensure completion of the Works within the time of completion as defined in Clause 5.7 of the General Conditions of Contact or any granted extension of time. Any proposal to increase the tempo of work must be accompanied by positive steps to increase production by providing more labour and plant on site, or by using the available labour and plant in a more efficient manner.

Failure on the part of the Contractor to submit the programme or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as provided in Clause 9.2 of the General Conditions of Contract.

The approval by the engineer of any programme shall have no contractual significance other than the Engineer will be satisfied if the work is carried out according to such programme and that the Contract undertakes to carry out the work in accordance with the programme. It shall not limit the right to the Engineer to instruct the Contractor to vary the programme if required by circumstances. The Contractor is also referred to Clause 5.6 of the General Conditions of Contract when drawing up his programme.

Progress in advance of the programme on certain portions or phases of the Works shall not be considered adequate reason for poor progress on another portion or phase.

C3.1.10 OVERHAUL

No payment will be made for overhaul on this contract unless provision is made therefore in specific items.

C3.1.11 SITE FACILITIES AVAILABLE

C3.1.11.1 Location of Site and Depot

The Contractor is responsible to provide a suitable site for his camp and to provide accommodation for his personnel and labourers. If the Employer can make any specific site available to the Contractor, such site will be pointed out to the Contractor. The Contractor must obtain written permission from the landowner and subsequently from the Engineer for the establishment of his camp.

(a) Contractor's Camp Site/Store Yard

Any clearing of the site that is necessary and the making good after de-establishment will be the responsibility of the Contractor.

In addition to the requirements of SANS 1200A clause 8.3.2.2 the following conditions shall also apply:-

(i) None of the existing roads shall be damaged in any way.

(ii) No waterborne sewerage facilities or potable water connection are available on the site. The Contractor shall make his own arrangements in this regard.

(iii) No electrical facilities exist on site.

(iv) It shall be the responsibility of the Contractor to make good any damage caused to the campsite area or any improvements on it, including services, and for reinstating it to its former condition when vacated. The standard of reinstatement must be to the satisfaction of the Engineer or the owner. Particular attention should be directed to these requirements and written clearances from the relevant Departments or other owners will be required.

C3.1.11.2 Source of Water Supply

The Contractor shall be responsible under the Contract for the supply and distribution at his cost of all water that he may require for purposes of constructing the Works. Accordingly, the Contractor shall pay all connection fees and consumption charges, and at his cost provide all connections, consumption meters, pipe work, storage tanks, transport and other items associated with the supply of water for the Works.

The Contractor shall, subject to the approval of the Engineer, make any necessary arrangements with the relevant authority for the connection(s), and shall provide in his tender for the payment of all charges and costs that are associated with making water available for purposes of constructing the Works.

C3.1.11.3 Source of Power Supply

The Contractor shall be responsible under the Contract for the supply and distribution at his cost of all electricity that he may require for purposes of constructing the Works. Accordingly, the Contractor shall pay all connection and consumption charges, and at his cost provide all connections, transformers, consumption meters, cables, distribution boards and other items that are associated with the supply of electricity for construction of the Works.

The Contractor shall, subject to the approval of the Engineer, make any necessary arrangements with the relevant authority for the connection(s), and shall provide in his tender for the payment of all charges and costs that are associated with making electricity available for purposes of constructing the Works. The distribution of electricity shall be in accordance with the applicable bylaws and regulations of the supply authority.

C3.1.11.4 Accommodation of Employees

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

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site.

No informal housing or squatting will be allowed.

The Contractor shall provide the necessary ablution facilities at his campsite and the site of the works for the use of his employees. Chemical toilets only will be allowed where temporary facilities have to be provided.

C3.1.12 FEATURES REQUIRING SPECIAL ATTENTION

C3.1.12.1 Built-up Areas

The Contractor's attention is drawn to the fact that the Works will be constructed within built-up areas. The Contractor shall exercise all necessary precautions and take all necessary steps to ensure the safety and convenience of the public. In addition, the Contractor shall provide access for traffic over and through the works, and for residents to their places of abode, all as described in the Specifications. Allowance must be made by the Contractor in his programming for delays resulting from the aforesaid.

The Contractor shall give residents a minimum of 72 hours written notice of his intent to close access to residential stands. The Contractor shall acquire written confirmation from all owners that they are aware of any intended closures of access. No traffic access to a residential stand shall be closed for longer than 48 hours.

C3.1.12.3 Protection of Buildings and Structures

The Contractor shall give all residents or other parties owning a building or structure within an appropriate radius (not less than 100m) from any point of blasting, a minimum of 48 hours notice of his intent to execute any blasting work.

The Contractor shall note all aspects relevant to the condition of the affected buildings and/or structures prior to blasting, and shall acquire the signature of the owners/occupants agreeing to such conditions.

Subsequent to blasting, both the Contractor and the owners/occupants shall sign the form confirming the condition of the buildings and/or structures. In the event of damage to existing buildings and/or structures as a result of blasting, remedial work shall be done to the satisfaction of the owners/occupants at the Contractor's expense.

Compliance with this clause will not relieve the Contractor of any of his responsibilities in terms of the Contract.

C3.1.12.4 Care of the Site

At all times during construction of the Works and upon completion thereof, the Site of the Works shall be kept and left in a clean and orderly condition. The Contractor shall store all materials and equipment for which he is responsible in an orderly manner, and shall keep the Site free from debris and obstructions.

C3.1.12.5 Control of Water

The Contractor shall at all times and in all respects be responsible for the handling of stormwater from higher-laying areas above the Works, and for the handling of any sub-surface water that may affect the Works. No separate payment shall be made in this regard, as all costs related thereto shall be deemed to be included in the rates tendered for the various items of work that are included in the Schedule of Quantities.

C3.1.13 MANAGEMENT OF THE ENVIRONMENT

The Contractor shall pay special attention to the following:

(a) Natural Vegetation

The Contractor shall confine his operation to as small an area of the site as may be practical for the purpose of constructing the works.

Only those trees and shrubs directly affected by the works and such others as the Engineer may direct in writing shall be cut down and stumped. The natural vegetation, grassing and other plants shall not be disturbed other than in areas where it is essential for the execution of the work or where directed by the Engineer.

(b) Fires

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

C3.1.14 COMMUNITY LIAISON AND COMMUNITY RELATIONS

In all dealings with nearby communities and beneficiaries of the project, and in all dealings with workers employed from within such communities, the Contractor shall take due cognisance of the character, culture and circumstances of the specific community and/or any group of beneficiaries, and shall at all times use his best endeavours to avoid the development of disputes and rather to foster a spirit of co- operation and harmony towards the project.

The Contractor shall at all times, keep the Engineer fully informed regarding all matters affecting or negotiated between the Contractor and the community and/or beneficiaries, and he shall attend all liaison meetings as may be arranged by the Engineer and/or the Employer. All matters concerning the community and/or beneficiaries shall be discussed and where possible, resolved at such meetings.

Where any resolution during such negotiations or at such meetings shall be contrary to the terms and provisions of the Contract, the Contractor shall not give effect thereto without a prior written instruction from the Engineer. Where the Contractor is of the opinion that any instruction of the Engineer issued in terms of this clause will result in the incurring of additional costs which were not provided for in his tendered rates and prices and/or that a delay in the progress of the Works will result, he shall be entitled to submit a claim in terms of Clause 10 of the Conditions of Contract, provided always that the period of twenty-eight (28) days referred to in Clause 10 shall be reduced to three (3) normal working days in respect of all claims submitted in terms of this clause.

C3.1.15 WORKMANSHIP AND QUALITY CONTROL

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and of the Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced engineers, foremen, surveyors, materials technicians, other technicians, technical staff and the user department, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the quality of the Works at all stages of the Contract.

The cost of the Contractor’s supervision and process control, including all testing carried out by the Contractor, will be deemed to be included in the rates tendered for the various items of work. The Contractor's atten333tion is drawn to the provisions of the various Standardised Specifications regarding the minimum frequency of process control testing that is to be executed. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control of the quality of the Works at all times.

Upon completion and submission of each portion of the Works to the Engineer for examination, the Contractor shall furnish the Engineer with the results of relevant tests, measurements and levels, thereby indicating compliance with the Specifications.

The Engineer will not examine or inspect any portion of work submitted for approval unless the request for inspection and approval is accompanied by relevant tests, measurements and levels indicating compliance.

C3.1.16 SAMPLES

Materials or work that do not conform to the approved samples, submitted in terms of Clause 7.4 of the Conditions of Contract, will be rejected. The Engineer reserves the right to submit samples for testing to ensure that the material represented by the samples meet the specification requirements.

C3.1.17 NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS

Notices, signs and barricades (required in terms of Clause 8 of the Conditions of Contract) as well as advertisements may only be erected where approved by the Engineer. The Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Engineer shall have the right to have any sign, notice or advertisement moved to another location, or to have it removed from the Site of the Works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

C3.1.18 REQUIREMENTS FOR ACCOMMODATION OF TRAFFIC

General

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

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

Basic Requirements

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road. The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective and that courtesy is extended to the public at all times.

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

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

The Contractor shall construct and maintain all temporary drainage works necessary for temporary deviations.

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

C3.1.19 OPEN TRENCHES

Trenches may not be left open during the builder's holidays, and shall be safeguarded at all times from danger to the public. Safe trench-crossings shall be provided at all intersections with accesses to properties and with public roads and paths. The length of trench left open at any one time may be restricted by the Engineer, should he consider such restriction to be in the interest of public safety.

C3.1.20 STATUTORY REGULATIONS

The statutory requirement of the Occupational Health and Safety Act, Act 85 of 1993 (referred to as the Act below), and all regulations promulgated there under as well as the other relevant acts must be adhered to by the Contractor, with specific reference to the safety of all employees and the public, irrespective of whether such employees are employed by the Contractor or by his subcontractors (including local subcontractors). The Contractor, in entering into this Contract, hereby agrees with the Employer in terms of Section 37(2) of the Act, that the Contractor as an employer in its own right and in its capacity as Contractor for the execution of the Works, shall have certain obligations and that the following arrangement shall apply between the Contractor and the Employer to ensure compliance by the Contractor with the provisions of the Act, namely:-

(a) The Contractor undertakes to acquaint the appropriate officials and the employees of the Contractor with all relevant provisions of the Act, and the regulations promulgated in terms of the Act;

(b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with; and

(c) The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations, and expressly absolves the Employer and the Engineer from being obliged to comply with any of the aforesaid duties, obligations and prohibitions in respect of the Works; and

(d) The Contractor shall be obliged to report forthwith to the Employer and the Engineer any investigation, complaint, or criminal charge which may arise as a consequence of the provisions of the Act and regulations pursuant to work performed on behalf of the Employer, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

(e) The Contractor shall sign the agreement bound into Section C1.2 of this document. The Contractor shall comply with all the conditions of the Record of Decision in terms of Section 22(3) of the Environmental Conservation Act, 1989.

A time-related and a fixed-charge item have been provided in Schedule A of the Schedule of Quantities. The contractor shall allow for all obligations imposed by the Environmental Management Plan including the appointment of an environmental manager/control officer.

C3.1.21 SAFETY

"Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor's obligations there under, the Contractor shall at his own expense (except only where specific provision (if any) is made in the contract for the reimbursement to the Contractor in respect of particular items), provide the following:

(a) The Principal Contractor must do a Risk assessment and compile an OHS Plan to be evaluated and approved by the Safety Agent prior to commencement of Construction.

(b) The Contractor must ensure that regular safety meetings be held, and that the minutes of such meetings be kept in a Safety File, which must be available on site at all, times.

(c) Provide to its Employees on the site of the works, all safety materials, clothing and equipment necessary to ensure full compliance with the provisions of the Occupational health and Safety Act, 1993 (Act No 85 of 1993) as amended (hereinafter referred to as the Act) at all times, and shall institute appropriate and effective measures to ensure the proper usage of such safety materials, clothing and equipment at all times;

(d) Provide, install and maintain all barricades, safety signage and other measures to ensure the safety of workmen and all persons in, on and around the site, as well as the general public;

(e) Implement on the site of the works, such procedures and systems and keep all records as may be required to ensure compliance with the requirements of the Act at all times;

(f) Implement all necessary measures so as to ensure compliance with the Act by all subcontractors engaged by the Contractor and their employees engaged on the works;

(g) Full compliance with all other requirements pertaining to safety as may be specified in the Contract (Also refer to Notice to Tenderers).

The Employer and the Engineer shall be entitled, although not obliged, to make such inspections on the site as they shall deem appropriate, for the purpose of verifying the Contractor's compliance with the requirements of the Act.

For this purpose, the Contractor shall grant full access to the site of all parts of the site and shall co-operate fully in such inspections and shall make available for inspection all such documents and records as the Employer's and/or Engineer's representative may reasonably require. Where any such investigations reveal, or where it comes to the Engineer's attention that the Contractor is in any way in breach of the requirements of the Act or is failing to comply with the provisions of this clause, the Engineer shall, in accordance with the provisions of clause 5.11 of the Conditions of Contract, be entitled to suspend progress on the works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, that such breach has been rectified.

The Contractor shall have no grounds for a claim against the Employer for extension of time and/or additional costs if the progress on the works or any part thereof is suspended by the Engineer in terms of this clause, and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of clause 5.13.1 of the Conditions of Contract should the Contractor fail to complete the Works on or before the specified due completion date in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this clause shall constitute grounds for the Engineer to act in terms of subclause 9.2.1 of the Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said clause 9.2."

In addition to all above safety related requirements the Contractor shall take cognisance of the requirements of the construction regulations and OHS Specifications bound in C3.5.2 of this document.

C3.1.22 SAFETY OFFICER

OHS must be provided.

The Contractor is required to ensure compliance with the Occupational Health and Safety Act (Act 85 of 1993) and its regulations, in particular the Construction Regulations, 2003, to appoint a Health and Safety Officer for the works.

The safety officer shall have a sound knowledge of the Occupational health and Safety Act. He shall preferably have completed the Safety Management Training Course (SAMTRAC) presented by NOSA. The Contractor shall submit details of the proposed

C3.1.23 SOURCE OF MATERIAL/BORROW PIT

The contractor will be held responsible for locating legal, licenced and approved sources of all materials complying with the relevant minimum requirements to be used in this contract. No separate payment shall be made for this, as all costs related thereto shall be deemed to be covered by the tendered rates.

Where possible materials manufactured or produced locally shall be procured to promote local enterprise.

C3.1.24 PHOTOGRAPHIC RECORD

Prior to the commencement of the work, and during the contract period, a photographical record shall be made of all existing stands and structures to be effected by the project, and forwarded to the Engineer prior to the authorisation of the first progress payment.

A payment item is included in the Schedule of Quantities to cover the Contractor's cost for compliance with the above requirements.

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.

The list of Drawings is as per the Index page of the Book of Drawings included in **Appendix E.**

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

Tenderers attention is drawn to the Special Clauses in the Contract Data. A minimum of 30% of the works are to be subcontracted to local sub contractors.

C3.3.2.2 Preferred subcontractors/suppliers

Where possible, local subcontractors should be considered for sub contract 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.

C3.3.3 Restriction of the Utilisation of Personnel in the Permanent Employment of the Contractor

The Contractor shall limit the utilisation of his permanently employed personnel to that of key personnel only on the Works, as defined below, and shall execute and complete the Works utilising a temporary workforce employed directly by the Contractor and/or by his sub-contractors, using the assistance of the labour desk that will be established for the project in consultation with the various communities that are established in proximity to the Works or which will be allocated within the development.

Without derogating from the Contractor’s obligations to complete the Works within the specified time for completion in terms of clause 1.1.1.14 of GCC 2015, the numbers in each category of the Contractor's key personnel, as stated by the Contractor in Part T2 of this document, will be strictly controlled during the contract period and any increase in numbers will be subject to the prior approval of the Employer.

“Key personnel” means all contracts managers, site agents, site clerks, materials and survey technicians, quantity surveyors, trainers, supervisors, foremen, skilled plant operators, welders, shutter hands and the like, and all other personnel in the permanent employ of the Contractor or his sub-contractors who possess special skills, and/or who play key roles within the Contractor's or his subcontractor's operations.

The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor, and where he deems the circumstances so warrant, authorise in writing that the Contractor may utilise in the execution of the Works, workers not being his key personnel but who are in his permanent employ.

Without limiting the generality of application of this sub-clause, circumstances which may be considered by the Engineer to warrant authorisation of the use of the Contractor's permanent employees other than key personnel, include:

(a) The unavailability from local sources of sufficient numbers of temporary workers and/or sub-contractors to execute the Works provided always that the Contractor has satisfied the Engineer that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient temporary workers and sub-contractors from local sources as contemplated above.

(b) The unavailability within the temporary worker pool and/or from subcontractor sources available to the Contractor in terms of the Contract, of sufficient skills necessary to execute the Works or specific portions thereof, in situations where the completion period allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of suitable training as contemplated in the Contract;

(c) Any other circumstances which the Engineer may deem as constituting a warrant.

C3.3.3.1 <u>Provision of Temporary Workforce for the Contract</u>

The Contractor shall employ labour from the local community through the CLO except for approved key staff in the permanent employ of the Contractor, to the maximum extent that is compatible with the requirements of Clause 4.11 of the General Conditions of Contract 2015.

Although the Contractor shall adhere to the statutory minimum wage rates, he is however at liberty to negotiate additional incentive payments based on performance.

The Occupational Health and Safety Act must be adhered to with reference to the safety of any employee employed by the Contractor.

The successful tenderer shall liaise with the Ward Councillor/Ward Committee whereby the Ward Councillor shall provide to the Contractor the following if necessary:

a) A Community Liaison Officer (CLO) for liaison with the recipient community for labour recruitment

- The CLO shall attend all site and other meetings concerning the project.
- Only one CLO shall be appointed per project. If the project spans over more than one Ward, the relevant Ward Councillors shall agree on one CLO to be appointed by the Contractor. Should no agreement be found as envisaged, the relevant Project Manager together with the Engineer, will interview prospective appointees and in their discretion appoint such CLO.
- Notwithstanding the above, if the vastness of the project requires the use of more than one CLO, this will be permitted provided that the total monthly sum paid to all CLO’s shall not exceed the amount allowed for in paragraph bill of quantities.
- Should the Contractor experience any difficulties with the community, these difficulties shall immediately be brought to the attention of the Municipality/Project Manager who shall arrange a meeting with the relevant Ward Councillor(s) and the CLO to resolve such difficulties.

The main Contractor shall ensure that any Sub-Contractor he may appoint shall adhere to these conditions but also subject to the provisos applicable to the duration of such sub-contract. Should any of the above conditions be less favourable than any Bargaining Council Agreement or Act applicable to the Contractor, the more favourable condition will apply.

A contract of employment or subcontract should be signed between the Contractor and each of his employees or sub-contractors, as the case may be. Likewise contracts of employment must be entered into between each such sub-contractor, and each of the specific subcontractor's employees. Employment and subcontract agreements shall make clear reference to at least the following conditions.

- The minimum agreed wage rate per hour in respect of labourers;
- The agreed pay rate per unit of production where applicable;
- UIF and WCA payments;
- Minimum working hours per day;
- Start and end times of a daily shift;
- Lunch break times;
- Company policy regarding:
- Rain time
- Sickness and absenteeism
- Disciplinary matters
- Grievances
- Method and frequency of payment;
- Work clothes and safety equipment to be issued
- Labour Desk

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 Standard specification, are carried out strictly in accordance with SANS 1200 "Standard Specification for Civil Engineering Construction" as approved by the Council of the South African National Standards.

For the purpose of this Contract the latest issues of the following Standard Specifications for Civil Engineering Construction, applicable at the date of tender advertisement, shall apply –

SANS 1200

A	-	PRELIMINARY AND GENERAL
AB	-	ENGINEER'S OFFICE
C	-	SITE CLEARANCE
DA	-	EARTHWORKS (SMALL WORKS)
DB	-	EARTHWORKS (PIPE TRENCHES)
G	-	CONCRETE (STRUCTURAL)
GB	-	CONCRETE (ORDINARY BUILDINGS)
L	-	MEDIUM PRESSURE PIPELINES
LB	-	BEDDING (PIPES)
M	-	ROADS (GENERAL)
ME	-	SUBBASE
MF	-	BASE
MJ	-	SEGEMENTED PAVING

C3.4.1.2 National and International Standards

The SANS 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) in either these Bill of Quantities or the Specification of Materials and Methods to be used, this reference shall be deemed to read "SANS or equivalent standard.

