



DIRECTORATE: INFRASTRUCTURE AND ENGINEERING

OCTOBER 2020

TENDER NUMBER: 115/2020

UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

(GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS, THIRD EDITION, 2015)

VOLUME 1 of 2

A tender for an estimated Category 4CE or higher CIDB Registered Contractors

ISSUED BY:	PREPARED BY:
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Registered Name of Tenderer:	
TRADING NAME OF TENDERER:	
Registration No. of Entity:	
Contact Person:	Kouga Supplier Code:
Tel. No.:	E-mail Address:
Cell No.:	Fax No:
CIDB CRS Number(s):	CIDB Grading:
FINANCIAL OFFER:	

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T1 TENDERING PROCEDURES

T1.1 TENDER NOTICE AND INVITATION TO TENDER

T1.2 TENDER DATA

T1.1 TENDER NOTICE AND INVITATION TO TENDER

Suitably qualified, capable and experienced Contractors are hereby invited to submit tenders for the Upgrading of the Kwanomzamo Sports Facility.

A compulsory virtual clarification session will be arranged for those that have shown interest in bidding for this project on the 30 September 2020 @ 10h00. A request to attend or join the virtual clarification session MUST be sent to tenders@kouga.gov.za and copied to aperils@kouga.gov.za before 16h00(end of business), on the 25 September 2020. Any RSVP or show of interest, received after 16h00 on the 25 September 2020 will not be considered. If you did not RSVP by sending a request to attend or join the virtual clarification meeting before the due date, your bid will not be considered. (Detail of this is in the tender document).

Tenders

An electronic copy of the tender document will be available on E-Tender portal www.etender.gov.za or the municipal website www.kouga.gov.za as from Friday, 11 September 2020. After downloading the tender document from the website each prospective bidder, MUST email their contact details to tenders@kouga.gov.za and copied to aperils@kouga.gov.za.

Please note:

- Telegraphic, telephonic, telex, facsimile, email or late tenders will not be accepted.
- This contract will be evaluated on the 80/20 point scoring system.
- The Guidelines for locally produced goods or locally manufactured goods with a stipulated minimum threshold where applicable will be applied.
- **A contractor CIDB Grading of 4CE or higher is required.**
- **A minimum functional assessment score of 70% will apply to this contract.**
- Proof of registration and good standing with the Construction Industry Board.
- A valid SARS Tax Clearance Certificate and the Tax compliance Status pin to be submitted.
- Prospective Service Providers must register on Kouga Municipality's Supplier database as per the registration requirements.
- The National Treasury Central Supplier Database Summary report must be submitted.
- In order to claim Preference points a valid originally or certified B-BBEE Status level Verification certificate or a Sworn Affidavit completed on the DTI format must be submitted to validate the claim.
- The Council reserves the right to accept any tender and, or part thereof, appoint more than one contractor, and does not bind itself to accept the lowest or any tender. The Council reserves the right to appoint any contractor.
- The validity period for submission must be 120 days from the closing date.

- Tenders that are deposited in the incorrect box or delivered to any other venue will not be considered.

Enquiries relating to this tender must be submitted in writing via e-mail to tenders@kouga.gov.za and copied to aperils@kouga.gov.za

Completed documents in a sealed envelope endorsed "**NOTICE NO: 115/2020: "UPGRADE OF KWANOMZAMO SPORTS FACILITY"**", must be placed in the Tender Box 21 St Croix Street (back entrance) or 16 Woltemade Street (front entrance), Jeffrey's Bay, Room 122 on or before **MONDAY, 19 OCTOBER 2020 at 12:00.**

C. DU PLESSIS
MUNICIPAL MANAGER

P.O. Box 21
JEFFREYS BAY
6330

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in SANS 10845-3 Construction Procurement, Part 3, that applies specifically to this tender.

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

Bid should read tender and vice versa throughout the document – implying both words have the same meaning.

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

No	Clause	Wording
1	3.1	The Employer is The Kouga Local Municipality.
2	3.2	Refer to the CONTENTS of this document for a complete list of tender documents issued by the Employer. The tender document consists of the following volumes: Volume 1: Part T1: Tendering procedures T1.1 - Tender notice and invitation to tender T1.2 - Tender data Part T2: Returnable documents T2.1 - List of returnable documents T2.2 - Returnable schedules THE CONTRACT Part C1: Agreements and Contract data C1.1 - Form of offer and acceptance C1.2 - Contract data C1.3 – Form of Guarantee Part C2: Pricing data C2.1 - Pricing assumptions C2.2 - Bill of Quantities Volume 2: Part C3: Scope of work C3 - Scope of work Part C4: Site information C4 - Site information Part C5: Annexures incl. Drawings
3	3.4	The Employer's Agent is: Bosch Projects (Pty) Ltd P O Box 27158 Greenacres Port Elizabeth 6057 Contact Person : Mr L Streicher Tel : (041) 363 0598 Email : streicherl@boschprojects.co.za

No	Clause	Wording																						
4	3.4	The language for communications is English.																						
5	3.6	The competitive negotiation procedure shall not be applied.																						
6	4.1	Only those Tenderers who satisfy the following eligibility criteria are eligible to submit tenders: a) CIDB: 1. Tenderers who are registered with the CIDB, or are capable of being so 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 4CE class of construction work, are 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 border="1"> <thead> <tr> <th>Category of tender</th><th>Upper limits per CIDB Regulation 17</th><th>Employer's allowable margins</th></tr> </thead> <tbody> <tr> <td>CE 1</td><td>R0.5m</td><td rowspan="9">The Employer will use its discretion in terms of CIDB Practice Note 3 on allowable margins to be accepted</td></tr> <tr> <td>CE 2</td><td>R1.0m</td></tr> <tr> <td>CE 3</td><td>R3m</td></tr> <tr> <td>CE 4</td><td>R6m</td></tr> <tr> <td>CE 5</td><td>R10.0m</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> <tr> <td>CE 9</td><td>No limit</td></tr> </tbody> </table> 2. Joint ventures are eligible to submit tenders provided that: 2.1. Every member of the joint venture is registered with the CIDB; 2.2. The lead partner has a Contractor grading designation in the 3CE class of construction work; 2.3. 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	Category of tender	Upper limits per CIDB Regulation 17	Employer's allowable margins	CE 1	R0.5m	The Employer will use its discretion in terms of CIDB Practice Note 3 on allowable margins to be accepted	CE 2	R1.0m	CE 3	R3m	CE 4	R6m	CE 5	R10.0m	CE 6	R20m	CE 7	R60m	CE 8	R200m	CE 9	No limit
Category of tender	Upper limits per CIDB Regulation 17	Employer's allowable margins																						
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CE 6	R20m																							
CE 7	R60m																							
CE 8	R200m																							
CE 9	No limit																							