The term "project specifications" appearing in any of the SANS 1200 standardised specifications must be replaced with the terms "scope of work".

References from, and variations and additions to the Standard Specifications and Particular Specifications are included in section **C3.4.1.4**

C3.4.1.3 Particular Specifications

The following variations and additions to the Standard and Particular Specifications will be applicable to this Contract.

The various documents listed in section C3.4.1 shall be treated as mutually explanatory. However, should any requirement of section C3.4.2 conflict with any requirement of the Standardised Specifications or with any requirement of the Particular Specifications, then the requirement of section C3.4.1.4 shall prevail.

C3.4.1.4 Variations and Additions to Standard and Particular Specifications

C3.4.2 EPWP labour intensive specification

C3.4.2.1Labour intensive competencies of supervisory and management staff

Contractors having a CIDB contractor grading designation of 4CE and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or are registered for training towards, the skills programme outlined in Table 1.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	Any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	Any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e. the contractor's most senior representative that is resident on the site)	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

C3.4.3.2 Employment of unskilled and semi-skilled workers in labour-intensive works

C3.4.3.2.1 Requirements for the sourcing and engagement of labour

C3.4.2.2.1 Requirements for the sourcing and engagement of labour.

1. Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

2. The rate of pay set for the SPWP to be obtained from the Municipality.

3. Tasks established by the contractor must be such that:

   a) the average worker completes 5 tasks per week in 40 hours or less; and,
   b) the weakest worker completes 5 tasks per week in 55 hours or less.

4. The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of C3.4.3.2.1.3.

5. The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
   a) where the head of the household has less than a primary school education;
   b) that has less than one full time person earning an income;
   c) where subsistence agriculture is the source of income.
   d) those who are not in receipt of any social security pension income

6. The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
   a) 60 % women;
   b) 20% youth who are between the ages of 18 and 25; and
   c) 2% on persons with disabilities.

C3.4.3.3 Specific provisions pertaining to SANS 1914-5

1. Definitions

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

2. Contract participation goals

- Is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

- The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

C3.4.2.4 Terms and conditions for the engagement of targeted labour

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

C3.4.3.5 Variations to SANS 1914-5

1. The definition for net amount shall be amended as follows:

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

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

C3.4.3.6 Training of targeted labour

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

2. 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.

3. A copy of this training request made by the contractor to the DOL provincial office must also be faxed to the EPWP Training Director in the Department of Public Works.

4. 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.

5. The contractor shall do nothing to dissuade targeted labour from participating in training programmes. 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 C3.4.3.6.2 above.

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

VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS

SANS 1200 A: GENERAL

PSA 1 QUALITY OF MATERIALS (Sub clause 3.1)

Add the following:

All materials used in this Contract shall be the official SANS mark where applicable. All materials shall be new and of the best quality available unless otherwise specified.

PSA 2 CONTRACTOR'S OFFICES, STORES AND SERVICES (Clause 4.2)

Add the following to the provisions of Clause 4.2.

a) The location of the Contractor's offices, stores and services on site shall be subject to approval by the Engineer.

b) The Contractor's office is to include a facility with furniture suitable for the use during site meetings, accommodating 8 persons.

c) The Contractor's designated site agent shall be in possession of a cellular telephone.

No additional payment is made for this service, and shall be deemed to be included in the preliminary and general.

PSA 3 SETTING OUT OF THE WORKS (Clause 5.1.1)

Substitute the first sentence of Clause 5.1.1 with the following. The engineer will provide information for setting out of the works.

Add the following:

Setting out the Works will not be measured and paid for directly, and compensation for the works involved in setting out shall be deemed to be covered by the rates and prices tendered and paid for in the various items of works included under this Contract.

PSA 4 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS (Clause 5.2)

The Contractor shall make adequate provision for the supply of temporary warning signs, barriers drums etc to the satisfaction of the Engineer for the entire duration of the contract. Road and traffic signs shall comply with the requirements of the "South African Road Traffic Manual".

PSA 5 LOCATION AND PROTECTION OF EXISTING SERVICES (Clause 5.4)

Add the following provisions of Clause 5.4.1

PSA 5.1 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 designates 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.

PSA 6 ACCOMMODATION OF TRAFFIC (New clause 5.9)

Temporary traffic signs shall be erected at all diversions.

The number and layout of the traffic signs shall comply with the Site Manual entitled "Safety at Roadwork's in Urban Areas", as published by the Department of Transport.

Traffic signs shall have a yellow background with either a red / black border.

PSA 7 TOLERANCES

PSA 7.1 General (New subclause 6.4)

No guarantee is given that the full specified tolerance will be available independently of each other, and the Contractor is cautioned that the liberal or full use of any one or more of the tolerances may deprive him of the full or any use of tolerances relating to other aspects of the work.

Except where the contrary is specified or then clearly not applicable all quantities for measurement and payment shall be determined from the "authorised" dimensions. These are specified dimensions or those shown on the Drawings or, if changed, as finally prescribed by the Engineers, without any allowances for the specified tolerances.

Except if otherwise specified, all measurements for determining quantities for payment will be based on the "authorised" dimensions.

If the work is therefore constructed in accordance with the "authorised" dimensions plus or minus the tolerances allowed, quantities will be based on the "authorised dimensions regardless of the actual dimensions to which the work has been constructed.

When the work is not constructed in accordance with the "authorised" dimensions plus or minus the tolerances allowed, the Engineers may nevertheless, at his sole discretion, accept the work for payment. In such cases no payment shall be made for quantities of work or material in excess of those calculated for the "authorised" dimensions, and where the actual dimensions are less than the "authorised" dimensions minus the tolerance allowed quantities for payment shall be based on the actual dimensions as constructed.

PSA 9 MEASUREMENT AND PAYMENT

PSA 9.1 Contractual Requirements (sub clause 8.3.1)

Add to sub-clause 8.3.1:

"In addition, the sum tendered shall cover all initial costs incurred in complying with the requirements of the Special Conditions of Contract.

PSA 9.2 Contractual Requirements (sub clause 8.4.1)

The Contractor shall tender a lump sum in the Schedule of Quantities to cover his time-related establishment costs. The amount tendered and paid shall be full compensation to the Contractor for:

(i) The maintenance of his whole organisation as established for this Contract.
(ii) The maintenance of all insurances, indemnities and guarantees required in terms of the Conditions of Contract or Tender where applicable.

(iii) Compliance with all general conditions and requirements, which are not specifically, measured elsewhere for payment in these Contract Documents.

The Contractor shall tender a lump sum for the abovementioned items.

Payment of the lump sum shall be made monthly in compliance with the method laid down in Sub-clause 8.2.2 of SANS 1200:A.

The Contractor will not be paid Time-Related Preliminary and General charges for any Special Non-Working Days, as stipulated in the Appendix, which shall be deemed to have been allowed for in his rates.

PSA 9.3 Adjusted Payment for Time-Related Items

The payment to the Contractor for Time-Related Items shall be adjusted in accordance with the following formula in the event of the Contract being extended by means of a variation order:

$$\text{Sum of Tendered amounts for Time Related Items} \times \frac{\text{Extension of Time authorised by variation order}}{\text{Tender contract period}}$$

*For the purposes of applying this formula "Extension of Time" will exclude the Contractor's December/January close-down period, if applicable.

The abovementioned adjustment of the payment for Time-Related Items shall be made in the Completion Payment Certificate and shall be the only payment for additional Time-Related costs irrespective of the actual period required to complete the Contract including its authorised extensions.

In the case of fixed price contracts, the amount by which the Time-Related Items is adjusted shall not be subject to the Contract Price Adjustment formula.

In the case of contracts subject to Contract Price Adjustment the amount by which the time-related items are adjusted shall be subject to the Contract Price Adjustment formula.

PSA 9.4 Compliance with OHS Act and Regulations
(Including The Construction Regulations 2014) unit: sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations 2014) at all times for the full duration of the Contract.

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

PSA 9.5 Accommodation of Traffic (Clause 8.8.2)

Where the new works interferes with the existing roads, the Contractor shall construct these sections of the works under traffic. The work will involve catering for the safe and easy passage of public traffic in all weather, both day and night for the full traffic control and signposting.

The Contractor may alternatively make his own arrangement for detours to be constructed, all subject to the Engineers approval.

Add the following after the first paragraph:

“All temporary road signs, devices, sequences, layouts and spacing shall comply with the requirements of the Road Traffic Act, 1996 (Act 93 of 1996), the National Road Traffic Regulations, 2000, the South African Road Traffic Signs Manual and the requirements of the relevant road authority. All temporary traffic control facilities shall also comply with the guidelines set in SA Road Traffic Signs Manual, Volume 2, Chapter 13: Road works Signing, (SARTSM, June 1999, obtainable from the Government Printer, Pretoria)”

SANS 1200 A: PRELIMINARY AND GENERAL

PSA 3.1Quality of Samples

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

PSA 5 CONSTRUCTION

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

The Contractor shall be responsible for the true and proper setting out of the Works from the basic control points shown on the Drawings or indicated by the Employer's Agent Representative on site and shall ensure the correct location of the Works in relation to such points. The Contractor has to ascertain himself of the correctness of the pegs and benchmarks in the field. Any discrepancy shall be immediately reported to the Employer's Agent Any costs arising from failure to do so, shall be the responsibility of the Contractor. The Employer's Agent may alter any part of the works to suit local conditions if necessary. No claim for incorrect setting out will be considered. Clause PS 10.6 shall also apply.

PSA 5.1.1 Services (Sub-clause 5.2)

All excavations to expose existing known services shall be excavated by hand in all materials by the contractor. Any existing service in the road reserve or municipal servitude that is damaged as a result of negligence by the contractor will be repaired by the contractor to the satisfaction of the Employer's Agent at his own cost. Clause PS 10.1 shall also apply.

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

All open excavations shall be properly demarcated with reflective tape, barricading and any other requirements that the Local Authority has.

PSA 5.3 Protection of Structures (Clause 5.3)

The contractor must contact house owners at least two weeks prior to working in close proximity to existing buildings and to inspect buildings before and after work had been completed. Clause PS 10.2 shall also apply.

PSA 5.7 Safety

Add the following:

1. The Contractor shall at all times observe adequate safety precautions on Site to ensure the safety of his own staff as well as that of the public and other persons engaged in or about the Works. In this respect he shall observe all laws, ordinances and regulations pertaining to his work.

2. The Contractor's attention is specifically drawn to the following Acts, and particularly to the relevant regulations under each Act, copies of which shall at all times be kept by him on the Site:

- The Factories, Machinery and Building Work Act (Act 22 of 1941)
- The Explosives Act (Act 26 of 1956)
- The Mines and Works Act (Act 27 of 1956)
- The Occupational Health and Safety Act (Act 85 of 1993)

The Contractor is also required to comply with the safety precautions set out in the following publications, copies of which shall also be kept by him on the Site:

- The Code of Practice relating to the safety of men in civil engineering inspection pits and small –diameter vertical shafts. (Transactions of the South African Institution of Civil Engineers, Vol. 2, No. 11, November 1960, obtaining from the Secretary, S.A. Institution of Civil Engineers, PO Box 93495, Yeoville, 2143).
- The Contractor shall provide suitable and safe access by way of ladders, gangways, etc. to all parts of the Works as may be required for construction purposes or for inspection by the Employer's Agent or the authorised Inspectors in terms of the above-mentioned Acts.
- All precautions shall be taken to protect workmen against falling material and/or objects and other dangers whilst they are carrying out their duties. Trenches shall in every way be made and kept safe for persons working therein.
- All persons working, inspecting or supervising in places where falling material and/or objects could be encountered shall be provided by the Contractor with hard hats of a type approved by the Inspector of Mines, the use of which shall be strictly enforced.
- The Contractor shall provide a properly equipped first-aid box, which shall be accessible at all times.
- Where adequate safety precautions are not being observed, the Employer's Agent may order the Contractor to comply with minimum safety requirements at the latter's expense. Compliance with such order will not absolve the Contractor from any of his responsibilities and obligations under the Contract.
- The Contractor shall display on a prominent place the following emergency information:

    - Local Police: Telephone number
    - Local Ambulance: Telephone number
    - Local Fire Brigade: Telephone number
    - Nearest Doctor
    - Name
    - Telephone number (office hours)
    - Telephone number (after hours)
    - Consulting room street address

- The Contractor shall furthermore comply with the requirements of the "Safety Instructions" contained at the end of this Document.

PSA 6.2 Degree of accuracy (Sub-clause 6.2)

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

PSA 7 Testing (Sub-clause 7)

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

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

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

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

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

PSA 7.2 Laboratory (Sub-clause 5.2)

A Laboratory for the use of the Employer's Agent Representative is not required on site. A commercial laboratory approved by the Employer's Agent and appointed by the Contractor shall do all acceptance control tests required in terms of the Contract. All tests must be done according to the tests prescribed in the SANS 1200 under the relevant sections.

PSA 7.4 Statistical analysis of control tests (Sub-Clause 7.4)

Statistical control methods will not be applied under this contract.

SANS 1200 AB: ENGINEER'S OFFICE

PSAB 1 NAMEBOARDS (Clause 3.1)

Substitute the first paragraph of Clause 3.1 with the following.

The Contractor must supply and erect one name board at an approved site, and shall comply as regards site, painting and details municipalities standard name board. A sample is attached as Appendix 2

PSAB 2 SURVEY ASSISTANTS (Clause 5.5)

Substitute "two or more suitable educated survey labourers" in this paragraph with "one semi-skilled labourer".

The Engineer's Representative will occasionally need the assistance of a survey labourer to help with testing, survey, etc., envisaged at approximately 4 hours (non-consecutive) per week.

PSAB 3 SURVEY EQUIPMENT

The Contractor shall provide the following tested and approved survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed.

a) One automatic level plus tripod,
b) One level staff, all graduated metrically and
c) One 5m and one 25m-tape measure.

The above-mentioned equipment may, by arrangement be shared between the Contractor and the Engineer's Representative. The Contractor shall keep the equipment insured against any loss; damage or breakage and he shall indemnify the Engineer and the Employer against any claims in this regard.

PSAB 4 MEASUREMENT AND PAYMENT

PSAB 4.1 Survey Assistant ((New Clause)

Payment for the survey assistant shall be at the tendered day work rates for the hours worked in assisting the Engineer's Representative. No payment shall be made for the survey equipment all costs shall be deemed to be covered by the rates tendered for the Contractor's facilities. No payment shall be made for the survey equipment or survey assistant and all costs shall be deemed to be covered by the rates tendered for the Contractor's facilities.

SANS 1200 C: SITE CLEARANCE

PSC 1 SCOPE (Clause 1.1)

Add the following:

“The specification also covers the removal of unreinforced and reinforced concrete, existing pipe culverts and existing roadway and layerworks, (at tie-ins and road widening), and saw cutting of existing road surfacing.”

PSC 2 MATERIALS

Disposal of Material (Subclause 3.1)

Delete the first two sentences of this clause and replace with:

“Debris arising from clearing operations or from the demolition of existing structures that are not suitable for re-use in the works or for landscaping in areas designated by the Engineer, shall be removed by the Contractor and disposed of at the approved tip site. Transport of such material shall not be paid separately, but shall be included in the relevant items for clearing

The rates tendered shall allow for any fees to be paid at the tip site.”

PSC 3 MEASUREMENT AND PAYMENT

PSC 3.1 Clear And Grub (sub - clause 8.2.1)

The location of disposal or dumping sites shall be the Contractor's responsibility and no overhaul shall be payable to the Contractor for loading, temporary and dumping of material thus cleared under this scheduled item.
Unit of measurement for "clear and grub”, for road works shall be the square metre, and clearing for sewer and storm-water routes shall be metre.

PSC 3.2 Removal of Brickwork, Reinforced And Unreinforced Concrete (New Clause) unit: m^3

Separate items are scheduled. Measurement shall be net in place before removal. The rates shall cover the cost of complete demolition, all necessary excavation and associated works and disposal as per PSC 3.1.

SANS 1200 DA: EARTHWORKS (SMALL WORKS)

PSDA 1 CLASSIFICATION FOR EXCAVATION PURPOSES (Clause 3.1)

Delete Sub-Clause 3.1.1 and 3.1.2 and replace with the following:

PSDA 1.1 Method of Classifying

The Contractor may use any method he chooses to excavate any class of material but his chosen method of excavation shall not determine the classification of the excavation. The Engineer or his Representative will decide on the classification of materials. In the first instance classification will be based on inspection of the material to be excavated and on the criteria given in PSDA 1.2 (a) and (c).

PSDA 1.2 Classes of Excavation

All materials encountered in any excavation for any purpose including restricted excavation will be classified as follows:

(a) Soft Excavation

Any material, which can be removed by bulldozers or backhoes, shall be classified as soft excavation.

Soft excavation shall be material not falling into the category of hard rock excavation.

(c)Hard rock excavation

Hard rock excavation shall be excavation in material (including undecomposed boulders exceeding 0.17 cubic metre in individual volume) that cannot be efficiently removed without blasting, wedging and splitting, or hydraulic hammers.

This classification includes materials such as:

- solid unfractured rock occurring in bulk
- solid ledges thicker than 200mm
- igneous rock intrusions
- cemented sedimentary rocks.

PSDA2 CONSTRUCTION

PSDA2.1 Conservation of Topsoil (5.2.1.2)

Add the following to Subclause 5.2.1.2:

“Topsoil shall not be stockpiled higher than 2,0m. Care shall be exercised to prevent the compaction of topsoil in any way especially by vehicles travelling over such material.”

SANS 1200 DB: EARTHWORKS (PIPE TRENCHES)

PSDB 1 CLASSES OF EXCAVATION (Clause 3.1)

The excavation of material, for the purposes of measurement and payment shall be classified as specified in PSDA 1.

SANS 1200 DM: EARTHWORKS (ROADS, SUBGRADE)

PSDM 1 DEFINITIONS AND ABBREVIATIONS (Clause 2.3)

Add the following:

"The Contractor's attention is drawn to the definitions of formation level as defined in SANS 1200 M."

PSDM 2 CLASSIFICATION OF EXCAVATION (Clause 3.1)

Clause PSDA 1 will apply for this clause.

PSDM 3 SUBGRADE

The minimum CBR of the sub grade layers at 93% modified AASHTO maximum density shall be 15.

PSDM 4 CONSTRUCTION (Clause 5)

PSDM 4.1 Treatment of Road Bed (Sub Clause 5.2.2.3)

(a) Preparation and Compaction of Road Bed

Add the following:

"Where road bed preparation takes place in sand the in-situ sand layer is to be watered and compacted to 100% Modified. AASHTO density. The surface of the in-situ sand layer is to be firm and smooth in order to receive the subsequent S.S.G. or subbase layer, as the case may be. To this end the Engineer may order that unnecessary construction traffic remain off the finished in-situ sand layer until the subsequent layer has been completed."

PSDM 5 USE OF MATERIALS (Sub Clause 5.2.2.3 & 8.3.4)

In addition to the requirements of Clause 5.2.2.3, the order of excavating cuts shall be arranged to minimise the double handling of material.

PSDM 6 TRIMMING, GRADING AND COMPACTING OF SIDEWALKS (New Clause)

After completion of the road layers, including the premix surface, and after construction of the necessary kerbs, including the satisfactory backfilling behind the kerb, the sidewalk shall be finished off to the lines and levels shown on the drawings or as directed.

Shortfall material shall be imported from the designated borrow pit and mixed with the existing, reshaped and compacted to levels as directed.

The Contractor shall be responsible for taking the necessary precautions and measures to control the dust nuisance, which may arise due to his operations on the sidewalk, whether from the natural ground surface or topsoil layer, until the Engineer accepts the verge.

PSDM 7 TRANSPORT

PSDM 7.1 Free haul (Clause 5.2.8.1)

Notwithstanding the provisions of Clause 5.2.8.1, all movements of cut and fill material shall be free haul.

PSDM 8 MEASUREMENT AND PAYMENT (Clause 8)

PSDM 8.1 (a) Cut to Fill, Borrow to Fill

Add to Subclause 8.3.4(1) the following:

"Where fill material is borrowed from trench excavations the rate shall include the selection from the sides of trenches, transporting, if necessary, stockpiling, preparing, processing, shaping (including forming side channels and benching if applicable), watering, mixing, compacting to the densities specified and finishing the slopes of fills."

The fill material from commercial sources required for formation levels and undercuts shall be a minimum G7 quality material

PSDM 8.3 Surface Finishes

Add to Subclause 8.3.13 the following subclause (c):

"The major earthworks required to bring the verge to the required level and the additional depth of excavation or reduction in fill height as ordered for the topsoil operation shall be measured and paid for under item 8.3.4.

PSDM 8.3 Construct Selected Layers using Imported Material Compacted to 95% Modified AASHTO (New Clause)

The rate shall cover the cost of locating the source, complying with all the relevant precautions required in terms of Clause 5.1, SANS 1200 D, procuring the material, basic selection, transporting from source to point of deposition on the road, spreading, watering, compacting, final grading and complying with the tolerances and testing.

SABS 1200 G: CONCRETE (STRUCTURAL)

PSG 1 MATERIALS

PSG 1.1 Applicable Specifications (3.2.1)

Add the following:

All cement types shall comply with the requirements of SABS ENV 197-1

For this contract only OPC CEM I, Class 42.5, cement shall be used.

PSG 1.2 CEMENT (3.2.1 and 3.2.2)

The grade of concrete shall be as specified on the drawings or schedule of quantities. Cement shall not be kept in storage for longer than four weeks and shall be used in the order in which it has been stored.

PSG 2 PLANT

PSG 2.1 Ties (4.5.3)

Add the following:

Permanent metal ties shall have a minimum concrete cover of 40mm after formwork has been removed.

Tie holes shall be filled with “Durabed “grout supplied by ABE or similar approved. The product shall be prepared to a non-slump consistency, but where no cracking occurs when pressed into a firm ball. Trial mixes shall be made to arrive at the required working consistency.

PSG 3 CONSTRUCTION

PSG 3.1 Fixing (5.1.2)

The welding and the use of heat in cutting high tensile deformed bars (Y bars) shall not be permitted without the approval of the Engineer.

PSG 3.2 Cover (5.1.3)

The reinforcement shall be fixed with the minimum cover as specified on the drawings.

In the case of walls, columns, roof slabs, the minimum specified cover should be attained by one of the following methods, or as approved by the Engineer.

- by using “cover block” manufactured from dense, strong cement/sand formed in a block with wire ties, cured under water for a minimum period of 7 days.

- by the use of plastic spacers, set in an orientation so that no pockets pf air can be trapped beneath them during vibration of the concrete.

PSG 4 FORMWORK

PSG 4.1 Design Of Forms

(i) Forms shall conform accurately to the shape, lines, levels and dimensions of the concrete as shown on the drawings.

(ii) The design of formwork and supports shall be the responsibility of the Contractor.

(iii) Forms shall be designed as to support their mass, the load exerted by wet concrete and the vibration, construction or other loads that they may be subjected.

(iv) All timber shall be free from holes, loose knots, cracks, splits, warps or other defects likely to affect the strength or appearance of the finished structures.

(v) Wedges and clamps shall be used in preference to nails for securing the form components and wire ties or tie bolts in reinforced concrete, and must be capable of removal after use, except as otherwise specified.

PSG 4.2 Classification of Finishes (5.2.1)

Notwithstanding Sub-clause 5.2.1, finishes shall be classified as rough or smooth, as follows:

(a) Rough

Concealed surfaces and surfaces more than 200mm below final ground level

(b) Smooth

All surfaces not classified as “rough” in paragraph (a) shall be classified as “smooth”. All exposed areas, unless other indicated, shall be chamfered 20mm x 20mm by means of a fillet fixed to the formwork.

PSG 4.3 Removal of Formwork (5.2.5)

Add the following:

Removal of forms shall be determined by means of cubes cast with the concrete and cured in accordance with S.A.B.S. 863. The removal shall be carried out under the personal supervision of the Foreman, only after the permission of the Engineer has been obtained and in such a manner that the concrete is not jarred, vibrated or otherwise damaged.

Where test cubes to determine stripping times are not made, the minimum periods which shall elapse between the time of the placing of the concrete and the time of removal of the forms, shall otherwise agreed with the Engineer, be in accordance with the table hereunder, where each day covers a full 24 hour period.

Delete Table 2 and replace with the following:

Minimum stripping Times in Days

	CE M I	CE M I	CE M II	CE M II	CE M III	CE M III
Type of structural Member of Formwork	Normal Weather (Above 15^{o} C)*	Cold weather (Below 5^{o}C)*	Normal Weather (Above 15^{o} C)*	Cold weather (Below 5^{o}C)*	Normal Weather (Above 15^{o} C)*	Cold weather (Below 5^{o}C)*
Beam sides, wall or unloaded cols	1	2	2	4	2	6
Slabs, with props left underneath	4	7	5	8	6	10
Beam soffits. Props left underneath	7	12	8	14	10	17
Removal of Slab Props	10	17	10	17	12	21
Removal of beam Props	14	21	14	21	18	28

*Average daily temperature of the atmosphere adjacent to the concrete as measured by a maximum and minimum thermometer.

PSG 5 CONCRETE

PSG 5.1 General (5.5.1.1)

Concrete shall comply with the requirements for strength concrete. (See clause 5.5.1.7)

The maximum cement contact for all grades of concrete shall not exceed 450kg per m^3 without the permission of the Engineer. In addition, the following will be applicable for this project:

1. The concrete must be resistant to mild acid with a PH of approximately 6.
2. This may be facilitated by slowing the progress of the reaction by using a calcareous aggregate (e.g. limestone) which is susceptible to acid attack and will help to neutralize the acid.
3. Coarse aggregate used must be as large as possible i.e. 26.5 mm to reduce the proportion of paste in the concrete which is vulnerable to acid attack.
4. Fine aggregate must be well graded and able to produce a dense, impermeable matrix that will resist the ingress of aggressive materials. The grading curve given in Fulton's concrete technology and referred to as the preferred grading must be used and not the grading given in SANS 1083.
5. A high proportion of cement i.e. a minimum of 350 kg/m3 must be used to ensure a sufficient content of Ca(OH)2 which is vulnerable to acid attack. This minimum cement content must be used irrespective of the water/cement ratio requirement for a 35 MPa concrete.
6. The concrete must be resistant to attack by sulphates which are present in sewage.
7. A cement must be used which is resistant to expansive reactions due to sulphates. The best cement available for this purpose will be a 50/50 blend of ground granulated blast furnace slag and clinker cement.

Curing of concrete

Curing of concrete by means of surface water retention or use of an acceptable curing compound must be included to improve the impermeably of the concrete surface to chemical ingress.

Permeability and resistance to chemical attack can be enhanced by using the various proprietary materials available for the purpose which can be used as a coating, either barrier or penetrating. Information must be obtained from the manufacturer/supplier and included in your submission.

PSG 5.2 Sample and Trial Concrete mixes

The concrete mixes for the grade of strength shall be designed by an approved design laboratory. The Contractor at his own cost shall supply to the laboratory samples of the cement and aggregate he proposes to use for the works. The proposed slumps and proportions of the materials to be used for each grade of concrete shall be submitted to the Engineer for his approval.

No structural concrete shall be placed on the job until the Contractor has satisfied the Engineer as to the suitability of the mixes concerned.

Trial panels for durability concrete (W class concrete)

As part of the durability class concrete mix design approval process, trial panels shall be constructed on the site (or at the laboratory) before construction of structural elements commences, to ensure that the contractor can successfully achieve the oxygen permeability and sorptivity targets set for the in-situ concrete with method of construction to be adopted. Each trial panel shall be constructed using the same type of concrete mix, shuttering type, placing and curing methods (including application rates of curing compounds if applicable) as to be used on the final structural element to be constructed. The dimensions of such a trial panel shall be 0.40m wide, 0.60m high and 150mm thick. The panel shall be constructed vertically. It is suggested that 2 lifting hooks be cast into the panel to facilitate lifting, moving or disposal of panel. It most likely will be that one trial panel will be required for substructures (piers, columns, retaining walls, etc) if the same grade concrete is specified for all substructures.

The test area for taking of cores (taken in horizontal direction) shall not be less than 100mm from all horizontal and vertical edges. The number of cores to be extracted and tested is described below.

Test panels for durability concrete (W class concrete)

During casting of concrete on site, test panels shall be constructed on the site adjacent to where the concrete element is being placed. Each test panel shall be constructed with the same concrete, shutter type, compaction and curing methods being used in the element being cast (including same vibrator frequency and curing compound application rates), and be left to cure for 28 days adjacent to the concrete element. Thereafter it shall either be cored on site or transported to the laboratory for testing of the required durability parameters. The dimensions of the test panels shall be 0,4m wide, 0,6m high and 150mm thick and be cast vertically to simulate vertical casts of the substructures and vertical faces of all structures. It is suggested that 2 lifting hooks be installed at both top ends of the test panel to assist with transport. For precast concrete, test panels will not be constructed, as cores will be drilled from the concrete elements at the Precast yard before being placed at its final location. For the horizontal faces of Columns/Surface Bed Slabs, Water Retaining Walls and All bases/foundations, test panels will also not be constructed. Instead cores will be extracted from the top surface of the test panels.

The frequency of the testing and number of cores to be extracted is described under below.

The test area for the taking of cores (taken in a horizontal direction) shall not be less than 100mm all horizontal and vertical edges.

Testing for concrete durability

Durability predictions for durability concrete prefixed 'W' will be based on the following tests that shall be carried out by an accredited laboratory approved by the Engineer:

(i) Oxygen permeability
(ii) Water sorptivity
(iii) Chloride conductivity

Notes:
The test methods shall be as described below.

For test no's (i) and (ii) (and (iii) when required), cores of 70 ± 2mm diameter shall be extracted from the test panels when the concrete reaches the age of at least 28 days and tested.

Test No. (iii) may only be required where specified (e.g. within a chloride environment along the coast or where chlorides are present in ground water).

NUMBER OF CORE RESULTS REQUIRED FOR A SINGLE SAMPLE FOR DURABILITY TESTING

Durability Parameter	**No. of Core Results**
a. Sorptivity	1
b. Oxygen Permeability	2
c. Chloride conductivity	1

* Test undertaken only if specified and within a chloride environment.

NUMBER OF TEST PANELS REQUIRED FOR DURABILITY TESTING

Element	**No. of Test Panels to be taken**
Water Retaining walls	1 (per element/pour)[2]
All bases/foundations	1 (per element/pour)[2]
Columns/Surface Bed Slabs	1 (per element/pour)[2]

Note:

1. Test panels required to be cast vertically. Additional cores required to be extracted from roof slabs/beams, i.e. in-situ cores.
2. Note that where group of elements are cast on the same day, only one test panel will be required, but only if the same grade concrete is used.

For cores to be extracted from precast elements, the engineer will indicate the positions at which the cores will be extracted. Filling of the holes left by the drilling of the cores shall be the responsibility of the contractor and shall be carried out using an approved proprietary non-shrink repair mortar so as to restore structural integrity and durability of the structural element tested.

The methodology and latest revisions for the durability index tests are available at the University of Cape Town's web address at www.civil.uct.ac.za.

Testing for concrete cover

Concrete cover testing shall be conducted using an approved calibrated electromagnetic cover meter, able to comply to requirements as defined in linear and block scans and has the ability to save and calculate data measured.

The testing (non-destructive) shall be conducted to confirm that the specified depth of concrete cover has been achieved. The cover meter tests shall cover at least $1m^2$ for every $20m^2$ surface area of concrete placed. Readings shall be taken to identify individual bars, with at least 3 readings at 100mm spacing on every single bar within $1m^2$. The cover meter must be calibrated whenever being used to test for cover on each project. Standard Calibration block must be used on each project, and where substantial testing is required, the calibration block shall be kept on site. Cover meters shall comply with the relevant modern standards (e.g. EN55011, 50082-1, 6100-6-1, 6100-6-2, 6100-6-3, 6100-6-4 and BS18881 Part 204).

Critical elements for cover surveys are Columns/Surface Bed Slabs, Water Retaining Walls and All bases/foundations. The engineer will identify other critical areas required to be surveyed. Should any of these areas shows deficiencies, the engineer may order additional cover tests on other areas at the contractor's costs.

The procedure for testing for depth of reinforcement from concrete surface shall be in accordance with the manufacturer's requirements for the relevant electromagnetic cover meter. All cover meters shall be calibrated on site under the control of the engineer. The number of readings taken of the layer of rebar closest to the concrete surface to each $1m^2$ to be tested shall be such that an accurate average cover can be determined for the tested area. For the purposes of calculating the average depth of cover bars that have covers 15mm or greater than what is specified shall be capped at specified cover plus 15mm in the calculations.

Example, where Specified cover = 40mm, test as 35mm, then apply limits, 85% * 35 = 30mm.

Quick Scan readings are to be taken perpendicular to the layer of rebar closest to the concrete surface for each scan area (+/- 30 per m^2), so that an *average cover* to reinforcement can be determined for the tested area.

Readings are to be taken to identify individual bars within each $1m^2$. At least three cover readings, at 150mm spacing, per an individual bar shall be shown in the test results but only overall cover measurement would be used for payment purposes. Reports generated by the equipment shall be used for determining payment. Where more than 10% of readings are below specified lower limit, the area shall be re-scanned, by *Image, Block or Grid scan* method, to verify the average cover.

Cognizance to be taken of the effect to cover depth measured, where spliced bars are measured in same area as single bars. The size of rebar shall be corrected manually on the device by means of applying the following formula (approximately 1.41 x diameter of rebar as shown in design).

Where insufficient cover are established before placing of concrete, e.g. Starter bars from base not correct position, remedial action to be performed before continuing with next concreting – these actions to be clearly recorded and area identified.

SABS 1200 GB: CONCRETE (ORDINARY BUILDINGS)

PSGB 1 SCOPE (Clause 1.1)

This section includes specifications for various aspects of concrete referred to in other sections of the standard specifications as well as the construction of cement screeds and waterproofing of concrete roof slabs.

PSGB 2 GENERAL

PSGB 2.1 WATERPROOFING

Waterproofing materials shall be transported, handled and stored with care and laid strictly in accordance with the manufacturer's instruction. A clean, dry, smooth, firm and structurally adequate base with a fall of at least 1 in 50 (depending on the material selected) is required with drainage to gutters and/or rainwater outlets on roof edges, as relevant. Attention shall be given to the detailed design of openings, projections, gutters, down pipes and finishes to make adequate provision for run-off water and to minimise blockages.

Corners and edges shall be covered or angle-rounded. Run-off over the edges of slabs shall be eliminated as this causes stains to the building. Fillets of 75 x 75 mm shall be provided at upstand corners.

The necessary gradient for waterproof membranes are normally provided on top of structures in low-density screeds and then finished, if necessary, with a cement/mortar topping.

PSGB 2.2 CEMENT SCREEDS

CEMENT

The grade of concrete shall be as specified on the drawings or schedule of quantities. Cement shall not be kept in storage for longer than four weeks and shall be used in the order in which it has been stored.

Mechanised plant e.g. scabblers or abrasive blasters must be used for complete removal of all laitance from the existing surface of the floor slab. Dust pollution should be kept to a minimum during these operations. Once the coarse aggregate of the slab is exposed, all dust and debris should be removed, surface thoroughly wetted and maintained for approximately 12 hours. A bond coat (1:1 mix of cement and fine sand) should be spread evenly over the surface using a stiff fibre brush. The screed must be laid and compacted in 1 layer.

Screeds and toppings shall be of sufficient quality to provide a firm base. The following screed characteristics are suggested for waterproofing purposes:

(a) Compressive strength of at least 25Mpa at 28 days;

(b) Steel-trowel finish (light);

(c) Drying shrinkage of less than 0.2% when tested in accordance with the testing conditions specified in SABS 836;

(d) Minimum screed thickness of 40mm;

(e) Maximum moisture content of screeds:

(i) Applications with a density of less than 500 kg/m^3 : 10%

(ii) Applications with a density exceeding 500 kg/ m^3 : 7%

The screed should be cast or sawn into panels that do not exceed 9m^2 to cater for drying shrinkage and to control cracking.

PSGB 3 MEASUREMENT AND PAYMENT

PSGB 3.1 Cement Screeds for:

(a)	25mm screed on floors	unit: m^2
(b)	25mm screed on roof slabs	unit: m^2

The unit of measurement shall be the square metre of exposed surfaces to be screed.

The tendered rate shall include all costs for supplying, delivering, storing on site, handling, etc of the materials necessary for the screed, including mixing and laying of screeds currents and falls and forming of sundry items such as fillets, etc complete. The tendered rate shall also cover the cost for forming of screeds around outlets, waste and of all scaffolding, temporary supports, hoisting facilities, etc.

PSGB 3.2 Waterproofing of roof slabs with Derbigum or similar approved unit: m^2

The unit of measurement shall be the square metre of the horizontal and vertical surfaces of waterproofing to the approval of the Engineers. All turn-ups and turn-downs will be deemed to be included in the area measured for the waterproofing and will not be paid for separately.

The tendered rate shall include all costs for supplying, delivering, storing on site, handling, moving, installing and fixing the waterproofing system complete with all necessary sundry items, such as flashing strips, dressing waterproofing around pipes and into outlets and channels. The tendered rate shall also cover the cost of cutting and waste and for scaffolding, hoisting facilities, etc.

SANS 1200 GA: CONCRETE (SMALL WORKS)

PSGA 1 SCOPE (Clause 1.1)

This section includes specifications for various aspects of concrete referred to in other sections of the standard specifications.

PSGA 2 CEMENT (3.2.1 and 3.2.2)

The grade of concrete shall be as specified on the drawings or schedule of quantities. Cement shall not be kept in storage for longer than four weeks and shall be used in the order in which it has been stored.

SANS 1200 LB: BEDDING (PIPES)

PSLB 1 SCOPE (Clause 1.1)

This section includes bedding for pipelines.

PSLB 2 BEDDING MATERIALS (Clause 3.4.1)

PSLB 2.1 Source of material

It is anticipated that selected fill will have to be obtained from commercial sources.

PSLB 2.2 Selective excavation for bedding materials

Notwithstanding the requirements of Clause 3.7 of SANS 1200 DB and Clause 3.4.1 of SANS 1200 LB regarding the use of selective methods of excavation, selective method of excavation and plant shall be adopted by the Contractor as to enable him to avoid burring or contaminating material that is suitable and is required for bedding. The details contained in SANS 1200 LB shall be used for all relevant bedding details as applicable.

PSLB 3 CRUSHED STONE BEDDING (New clause)

Where the conditions on the trench bottom are so wet that the use of selected granular material is not practical, use will be made of 13.2 or 19mm single sized crushed stone material from commercial sources. The use of such stone will be entirely at the Engineer's discretion.

PSLB 4 FREEHAUL (Clause 8.1.6)

All material for bedding cradle and selected fill obtained from excavations on site shall be regarded as free haul. No overhaul will be payable for obtaining bedding material from within the site.

SANS 1200 LE: STORMWATER DRAINAGE

PSLE 1 SCOPE (Clause 1.1)

This section includes for the supply and installation of storm water drains pipes and all inlet and outlet to the drainage system. This section also includes for the construction of channels and berms, and subsoil drainage.

PSLE 2 MATERIALS (Clause 3.1)

The storm water pipes including couplings shall be concrete pipes (various sizes as indicated in the schedule of quantities) to SANS 677 manufactured with OGEE type joints. The Contractor at each joint shall provide a 300 mm wide wrapping, or rubber collar.

PSLE 4 CONSTRUCTION

PSLE 4.1 PIPES INTO MANHOLES/CATCHPITS (New Clause)

Pipes may protrude up to 300mm into a manhole/catch pit. This relaxation will only be permitted if the pipe does not have to be cut. The “dead space” formed at the end of the manhole is to be suitably benched off to prevent the collection of silt and rubbish.

PSLE4.2 “AS-BUILT” DETAILS (New Clause)

The Contractor shall submit as-built levels, distances between manholes and the grades of pipelines for which he requires payment; at the time he submits his monthly payment claim. A sample form is obtained from the Engineer.

PSLE 5 MEASUREMENT AND PAYMENT

PSLE 5.1 Supply and Install Manholes, Catch pits, etc. (Subclause 8.2.8)

Delete the words “but excluding excavation and backfilling, which will be measured separately” *and replace with* “including dealing with any excavation in all materials (including disposal of surplus) which is additional to that measured under the item for pipe trench excavation (see subclause 8.2.3 of SANS 1200 DB)”.

PSLE 6 SUBSOIL DRAINAGE

PSLE 6.1 General

Details of subsoil drainage are shown on the relevant drawings.

Subsoil drainage will be provided where shown on the drawing and/or where directed by the Engineer and at downstream ends of sections, subsoil pipes will be connected into stormwater catchpits or manholes.