No	Clause	Wording
		with the sum tendered for 4CE class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations; and 2.4. The joint venture is registered on the Central Supplier Database or proof of application. 2.5. All members of the joint venture must submit copies of the returnable documentation or original where it is so stipulated for all members. 2.6. In the case of a Partnership / Joint Venture / Consortium the tax clearance certificate must be for the Partnership / Joint Venture / Consortium or individual valid tax clearance certificates for all the members of the Joint Venture/Consortium. 2.7. In the case of a Joint Venture/Consortium, a consolidated BBBEE Verification Certificate must be submitted for the Partnership / Joint Venture / Consortium, failing which the Tenderer will score zero points for Preference. a) Key Resources: Only those tenderers who satisfy the following criteria are eligible to submit tenders: a) Availability of resources. b) Capacity to mobilize own resources. c) Availability of skills to manage and perform the contract (assigned personnel) d) Quality achievements on previous contracts of a similar nature. e) Suitably qualified and experienced Contracts Manager, Construction Manager and Site Foreman, in the full-time employment of the Tenderer. Tenderers who attended and signed the attendance register/s for the briefing and site visit of the compulsory clarification meeting.
7	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.
8	4.7	The arrangements for a <u>compulsory site visit and clarification meeting</u> are stated in the Tender Notice and Invitation to Tender. Tenderers must sign the attendance register in the name of the tendering entity. Addenda to tender will only be issued to those Tenderers appearing on the attendance register. 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

No	Clause	Wording
		by those present. During this time latecomers 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.
9	4.8	Modify the Clause to read: "Request clarification of the tender documents, if necessary, by notifying the Employer's Official or Agent at least seven working days before the closing time stated in the tender data."
10	4.10	Tenderers are required to state the rates and currencies in Rand.
11	4.12	If a 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 Employers 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 complies with the Employer's standards and requirements 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.
12	4.13.1	Parts of each tender offer communicated on paper shall be submitted as an original, no copies required. The signed tender document shall be taken as the valid submission.
13	4.13 4.15	The Employer's address for delivery of tender offer and identification details to be shown on such tender offer package (in a sealed envelope) are:

No	Clause	Wording
		Location of tender box: Kouga Municipality Tender box at entrance: SCM Office, 33 Da Gama Road, Jeffreys Bay Physical address: 33 Da Gama Road Tel: (042) 200 2200 Identification details: Tender for Contract No. "115/2020" • Tender reference number: 115/2020 • Title of Tender: UPGRADING OF KWANOMZAMO SPORTS FACILITY • Closing Date: 19 October 2020 • Closing Time: 12:00 These addresses are available from 8:00-16:00 on working days for delivery of tender offers. The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender. 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
14	4.13	Telephonic, telegraphic, telex, facsimile, e-mailed or posted tender offers will not be accepted.
15	F.2.11	<u>Add the following to the clause:</u> "In the event of a mistake having been made on the Bill of Quantities, it shall be crossed out in non-erasable ink and be accompanied by an initial of each signatory to the tender at each and every price alteration." Correction fluid shall not be used in the Bill of Quantities where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will be classified <u>non-responsive</u> and not be considered. The Employer will reject and classify the tender <u>non-responsive</u> if corrections are not made in accordance with the above.
16	4.13.4	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.
17	4.13.5	A two-envelope procedure will not be followed.
18	4.13.6	Telephonic, telegraphic, telex, facsimile, e-mailed or posted tender offers will not be accepted.
19	4.15	The closing time for submission of tender offer is as stated in the Tender Notice and Invitation to Tender.
20	4.16.1	The tender offer validity period is 120 days . If the expiry coincides with a Saturday, Sunday or public holiday, the validity will expire at close of business on the first working day following the non-working day.
21	4.16.2	Where a tenderer, at any time after the opening of his tender offer but prior to

No	Clause	Wording
		entering into a contract based on his tender offer: a) withdraws his tender; b) gives notice of his inability to execute the contract in terms of his tender; or c) fails to comply with a request made in terms of 4.17, 4.18 or 5.9, such tenderer shall be barred from tendering on any of the Employer's future tenders for a period to be determined by the Employer, but not less than six (6) months, from the date of tender closure. The Employer may fully or partly exempt a tenderer from the provisions of this condition if he is of the opinion that the circumstances justify the exemption.
22	4.18	Any additional information requested under this clause must be provided within 5 (five) working days of date of request.
23	4.19	Access shall be provided to the Tenderer during working hours for inspections by appointment as arranged with the Employer's Agent.
24	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.
25	5.1	The employer shall respond to clarifications received up to 7 working days before tender closing time.
26	5.2	The employer shall issue addenda until 5 working days before tender closing time.
27	5.4	The time and location for opening of the tender offers are: Time: 12:00 on 19 October 2020 . Location: SCM Office 33 Da Gama Road, Jeffreys Bay
28	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.
29	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.