PSLE 6.2 Materials

(a) Subsoil pipes will be HDPe with the materials complying with the relevant requirements of SANS 533 and will have push fit couplings. Three rows of water intake slots, 1.2mm wide, will be symmetrically arranged around the apex of the pipe (220º) with a flow channel at the bottom of 140º.

(b) The pipe must be able to withstand loads in excess of 70kN/m with a minimum infiltration rate area of 5000mm^2 /m with a minimum ring stiffness of 450kPa.

(c) Geotextile will be as specified in Clause 3 of SANS 1200 LE Stormwater Drainage and shall be needle-punched Grade E (160 g/m^2), or equivalent approved products.

(d) Sand backfill to subsoil drains will consist of sand conforming to Table 1 of SANS 1083, compacted to 100% modified AASHTO maximum density.

(e) Stone surround to the subsoil pipe shall consist of 19.0mm coarse aggregate.

PSLE 6.3 Construction

Trench bottom preparation will be in accordance with the applicable requirements of SANS 1200 DB Earthworks (Pipe Trenches). Unless amended by the Engineer, the pipe perforations are to be positioned at the invert of the pipe.

Pipes will be laid with a minimum fall of 1 in 100 and will be jointed strictly in accordance with the pipe suppliers' instructions.

Geotextile will be wrapped around the stone which surrounds the pipe (as shown on the drawings), with a minimum overlap of 200mm, and will be fastened in such a way that it remains correctly wrapped after the sand backfill is placed.

At the upper end of the subsoil drain, the pipe will be closed with an impermeable cap or rodding-eye that can be removed for the purpose of testing and cleaning the subsoil drain. At the lower end, where the pipe connects to a catch pit or manhole, the pipe connection through the wall of the drainage structure will be neatly finished off, with the geotextile folded in, to contain the stone.

Sand bedding, stone and backfill will be placed as specified in the applicable sections of SANS 1200 DB Earthworks (Pipe Trenches).

PSLE 6.4 Tolerances

Tolerances will be as for SANS 1200 LE (Stormwater Drainage)

PSLE 6.5 Testing

Density testing of the sand backfill will be as specified in Clause 7 of SANS 1200 DB Earthworks (Pipe Trenches).

PSLE 6.6 MEASUREMENT AND PAYMENT

Excavation will be as for SANS 1200 DB (Pipe Trenches).

PSLE 6.6.1 Subsoil pipes unit: m

The rate will cover the supply of the pipes complete with couplings and jointing materials, their inspection, transport and handling, laying of pipes, provision of rodding-eyes, jointing, building pipes into manholes, inlets or other rigid structures and all cutting and wastage of materials.

PSLE 6.6.2 19.0mmStoneLayer unit: m^3

The volume will be computed from the dimensions shown on the drawings.

The rate will cover the supply of the stone (no haulage payable separately) and placing of the stone around the pipe to the required dimensions.

PSLE 6.6.3 Sand backfill unit: m^3

The volume will be computed from the specified trench width, the length called for, and the depth instructed on site, with the volume of the pipe and stone being deducted.

The rate will cover the supply of the sand (no haulage payable separately), placing of the sand in the required stages (which will include raising the height of the sand backfill in separate operations to match the levels of the pavement layers as they are placed), and compaction, trimming and wastage.

PSLE 6.6.5 Geotextile blanket unit: m^2

The area will be computed from the perimeter of the wrapped stone plus the overlap multiplied by the length.

The rate will cover the supply, handling, wrapping, trimming and wastage.

SANS 1200 LD: SEWERS

PSLD 1 SCOPE (Clause 1.1)

This section provides for the supply and installation of minimum 160mm diameter internal and bulk sewers with appurtenant manholes and connections.

PSLD 2 TYPES OF PIPES, PIPE JOINTS AND FITTINGS (Clause 3.1)

PSLD 2.1 The sewer pipes and couplings shall be of the following as detailed on the relevant drawings and included in the Schedule of Quantities:

- Minimum 160mm diameter heavy duty uPVC pipes with flexible coupling to SABS 791 and appurtenant plain junctions.

PSLD 3 STEP IRONS (Clause 3.5.7)

The provision of step irons is not required.

PSLD 4 MANHOLE COVERS AND FRAMES (Clause 3.5.8)

Manhole covers located in roadways or as directed by the Engineer must be supplied with Type (2A) – 153 kg heavy-duty Polymer Concrete manhole covers and frames cast integrally with the top slab. (National Manhole Covers Product No. 119105 or similar approved).

PSLD 5 CONNECTIONS TO MANHOLES (Clause 5.4)

Notwithstanding the provisions of clause 5.4, Drawing No. LD-2 (a) shall apply to uPVC pipes. In addition, the short pipe that is built into the manhole shall have clean coarse sand glued to the outside surface to facilitate a watertight bond.

PSLD 5.1 Finished Cover Levels (New Clause)

Unless otherwise ordered or dimensioned explicitly on the working drawings, the level of the top surface of the cover shall be

- flush with the final surface of a carriageway, footway or any paved areas
- 50 mm above the surface of a grassed or gravelled verge, or service lane
- 250 mm above the finished ground level for manholes situated at the mid block of private or municipal property.
- 500 mm above ground level in undeveloped open space.

PSLD 6 WATERTIGHTNESS OF MANHOLES (Clause 7.2.6)

All manholes will be subjected to a test for water tightness.

PSLD 7 TOLERANCES (Clause 6.0)

PSLD 7.1 The permissible deviation of the location in plan, of the centre line of the sewer and of the position of manholes and junctions, from the designated location shall be ± 50mm.

PSLD 7.2 The permissible deviation from the designated level to the invert at each manhole shall be ± 5mm and the fall between successive manholes shall be at least 90% of that specified.

PSLD 8 TESTING (Clause 7.0)

PSLD 8.1 Torch and Mirror Test (New Clause)

For the pipeline to be acceptable the visibility of the plug/reflector shall be at least 50% of its area.

PSLD 8.2 Acceptance Criteria (New Clause)

The acceptance of the pipe length or manhole shall depend upon whether it satisfies the criteria set out in SABS 1200 LD clauses 6 and 7.

Where pipes other than vitro clay pipes are laid, only tests carried out on the pipelines after completion of the backfilling to ground level (excluding surface restoration) and completion of the construction of manholes to roof height, including benching, will be considered for acceptance purposes.

In the case where vitro clay pipes are being laid, no pipelines are to be covered prior to inspection and approval by the Engineer. Once the pipeline has been laid and bedded in the compacted bedding cradle (to half pipe) between control points, the Engineer must be called out to inspect the installation. The Contractor is to provide the necessary equipment in order for the Engineer to adequately assess that the pipeline has been laid to the specified tolerances. Further, an air test, in accordance with the specifications, is to be conducted and witnessed by the Engineer prior to the placing of the Fill Blanket.

PSLD 8 CONNECTIONS TO EXISTING SEWERS AT MANHOLES (New clause)

The contractor shall under no circumstances connect the new reticulation into the existing without the prior written instruction of the Engineer. This instruction will only be given after acceptance, by the Engineer, of the sewer lines and manholes of the new reticulation upstream of the connection point.

The rate for this item shall allow for accommodation of flow in existing sewer mains and all other incidental labour and material required while making connections into and altering benching in existing manholes.

PSL SANS 1200 L: MEDIUM PRESSURE PIPELINES

PSL 1 SCOPE

All water pipelines in this contract shall be deemed to be medium pressure pipelines.

PSL 2 MATERIALS (Sub-clause 3.1)

PSL 1.1 CI PIPES FITTINGS AND SPECIALS

Add: " All cast iron fittings to be cement mortar or coated with Rilsan or fusion-bonded epoxy"

PSL 1.2 STEEL PIPES, FITTINGS AND SPECIALS

Delete sub items 3.4.2 and 3.4.3 and replace with the following:

- "All steel pipes, fittings and specials, larger than 150mm diameter to be 4.5mm wall thickness, grade B steel to SANS 719/1971.
- All steel pipes, fittings and specials, 150mm diameter and smaller to be heavy duty to SANS 62.
- All bolts, nuts and washers to be stainless steel.
- All steel pipes, fittings and specials to be Rilsan coated. "

PSL 1.3 uPVC PIPES AND SPECIALS

uPVC pipes and specials to comply with to SANS 966 part 1 specification.

PSL 1.4 FLEXIBLE COUPLINGS

Add: "The shortest length of pipe which may be used in the pipeline is 0,5m, thus the shortening of an adjacent pipe may be necessary so as to ensure compliance with the position of the specials. When pipes of 1,0m or less, in length, are used they shall be jointed by means of C.I. short collar detachable couplings".

PSL 1.5 Flanges and Accessories

Add to sub-clause 3.8.3:

"The insertion piece shall be such as to cover the full face of the flange (i.e. the O/D). Bolts and nuts shall comply with SANS 135. Drilling shall conform to BS4504 Table 16/11".

PSL 1.6 Loose Flanges

With regard to sub-clause 3.8.4 the following standard shall apply:

"Bolts and nuts shall comply with requirements of SANS 135".

PSL 1.7 VALVES

Delete the contents of this Sub-clause and replace by:

"Only one type of valves is acceptable:

a) Wedge gate type valve

Valves shall comply with the requirements of SANS 664-1989 as amended, and shall bear the SANS quality mark. A test certificate as per Clause 3.5.20 of compliance with SANS 664 will be acceptable.

Valves shall display the following features;
- A minimum of 250 microns coating of Rilsan Nylon 11.
- Class 16
- Clockwise closing
- Non- rising spindle type with cap.

- May have spigotted, socketted or flanged end connections. When flanged valves are specified, the drilling shall be to Table 16/11 of BS 4504".

PSL 2 CONSTRUCTION (Sub clause 5)

PSL 2.1 General

Add to sub-clause 5.1.1

"The center line of the pipeline shall normally be 2,5m from the road reserve boundary inside the road reserve. The pipeline is to be laid continuously and leaving gaps for fittings will not be allowed.

PSL 2.2 Depths and Cover

Unless otherwise shown on the drawings or instructed by the Engineer, cover to pipes shall be as follows: -

During Construction:

Where construction traffic is liable to cross over pipes, they shall be laid so that there is not less than 0,75m of cover over the pipe. Road crossings shall be constructed after the construction of the road layers has reached the stage where 0,75m cover is available.

Pipes beneath Verges and Open Spaces:

The tops of pipes beneath verges shall be not less than 0,75m and not more than 1,25m below the final verge level.

Supply Connection:

The tops of pipes shall not be less than 450mm and not more than 600mm below the final road surface.

Pipes beneath existing roadways:

The tops of pipes beneath a road shall not be less than 1m and not more than 1,25m below the road level.

PSL 2.3 SETTING OF VALVES, SPECIALS AND FITTINGS

Add to Clause 5.3:

"The hydrant shall be bolted to the tee such that the outlet is in line with the pipeline. Valves shall be positioned opposite the erf splay peg at intersections".

PSL 3 TOLERANCES

PSL 3.1 CONTROL POINTS

Add: "Valves shall be located as indicated on the plan layout opposite the boundary peg of the erf, and to within a longitudinal tolerance of 100mm."

PSL 3.2 ALIGNMENT (PLAN AND LEVEL)

Add to last sentence: "provided this does not result in a reversal of the grade of the pipeline."

PSL 3.3 Testing of pipelines

PSL 3.3.1 Test pressure (sub-clause 7.3.1)

All pipes shall for test purposes be assumed to have a working pressure of 600kPA for class 6 pipes, 900kPA for class 9 pipes, 1200kPA for class 12 pipes and 1600kPA for class 16 pipes. Test pressure for field-testing shall be 1.25 times the working pressure. The Contractor shall allow for the testing of pipes in short sections so that the difference in minimum and maximum pipe elevation does not exceed 60m for class 6 pipes, 90m for class 9 pipes, 120m for class 12 pipes and 160m for class 16 pipes.

PSL 3.3.2 Method of testing

a) The Contractor shall provide an approved test pump, an accurate water meter, sealed pressure gauge, tested and certified by an independent testing organization, and all other equipment, materials and labour required for the test.

b) The section of pipeline to be tested shall be clean and closed off at the ends by isolating valves, end caps or approved end-closure pieces. Free ends shall be firmly strutted against solid supports or trust blocks designed to withstand safely 2 times the calculated and thrust under maximum test pressure. It shall be incumbent on the Contractor to establish the need for blank flanges or isolating valve flanges in order to limit leakage rates past gates, blades and seals.

c) During this initial filling stage, the pipeline joints and all specials, fittings and valves shall be visually inspected for visible leaks and same rectified before proceeding with the test.

d) The pressure shall be maintained for one hour and if a pressure drop occurs, more water shall be added to reinstate the test pressure and the valve closed again. The quantity of water added shall be measured by recording the readings before and after pumping.

This procedure shall be repeated for a period of 24 hours, with water added at hourly intervals where necessary to reinstate pressure and water meter reading recorded. At the end of the 24-hour period, the aggregate quantity of water required to reinstate pressure over 24 hours shall be determined.

e) The contractor shall give the Engineer 48 hours written notice of his intention to commence pressure testing and the Engineer may attend and supervise all or any part of tests. All records and recording charts shall be handed to the Engineer as soon as tests over any section have been completed.

f) All valves, specials, fittings and exposed joints, shall be inspected visually during the 24 hours pipeline test and all visible signs of leaks, sweating and distress shall be reported and attended to without delay.

PSL 3.3.3 Remedial Measures

a) Should the maximum leakage limits as specified be exceeded; the contractor shall determine the position and cause of the leaks and shall take remedial measures at his own expense and to the satisfaction of the Engineer to stop such leaks to ensure the specified degree of water tightness.

b) If during the contract period of maintenance, the number of leaks and other defects is considered by the Engineer to be more than could reasonably be expected from a well-laid pipeline operating under normal conditions, he may order the contractor to retest parts or the whole of the pipeline at the Contractors own expense and no claims for escalation in costs or for whatever other reasons the Contractor might consider to submit claims shall be considered, except where such retests are the result from damages caused to the pipeline by the Employer.

PSL 3.4 Anchor / thrust blocks and pedestals

Dimensions at all anchor / thrust blocks shall be supplied by the Engineer as and when required. The Contractor shall request such information not less than seven (7) calendar days in advance.

PSL 4 MEASUREMENTS AND PAYMENT

PSL 4.1 Supply, lay and bed of pipes complete with couplings Unit: m

Notwithstanding the provision of sub clause 8.2.4, 8.2.6 & 8.2.7, separate items will not be scheduled for the cutting of pipes. The rates tendered shall include the supply & fixing of extra coupling, supply & installing joints special couplings, and the encasing of joints.

PSL 4.2 Extra over PSL 4.1 for the supply lay and bed of fittings and specials complete with couplings

Notwithstanding the provision of sub-clause 8.2.4, 8.2.6 and 8.2.7, separate items will not be scheduled for the cutting of the pipe. The supply and fixing of the extra couplings, supply and installing joints with machined collars and special coupling, and the encasing of joints will therefore be deemed to be included in the rates tendered.

SANS 1200 ME: SUBBASE

PSME 1 SCOPE (Clause 1.1)

This section also covers the construction of 150 mm thick G5 gravel subbase layer in roadway.

PSME 2 SUBBASE MATERIALS (Clause 3.2.1)

Delete subclause (a) to (c) and replace with:

"(a) The subbase material required shall be a G6 quality material as specified in Table 3B (under SANS 1200 M: Roads (General))

PSME 3 PLACING (Subclause 5.4.1)

The subbase layer shall be 150mm thick unless shown otherwise on the drawings.

SANS 1200 MF: BASE

PSMF 1 SCOPE (Clause 1.1)

This section covers the construction of a 150mm thick C4 sbalised G5 material.

PSMF 2 MATERIAL (Clause 3.1)

The base material shall consist of a graded, gravel aggregate from a commercial source, which shall comply with the requirements specified in PSMF3

SANS 1200 MM: ANCILLARY ROAD WORKS

PSMM 1 SCOPE

Add the following clause 1.1(d):

(d) This specification also covers the construction of Flora or similar approved protection works.

PSMM 2 MATERIALS

PSMM 2.1 300mm Block (New Clause 3.5)

Due to the numerous proprietary brands of gravity earth retaining systems, all with their particular design parameters, the gravity earth wall design is based on the Flora Block retaining system, with the following requirements: -

(a) The blocks shall be cast in concrete with a minimum 28 days cube strength of 25 Mpa. All aggregates, and the concrete in general, shall conform to the requirements of GA: Concrete (small works)

(b) The Block shall be of the “open back” type.

(c) The proposed blocks shall have a unit mass equivalent to that as set out below:

Block	Equivalent Unit Mass Requirements
Flora B 300	500kg/m^2

(d) The block shall be able to resist sliding shear of 14kN per linear meter by means of a shear nib cast monolithic with the block.

(e) The Engineer and any person authorised by him shall at all times have access to the works and to the pre-casting yard.

(f) The blocks shall be delivered to site in such a manner that they do not become damaged. Any damaged, cracked, or blocks with any other defects shall be rejected by the Engineer’s representative.

PSMM 3 SUPPLY AND INSTALL 300 GRAVITY RETAINING BLOCKS (Clause 8.6)

unit: m^2

The rate shall include for its supply, cutting and waste.

PARTICULAR SPECIFICATIONS – MECHANCIAL AND ELECTRICAL

1. MECHANICAL

1.1 Pricing

The limits of the mechanical engineering scope of the works are to the outside of the steel fittings were converted to uPVC which includes the steel to uPVC adaptor on all mechanical installations. This includes all internal pipe work, valves pumps and fittings to specifications the specifications laid out below and in the bill of quantities.

The civil contractor is to construct the units allowing boxouts or recesses were required to the mechanical contractors' requirements. The onus is on the mechanical engineer to ensure pre inspection of such openings to ensure correctness prior to required installation date.

All pricing to include

- All health and safety standards referred to as the SANS 10142-1 and government gazette requirements relating there to.
- The preparation of and supply for approval of GA drawings.
- Supply, manufacture, store and deliver to site.
- Installation and Commission and up-hold the Hand Screen for 12 months retention period.
- The Tenderer/Contractor to submit the technical data on the equipment.
- The Tenderer/Contractor must include in his prices all O&M training on the supplied & installed equipment.
- The Tenderer/Contractor must only price IE3 premium efficiency motors for the equipment.

Training

- The training of clients proposed staff to meet the requirements of operator levels inclusive of recognized NQF level of certification for position of employment
- The training of staff in O&M during the 12-month retention period on the special characteristics the supplied & installed equipment.

1.2 Mechanical Specifications

1.2.1 Iron and Steel Specifications

- All steel in contact or proximity to the water/wastewater to be stainless steel grade 304 inclusive of bolts washers and other fixings
- All peripheral steel to be pre-manufactured prior to being hot dipped galvanized to EN 10240:1999 and ISO 1461:1999 on coatings on fabricated iron and steel articles

1.2.2 Iron and Steel Pipe work

- All mild steel pipes shall be spirally, and butt welded
- For the design of pipe fittings and specials, care must be taken to allow adequate spacing for bolts, flange adaptors, anchor blocks, etc.
- All mild steel pipes and fittings/specials shall be designed, manufactured, tested and inspected in accordance with the latest issues and specifications of - SANS 719: Steel Grades A, B and C - SANS 1431: Steel Grades 300 WA and 350 WA - API 5L: Steel Grades X42, X46, X52, X56 and X60 - EN 10025-2: Steel Grade S355JR + AR (where specified for specials)

- All mild steel pipes and fittings shall be externally coated and internally lined, a two-component cross linked epoxy that complies with the requirements of SABS 1217. The Target Thickness of lining must be (minimum 500 µm and maximum thickness 800 µm). Maximum dry film thickness per coat of 125 µm to 250 µm must be achieved. The pipe material must be prepared as required in the epoxy manufacturer's specifications.
- Flexible couplings shall be manufactured from hot rolled asymmetric steel T sections with a profiled rolled steel sleeve and accommodated with an EPDM gasket. All bolts shall be of D cup head low carbon steel. All flexible couplings shall be fusion bonded powder coated.
- All flanges shall be manufactured from mild steel in accordance with SANS Table 1123 and finished to an acceptable machined finish. 1.1.5. Bolts and nuts for flanges / couplings All bolts and nuts shall be SANS 1700 Gr 8.8 mild steel or hot dipped galvanised to SANS 763.

1.2.3 Valves

Isolating valves

All valves shall be anticlockwise, LEFT-HAND closing. All sizes are nominal (DN) with a minimum working pressure rating of 16 bar (PN) which are suitable for dealing with a maximum working pressure of 1 600 kPa.