No	Clause	Wording
		d) imbalanced unit rates. Notify shortlisted tenderers of all errors, omissions or imbalanced rates that are identified in their tender offers. Where the tenderer elects to confirm the errors, omissions or re-balancing of imbalanced rates the tender offer shall be corrected as follows: a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the unit rate shall govern and the line item total shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted and the unit rate shall be corrected. b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall be corrected. c) Where the unit rates are imbalanced adjust such rates by increasing or decreasing them and selected others while retaining the total of the prices derived after any other corrections made under (a) and (b) above. Where there is an omission of a line item, no correction is possible and the offer may be declared non-responsive. Declare as non-responsive and reject any offer from a tenderer who elects not to accept the corrections proposed and subject the tenderer to the sanction under 4.16.2. The tenderer is required to submit balanced unit rates for rate only items in the pricing schedule. The rates submitted for these items will be taken into account in the evaluation of tenders.
30	5.11	The procedure for the evaluation of responsive tenders is Method 4 .
31	5.11.1	The financial offer is reduced to a comparative basis using the tender assessment schedule.
32	5.11.5	The value of W1 is: 90 where the financial value, inclusive of VAT, of the lowest responsive tender offer received has a value in excess of R50 000 000.00; or 80 where the financial value, inclusive of VAT, of the lowest responsive tender offer has a value that equals or is less than R50 000 000.00. The value of A will be calculated utilizing the following formula: $A = (1 - (P - P_m) / P_m)$ Where: P is the comparative offer of the tender offer under consideration; and P_m is the comparative offer of the most favorable comparative offer. In the event that the calculated value is negative, the allocated score shall be 0 (zero).
33	5.11.8	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

No	Clause	Wording																														
		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>	B-BBEE Status Level of Contributor	Number of Points for Financial value up to and including R50 000 000.00	Number of Points for Financial value above R50 000 000.00	1	20	10	2	18	9	3	14	6	4	12	5	5	8	4	6	6	3	7	4	2	8	2	1	Non-compliant Contributor	0	0
B-BBEE Status Level of Contributor	Number of Points for Financial value up to and including R50 000 000.00	Number of Points for Financial value above R50 000 000.00																														
1	20	10																														
2	18	9																														
3	14	6																														
4	12	5																														
5	8	4																														
6	6	3																														
7	4	2																														
8	2	1																														
Non-compliant Contributor	0	0																														
34	5.11.9	The quality criteria (functionality) and maximum score in respect of each of the criteria are as follows: <table><tr><th>Description of quality criteria</th><th>Maximum number of points</th></tr><tr><td>Project Organogram</td><td>5</td></tr><tr><td>QMS System</td><td>5</td></tr><tr><td>Work experience (contracts completed)</td><td>50</td></tr><tr><td>Key Personnel</td><td>30</td></tr><tr><td>Financial references</td><td>10</td></tr><tr><td>Total functionality (quality) points</td><td>100</td></tr></table>	Description of quality criteria	Maximum number of points	Project Organogram	5	QMS System	5	Work experience (contracts completed)	50	Key Personnel	30	Financial references	10	Total functionality (quality) points	100																
Description of quality criteria	Maximum number of points																															
Project Organogram	5																															
QMS System	5																															
Work experience (contracts completed)	50																															
Key Personnel	30																															
Financial references	10																															
Total functionality (quality) points	100																															
35	5.17	The number of paper copies of the signed contract to be provided by the Employer is one.																														
36		The additional conditions of tender are: “Scope of Mandatory Subcontract Works 1) The Kouga Local Municipality will enforce that a minimum of 10% of the work be subcontracted to Emerging Micro Enterprises (EME's)." 2) The Employer/Employer's agent may also request that the Tenderer provides written evidence that his financial, labour and other resources are adequate for carrying out the contract. 3) The Employer reserves the right to appoint a firm of chartered accountants and auditors and/or execute any other financial investigations on the financial resources of any bidder. The bidder shall provide all reasonable assistance in such investigations. 4) The bid document shall be submitted as a whole and shall not be taken apart. 5) Tender is to be a in good standing with the Bargaining Council for the Civil Engineering Industry																														

T2 RETURNABLE DOCUMENTS

The following documents are to be completed and returned, as they constitute the tender. Whilst many of the returnables are required for the purpose of evaluation of the tenders, some will form part of the subsequent contract, as they form the basis of the tender offer. For this reason, it is very important that the Tenderers return **all information requested**.

T2.1 RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

The Tenderer's attention is drawn to clause F2.23 of the Tender Data which stipulates that failure to submit the returnable schedules listed below will result in the Tenderer being declared **non-responsive**.

In the event of a Joint Venture, the Tenderers attention is drawn to clause F2.1 of the Tender Data which stipulates that failure to submit the returnable schedules listed below for each member of the Joint Venture will result in the Tenderer being declared **non-responsive**.

T2.1.1	Authority of Signatory	Tick if completed and submitted
T2.1.2	JV Agreement	Tick if completed and submitted
T2.1.3	Status of Concern Submitting Tender	Tick if completed and submitted
T2.1.4	Business Registration Documents (e.g. Certificate of Incorporation)	Tick if completed and submitted
T2.1.5	Proof of Registration with the Construction Industry Development Board (CIDB)	Tick if completed and submitted
T2.1.6	Three (3) Year Audited Financial Statements (applicable to contracts in excess of R10 million)	Tick if completed and submitted
T2.1.7	Proof of Registration with Central Supplier Database	Tick if completed and submitted
T2.1.8	Payments of Municipal Accounts	Tick if completed and submitted
T2.1.9	Tax Compliance Status Report Issued with a Pin (MBD2)	Tick if completed and submitted
T2.1.10	Declaration of Interest in Tender of Persons in Service of the State (MBD4)	Tick if completed and submitted
T2.1.11	Declaration Certificate for Local Production and Content (MBD6.2)	Tick if completed and submitted
T2.1.12	Declaration of Tenderer's Past Supply Chain Management Practises (MBD8)	Tick if completed and submitted
T2.1.13	Certificate of Independent Bid Determination (MBD9)	Tick if completed and submitted
T2.1.14	Declaration Concerning Fulfillment of the Construction Regulations, 2014	Tick if completed and submitted
T2.1.15	Declaration of Indemnity	Tick if completed and submitted
T2.1.16	Schedule of Work satisfactorily carried out by the Tenderer for Private Clients or Organs of State	Tick if completed and submitted
T2.1.17	Certificate of Site Inspection	Tick if completed and submitted
T2.1.18	Record of Addenda to Tender Documents	Tick if completed and submitted

T2.2 RETURNABLE SCHEDULES REQUIRED FOR PREFERENCE SCORING PURPOSES

The Tenderer's attention is drawn to clause F2.23 of the Tender Data which stipulates that failure to submit the returnable schedules listed below will result in the Tenderer **scoring zero points** for Preference.

In the event of a Partnership / Joint Venture / Consortium, a consolidated BBBEE Verification Certificate must be submitted for the Partnership / Joint Venture / Consortium, failure to submit the returnable schedules listed below will result in the Tenderer **scoring zero points** for Preference.

T2.2.1	Preference Points Claim Form for 80/20 version (MBD6.1)	Tick if completed and submitted
T2.2.2	Broad Based Black Economic Empowerment (BBBEE) Certificate (MBD6.1)	Tick if completed and submitted

T2.3 RETURNABLE SCHEDULES REQUIRED FOR FUNCTIONALITY SCORING PURPOSES

The Tenderers attention is drawn to clause F2.23 of the Tender Data which stipulates that failure to submit the returnable schedules listed below will result in the Tenderer **scoring zero points** for Functionality for the relevant category for which the returnable was not submitted.

T2.3.1	Functionality Scoring	Tick if completed and submitted
T2.3.2	Personnel Schedule and Contract Organogram	Tick if completed and submitted
T2.3.3	Quality Management Systems	Tick if completed and submitted
T2.3.4	Company Track Record	Tick if completed and submitted
T2.3.5	CV of Contracts Manager	Tick if completed and submitted
T2.3.6	CV of Site Agent	Tick if completed and submitted
T2.3.7	CV of General Foreman	Tick if completed and submitted
T2.3.8	CV of Health and Safety Officer	Tick if completed and submitted
T2.3.9	Financial References	Tick if completed and submitted

T2.4 OTHER DOCUMENTS AND AFFIDAVITS THAT WILL BE INCORPORATED INTO THE CONTRACT

All documents contained in Volume 1 and Volume 2 will form part of the offer submitted by the Tenderer and will form part of the Contract if the Tenderer's offer is accepted by the Employer.

T2.1 RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

T2.1.1 AUTHORITY OF SIGNATORY

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

A COMPANY	B PARTNERSHIP	C JOINT VENTURE	D SOLE PROPRIETOR	E CLOSE CORPORATION

A. CERTIFICATE FOR COMPANY

I,, chairperson of the board of directors of, hereby confirm that by resolution of the board (copy attached) taken on 20..., *Mr/Ms acting in the capacity of (Position in the Enterprise), and who will sign as follows: be, and is hereby, authorized to sign the Bid/Tender, and any and all documents and/or correspondence in connection with this tender and any Contract resulting from it on behalf of the company.

As witnesses:

1. Chairman :
2. Date :

	NAME	CAPACITY	SIGNATURE
1			
2			
3			
4			
5			

NOTE:

1. *Delete which is not applicable.
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise.
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

B. CERTIFICATE FOR PARTNERSHIP

We, the undersigned, being the key partners in the business trading as hereby authorize *Mr/Ms, acting in the capacity of (Position in the Enterprise), and who will sign as follows: be, and is hereby, authorized to sign the Bid/Tender, and any and all documents and/or correspondence in connection with this tender and any Contract resulting from it on behalf of the company.

NAME	ADDRESS	SIGNATURE	DATE

NOTE:

1. *Delete which is not applicable.
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise.
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

C. CERTIFICATE FOR JOINT VENTURE AND CONSORTIA

We, the undersigned, are submitting this tender offer in a Joint Venture / Consortium and hereby authorize *Mr/Ms, acting in the capacity of lead partner, and who will sign as follows: be, and is hereby, authorized to sign the Bid/Tender, and any and all documents and/or correspondence in connection with this tender and any Contract resulting from it on behalf of the company.

This authorization is evidenced by the attached power of attorney signed by legally authorized signatories of all the partners to the Joint Venture / Consortium.

NAME OF FIRM	LEAD PARTNER (X)	ADDRESS	% OF CONTRACT VALUE	AUTHORISING SIGNATURE, NAME & CAPACITY

NOTE:

1. *Delete which is not applicable.
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise.

3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

D. CERTIFICATE FOR SOLE PROPRIETOR

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

As witnesses :

1. _____ Signature : Sole owner : _____
2. _____ Date : _____

E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as _____ hereby authorize *Mr/Mrs _____ acting in the capacity of _____, (Position in the Enterprise), and who will sign as follows: _____ be, and is hereby, authorized to sign the Bid/Tender, and any and all documents and/or correspondence in connection with this tender and any Contract resulting from it on behalf of the company.

NAME	ADDRESS	SIGNATURE	DATE

NOTE:

1. *Delete which is not applicable
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

T2.1.2 JV AGREEMENT

Attach as part of your tender submission a duly completed and signed joint venture agreement in the case of the tender being submitted as joint venture.

T2.1.3 STATUS OF CONCERN SUBMITTING TENDER

1. GENERAL

State whether the Tenderer is a company, a closed corporation, a partnership, a sole practitioner or a joint venture:

(Mark the appropriate option below)

Public Company	☐
Private Company	☐
Closed Corporation	☐
Partnership	☐
Sole Proprietary	☐
Joint Venture	☐
Co-operative	☐

2. INFORMATION TO BE PROVIDED

IF THE TENDERING ENTITY IS A:		DOCUMENTATION TO BE SUBMITTED WITH THE TENDER
1	<u>Closed Corporation</u> , incorporated under the Close Corporation Act, 1984, Act 69 of 1984.	CIPRO CK1 or CK2 (Copies of the founding statement) and list of members.
2	<u>Private Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973. (including Companies incorporated under Art 53 (b)).	Copies of: CIPRO CM 1 - Certificate of Incorporation CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers Shareholders Certificates of all Members of the Company.
3	<u>Private Company</u> incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 in which any, or all, <u>shares are held by another</u> Closed Corporation or company with, or without, share capital.	Copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies.