All gate valves shall be the RSV type (AVK, or similar approved, PN 16 minimum pressure, to SABS 664, cap top, non-rising spindle and anti-clockwise closing and shall be internally and externally epoxy-coated

Butterfly valves

Butterfly valves (Sal valve, Bermas, Gurnick Ainsworth should be considered in cases where the pipe diameter is greater than 300 mm, with approval from the engineer.

Butterfly valves shall be of the gearbox-operated system, flanged and drilled to SABS 1123.

Butterfly valves shall be of the worm gear operated system. The valve body shall be cast from SG 42 iron with integral shaft hubs and an operator mounting flange in stainless steel. The valve disc offset shall be of a single eccentric type with a highly efficient hydrofoil profile to maximize the open flow area and cast from the same material as the body. The valve seals
shall be precision injection molded from Nitrile rubber and fitted within the body perimeter. Valve bearings shall be of the low friction PTFE type where no lubrication will be needed. Manual gear operators shall be of quadrant worm reducers, keyed to the valve shaft and fitted with hand wheel or cap top positioning bolts for disc adjustment. Valves may be painted
with a primer coat and a final enamel, but preferably fusion bond powder coated.

Pressure and Flow Control Valves

All PRV's and FCV's (Cal-Val, Bermas or similar approved and shall be properly designed and installed and housed in a reinforced concrete chamber.

1.2.4 Valves Material Standards

The typical reduction ratio of PRV's is ± 1:3. Systems that operates at higher pressures may require the PRV installations to be designed in a series configuration.

For ease of maintenance and repair, the use of smaller diameter PRV's is preferred. However, should 500 mm diameter PRV's be required, suitable lifting equipment must be provided.

FCV shall be hydraulically operated globe valves. The inner valve assembly shall be top and bottom guided by means of bearing bushings. The inner valve assembly shall be the only moving part and shall be securely mounted on an AISI 316 Stainless Steel stem. Lower grades of Stainless Steel shall not be acceptable. The Stainless-Steel stem shall be provided with wrench flats for ease of assembly and maintenance. Wrench flats will be fully accessible when inner valve is assembled.

All pressure containing components shall be constructed of ASTM A536-65 / 45 / 12 ductile iron. Valves shall be provided with smooth frictionless motion and maximum low flow stability with actuation being achieved by the use of Rolling Diaphragm technology. Rocky Drift WWTW (3 ML/day)

PLANT EQUIPMENT SUPPLY

Valves shall have a protective fusion bonded epoxy coating internally and externally to a minimum of 250 microns. The protective fusion bonded epoxy coating shall conform to the ANSI / AWWA C116 / A21.16 (current version) specification.
No machining of any external parts after final coating will be acceptable to ensure a continuous coating surface throughout the entire valve.

The valve cover shall have a separate stem cap giving access to the stem for alignment check, spring installation and ease of assembly. Valve bonnets shall be accurately located to bodies utilizing locating pins. Locating pins shall eliminate corrosion resulting from the use of uncoated ductile iron to ductile iron surfaces. Valves with lipped spigot covers shall not
be acceptable due to risk of rust and difficulty in assembly.

Valves shall have the AISI 316 Stainless Steel seat and shall incorporate a two-piece seat and bottom guide design. The valves shall form a drip-tight seal between the stationary stainless steel seat ring and the resilient disc, which has a rectangular cross-section and is retained by clamping on three- and one-half sides. The resilient disc shall be constructed of EPDM for normal service conditions.

All external fasteners shall be AISI 18-8 Stainless Steel with AISI 18-8 Stainless Steel washers. Mild steel studs or bolts will not be acceptable.

All repairs and maintenance shall be possible without removing the valve from the line. To facilitate easy removal and replacement of the inner valve assembly and to reduce unnecessary wear on the guide, the stem shall be vertical when the valve is mounted in a horizontal line.

Each valve shall be air tested prior to shipment. The standard test shall include leakage test, seat leakage test, and stroke test. The valves shall be covered by a minimum three years (3) warranty against defects in materials and workmanship. The stainless-steel seat shall be covered by a lifetime replacement warranty.

The auxiliary control system shall be fitted with a large filter assembly, to prevent fouling of the control system. This filter shall be fitted with a transparent drain cap, which allows maintenance personnel to inspect the strainer, without the need to shut of the system, or remove the strainer from service. The main valve body shall be fitted with a visual position indicator, to offer the maintenance personnel visual indication of the valve position, as well as opening and closing speed controls.

The strainer shall have an integral blowdown valve and discharge tube for facilitate the ease of maintenance.

Air Valves

All air valves shall be Vent-O-Mat type or similar approved.

1.1.7.4. Non-return / reflux / check valves NRV's / reflux valves / check valves may be swing check type with a PN 16 minimum pressure rating. The valves shall be suitable for either horizontal or vertical mounting with the angle of the door ensuring that closure starts at the point where forward flow declines.

The disk and hinge shall be fixed in the valve bonnet for easy access and maintenance. The body configuration shall be such that friction losses are minimized. The disc shall be fully encapsulated with rubber to prevent corrosion and ensures a drop tight shut-off, while the seat shall be hydraulically pressed into the body. The valve hinge shall be designed to adjust
itself accurately to the plane of the seating under load.

Arm-weight type NRV's can also be considered if on prior approval by the consulting engineer.

Flow / water meters

All 300 mm diameter and above flow meters are to be electromagnetic flow meters and shall be Class 16, to be supplied, delivered, installed and commissioned.

The flow meter shall be of the electromagnetic type, utilizing pulsed DC excitation and shall be microprocessor based. It must be capable of measuring flow rate and flow total in both directions, with two independent totalizers to give flow for network management purposes. There shall be separate isolated analogue (4 to 20 mA) and pulse outputs (volts free) for forward and reverse flow. These outputs shall be fully user configurable.

The meter shall offer lifetime stable zero so that routine zeroing is not required. The meter shall automatically indicate zero flow under empty pipe sensor conditions.

Condition monitoring of the sensor, transmitter and interconnection cable shall be available to provide verification of long-term satisfaction field system operation. This shall be traceable and shall conform to ISO 9000 series quality standards. The meter shall be designed and manufactured under the ISO 9000 series quality standards. The meter shall have lay lengths to current ISO standards for magnetic meters to facilitate interchangeableness of products.

The wetted materials shall be compatible with, and suitable for, the appropriate application. An internationally recognized

1.2.5 Pumps

Pumps manufactured by (Grundfos, Gorman Rupp, Flight) should be considered in all cases to suite pumping requirements deviations to this must be approved by the client/engineer.

All dry running pumps are to be Centrifugal self-priming pumps as per the billed specified item, complete with base plate, high efficiency motor and coupling. The pumps are to operate as 1 duty 1 standby have individual suction pipes with isolation valves installed as per civil drawings details.

Condition monitoring of the sensors, transmitter and interconnection cables shall be able to
achieve the designated duty head and required flows.
All pumps shall account for the minimum NPSH requirement at invert level of its structure and to be able to cope with raw sewage contaminates.

All pipe work to conform SANS 1600/3

All pumps to be fitted with isolation valves, ball type non return valves, dismantling couplings and air release valves for ease of maintenance taking into cognizance continued operations on removal of pumps for maintenance purposes.

All pumps to have a Glycerin filled pressure gauge on the suction and delivery end of each pump.

All submersible pumps to be fitted with guide rails and galvanized chains for ease of removal during maintenance purposes. All pumps are to conform to billed items and to of

2. ELECTRICAL

2.1 CONTRACTOR DESIGN AND OBLIGATIONS

The Contractor shall be responsible for the workshop drawings and wiring diagrams required for the manufacturing and installation of motor control centres , buildings and instrumentation.

2.2 QUALITY OF MATERIALS

Only materials of first-class quality shall be used and all materials shall be subject to the approval of the employer's agent prior to installation. Departmental specifications for various materials to be used on this contract such as department public works and infrastructure standard electrical specification (section A, B and C) are not attached but form part of this specification and available on the department website and fromthe employer's agent on request.

Wherever applicable the material is to comply with the relevant South African Bureau of Standards, department of public works and infrastructure electrical specifications which are available or to IEC Specifications, where no SANS specifications exist.

Materials wherever possible, must be of South African manufacture.

2.3 TRAINING AND MAINTENANCE DURING DEFECT LIABILITY PERIOD

The Contractor shall inform the Engineer on the completion of the project and provide training to the person(s) responsible for the operation and maintenance of the project. The training shall be conducted for a period equivalent to 8 hours, starting with the basic information and getting into detail as time progresses. The training will be scattered into a minimum of 2 days.

Training shall not be conducted unless materials and planned procedure is approved by the Engineer and the client representative. The number of personnel to attend the training shall be determined by the Client and contractor to ensure they all have training materialas may be required.

During the defect liability period, the Contractor shall be responsible for the complete maintenance of equipment and plant according to the suppliers/manufacturer's specifications. Maintenance of the installation shall mean the regular servicing, lubrication, repairing, cleaning and adjustment of the installation as recommended by the manufacturers as well as the free of charge replacement of any defective componentsduring this period.

A suitably qualified and trained person shall routinely and regularly examine and test the installation once every 3 months and shall also perform all the necessary maintenance tasks to ensure smooth and faultlessoperation. A quarterly report shall be submitted to the Engineer.

The Contractor shall immediately, on the day of first call-out, attend to breakdown/emergency calls. In the event of non-performance by the Contractor in this respect, the employer shall be entitled to make such otherarrangements as are necessary, the cost of which shall be for the Contractor's account or deductible from any outstanding retention monies.

A logbook shall be kept and all servicing and repairs shall be recorded in this logbook with meticulous care.The logbook shall at all times be put at the disposal of the Engineer. The Contractor shall issue the logbookwith full record of all services and repairs to the employer after the defect liability period has expired.

2.4 OPERATION AND MAINTENANCE MANUALS

Three (3) sets of comprehensive operating instructions and maintenance procedures shall be provided on completion of the commissioning of the installation

One draft copy shall be submitted for scrutiny PRIOR to any commissioning.

2.5 FIRE EXTINGUISHERS

Portable fire extinguishers containing liquefiable gaseous halons for Class S, B, C and E fires shall be installed. Areas with a room floor area not exceeding 50m² shall be equipped with a 2.5kg unit and rooms bigger than 50m² shall be equipped with a 4kg unit and equivalent mass of smaller units. In structures where more than one room is incorporated, housing different hazardous points, each room shall be equipped with appropriate extinguishers, e.g. a generator room with a separate fuel store.

Portable extinguisher shall comply with SANS 0105. Fire extinguishers shall be installed near exits or alongexit routes in conspicuous and unobstructed positions and marked with conspicuous signboards. The extinguisher must be so installed that the carrying handle is 1.25m above floor.

Extinguishers that are to be mounted outside and adjacent to the main entrance door shall be mounted witha suitable cupboard.

2.6 PLANNING AND PROGRAMING

The Contractor shall provide and maintain a detail construction program indicating duration of all manufacturing processes, transportation, delivery and installation dates.

There are no constraints on the execution of the work. However, any disruption of the normal working of theplant must be planned and co-ordinated in conjunction with the Engineer and Client

2.7 SEQUENCE OF WORK

The electrical works shall be coordinated with the mechanical and civil works to ensure smooth execution.

2.8 OTHER CONTRACTORS ON SITE

Should other contractors be required on site coordination between the concerned parties would be essentialand this should not interfere with the works under this contract in any significant way.

2.9 ELECTRICAL SPECIFICATION

2.9.1 MOTOR CONTROL CENTRE (MCC)

The MCC is to be manufactured from 3CR12 with a minimum thickness of 1.5mm. The MCC is to be light orange with smooth white back plates, finished from baked enamel with dry fil thickness of at least 0.1mm. Immediately after cleaning all surfaces shall be covered by a rust inhibiting, tough unbroken metal-phosphatefilm and then thoroughly dried. The paint shall have an impact resistance of 5,65 J on cold-rolled steel plateand a scratch resistance of 2kg.

The MCC shall be IP 54 rated and shall be specifically sized for the equipment for which it is to house. TheMCC shall be designed in such a way that adequate heat dissipation is accomplished in order to prevent anyde-rating of equipment or premature tripping of circuit breakers or any other electrical devices.

Variable Speed Drive (VSD)

All electrical motors motor shall started using variable speed, only the submersible pump motor shall start using direct online starter. Each variable speed drive shall be rated at the rating of the motorand shall digital keypad and display screen with keys such as run, stop/reset, forward or reverse, hand, auto,and menu etc. It shall be designed to fit inside the MCC and shall have a built-in active front end rectifiers toreduce harmonics. It shall be rated at minimum input voltage of 230V phase to neutral and 400V phase to phase and shall have a minimum overload tolerance of 120% of rated current for at least 1 minutes every 5 minutes and a minimum 160% of rated current for 3 seconds during every 25 seconds.

2.9.2 CONTROL PHILOSOPHY OF THE WATER TREATMENT MOTORS

Modes of operation

The equipment shall operate in three modes of operation ‘AUTO’, ‘MAN’ & ‘OFF’ and shall be available via a 3-position selector switch on the control starter panel door.

With the selector switch selected in ‘AUTO’ the control shall be as follows:

The equipment will automatically flip flop, starting and stopping according to the start and stop conditions asstated above.

All fault and alarm conditions will need to be reset manually from the pump station when selected in

‘AUTO’.With the selector switch selected in MAN’ the control shall be as follows:

In the manual selected position, the pumps shall be started manually by means of separate start and stop push buttons for each pump.

Manual operation is not to be the normal mode of operation and is only to be used for testing and maintenance purposes, therefore the operation shall be manned at all times during such operation with skilled and trained operators.

With the selector switch selected in ‘OFF’ the control shall be as follows:

No control shall be possible and any previously running equipment shall stop.

Pump & Motor Protection

The following pump and motor protection shall be available in the operational modes indicated in the tablebelow:

TYPE OF PROTECTION	**AUTO**	**MAN**	**OFF**
Short circuit & overcurrent protection			
Over & under voltage			
Phase sequence & imbalance			
Low & high level (float switch)			
Motor high temp			
Phase angle / Under load Protection	×	×	

Any fault condition that occurs must be indicated by an illuminated indication light and prevent any further operation of the pump until the reset push button has been pressed. Only once the fault has been cleared and the reset button pressed should the indication light go off and normal operation allowed commencing. All protection and float control circuits **must be wired failsafe.**

2.10 DE-COMMISSIONING OF THE EXISTING PANELS

The existing electrical equipment is to remain in service until the new MCC has been installed and commissioned for a trouble-free period of at least 1 week. Only once a trouble-free period of 1 week has been reported to the Engineer shall permission be granted to the contractor to proceed with the de-commissioning and upgrading of the existing. Should this not bea viable solution a new plan shall be established and presented to engineer for approval. The newly established plan shall ensure that the Hospital has enough water all times.

2.11 LIGHTNING PROTECTION

All equipment in the control MCC shall be adequately protected against lightning and lightning induced disturbances on the control and power cables. Suitable lightning suppressors, surge arrestors and circuit breakers shall be provided to suit the particular application.

2.12 GENERAL ELECTRICAL REQUIREMENTS

The Contractor shall refurbish the general electrical installation on site including all small power outlets andluminaries.

E.13 LOW VOLTAGE (L.V.) CABLES AND TRENCHES

Supply and install the following L.V. cables. The cables shall comply with the requirements of SANS 1507as amended. The cables shall be of the PVC/PVC/SWA/PVC type.

2.14 IDENTIFICATION OF CABLES

Cables shall be identified at all terminations by means of punched metallic bands or marked with labels or tags. (Refer also to SANS 10142). The use of PVC tape with punched characters is not acceptable. The identification numbers of cables shall be shown on "as built" drawings of the Installation.

2.15 TESTING

Each cable shall be tested after installation in accordance SANS 1507 (up to 1 kV) and SANS 97 (up to 11kV) as well as the requirements of the Local and Supply Authorities.

LV Cables shall be tested by means of a suitable megger at 1 kV and the insulation resistance shall be tabulated and certified.

The Contractor shall make all arrangements, pay all fees and provide all equipment for these tests. The cost of testing shall have been included in the tender price.

The Contractor shall notify the Department/Engineer timeously so that a representative of the Departmentmay witness the tests.

On completion of the tests on any cable, the Contractor shall without delay, submit three copies of the certified Test Reports to the Department/Engineer.

2.16 NEW LUMINAIRES

Description/Specification	Typical Fitting
Surface mount 40W LED luminaire with 4000lm and dimensions of (LxWxH) 1270 x 86 x 90 mm shall consistsof an injection-moulded, flame-retardant polycarbonate housing and prismatic diffuser. A powder coated white reflector and control gear tray upon which all electrical components shall be mounted and secured by means of multiple twist lock latches to secure the reflector to the housing. Silicon sponge seal shall be moulded into the housing to ensure an optimal seal between the housing and the prismatic diffuser. Two of the stainless-steel latches shall facilitate the hinging of the diffuser and ensure correct alignment when closing the diffuser. It shall be designed to operate LEDs of up to 65W.The luminaire shall come complete with constant current driver,1.7 to 2.3kg weight, mains tolerance of ± 10% at 230V voltage supply, line frequency of 50Hz, Class I electrical safety class, 10kV/10kA surge protection, power factor of ≥ 0.95, operating temperature of -30 to +35° C, enclosure tightness of IP 65 and mechanical withstand impact of IK07.	
Surface mount 13W LED luminaire with 2000lm and dimensions of 280mm diameter shall have base and trimring manufactured from of high pressure die-cast marinegrade, the trim ring casting shall be mounted onto the base casting by means of stainless steel M5 Allen head screws located outside the lamp compartment. The baseand trim shall be finished with epoxy powder coating. Anopal non-discolouring high impact acrylic injection molded diffuser shall be used and shall offer excellent vandal resistance, be highly translucent and shall not discolour even when subjected to the harshest UV environments. A silicon sponge gasket shall be fitted intoa special groove in the diffuser to prevent damage to thegasket during installation and to achieve the certified ingress protection rating of IP65, It shall be designed to operate LEDs of up to 13W.The luminaire shall come complete with 300mm supply lead, constant current driver, mains tolerance of ± 10% at 230V voltage supply,line frequency of 50Hz, Class I electrical safety class, 10kV/10kA surge protection, power factor of ≥ 0.95, operating temperature of -20 to +35° C, and mechanical withstand impact of IK08.	
Wall mount (flood mounting) 55W 24LED luminaire with 7012lm and dimensions of (LxWxH) 3396mm x 249mm x63mm shall have body manufactured from marine grade aluminium, high-impact polycarbonate protector and painted finish, housing shall be corrosion-resistant high- pressure die-cast and shall provide access to photometric engine and electronic assembly in case of upgrading or replacing components. The luminaire shall have certified ingress protection rating of IP66, It shall bedesigned to operate LEDs of up to 55W.The luminaire shall come complete with constant current driver, mains tolerance of ± 10% at 230V voltage supply, line frequency of 50Hz, Class I electrical safety class, 10kV/10kA surge protection, power factor of ≥ 0.95, operating temperature of -20 to +60° C, and mechanical withstand impact of IK10.	

2.17 CONDUIT AND WIRING

Galvanised plain-end steel conduit shall be used for lighting and power installation, all conduit shall bechased into wall unless an agreement between the engineer and contractor has been reach to have it surface. All wiring shall be channelled through conduit throughout the installation and 2.5mm^2 single core stranded conductor shall be used for lighting and 4mm^2 shall be used for single phase socket-outlet points unless. Provisional quantities of conduit, wiring and small power outlets have been included in the bills of quantities. Instructions as to the final requirements will be issued during the construction stage. All items will be re-measurable.

E2.18 TELEMETRY

The Contractor will be responsible for the supply, installation and commissioning of a new telemetry system.The Telemetry units will be wall mounted on enclosures manufactured from 3CR12, with baked enamel finish. All Telemetry radios are to operate on the 433.05 - 434.79Mhz licence free bandwidth. All telemetry shall be12 VDC operated with battery backup. A minimum standby time of 24 hours is required.

E2.18.1 TELEMETRY EQUIPMENT

System Overview

The telemetry system supplied will be used for remote monitoring and control to various designated sites.

The system shall not only allow for units that accept direct I/O (e.g. digital, analogue, pulses) but also gateway units that allow direct interfacing to common industrial protocols (e.g. Modbus, Modbus Plus, Ethernet/IP, Profibus, DF1) commonly employed by various PLC vendors as well as third party equipment manufacturers.

It shall therefore be possible to have a combination of both wireless I/O and wireless gateways in a single telemetry system that can scale as the system requirements dictates. The system aims for easy setup and maintenance (by the supplier as well as end-user if necessary). The software to configure and maintain the radios shall be made freely available with this system.

It is strongly advised that radio path testing is undertaken where uncertainty lies on the reliability of the radiosignal strength. The radio telemetry system shall operate in the 430 – 450MHz range with a software-adjustable RF transmit power level of up to 5W.

Principle of Operation

Radio transmissions must occur when an input signal changes (change-of-state). That is, when a digital (e.g.switch contact) input turns off or on, or when the value of an analogue input changes by a pre-configured amount (delta-change), a radio transmission should occur. There should also be regular update transmissions (configurable) to check the value of the input signals and to insure the integrity of the communications signal. The communications status shall be made available as an alarm output. In the eventof a communications failure, it shall be possible to reset digital and analogue outputs to zero.

Input signals should be transmitted in a data frame which shall include the address of the transmitting module(and repeaters if used), the address of the destination module, and a CRC error check. The error check willbe used to ensure that there is no corruption of the data frame during transmission. The same radio moduleshall have digipeating (digital repeating) capabilities as well. It shall also be possible to have peer-to-peer communications between modules – this means that wireless units can transmit directly to any other wirelessunit, and can also transmit to multiple wireless units. There are no master units and no slaves and it shall bepossible for all input signals to be transmitted to multiple destinations.

Each module should have handshaking capabilities over the air so that if transmitting module is suppose to receive an acknowledgment from the receiving module, and the transmitting module does not receive this acknowledgment, it should have retry capabilities. It must be possible to flag a communications failure via adigital output on the unit.

General

Specifications

Power Supply:

The unit should incorporate an internal switched-mode power supply design that will accept an input voltageof 230V +-10% tolerance supply. The unit should also have a built-in battery charger to allow for an uninterrupted power supply and internally automatically switch to 12V battery backup in the event of a powerfailure. On return of main supply, the unit must switch back to mains operation, and charge the battery. It must also be possible to power the unit directly from a 12V battery at the battery terminals. The unit should have the ability to communicate its current state in real time to the RTU, giving the operator the ability to monitor and log voltages and currents as well as battery and AC state. The radios power circuit must have built-in intelligence and should be able to automatically alarm on loss of mains supply, loss of solar chargingor low battery voltage and it should be possible to transmit these alarm signals to remote modules as digitaloutput signals.

Inputs / Outputs Description:
See the technical specifications table below to a description of the I/O capabilities of the radio modules.

RS232 Port:

The serial port must be a 9 pin DB9 female and should provide a connection to a terminal or to a PC for configuration and testing. The port should not be used for radio data communications except in the case of wireless gateways where it could be used for interfacing to a host device such as a PLC.

RS485 Port:

All telemetry modules will have I/O expansion capability via the RS485 port in the event that outstations I/Ocount needs to be expanded. The units must be expandable with up to 31 remote I/O units on the RS485 bus and mounting distances of up to 1200m from the radio should be achievable. The expansion I/O shouldconsist of several options that include Digital, Analogue and Pulse input / output variations.

Software Configuration:

The units should be easy to configure via standard Windows-based software. Programming the units can bedone via a straight serial cable to the RS232 serial port. It must also be possible to extract the software configuration from the module.
The configuration software should be project-based and a single project file shall be used for the complete telemetry installation. There shall be password protection facilities for the project file to prevent unauthorized use. There software shall log and store data as required by the client forfuture use or reference.

Diagnostics and Testing:

The unit should provide diagnostic and test functions by connecting a PC terminal to the module. It should be possible to test both I/O and communication functions. The unit will include a radio strength measurement,which provides an indication of background noise as well as received radio strength. This feature shall allowradio paths to be tested without any additional specialized test equipment. In the case of wireless Gateways,it should be possible to read and write to the actual units data registers for testing and diagnostic purposes.

Summary of Minimal Technical Specifications for Radio Telemetry Equipment.Remote Terminal Unit

Item	**Minimum Specification**
Communication	Data Radios, Cell SMS, Cell GPRS, RS232/485 and Ethernet etc
Features	Real-time I/O device, Intelligent Data Logger, Remote time stamping of event and logged data, Configurable and programmable from the Picasso Configuration Toolbox, modular and easily expandable, EMI Protection, Programmable with PLC Languages, Industrial standard high speed processor, On-Board 1Meg-Word Flash and Gig-Word non volatile RAM, On-Board Real-time clock and watch-dog timer , On-Board LED's indicating the Digital Input and Digital Output Status , Communication Orchestrator, Build to ISO 9000 Standards, 24 I/O's on the main processorboard, DIN,8 AIN,8DOT,connects to interface modules such as I/O lightning protection units, galvanic isolation units for AIN's and 10A Interposing relay modules.
Analog Inputs (AIN)	8 Inputs, 12 Bit Resolution, 0.1 % Accuracy, Single ended, Additional AIN on expansion modules,
Digital Inputs (DIN)	8 Inputs, with LED status display, Opto-Isolated, 5 kV isolation and Additional DIN on expansion modules to accommodate all I/Os
Digital Outputs (DOT)	8 Outputs with LED status display, Open Collector, 250mA sinking perchannel and additional DOT on expansion modules
Other Specifications	Voltage: 9 to 17Volts DC,120mA power consumption,2 x RS232 ports (300to 57600 bps) RJ45(EIA-561 Compatible)
Data Reporting	Data shall be capable of being reported to any SCADA on the communication network. It shall be capable of being configured to sendtext messages to mobile cell phone users to report alarms

Digital Input Surge Protector

Item	**Minimum Specification**
Features	Digital input lightning protection, No isolation available on the module.
Supply Voltage DC	Minimum 9V, maximum 15V and standard 12V
Physical Dimension	61mm x 42mm x 80mm (LxWxH)
Connection Sockets	14-Way Ribbon to the RTU or I/O Modules, 2 x 8 way termination connectors, 4 Way Power Supply 12V+, Ground.
Protection	10kA per channel and maximum input voltage 30Vdc
Channel (I/O)	Four channels

Power Supply

Item	Minimum Specification
DC supply	13.8V (tunable), max 4.3A (split between DC output and battery charge)
AC supply	Input: 90~264VAC, 47~63Hz
Battery supply	Battery charge: max 1.5A
Battery	Low Maintenance Battery 12Volt 18Ah
Rated Power	60W
Protection	Short circuit, overload and over-voltage protection, Battery low, batterypolarity protection

Data Radio

Item	Minimum Specification
Transmission Power	2W
Working Frequency	433MHz, options 402-470MHz
Power Consumption	DC5V Power, receiving current <50mA, transmitting current <1.5A/2W(<1A/1W); Sleeping current ＜1mA.
Receiver Sensitivity	-112dBm
Working Temperature	-40℃~+85℃
Output/ Input Interface	RS 232, RS 485 and TTL
Power control	One sleeping model, awaken from hardware
Circuit Structure	Radio adopts chip integration, the conversion time for transceiver should beshort less than 20ms, all indications consistency and better performance
High Anti-Interference andLow BER (Bit error Rate)	Based on the GFSK modulation mode, it shall adopts the efficient communication protocol. The actual bit error rate shall be 10-5～10-6 when channel bit error rate is 10-2.

Technical Competency

The supplier of the telemetry system must have experience with the radios being supplied and should eitherhave undergone basic training or provide an authorized letter from the local agency indicating that they are able to offer sufficient technical support on the telemetry system.

Service and Maintenance

The type of telemetry system deployed should ensure that in the event of the end user not getting satisfactoryservice from the supplier, they are able to seek assistance and technical support from an alternate supplier.The radio configuration software and all future revisions of it should be freely available to the end-user.

Warranty

The radio telemetry modules used must ensure long-term reliable operation. A limited lifetime warranty fromthe manufacturer should be included as standard on all radio telemetry modules supplied.

E2.19 SCADA (SUPERVISORY CONTROL AND DATA ACQUISITION) SYSTEM

SCADA system shall provide supervisory control, monitoring and management of waste water system, by acquiring and analysing the data from these remote stations. It shall gather the real-time data from the stations, presents the data on various HMIs, records and logs the data onSCADA database management.

Radio telemetry shall gather data from other stations to the main station and the data shall be transferred from main station to the SCADA system via fibre, however the system shall be capable of gathering data from any other station during communication breakdown.

The system shall be so designed to allow addition of future stations which shall be added and form part of the entire system at later stage.

SCADA system shall store received data which shall also be used for trending, alarming, reporting and archiving, this system shall be capable of sending an alarm via sms to the relevant stakeholders in the eventof unattended alarm.

The supply and installation of the system shall come complete with the software, ADSL, correctly sized computer to cater for current installation and wastewater stations which shall be added at a later stage and any other accessories which are required to supply a complete operational system.

The system shall have as a minimum, an operating system of 64-bit windows 8.1 Professional, i7 processor,8 GB RAM and 40inch commercial type computer screen.

C3.5: MANAGEMENT

C3.5 MANAGEMENT

C3.5.1 MANAGEMENT OF THE WORKS

C3.5.1.1 Applicable SANS and SABS Standards

The SANS 1200 Civil Engineering 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 week days 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 refuelling 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 refuelling 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 channelled 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 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, 2014

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 25207 and Regulation Gazette No 7721 of 18 July 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, Schedule of Quantity and Drawings, as well as in the Employers' Health and Safety Specifications (regulation 4(1)) of the Construction Regulations 2014.

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.

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

COVID 19 ADDITONAL HEALTH AND SAFETY SPECIFICATIONS

South Africa's state of national disaster can remain in force as long as Parliament is willing to renew it, and under it the executive branch of the government has the power to make such rules as it deems necessary to save lives. But even after the state of disaster ends, existing laws and regulations on workplace safety, preventing communicable disease can be used to enforce measures to slow the spread of the novel coronavirus.

1. HOW CAN WE PREVENT INFECTION?

The following can provide protection against infection from Coronaviruses and many other viruses that are more common in South Africa:

- Wash your hands often with soap and water for at least 20 seconds. If soap and water are not available, use an alcohol-based hand sanitiser.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Avoid close contact with people who are sick.

- Stay at home when you are sick and try and keep a distance from others at home.
- Cover your cough or sneeze with a flexed elbow or a tissue, then throw the tissue in the bin.
- Clean and disinfect frequently touched objects and surfaces.

These are some of the rules and regulations that should be adopting after the hard Covid-19 lockdown ends.

2. TAKING STAFF TEMPERATURES, AND KEEPING A LOG OF VISITORS

Clients, Staff and visitors will be required to check every person who enters premises, staff and visitors alike, for fever. (An elevated temperature is one of the early signs of Covid-19.) We will be required to keep a log detailing when everyone comes and goes, to make for easier tracing of contacts in the event that one of those people tests positive for SARS-CoV-19 later.

3. AT LEAST 1.5 METRES OF SPACE BETWEEN EACH WORKSTATION – AND EVERYWHERE ELSE

- The standard for the distance between people seems to have settled down to 1.5 metres which will be adopted.
- That is the distance likely to be required between workstations in offices, and also in settings such as meeting rooms.
- Some sectors have argued they simply cannot maintain such distances, for instance on Construction sites, but they may have to explain that to labour inspectors empowered to investigate unsafe working conditions.

4. A CLEAR PLAN ON WHAT TO DO IF SOMEONE SHOWS SYMPTOMS WHILE AT WORK

Workplace safety policies and procedures will be updated on what happens if someone starts showing symptoms of Covid-19, such as a cough or fever, including:

- The responsibility of managers to detect such symptoms and take appropriate action.
- Where personal protective equipment is kept, for use by colleagues assisting the ill person.
- Where an ill person can be isolated from everyone else.
- How the immediate workspace used by an ill person will be sanitised.

See also: South Africa is getting a special three-digit phone number for Covid-19 emergencies

5. STOPPING THE SHARING OF HARDWARE, OR SANITISING PROTOCOLS BETWEEN USERS

Shared computer keyboards or phones in offices, and shared tools in our engineering context is strongly discouraged. Where equipment is unavoidably in common use, that hardware will have to be sanitised between uses, with employees being held responsible for sanitising both and before each use.

6. EDUCATION ON COUGHING, HAND WASHING, AND OTHER PERSONAL MEASURES

Companies are expected to have a specific obligation to educate workers on measures to slow the spread of viral infection, including coughing into the crook of the elbow and washing hands regularly for at least 20 seconds. Refer to Item No.1 for additional measures.

7. LOTS AND LOTS AND LOTS OF DISINFECTANT

Because environments may differ from office to office, we will be expected to:

- Provide hand-sanitising stations, or better yet soap and water, at entry points.
- Ensure the constant and uninterrupted availability of soap and running water in bathrooms.
- Add sanitising agents to cleaning routines, using the likes of bleach or alcohol-based sanitizers (minimum 60% Alcohol Content) to clean everything from laptops and stand-alone machines (keyboards and screen), mouses, desks and other items in constant contact, at least once every hour.

8. CLOTH MASKS AND GLOVES

South Africa's policy of encouraging the wearing of masks (reusable cloth ones rather than the medical equipment in desperate short supply in the health care environment) may have a firmer incarnation in workplace rules after the hard lockdown ends.

Customer-facing businesses like ours, would require us to have visors, masks, or plastic partitions between staff and customers. There is also some debate on requiring mask wearing in office environments, for the duration of South Africa's traditional winter flu season. We would recommend that all staff adhere to this rule post lockdown and for the foreseeable future, until such time that the epidemic has been contained.

Gloves, however, do not feature prominently South Africa's policy; other than keeping gloves around for special use, such as in dealing with an ill colleague. However, we will be adopting a rule where every employee must wear gloves to limit the possible spread of the virus.

1. CONSTRUCTION SITES

The Protocols below will apply at all times where a main Contractor is responsible for Capital Works, Maintenance Works or EPWP Projects. Save for the possibility that the site may not be fenced off as in the case of a traditional site, all OHS Act responsibilities remain together with COVID 19 Health and Safety Measures which should be conducted at the meeting or assembly points generally required for employees and sub-contractors performing Maintenance or EPWP type work.

HAZARD AND RISK CONTROLS

Resumption of operations

- The Security will record the reading of the temperatures taken for individuals. Persons performing these duties shall wear masks at all times whilst doing so.
- Security taking temperature readings will use a clipboard and disposable pens – only receptionist will record the readings of temperature readings at access points
- If temperature is above 37º, wait 5 minutes and retake temperature. If temperature is above 37.3º do not allow access, report to management for further action
- Take every person's temperature entering the premises
- Ensure queue control at access points – stand 2m apart from each other
- Management to conduct COVID-19 induction screening and awareness program, together with PPE training before allowing employees to proceed to their workstations
- Allocate hand sanitizer stations at access points – every person must sanitise their hands prior entering the premises
- Each person entering the premises will be required to sign the COVID-19 declaration and assessment form
- Conduct COVID-19 induction program
- Issue all employees with additional PPE
- Face masks.
- PPE aligned to risk

Premises access control

- All other safety monitoring equipment employed such as alcometers etc. shall be the contactless type or be fitted with disposable mouthpieces. Such equipment shall be sanitized after every use.
- Security will ensure that non-essential visitors are not allowed access to a construction site.
- Contractors will monitor site access points to enable social distancing – contractors may need to change the number of access points, either increase to reduce congestion or decrease to enable monitoring.
- Allow plenty of space (two metres) between people waiting to enter site.
- Remove or disable entry systems that require skin contact e.g. fingerprint scanners or biometric system.

Food handling processes and canteen service

- Management must ensure that different lunch and teatime breaks allocated – to minimise the amount of people accessing canteen areas at a time. Social distancing must be enforced at all times
- Measure and monitor the implementation of the requirements for canteen service providers
- Canteen areas will be disinfected at least twice a day
- Canteen service provider must provide management with a detailed awareness and training, health and hygiene program
- Disinfecting stations must be allocated cash points
- Food service staff must be issued with masks and disposable surgical gloves
- Self-service food stations must not be allowed
- Employees will not be permitted to buy food outside of the premises during working hours and shall bring their own lunch if they do not plan to use the canteen facilities

- Break times should always be staggered to reduce congestion and contact.
- Workers should sit 2 metres apart from each other whilst eating and avoid all contact.
- Disposable plates and cutleries must be used at all times.
- Workers should be asked to bring pre-prepared meals and refillable drinking bottles from home to the extent possible.
- All rubbish should be put straight in the bin by each user.
- All areas used for eating must be thoroughly cleaned at the end of each break and shift, including chairs, door handles, vending machines and payment devices.

Employees required to travel

- Employees
- Delivery Staff
- Critical business travel (locally)

  - Employees using public transport to commute between home and work are to adhere to the strict rules determined for such travel by the Minister of Transport. Such employees shall be issued with masks by the employer as well as hand sanitiser that will be used according to the training provided at the place of employment.
  - In the event that the employer provides transport, this will be done in accordance with the same regulations that apply to that for public transport providers.
  - Employees using company vehicles shall be limited to two per bakkie and 3 per sedan. Employees exceeding one in number shall use masks when travelling in company vehicles.
  - Hand sanitiser shall be provided for each company vehicle.
  - Communication plans such as skype, Zoom, Telephone conferences, WhatsApp video calls or Google workplace video calls will be used to limit the amount of business travel requirements
  - Delivery staff and truck drivers will be issued with hand sanitisers – this must be kept in their vehicle
  - Non-alcoholic swabs will be issued to truck drivers in the event of testing requested by clients
  - Truck drivers shall declare any symptoms that might be linked to the COVID-19 virus to management
  - Trucks will be decontaminated after deliveries and at the end of each shift – decontamination can be done with soap and water
  - Drivers will be scanned by security with infrared temperature devices every time they enter the premises
  - In the event that critical business is required for local traveling via flights – this will only be done by approval of the CEO. A traveling kit will be provided to the individual for business-critical travel upon approval When such individuals return, his/her symptoms shall be monitored daily for 14 days. In the event where the individual shows any symptoms of COIVD-19 he/she will self-isolate for 14 days
  - International traveling will not be allowed, until further notice (Outside the borders of South Africa).
  - If you were exposed to a person who travelled internationally. You will be required to self-isolate for 14 days. Suppliers, customers and sub-contractors.
  - Management will make a decision on what level of interaction is required and limit access to premises for work purposes.
  - Site premises shall be entered for emergency maintenance of equipment when a Contractor/Service provider needs to access equipment on site requiring attention or when a supplier of materials is required to access the premises. Premises access control measures shall apply in these cases
  - Sub-contractors that are on site full time will be required to comply with all protocols as those that are applicable to employees
  - Management will communicate the Company emergency response plans to clients, suppliers and service providers

- The aim is to maintain a relationship and understanding of the benefits of the implemented mitigation
- Limit sites visits and face to face to meetings
- Meetings to be held via Skype, Zoom, Conference calls or other Similar means
- Where critical business meetings are required, the premises access control measures shall apply in these cases

Workplace hygiene

- Rest room facilities will be limited as a measure of control to ensure that facilities are effectively disinfected
- Rest room facilities will be disinfected at least twice a day
- Office environments will be disinfected at least twice a day – this includes offices, meetings rooms, staircase handrails, doorknobs and lift buttons
- Hand disinfecting stations will be provided at every entrance into the building including rest room facilities
- Workplace stations will be disinfected with soap and water after every tea and lunch break
- Any touch system computerised screen will be disinfected with a 60% alcohol-based sanitiser
- Changeroom and washroom facilities for employees will be disinfected at least twice a day.
- Employees will always be required to place personal belongings in personal lockers provided in change rooms
- Workplace stations in production areas will be disinfected at least twice a day.
- Parental control (Applicable to Office Based Staff Only on Sites)
- Employees will not be allowed to bring their children to work during the closure of schools.
- Employees will not be allowed to bring their child to work in the event of any ill health effects or symptoms The parent of such a child must report the matter to HR and management
- The parent must make other arrangement to accommodate the child
- In the event where no arrangements can be made, the parent must consult with HR regarding the relevant leave policy specifically aligned to the COVID-19 disaster management plan
- Employees may also elect to work from home if they have the requisite equipment and facilities in the absence of any childcare services being available
- Awareness and training programs
- Only internal programs of this nature will be allowed and limited to small groups of no more than 15 people per session.
- People must stand or sit at least 2m apart from each other
- The area will be well ventilated and must have enough space for the purpose of awareness programs
- Hand sanitisers must be available in the area and people must wear masks
- Where tables and chairs are used for such sessions, these shall be disinfected after every session.
- Technical/Site/Quarterly Meetings
- Office meetings will be kept to a limit of 4 people at a time
- People must sit at least 2m apart from each other
- Hand sanitisers must be available in during the meeting
- Office tables and chairs will be disinfected after every meeting.