IF THE TENDERING ENTITY IS A:		DOCUMENTATION TO BE SUBMITTED WITH THE TENDER
4	Public Company incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 (including Companies incorporated under Art 21).	A signed statement of the Company's Secretary confirming that the Company is a public Company. Copy of CM 29.
5	Sole Proprietary or a Partnership.	Copy of the Identity Document of: Such Sole Proprietary, or Each of the Partners in the Partnership Copy of the Partnership agreement.
6	Co-operative.	CIPRO CR2 - Copies of Company registration document. (The percentage of work to be done by each partner must clearly be indicated on Form RDB1 (or RDB2 as applicable) of the tender document: MBD6.1 Preference Points Claim Form in terms of the Preferential Procurement Regulations 2001).
7	Joint Venture.	All the documents (as described above) as applicable to each partner in the JV as well as a copy of the Joint Venture agreement. (The percentage of work to be done by each partner of the joint venture must clearly be indicated in the Joint Venture Agreement).

Note:

- 1) If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court, wherein trustees have been duly appointed and authorised, must be provided.
- 2) Include a copy of the Certificate of Change of Name (CM9) if applicable.
- 3) Registered For Vat Purposes In Terms Of The Value-Added Tax Act, (Act No. 89 of 1991).

(TICK APPROPRIATE BOX)	
YES	NO

REGISTRATION NO:

T2.1.4 BUSINESS REGISTRATION DOCUMENTS (E.G. CERTIFICATE OF INCORPORATION)
--

Attach as part of your tender submission the documentation to be submitted with the tender in terms of returnable T2.1.3 Status of Concern Submitting Tender, item 2 Information to be Provided.

T2.1.5 PROOF OF REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB)

Tenderers shall attach to this page, proof of Registration with the Construction Industry Development Board, or other such documentation which records the Tenderer's name, CIDB grading and CRS No. for verification by the municipality.

CRS Number	
------------	-------

T2.1.6 : THREE (3) YEAR AUDITED ANNUAL FINANCIAL STATEMENTS

Tenderers must attach hereto original audited financial statements of their company for the past three years. In the case of a joint venture, audited financial statements of all companies must be attached.

T2.1.7 PROOF OF REGISTRATION WITH THE CENTRAL SUPPLIER DATABASE

All businesses and suppliers wishing to conduct business with the Kouga Local Municipality must register on the Central Supplier Database.

Tenderers must attach to this page a copy of their confirmation of registration.

T2.1.8 PAYMENTS OF MUNICIPAL ACCOUNTS

In terms of Clause 38 of the Municipal Supply Chain Management Policy, Tenderers must ensure that they are up-to-date with their payments of municipal accounts.

The Tenderer shall attach to this page, a Municipal Rates Clearance Certificate which provides proof that his payment of Municipal accounts is up-to-date.

These certificates are obtainable from the municipal Supply Chain Management Office, 33 Da Gama Road, Jeffreys Bay.

Should the Tenderer not be based in the Kouga Local Municipality, he must submit a Rates Clearance Certificate issued by the municipality in which he is based.

The Tenderer is referred to the clause F3.13 of the Tender Data.

T2.1.9 TAX COMPLIANCE STATUS REPORT ISSUED WITH A PIN (MBD2)

In terms of Clause 14(1)(b) of the Municipal Supply Chain Management Policy, Tenderers must ensure that they are up-to-date with their payments of taxes.

It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

1. In order to meet these requirement bidders are required to complete in full TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.
2. SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
3. The original Tax Clearance Certificate must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.
4. In bids where Partnership / Joint Venture / Consortium are involved, each party must submit a separate Tax Clearance Certificate.
5. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.
6. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

The Tenderer must submit a Tax Compliance Status PIN to allow Supply Chain Management to verify the real-time compliance status.

Tax Compliance Status PIN	
---------------------------	-------

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.1.10 DECLARATION OF INTEREST IN TENDER OF PERSONS IN SERVICE OF STATE (MBD4)

1. Where the Tenderer is a natural person, state / declare whether the Tenderer or an employee of the Tenderer is in the service of the state, or has been in the service of the state during the past twelve months.

(TICK APPROPRIATE BOX)	
YES	NO
☐	☐

If yes, state particulars:

.....
.....

If yes, and where applicable, state the date of resignation:

.....
.....

2. Where the Tenderer is not a natural person, state / declare whether any of its directors, managers, principal shareholders or stakeholders are in the service of the state, or have been in the service of the state during the past twelve months.

(TICK APPROPRIATE BOX)	
YES	NO
☐	☐

If yes, state particulars:

.....
.....

3. State / declare whether a spouse, child or parent of the Tenderer or any of its directors, managers, shareholders or stakeholders referred to in subparagraph 2 are in the service of the state, or have been in the service of the state during the past twelve months.

(TICK APPROPRIATE BOX)	
YES	NO
☐	☐

If yes, state particulars:

.....
.....

4. State / declare whether the Tenderer or any of its directors, managers, shareholders, stakeholders or employees referred to in subparagraph 2 is a person who is an advisor or consultant contracted with the municipality or municipal entity.

(TICK APPROPRIATE BOX)	
YES	NO
☐	☐

If so, state particulars:

.....
.....

5. State / declare whether the Tenderer or any of its directors, managers, shareholders, stakeholders or employees referred to in subparagraph 2 are involved in another entity for this particular tender.

(TICK APPROPRIATE BOX)	
YES	NO
☐	☐

If yes, state particulars:

.....
.....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.1.11 DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT (MBD6.2)

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 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:201x.

1. General Conditions

1.1. Preferential Procurement Regulations, 2011 (Regulation 9.1) and 9(3) make provision for the promotion of local production and content.

1.2. Regulation 9(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Regulation 9(3) prescribes that where there is no designated sector, a specific bidding condition may be included, that only locally produced services, works or goods or locally manufactured goods with a stipulated minimum threshold for local production and content, will be considered.

1.4. Where necessary, for bids referred to in paragraphs 1.2 and 1.3 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. A person awarded a contract in relation to a designated sector, may not subcontract 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.