HOW TO MANAGE POTENTIAL COVID-19 CASES

Managing cases of suspected and actual exposure: Employees

SUSPECTED COVID-19 CASE

- Do not allow the suspected COVID-19 person to make contact with others.
- Place them in an isolation room.
- Contact Netcare 911 to transport the employee to the nearest test center.
- Notify the disaster management committee.
- The employee will self-isolate for 14 days and can only return to work after their GP provides a clearance certificate or if their test results are negative for COVID-19.
- Employees are requested to self-diagnose and visit their medical practitioners if they are feeling ill, advising HR if they are ill.

THOSE EXPOSED TO THE SUSPECTED COVID-19 CASE

- Do not allow the suspected COVID-19 person to make contact with others.
- All these employees must be issued with masks and gloves and symptoms monitored daily. Contact with other employees must be limited or prevented.
- If the employee that they were exposed to is tested positive for COVID-19, these employees will have to be tested as well. These employees can only return to work if they test negative.

ISOLATION ROOM AND WORKSTATION MANAGEMENT

- In the event where an employee needs to make his/her own arrangements for transportation or uses public transport, and is suspected of COVID-19, the employee must be placed in an isolation room.
- Netcare 911 must be contacted to attend to the employee and transport him/her to the required treatment facilities.
- The disinfecting team needs to be contacted to attend to the isolation room and work station of such an employee.

Managing cases of suspected and actual exposure: Visitors

SUSPECTED COVID-19 CASE

- Make sure that the visitor does not come into contact with any other individuals.
- Provide the individual with a mask, ensure that they wash and disinfect their hands prior to issuing them with gloves.
- Arrange that the individual is escorted from the premises.
- Contact their direct line manager / employer / family member.

THOSE EXPOSED TO THE SUSPECTED COVID-19 CASE

- It is very important to identify everyone who was exposed to the suspected COVID-19 case.
- All these employees must be issued with masks and gloves and symptoms monitored daily. Contact with other personnel must be limited or prevented.
- In the event where the test results confirm COVID-19 of the initial reported case, employees that came in contact with the visitor will have to undergo testing.
- Employees will only return to work if the results are negative.

WORKSTATION MANAGEMENT

The disinfecting team needs to attend to the workstation of such an individual or meeting room, in the event of the confirmed COVID-19 case.

HOW TO MANAGE POTENTIAL COVID-19 CASES

Managing cases of suspected and actual exposure: Sub- Contractors

Emergency response contact number

Emergency response name	Designation	Contact Number
Health & Safety Manager	**Manager**	
Netcare 911/ or any other recognised EMS	**Ambulance**	**082 911**
Government	**National Institute of Communicable Diseases**	**0800 029 999**

C3.6.6 AIDS AWARENESS

All construction personnel shall be given an Aids Awareness briefing session by the Safety Officer.

UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS
TENDER NUMBER: 01/2022

PART C4 SITE INFORMATION

PART C4: SITE INFORMATION

C4.1 SITE INFORMATION

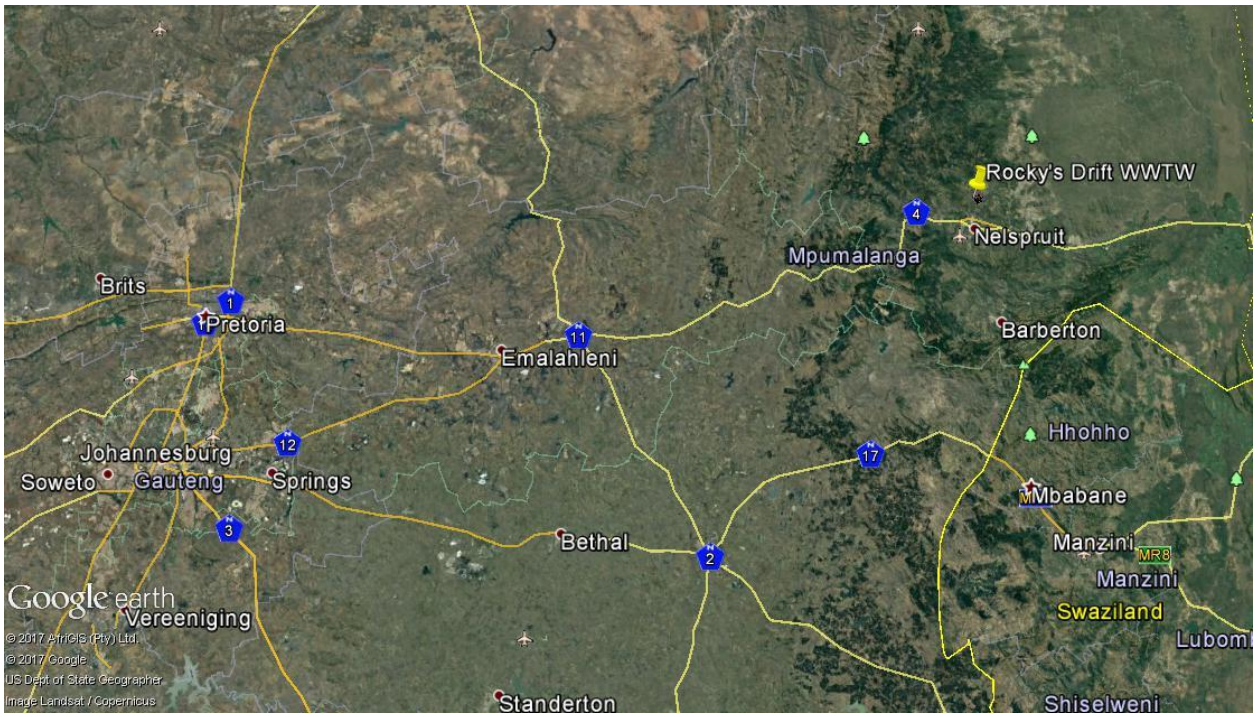

Figure 1: Project locality plan

The project area is made up of Rocky's Drift, consisting of an industrial area, the formalised township of Phumlani and the informal settlement of Msholozi. The Rocky's Drift industrial area is situated to the south-east of the Rocky's Drift WWTW whilst Phumlani and Msholozi are located to the north-east of the works. The topography of the area slopes predominantly in a westerly direction towards the Rocky's Drift WWTW. Elevations across the project area range from approximately 977 m at a localised high point on the south-eastern boundary of Msholozi to approximately 780 m at the works itself.

The consumers residing within Phumlani are provided with a water supply via metered house connections. There are currently no water services available within Msholozi although town planning approval has been obtained for the establishment and formalisation of the township which would include the provision of formalised water services.

With regards to sanitation services, the existing industries within Rocky's Drift and the Phumlani township are already served by a waterborne sewerage system whilst the Msholozi area has no sanitation services at present. Sanitation services in Msholozi will however be provided as part of the township formalisation process.

Current and future population figures for project area

Project Area	Population Figures			No. of Households		
	2020	2022	2035	2020	2022	2035
Existing Areas						
Phumlani (Low Income)	3 255	3 387	4 381	465	514	626
Subtotal – Existing Areas	***3 255***	***3 387***	***4 381***	***465***	***513***	***626***
Future Development Areas						
Msholozi SP (Low Income)	0	24 395	31 557	0	3 485	4 508
Subtotal – Future Development Areas	***3 255***	***24 395***	***31 557***	***0***	***3 485***	***4 508***
Total – Existing and Future Areas	***3 255***	***27 782***	***35 938***	***465***	***3 969***	***5 134***

The existing works is located on the eastern junction of two water courses i.e. 100 m from the south-western water course and within 30 m of a north-western stormwater drainage channel. It is noted that the DWS requires that any WWTW be located a minimum distance of 100 m from a watercourse and thus, no further extension of the works will be possible on the western boundary of the site.

The site has an approximate fall of 11 % over its length running in a westerly direction and covers an area of approximately 1.72 Ha. It is noted however that only 33 % of the total area of the existing WWTW site would be available for expansion of the works from a gravitational design perspective due to the location and elevation of the inlet works. As such, the current site of the WWTW is not overly conducive to increasing the capacity of the works.

The existing works consists of an inlet works, an activated sludge reactor (pre-denitrification - made up of an anoxic chamber feeding into aeration chambers), two clarifiers, chlorine dosing and contact chambers and sludge drying beds. An emergency storage tank is located below the clarifiers.

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Inlet Works

The inlet works consists of:

- An inlet chamber with hand raking screen
- 2 No. grit channels with piped de-gritting facilities,
- A Parshall flume, preceded by a measuring chamber fitted with an ultra-sonic flow measuring device, and
- An outlet chamber.

Activated Sludge Reactor

Influent gravitates from the inlet works to an activated sludge reactor which utilises the Pre-Denitrification process. The reactor is a rectangular concrete structure of 26.85 m long by 12 m wide by 3.6 m deep with a total approximate surface area of 322 m² and a total volumetric capacity of 1 160 m³. The structure is partitioned into an anoxic (pre-denitrification) and an aeration (nitrification) chamber:

Clarifiers

Two circular clarifiers with internal diameters of 14 m and 11 m respectively) are fed from the reactor. Both clarifiers have a centrally rotating bridge scraper and draft tube.

Chlorine Dosing

Chlorine dosing facilities at the works consist of an inlet sump with three vertical concrete baffles to facilitate chlorine mixing and a chlorine contact launder that is approximately 130 m long by 0.8 m wide by 0.7 m deep.

Sludge drying beds

Sludge is supplied to 4 No. sludge drying beds which are fed by pumping from the sludge sump.

Emergency storage tank

A reinforced concrete tank with an area of approximately 240 m² provides 600 m³ of emergency storage

Roads and stormwater

A gravel road provides access to the existing works and is in a reasonable state. There are no internal roads constructed on the site.Concrete storm water channels are in place around the reactor. However, there is evidence of ponding above the drying beds as well as on other portions of the site which would indicate that stormwater management at the works needs to be properly addressed.

Electrical supply and lighting

There is floodlighting present at the existing works but it is not known as to whether this lighting is functioning or adequate for the site. A standby generator is also present on the site but it is unknown as to whether the generator is functional.

Fencing

The existing works is enclosed by a 2.5m high diamond mesh fence with 3 strands of barbed wire on top. This fencing appears to be in an acceptable condition.

C4.2 Nature of Ground

The Geotechnical Report is attached as Appendix B.

C4.3 Spoil Material

No indiscriminate spoiling of material will be allowed. All unsuitable or surplus material shall be spoiled off site to a spoil site/municipal dump, chosen by the Contractor.

C4.4 Finishing – off the Site

The site shall be finished-off in accordance with the specifications as well as to the requirements of all applicable environmental standards.

C4.5 Existing Services

Although every effort has been made to depict existing services (water mains, electric cables, telephone cables etc.), as accurately as possible on the contract drawings, insofar as they are known, variations do arise and the Contractor shall exercise extreme care when working in the area. Items have been allowed in the Schedule of Quantities for dealing with and protecting services.

The Contractor shall take whatever precautions are required to protect these services from damage during the period of the Contract.

C4.6 Proving of Underground Services

It is stressed that all services in a particular area must be proven before commencing work in that area. Insofar as bulk earthworks are concerned, where services are indicated on the drawings or where from site observations can reasonably be expected that such services are likely to exist where excavations are to take place, the Contractor shall without instructions from the Engineer carefully excavate by hand to expose and prove their positions.

When a service is not located in its expected position the Contractor shall immediately report such circumstances to the Engineer who will decide what further searching or other necessary action is to be carried out and shall instruct the Contractor accordingly.

Should any service be damaged by the Contractor in carrying out the works, and should it be found that the procedure laid down in this clause has not been followed than all costs in connection with the repair of service will be to the Contractors account.

Proving of services shall be completed at least two weeks in advance of the actual programmed date for commencing work in the area. The position of these services located must be co-ordinated and levelled by the Contractor, and the information given in writing to the Engineer's representative.
The requirements of this clause do not relieve the Contractor of any obligations as detailed under the General Conditions of Contract or the Special Conditions of Contract.

APPENDIX A: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

CONTENTS

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.

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 and the Construction Regulations 2014.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2014, 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.

(b) "**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.

(c) "**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 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) Tunnelling 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) and the provisions of Regulation 30 of the Construction Regulations.

(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 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, 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 and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations*.**

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 authorised 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, <u>prior to commencement</u> 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:

---

13. Name (s) of contractors already selected.

Principal Contractor	Date
Client's Agent (where applicable)	Date
Client	Date

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

PREAMBLE

In terms of Construction Regulation 5(5) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), the City of Mbombela Municipality as the Client shall be responsible to prepare Health & Safety Specifications for any intended construction project and provide any Principal Contractor who is making a bid or appointed to perform construction work for the Client.

The Client's further duties are as described in The Act and the Regulations made there-under. The Principal Contractor shall be responsible for the Health & Safety Policy for the site in terms of Section 7 of the Act and in line with Construction Regulation 5 as well as the Health and Safety Plan for the project.
This 'Health and Safety Specifications' document is governed by the "Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), hereinafter referred to as 'The Act'. Notwithstanding this, cognizance should be taken of the fact that no single Act or its set of Regulations can be read in isolation.

Furthermore, although the definition of Health and Safety Specifications stipulates 'a documented specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons', it is required that the entire scope of the Labour legislation, including the Basic Conditions of Employment Act be considered as part of the legal compliance system. With reference to this specification document this requirement is limited to all health, safety and environmental issues pertaining to the site of the project as referred to here-in. Despite the foregoing it is reiterated that environmental management shall receive due attention.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change even on a daily basis. Therefore, due caution is to be taken by the Principal Contractor when drafting the Health and Safety Plan based on these Health and Safety Specifications. Prior to drafting the Health and Safety Plan, and in consideration of the information contained here-in, the contractor shall set up a Risk Assessment Program to identify and determine the scope and details of any risk associated with any hazard at the construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard.

This Risk Assessment and the steps identified will be the basis or point of departure for the Health and Safety Plan. The Health and Safety Plan shall include documented 'Methods of Statement' (see definitions under Construction Regulations) detailing the key activities to be performed in order to reduce as far as practicable, the hazards identified in the Risk Assessment.

Every effort has been made to ensure that this specification document is accurate and adequate in all respects. Should it however, contain any errors or omissions they may not be considered as grounds for claims under the contract for additional reimbursement or extension of time, or relieve the Principal Contractor from his responsibilities and accountability in respect of the project to which this specification document pertains. Any such inaccuracies, inconsistencies and/or inadequacies must immediately be brought to the attention of the Client.

Scope of Health and Safety Specification Document

The Health and Safety Specifications pertaining to the project, cover the subjects contained in the index and is intended to outline the normal as well as any special requirements of the Principal Contractor pertaining to the health and safety matters (including the environment) applicable to the project in question. These Specifications should be read in conjunction with the Act, the Construction Regulations and all other Regulations and Safety Standards which were or will be promulgated under the Act or incorporated into the Act and be in force or come into force during the effective duration of the project. The stipulations in this specification, as well as those contained in all other documentation pertaining to the project, including contract documentation and technical specifications shall not be interpreted, in any way whatsoever, to countermand or nullify any stipulation of the Act, Regulations and Safety Standards which are promulgated under, or incorporated into the Act.

Purpose

The Main Contractor is obligated to implement measures to ensure the health and safety of all people and properties affected under its custodianship or contractual commitments, and is further obligated to monitor that these measures are structured and applied according to the requirements of these Health and Safety Specifications (All references to the singular shall also be regarded as references to the plural).

The purpose of this specification document is to provide the relevant Principal Contractor (and his /her contractor) with any information other than the standard conditions pertaining to construction sites which might affect the health and safety of persons at work and the health and safety of persons; and to protect persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work during the carrying out of construction work for the UPGRADING OF ROCKY'S DRIFT WASTEWATER TREATMENT WORKS interlocking pavement. The Principal Contractor (and his /her contractor) is to be briefed on the significant health and safety aspects of the project and to be provided with information and requirements on inter alia:

- Safety considerations affecting the site of the project and its environment;
- Health and safety aspects of the associated structures and equipment;
- Submissions on health and safety matters required from the Principal Contractor (and his /her contractor); and
- The Principal Contractor's (and his /her contractor) health & safety plan.

To serve to ensure that the Principal Contractor (and his /her contractor) is fully aware of what is expected from him/her with regard to the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Regulations made there-under including the applicable safety standards, and in particular in terms of Section 8 of the Act.

To inform the Principal Contractor that the Occupational Health and Safety Act, 1993 (Act 85 of 1993) in its entirety shall apply to the contract to which this specification document applies. The Construction Regulations promulgated on 07 February 2014 and incorporated into the above Act by Government Notice R84, published in Government Gazette 37305 shall apply to any person involved in construction work pertaining to this project, as will the Act.

Definitions

The following definitions are extracted from the OH&S Act and relevant Regulations.

"Purpose of the Act" to provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith;

"Client" means any person for whom construction work is performed;
''Construction Work'' is defined as any work in connection with:
(a) the erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
(b) the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
(c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
(d) the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work;

"Contractor" means an employer, as defined in Section 1 of the Act, who performs construction work and includes Principal Contractors;

"Health and Safety File" means a file, or other record in permanent form, containing the information required as contemplated in the regulations;

"Health and Safety Plan" means a documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified;

"Health and Safety Specification" means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons;

"Method Statement" means a document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment;

"Principal Contractor" means an employer, as defined in section 1 of the Act who performs construction work and is appointed by the client to be in overall control and management of a part of or the whole of a construction site;
"Risk Assessment" means a program to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard.

HAZARD IDENTIFICATION AND RISK ASSESSMENT (CONSTRUCTION REGULATION 9)

Development of Risk Assessment

The Principal contractor performing construction work shall, before the commencement of any construction work cause a risk assessment to be performed by a competent person, appointed in writing and the risk assessment shall form part of the OH&S plan be implemented and maintained as contemplated in Construction Regulation 7(1).

The risk assessment shall include, at least:

- The identification of the risks and hazards to which persons may be exposed;
- The analysis and evaluation of the risks and hazards identified;
- A documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- A monitoring plan; and
- A review plan.

Based on the risk assessments, the Principle contractor shall develop a set of site-specific OH&S rules that shall be applied to regulate the OH&S aspects of the construction.

Review of Risk Assessment

The principle shall review the hazard identification, risk assessments and standard working procedure on a monthly basis and update records in the Occupational Health and Safety File. **Please note the risk assessments quality review template to be included in the OHS File.**

LEGAL REQUIREMENTS

A Principal Contractor shall, as minimum, comply with:

- The Occupational Health and Safety Act 85 of 1993 and Regulations, an up-to-date copy of which shall be available on site at all times;
- The Compensation for Occupational Injuries and Disease Act 130 of 1993, an up-to-date copy of which shall be available on site at all times.
- Disaster Management Act 57 of 2002 Amended

STRUCTURES AND RESPONSIBILITIES

Overall Supervision and Responsibility for OH&S

It is a requirement that the Principal Contractor, when he appoints Contractors (Sub-contractors) in terms of Construction Regulation 7(3), 7(5), 7(9), 7(10) and 7(12) includes in his agreement with Contractors the following:

- OH&S 85 of 1993, section 37(2) agreement: “Agreement with mandatory”
- OH&S 85 of 1993, section 16(2) appointee/s as detailed in his/her respective appointment forms.

Appointments

The contractor shall appoint designated competent employees and/or other competent persons as required by the Act and Regulations. Below is a list of identified appropriate appointments for this contract, which the contractor must ensure adherence to.

OH&S Officer	Construction Regulation 8(6)
Assignment by CEO	OHSA 16(2)
Contractor	CR 4(1)(c)
OH&S Representatives	OH&S Section 17
OH&S Committee	OH&S Section 19
Construction Supervisor	Construction Regulation 6(1)
Risk Assessor	Construction Regulation CR 7(1)
Emergency/Security/Fire Coordinator	Construction Regulation 29
First Aider	General Safety Regulation 3
Fire Equipment Inspector	Construction Regulation 29
Incident Investigator	General Admin Regulation 29
HCS Supervisor	HCS Regulations
Stacking and Storage Supervisor	Construction Regulation 28

Please note the site organogram should be included in the OHS File with all responsible appointed persons clearly displayed; please ensure that the regulation applicable is referenced next to the appointed person.
In Addition the Principal Contractor is required to list all Sub-Contractors that he/she appoints or intends to appoint and keep the list updated and displayed on site.