1.6. The local content (LC) as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 201x as follows:

$$LC = 1 - (x / y) * 100$$

Where:

x = imported content

y = bid price 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 the South African Reserve Bank (SARB) at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid as required in paragraph 4.1 below.

1.7. A bid will be disqualified if:

- the bidder fails to achieve the stipulated minimum threshold for local production and content indicated in paragraph 3 below; and
- this declaration certificate is not submitted as part of the bid documentation.

2. Definitions

- 2.1. **“bid”** includes advertised competitive bids, written price quotations or proposals;
- 2.2. **“bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3. **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4. **“designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5. **“duly sign”** means a Declaration Certificate for Local Content that has been signed by the 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).
- 2.6. **“imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7. **“local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8. **“stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9. **“sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
Building Materials (bricks, cement, sand stone)	_____ %
_____	_____ %
_____	_____ %

4. Does any portion of the services, works or goods offered have any imported content?

(TICK APPROPRIATE BOX)	
YES	NO
☐	☐

4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.6 of the general conditions must be the rate(s) published by the SARB for the specific currency at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid.

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

Indicate the rate(s) of exchange against the appropriate currency in the table below:

Currency	Rates of Exchange	Date
US Dollar		
Pound		
Sterling		
Euro		
Yen		
Other		

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

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 Municipality / Municipal Entity):

.....

NB 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.

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 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.

(c) The local content has been calculated using the formula given in clause 3 of SATS 1286($LC = (1-x/y) \times 100$), the rates of exchange indicated in paragraph 4.1 above and the following figures:

Bid price, excluding VAT (y)	<u>R 10,000.00</u>
Imported content (x)	R_1,000_____
Stipulated minimum threshold for Local (paragraph 3 above)	_____
Local content % as calculated in terms of SATS 1286	_____

If the bid is for more than one product, a schedule of the local content by product shall be attached.

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

(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, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.1.12 DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD8)

1. This form serves as a declaration to be used by the Employer 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.
2. The tender of any Tenderer will be rejected if that Tenderer, or any of its directors have:
 - a. abused the Municipality's / Municipal entity's supply chain management system or been guilty of any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. wilfully neglected, reneged on or failed to comply with any government, Municipal or other public sector Contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004).
3. In order to give effect to the above, this form and the questionnaire must be completed in full and signed. Failure to comply will result in the tender being disqualified.

ITEM	QUESTION	RESPONSE	
4.1	Is the Tenderer or any of its directors listed on the National Treasurer's database as a company or persons prohibited from doing business with the public sector? (Companies for persons who are listed on this database were informed in writing of this restriction by the National Treasury after the <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za)	(TICK APPROPRIATE BOX)	
		Yes	No
	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, 2004 (Act 12 of 2004)? (To access this Register enter the National Treasury's website, www.treasury.gov.za , click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number 012-326-5445)	(TICK APPROPRIATE BOX)	
		Yes	No
	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?	(TICK APPROPRIATE BOX)	
		Yes	No
	If so, furnish particulars:		
4.4	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?	(TICK APPROPRIATE BOX)	
		Yes	No
	If so, furnish particulars:		
4.5	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?	(TICK APPROPRIATE BOX)	
		Yes	No
	If so, furnish particulars:		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.1.13 CERTIFICATE OF INDEPENDENT BID DETERMINATION (MBD9)

I, the undersigned, in submitting the accompanying bid:

.....

(Bid Number and Description)

in response to the invitation for the bid 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 Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium* will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation);
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
* Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a Contract.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the Contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or will be reported to the National Prosecuting Authority (NPA) for criminal investigation and or will 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.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.1.14 DECLARATION CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS, 2014

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

Tenderers shall answer the questions below:

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

(TICK APPROPRIATE BOX)	
YES	NO

- Indicate which approach shall be employed to achieve compliance with the Regulations.

(Tick)

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

- Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (SACPCMP Registration of Health and Safety Officer be attached):

Position	Name	Registration
Health and Safety Officer		

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

.....

.....

.....

.....

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

.....

.....

.....

.....

.....

.....

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

(TICK APPROPRIATE BOX)	
YES	NO

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.1.15 DECLARATION OF INDEMNITY

I,, the undersigned, for and on behalf of, (hereinafter referred to as “the Tenderer”) hereby indemnify and safeguard the Kouga Local Municipality and its employees and agents against all action, suits, proceedings, claims, demands, costs and expenses whatsoever which may be instituted, brought or sent, or may be incurred or be payable by the council arising out of or in connection with any damage, death or injury caused or alleged to have been caused by or as a result of any act, omission by the Tenderer and/or the Tenderer’s employee or employees arising out of work done in connection with or arising out of this Tender and / or Contract.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

**T2.1.16 SCHEDULE OF WORK SATISFACTORILY CARRIED OUT BY
THE TENDERER FOR PRIVATE CLIENTS OR ORGANS OF STATE**

(Organs of State include any Local, Provincial or National Government Authority)

The following is a statement of similar work successfully executed by myself/ourselves:

EMPLOYER, CONTACT PERSON AND TELEPHONE NUMBER	DESCRIPTION OF CONTRACT	VALUE OF WORK INCLUSIVE OF VAT (RAND)	DATE COMPLETED

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer.....

T2.1.17 CERTIFICATE OF SITE INSPECTION

This is to certify that (Tenderer)
has inspected the site and acquainted ourselves with the site of the works and / or matters incidental
to doing the work specified in the tender documents in order for us to take into account any constraints
and conditions on and surrounding the site when compiling our rates and prices included in the tender.

Particulars of person(s) who inspected the site:

Name Signature

Capacity

Name Signature

Capacity

*The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise,
confirms that the contents of this schedule are within my personal knowledge and are to the best of
my belief both true and correct.*

Signed Date

Name Position

Tenderer

T2.1.18 RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the communications listed below were received from the Employer or the Employer's Agent before the submission of this tender offer, amending or amplifying the tender documents, have been taken into account in this tender offer.