ADMINISTRATIVE CONTROL AND THE OCCUPATIONAL HEALTH AND SAFETY FILE

The OH&S File (Construction Regulation 7)

As required by Construction Regulation 7, the Principal Contractor and other sub-contractors shall each keep an OH&S file on site. With the following included in the OH&S file:

- Notification of Construction work
- Latest Copy of OH&S Act & Regulations, COID Act
- Environmental Plan
- Quality Control Plan
- COVID-19 OHS Plan
- COVID-19 Screening of Employees
- OH&S Policy and Site OHS Rules
- Proof of registration and good standing with COID Insurer
- OH&S Plan and Risk Assessments, Safe working Procedures and method statements
- Incident Management

- Emergency evacuation plan
- Copies of OH&S Committee and other relevant minutes
- A list of Sub-contractors including copies of mandatory agreements
- MSDS
- Appointment letters
- Competency Certificates
- Medical certificate of fitness (Occupational Health Practitioner)
- PPE Issue record
- Induction Record
- Tool box Talks topics and Record

- Checklists and Registers as follows:

Accident/Incident Register	Stacking and Storage inspection
Machinery safety inspection register	HCS record (if applicable)
First Aid box contents	Hand Tools Checklist
Housekeeping	Construction vehicle and mobile plant
Portable Electrical Equipment	
Fire equipment inspection and maintenance	

The City of Mbombela will conduct an Audit on the OH&S file of the Principal Contractor on a regular basis.

Notification of Construction Work

The Principal Contractor shall, where the contract meets the requirements laid down in Construction Regulation 4, within 5 working days, notify the Department of Labour of the intention to carry out construction work and use the form (Annexure 2 in the Construction Regulations) for the purpose. A copy shall be kept on the OH&S file.

Training and Competence

The contents of all the training required by the Act and Regulations shall be included in the Principal Contractor's OH&S Plan. The Principal Contractor shall be responsible for ensuring that all relevant training is undertaken. Only accredited Service Providers shall be used for OH&S training.

The Principal Contractor shall ensure that his and other sub-contractors personnel appointed are competent and that all training require to do work safely and without risk to health, has been completed before work commences. The principal contractor shall ensure that follow-up refresher training is conducted as the contract work progresses and the work situation changes. Records of all training must be kept on the OH&S file for auditing purposes.

Consultation, Communication and Liaison
Consultation with the workforce on OH&S matters will be through OH&S representatives and the OH&S committee. The Principal Contractor shall be responsible for the dissemination of all relevant OH&S information to Sub-Contractors. The Principal Contractor's most senior manager on site shall be required to attend all OH&S committee meetings.

CHECKING, REPORTING AND CORRECTIVE ACTION

Monthly Audit by Client (Construction Regulation 5(1) (o)

The City of Mbombela will conduct monthly audits to comply with CR5(1)(O) to ensure that the Principal Contractor has implemented and is maintaining the agreed and approved OH&S plan.

Contractor's Audits and Inspections
The Principal Contractor is to conduct his own monthly internal audits to verify compliance with his own OH&S management system as well as with this specification.

Inspections by OH&S Representatives and other Appointees
OH&S representative shall conduct weekly inspections of their areas of responsibility and the report thereon to their foreman or supervisor whilst other appointees shall conduct inspections and the report thereon as specified in their appointments.

Recording and Review of Inspection Results
All the results of the above-mentioned inspections shall be in writing, reviewed at OH&S committee meetings, endorsed by the chairman of the meeting and placed in the OH&S file.

Accidents and Incident Investigation (General Administration Regulation 9)
The Principal Contractor shall be responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic. The results of the investigation will be entered into an accident/incident register.
The Principal Contractor shall be responsible for the investigation of all minor and non-injury incidents as described in Section 24(1)(b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

Reporting
The Principal Contractor shall provide the City of Mbombela Municipality with all copies statutory reports required in terms of the Act within 7 days of the incident occurring.

OPERATIONAL CONTROL
Operational Procedures
Each construction activity shall be assessed by the Principal Contractor so as to identify operational procedures that will mitigate against the occurrence of an incident during execution of each activity. This specification requires the Principal Contractor:

- To be conversant with Regulation 10 to 30 (inclusive);
- To comply with provisions; and
- To include them in the OH&S plan where relevant.

Emergency Procedures
The Principal Contractor shall identify and formulate emergency procedures in the event an incident does occur. The emergency procedure shall be included in the Principal's contractor OH&S file.

Medical Certificate of Fitness [Construction Regulation 7(8)]
The Contractor must ensure that all his employees have a valid medical certificate of fitness, **specific to the construction work performed** and issued by an occupational health practitioner in the form of Annexure 3.

COVID-19
The Contractor to ensure all employees undergo COVID-19 Screening. Cloth masks, Hand sanitizer and soap is readily available for all the employees and visitors for hygiene purposes. Social distancing of 1m to be exercised at all Times. Awareness talks to be prioritized on a weekly basis and as needed be.

Personal Protective Equipment (PPE) (Sections 8,5,23 of OH&S Act)

The contractor shall identify the hazards in the workplace and deal with them. He must either remove them, or where impracticable, takes steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

PPE should, however, be the last resort and there should always first be attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of PPE is considered.

Where it is not possible to create an absolutely safe and healthy workplace the Contractor shall inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.
It is future requirements that the Contractor maintain the said equipment, that he instruct and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employees.

Employees do not have the right to refuse to use/wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed PPE through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition for which the equipment was prescribed, but an alternative solution has to be found that may include relocating or discharging the employee.

The Principal Contractor shall include in his OH&S plan the PPE he intends issuing to his employees for use during construction and the sanctions he intends to apply in cases of non-conformance by his employees. Conformance to the wearing of PPE shall be discussed at the monthly inspection meetings.

Other Regulations
Wherever in the Construction Regulations or this specification there is reference to other regulations (e.g. Construction Regulation 24: Machinery on Construction Sites) the Principal Contractor shall be conversant with and shall comply with these regulations.

Public Health and Safety (Section 9 of the OH&S Act)
The Principal Contractor shall be responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimize those dangers. This included:

- Non-employees entering the site for whatever reason;
- The surrounding community; and
- Passer-by to site.

NB: BEFORE CONSTRUCTION, CONTRACTOR TO BE MINDFUL OF EXISTING ELECTRICAL POWER LINES, SEWER LINE AND WATER PIPES.

PROTECTION OF EXISTING SERVICES

Location of existing services
Before any 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. For this purpose, he shall obtain from the Engineer up-to-date plans showing the position of services in the area where he intends to work.

As the location of services can often not be reliably determined from such plans, he shall further 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 service at the positions of possible interference by his activities. The latter procedure shall also be followed in respect of any service not shown on 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.

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 in dangerously close proximity of these services. Where necessary, excavation in close proximity of these services shall be carefully carried out by means of suitable hand tools, excluding picks wherever their use could cause damage to the services. Services left exposed shall be suitably protected from damage.

Erosion control
During construction, the Contractor shall protect all areas susceptible to erosion by installing all necessary temporary and permanent drainage works as soon as possible and by taking such other measures as may be necessary to prevent the concentration of surface water and the scouring of slopes, banks and other areas.

Runnels or erosion channels developing during the construction period or during the defects liability period shall be backfilled and consolidated and the affected areas shall be restored to their former proper condition. The Contractor shall not allow large-scale erosion to develop before effecting repairs and all erosion damage shall be repaired as soon as possible and in any case not later than three months before the end of the defects liability period. Topsoil washed away shall be replaced.

PROJECT/SITE SPECIFIC REQUIREMENTS

List of Risk Assessments (Among others)
- Clearing and Grubbing of the area/site;
- Site establishing including;
- Fire;
- COVID-19;
- Adjacent land uses/surrounding property exposures;
- Exposure to noise;
- Exposure to vibration;
- Protection against dehydration and heat exhaustion;
- Use of portable electrical equipment;
- Loading and offloading of trucks;
- Aggregate/sand and other materials delivery;
- Use and storage of flammable liquids and other HCS;
- Layering and bedding;
- Dust Control;
- Fire Protection;
- Housekeeping

Outlined data, references and information on certain and/or specific obligatory requirements to ensure compliance, the Principal Contractor has to comply with the health and safety specification as well as all the OHSA 85 of 1993 requirements and all it's regulations.

1. Administrative & Legal Requirements

OHS Act Section/ Regulation	**Subject**	***Requirements***
Construction. Regulation 4	**Notice of carrying out Construction work**	Department of Labour notified Copy of Notice available on Site
General Admin. Regulation 4	***Copy of OH&S Act (Act 85 of 1993)**	Updated copy of Act & Regulations on site. Readily available for perusal by employees.
COID Act Section 80	***Registration with Compensation. Insurer**	Written proof of registration/Letter of good standing available on Site
Construction. Regulation 5(1) (b)	**H&S Specification & Programmed**	H&S Spec received from Client and/or its Agent on its behalf OH&S programmed developed & Updated regularly
Section 8(2)(d) Construction. Regulation 8	***Hazard Identification & Risk Assessment** **Risk assessment should cover all aspects and processes in the whole construction work including the high risk areas which must lead to the development and documenting some safe work procedures on every task being carried out on site.**	Hazard Identification carried out/Recorded Risk Assessment and – Plan drawn up/Updated RA Plan available on Site Employees/Sub-Contractors informed/trained The traffic accommodation plan during the construction. Watering of the by-pass road and all areas where employees work.
Section 16(2)	***Assigned duties (Managers)**	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.
Construction. Regulation 8(1)	**Designation of Person Responsible on Site**	Competent person appointed in writing as Construction Supervisor with job description
Construction. Regulation 8(2)	**Designation of Assistant for above**	Competent person appointed in writing as Assistant Construction Supervisor with job description
Section 17 & 18 General Administrative Regulations 6 & 7 Section 17	***Designation of Health & Safety Representatives**	More than 20 employees - one H&S Representative, one additional H&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified in terms of GAR 6 & 7 Meaningful H&S Rep. reports. Reports auctioned by Management.

Section 19 & 20 General Administrative Regulations 5	***Health & Safety Committee/s**	H&S Committee/s established. All H&S Reps shall be members of H&S Committees Additional members are appointed in writing. Meetings held monthly, Minutes kept. Auctioned by Management.
Section 37(1) & (2)	***Agreement with Mandataries/ (Sub-)Contractors**	Written agreement with (Sub-)Contractors List of (Sub-) Contractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Supervisor designated Written arrangements re. H&S Reps & H&S Committee Written arrangements re. First Aid
Section 24 & General Admin. Regulation 8 COID Act Sect.38, 39 & 41	***Reporting of Incidents (Dept. of Labour)**	Incident Reporting Procedure displayed. All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days. (Annexure 1?)(WCL 1 or 2) and to the Client and/or its Agent on its behalf Cases of Occupational Disease Reported Copies of Reports available on Site Record of First Aid injuries kept
General Admin. Regulation 9	***Investigation and Recording of Incidents**	All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing. Copies of Reports (Annexure 1) available on Site Tabled at H&S Committee meeting Action taken by Site Management.
Construction. Regulation 13	**Excavations**	Competent person/s appointed in writing to supervise and inspect excavation work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used
Construction. Regulation 28/ General Safety Regulation 8(1)(a)	***Designation of Stacking & Storage Supervisor**.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site
Construction. Regulation 29/ Environmental Regulation 9	***Designation of a Person to Co-ordinate Emergency Planning And Fire Protection**	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on ***register***. Inspected weekly. Inspection Register kept Serviced annually
General Safety Regulation 3	***First Aid**	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available

		Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aid Officials and Certificates Name of person/s in charge of First Aid box/es displayed. Location of First Aid box/as clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries
General Safety Regulation 2	**Personal Safety Equipment (PPE)**	PSE Risk Assessment carried out Items of PPE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PPE PSE remain property of Employer, not to be removed from premises GSR 2(4)
Hazardous Chemical Substances **(HCS)** Regulations Construction Regulation 25	***Control of Storage & Usage of HCS and Flammables**	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of **HCS** (including Flammables) Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site Separate, purpose made storage available for full and empty containers
Construction. Regulation 23	**Construction Vehicles & Earth Moving Equipment**	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site. Record of Daily inspections kept

2. Education & Training

Subject	Requirement
***Company OH&S Policy Section 7(1) ***Company/Site OH&S Rules (Section 13(a) ***Induction & Task Safety Training (Section 13(a) ***General OH&S Training (Section 13(a) ***Occupational Health & Safety Promotion**	Policy signed by CEO and published/Circulated to Employees Policy displayed on Employee Notice Boards Management and employees committed. Rules published Rules displayed on Employee Notice Boards Rules issued and employees effectively informed or trained: written proof Follow-up to ensure employees understand/adhere to the policy and rules. All new employees receive OH&S Induction Training. Training includes Task Safety Instructions. Employees acknowledge receipt of training. Follow-up to ensure employees understand/adhere to instructions. All current employees receive specified OH&S training: written proof Operators of Plant & Equipment receive specified training Follow-up to ensure employees understand/adhere to instructions. <u>Incident Experience Board indicating e.g.</u> * No. of hours worked without an Injury * No. of days worked without an Injury Mission, Vision and Goal Star Grading - Board kept up to date. Safety Posters displayed & changed regularly Employee Notice Board for OH&S Notices. Site OH&S Competition.

3. Public Safety, Security Measures & Emergency Preparedness

Subject	Requirement
***Notices &Signs**	Notices & Signs at entrances / along perimeters indicating **"No Unauthorized Entry".** Notices & Signs at entrance instructing visitors and non - employees what to do, where to go and where to report on entering the site/yard with directional signs. e.g. **"Visitors to report to Office"** Notices & Signs posted to warn of overhead work and other hazardous activities. e.g. **General Warning Signs**
Site Safeguarding	Nets, Canopies, Platforms, Fans etc. to protect members of the public passing / entering the site.
***Security Measures**	Access control measures/register in operation Security patrols after hours during weekends and holidays Sufficient lighting after dark Guard has access to telephone/ mobile/other means of emergency communication
***Emergency Preparedness**	Emergency contact numbers displayed and made available to Security & Guard Emergency Evacuation instructions posted up on all notice boards (including employees' notice boards) Emergency contingency plan available on site/in yard Doors open outwards/unobstructed Emergency alarm audible all over (including in toilets)
***Emergency Drill & Evacuation**	Adequate No. of employees trained to use Fire Fighting Equipment. Emergency Evacuation Plan available displayed and practiced. **(See Section 1 for Designation & Register)**

4. Personal Protective Equipment

Subject	Requirement
***PPE needs analysis**	Need for PPE identified and prescribed in writing. PPE remain property of Employer, not to be removed from premises GSR 2(4)
***Head Protection**	All persons on site wearing Safety Helmets including Sub-contractors and Visitors (where prescribed)
***Foot Protection**	All employees on site wearing Safety Footwear including Gumboots for concrete / wet work and non-slip shoes for roof work. Visitors to wear same upon request or where prescribed
***Eye and Face Protection**	Eye and Face (also Hand and Body) Protection (Goggles, Face Shields, Welding Helmets etc.) used when operating the following: * Jack/ Kango Hammers * Angle / Bench Grinders * Electric Drills (Overhead work into concrete / cement / bricks * Explosive Powered tools * Concrete Vibrators / Pokers * Hammers & Chisels * Cutting / Welding Torches * Cutting Tools and Equipment * Guillotines and Benders * Shears * Sanders and Sanding Machines * CO2 and Arc Welding Equipment * Skill / Bench Saws * Spray Painting Equipment etc.
***Hearing Protection**	Hearing Protectors (Muffs, Plugs etc.) used when operating the following: * Jack / Kango Hammers * Explosive Powered Tools * Wood/Aluminum Working Machines e.g. saws, planers, routers

***Hand Protection**	Protective Gloves worn by employees handling / using: * Cement / Bricks / Steel / Chemicals * Welding Equipment * Hammers & Chisels * Jack / Kango Hammers etc.
***Respiratory Protection**	Suitable/efficient prescribed Respirators worn correctly by employees handling / using: * Dry cement * Dusty areas * Hazardous chemicals * Angle Grinders * Spray Painting etc.
***Protective Clothing**	All jobs requiring protective clothing (Overalls, Rain Wear, Welding Aprons etc.) Identified and clothing worn.
***PPE Issue & Control**	Identified Equipment issued free of charge. All PPE maintained in good condition. (Regular checks). Workers instructed in the proper use & maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on H&S File. PPE remain property of Employer, not to be removed from premises GSR 2(4)

5. Housekeeping.

Subject	Requirement
***Scrap Removal System**	All items of Scrap/Unusable Off-cuts/Rubble and redundant material removed from working areas on a regular basis. (Daily) Scrap/Waste removal from heights by chute/hoist/crane. Nothing thrown/swept over sides. Scrap disposed of in designated containers/areas Removal from site/yard on a regular basis.
Stacking & Storage **(See Section 1 for Designation & Register)**	Stacking: * Stable, on firm level surface/base. * Prevent leaning/collapsing * Irregular shapes bonded * Not exceeding 3x the base * Stacks accessible * Removal from top only. Storage: * Adequate storage areas provided. * Functional – e.g. demarcated storage areas/racks/bins etc. * Special areas identified and demarcated e.g. flammable gas, cement etc. * Neat, safe, stable and square. * Store/storage areas clear of superfluous material. * Storage behind sheds etc. neat/under controls. * Storage areas free from weeds, litter etc.
***Waste Control/Reclamation**	Re-usable off-cuts and other re-usable material removed daily and kept to a minimum in the work areas. All re-usable materials neatly stacked/stored in designated areas. (Nails removed/bent over in re-usable timber). Issue of hardware/nails/screws/cartridges etc. controlled and return of unused items monitored.
Sub-contractors.	Sub-contractors required complying with Housekeeping requirements.

6. Plant & Storage Yards/Site Workshops Specifics

Subject	Requirements
Section 8(2)(1) General Machinery Regulation 2(1): **Supervision of the Use & Maintenance of Machinery**	Person/s with specific knowledge and experience designated in writing to Supervise the Use & Maintenance of Machinery Critical items of Machinery identified/numbered/placed on register/inventory Inspection/maintenance schedules for abovementioned Inspections/maintenance carried out to above schedules Results recorded

7. Workplace Environment, Health and Hygiene

Subject	Requirement
***Ventilation**	Adequate ventilation / extraction / exhausting in hazardous areas e.g. chemicals / adhesives / welding / petrol or diesel/ motors running and in confined spaces / basements.
***Noise**	Tasks identified where noise levels exceeds 85 dB at any one time. All reasonable steps taken to reduce noise levels at the source. Hearing protection used where noise levels could not be reduced to below 85 dB.
***Heat Stress**	Measures in place to prevent heat exhaustion in heat stress problem areas e.g. steel decks, when the WBGT index reaches 30. (See Environmental Regulation 4) Cold drinking water readily available at all times.
***Ablutions**	Sufficient hygiene facilities provided - 1 toilet per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites) Toilet paper available. Sufficient showers provided. Facilities for washing hands provided Soap/cleaning agent available for washing hands Means of drying hands available Lock-up changing facilities / area provided. Ablution facilities kept hygienic and clean.
***Eating / Cooking Facilities**	Adequate storage facilities provided. Weather protected eating area provided, separate from changing area Refuse bins with lids provided. Facilities kept clean and hygienic.
***Pollution of Environment**	Measures in place to minimize dust generation. Accumulation or littering of empty cement pockets, plastic wrapping / bags, packing materials etc. prevented. Spillage / discarding of oil, chemicals and dieseline into storm water and other drains or into existing or newly dug holes/cavities on site expressly prohibited.
***Hazardous Chemical Substances**	All substances identified and list available e.g. acids, flammables, poisons etc. Material Safety Data Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and readily available. Substances stored safely. Expiry dates meticulously checked where applicable
COVID-19	Toolbox Talks Sessions PPE (Cloth face masks and surgical gloves) Soap and Water, Hand Sanitizers Social distancing (1metre)

I, the undersigned hereby acknowledge that I fully understand the contents of this Health and Safety Specification and the consequences of non-compliance.

SIGNATURE OF CLIENT (CITY OF MBOMBELA)

Name .....Signature .....**Date…..**.....

SIGNATURE OF PRINCIPAL CONTRACTOR

Name .....Signature .....**Date…..**.....

APPENDIX B: GEOTECHNICAL REPORT

APPENDIX C: ENVIRONMENTAL MANAGEMENT PLAN and SCREENING REPORT

APPENDIX D: FLOOD STUDY

APPENDIX E: DRAWINGS FOR TENDER PURPOSES