NO	DATE	TITLE OR DETAILS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach additional pages if more space is required.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.2 RETURNABLE SCHEDULES REQUIRED FOR PREFERENCE SCORING PURPOSES

T2.2.1 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017 (MBD6.1)

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

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

1. GENERAL CONDITIONS

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

- a) The 80/20 system for requirements with a Rand value of up to R50 000 000.00 (all applicable taxes included); and
- b) The 90/10 system for requirements with a Rand value above R50 000 000.00 (all applicable taxes included).

1.2 The value of this bid is estimated to be below R50 000 000.00 and therefore the (80/20) system shall be applicable.

1.3 Preference points for this bid shall be awarded for:

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

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

	POINTS
1.3.1.1 PRICE	80
1.3.1.2 B-BBEE STATUS LEVEL OF CONTRIBUTION	20
Total points for Price and B-BBEE must not exceed	<u>100</u>

- 1. Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.
- 2. The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

2.1 “all applicable taxes” includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

- 2.2 **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad -Based Black Economic Empowerment Act;
- 2.3 **“B-BBEE status level of contributor”** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- 2.4 **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;
- 2.5 **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- 2.6 **“comparative price”** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;
- 2.7 **“consortium or joint venture”** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a Contract;
- 2.8 **“Contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.9 **“EME”** means any enterprise with an annual total revenue of R5 million or less.
- 2.10 **“Firm price”** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the Contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the Contract;
- 2.11 **“functionality”** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;
- 2.12 **“non-firm prices”** means all prices other than “firm” prices;
- 2.13 **“person”** includes a juristic person;
- 2.14 **“rand value”** means the total estimated value of a Contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;
- 2.15 **“sub-Contract”** means the primary Contractor’s assigning, leasing, making out work to, or employing, another person to support such primary Contractor in the execution of part of a project in terms of the Contract;
- 2.16 **“total revenue”** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;
- 2.17 **“trust”** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

- 2.18 “trustee” means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

- 3.1 The bidder obtaining the highest number of total points will be awarded the Contract.
- 3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;
- 3.3 Points scored must be rounded off to the nearest 2 decimal places.
- 3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.
- 3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.
- 3.6 Should two or more bids be equal in all respects; the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

80/20 or 90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where:

P_s = Points scored for comparative price of bid under consideration

P_t = Comparative price of bid under consideration

$P_{\min}$ = Comparative price of lowest acceptable bid

5. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTION

- 5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE STATUS LEVEL OF CONTRIBUTOR	NUMBER OF POINTS (90/10 SYSTEM)	NUMBER OF POINTS (80/20 SYSTEM)
1	10	20
2	9	18
3	8	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

- 5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.
- 5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.
- 5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.
- 5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.
- 5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.
- 5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the Contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-Contract.
- 5.8 A person awarded a Contract may not sub-Contract more than 25% of the value of the Contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the Contract is sub-contracted to an EME that has the capability and ability to execute the sub-Contract.

6. BID DECLARATION

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

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

- 7.1 B-BBEE Status Level of Contribution: = (maximum of 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA).

8 SUB-CONTRACTING

- 8.1 Will any portion of the Contract be sub-contracted?
YES / NO (delete which is not applicable)

- 8.1.1 If yes, indicate:

(i) what percentage of the Contract will be subcontracted?%

- (ii) the name of the sub-contractor?
- (iii) the B-BBEE status level of the sub-contractor?
- (iv) whether the sub-contractor is an EME? YES / NO (delete which is not applicable)

9 DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of firm :

9.2 VAT registration number :

9.3 Company registration number :

9.4 TYPE OF COMPANY/ FIRM (TICK APPLICABLE BOX)

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

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

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.....

.....

.....

9.6 COMPANY CLASSIFICATION (TICK APPLICABLE BOX)

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

9.7 MUNICIPAL INFORMATION

Municipality where business is situated

Registered Account Number

Stand Number

9.8 TOTAL NUMBER OF YEARS THE COMPANY/FIRM HAS BEEN IN BUSINESS?

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- (i) The information furnished is true and correct;

- (ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
- (iii) In the event of a Contract being awarded as a result of points claimed as shown in paragraph 7, the Contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- (iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the Conditions of Contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - a) disqualify the person from the bidding process;
 - b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - c) cancel the Contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - d) restrict the Bidder or Contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent
 - e) basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
 - f) forward the matter for criminal prosecution

WITNESSES:

- 1.
- 2.

.....

SIGNATURE(S) OF BIDDER(S)

DATE:

ADDRESS:

.....

.....

T2.2.2 BROAD BASED BLACK ECONOMIC EMPOWERMENT (BBBEE) CERTIFICATE (MBD6.1)
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Attach as part of your tender submission the documentation to be submitted with the tender in terms of returnable T2.2.1 Preference Points Claim Form for 90/10 Version (MBD6.1).

In the event of a Partnership / Joint Venture / Consortium, a consolidated BBBEE Verification Certificate must be submitted for the Partnership / Joint Venture / Consortium, failing which the Tenderer will score zero points for Preference.

T2.3 RETURNABLE SCHEDULES REQUIRED FOR FUNCTIONALITY SCORING PURPOSES

T2.3.1 FUNCTIONALITY SCORING

In accordance with Tender Data F3.11, Method 2: Functionality, Price and Preference will be used for the evaluation of tender offers. In accordance with F3.11.3 the following will apply:

- 1) Functionality will be scored by a minimum of three Bid Evaluation Committee members appointed by the Employer. The scores of each of the evaluators will be averaged to obtain the final score for quality.
- 2) All tenders that fail to achieve the minimum number of points for functionality as stated in clause F3.11 of the Tender Data will be **rejected**.
- 3) Tenders that have achieved the minimum qualification score for functionality will be evaluated further in terms of the preference points system as stated in clause F3.11.

The functionality criteria are:

- 1) Project Organogram (5 points)
- 2) Quality Management System (5 points)
- 3) Company Experience (50 points)
- 4) Key Personnel (30 points)
- 5) Financial References (Bank Rating) (10 points)

Functionality points for the Tenderer are scored as per the Functionality Scoring Schedule, the requirements of each criteria are described below. Failure to provide verifiable proof for the various criteria will result in a score of **zero points** for the particular criterion.

1. PROJECT ORGANOGRAM

The Tenderer is to attach a project organogram of the key personnel the Tenderer intends employing on this contract to returnable schedule T2.3.2.

2. QUALITY MANAGEMENT SYSTEM

The Tenderer is to attach proof of a quality management system to returnable schedule T2.3.3.

3. COMPANY EXPERIENCE IN CONTRACTS OF SIMILAR NATURE

The Tenderer is to attach a record of completed contracts of a similar nature and value to returnable schedule T2.3.4.

4. KEY PERSONNEL: QUALIFICATIONS AND EXPERIENCE

The key personnel for this contract are as follows:

4.1 Contracts Manager

The Contracts Manager is the director / partner / member who takes ultimate responsibility for the contract.

4.2 Construction Manager (Site Agent)

The Construction Manager is the person to whom the Contractor has assigned the responsibility of contractual and on-site activities on behalf of the Contractor relating to the contract. The Construction Manager shall be solely dedicated to this contract and shall be on site at all times when work is being performed.

4.3 General Foreman

The General Foreman is the person to whom the Contractor has assigned the responsibility of supervising the teams engaged in construction activities. The General Foreman shall be solely dedicated to this contract and shall be on site at all times when work is being performed.

4.4 EME Manager

The EME Manager is the person to whom the Contractor has assigned the responsibility of ensuring compliance with EME Management and Section C3.3 Procurement. -

Note :

- *Key personnel must correspond to the project organogram Returnable T2.3.2.*
- *Should a substitution of any of the key personnel be allowed, only a person with the same or higher qualifications and experience will be accepted.*

5. FINANCIAL REFERENCES

The Tenderer is to attach a letter from the bank at which he declares he conducts his account to returnable schedule T2.3.10.

The contents of the bank's letter must state the credit rating that it accords to the Tenderer for the business envisaged by this tender.

KOUGA LOCAL MUNICIPALITY: DIRECTORATE INFRASTRUCTURE AND ENGINEERING
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY
Contract Number: 115/2020

FUNCTIONALITY SCORING SCHEDULE		
1. Project Organogram		
Project organogram attached / acceptable	5	/5
No project organogram attached / not acceptable	0	
2. Quality Management System		
Valid ISO9001 quality management system	5	/5
Non-accredited quality management system in place for a minimum of 6 months	2	
No Quality Management System / No proof of quality management system attached	0	
3. Company Experience in Contracts of Similar Nature (Attach Letter of Appointment and Completion Certificate for each contract)		
3.1 Number of contracts completed [in Civil Infrastructure with value of more than R5 Million]		
5 or more contracts	50	/50
3 – 4 contracts	30	
1 – 2 contracts	10	
0 contracts / No company track record attached to T2.3.4 / No Completion Certificate	0	
4. Key Personnel: Qualifications and Experience		
4.1.1 Contracts Manager – Civil/Mechanical Engineering Field		
BEng / BSc / BTech	5	/5
National Diploma	2	
No qualification / No qualification(s) or CV attached to T2.3.5	0	
4.1.2 Contracts Manager – Civil/Mechanical Engineering Field		
10+ years	5	/5
6 – 10 years	2	
3 – 5 years	1	
0 – 3 years / No experience / No CV attached to T2.3.5	0	
4.2.1 Construction Manager (Site Agent) – Civil/Mechanical Engineering Field		
BEng / BSc / BTech	5	/5
National Diploma / N6	2	
No Qualification / No qualification(s) or CV attached to T2.3.6	0	
4.2.2 Construction Manager (Site Agent) - Experience in Civil/Mechanical Engineering Field		
10+ years	10	/10
6 – 10 years	4	
3 – 5 years	2	
0 – 3 years / No experience / No CV attached to T2.3.6	0	
4.3.1 General Foreman - Experience Civil/Mechanical Engineering Field		
10+ years	5	/5
6 – 10 years	2	
3 – 5 years	1	
0 – 3 years / No experience / No CV attached to T2.3.7	0	
5. Financial References (Bank Rating)		
Bank rating of A, B or C (10 points)	10	/10
Bank rating of D,E, F, G or H / No bank letter attached to T2.3.9	0	
TOTAL FUNCTIONALITY POINTS		/100

T2.3.2 PERSONNEL SCHEDULE AND CONTRACT ORGANOGRAM

The Tenderer is to insert the number of personnel he proposes employing on this Contract and must attach to this page the organogram for the Contract of the personnel he intends using. Failure to submit the organogram will result in the Tenderer scoring zero for key personnel in both qualifications and experience.

JOB DESCRIPTION	PERMANENT STAFF	TEMPORARY STAFF FROM LOCAL COMMUNITY
Contracts Manager		
Construction Manager (Site Agent)		
* Other		
* Other		
* Other		

* To be filled in by Tenderer

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.3.3 QUALITY MANAGEMENT SYSTEMS

The Tenderer is to attach to this page a copy of their valid ISO9001 quality certificate or proof of other non-accredited quality management system that has been in place for a minimum of 6 months used by the Contractor.

T2.3.4 COMPANY TRACK RECORD

The Tenderer shall attach hereto a Company Track Record of contracts of a similar nature. The Tenderer shall state details of the Contract as stipulated in the table below, as well as referee names, contact details and certificates of completion.

EMPLOYER	CONSULTING ENGINEER	CONTRACT NO	NATURE OF WORK	TELEPHONE NUMBERS	CONTRACT VALUE	CONTRACT DURATION	YEAR COMPLETED

KOUGA LOCAL MUNICIPALITY: DIRECTORATE INFRASTRUCTURE AND ENGINEERING
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY
Contract Number: 115/2020

EMPLOYER	CONSULTING ENGINEER	CONTRACT NO	NATURE OF WORK	TELEPHONE NUMBERS	CONTRACT VALUE	CONTRACT DURATION	YEAR COMPLETED

T2.3.5 CV OF CONTRACTS MANAGER

The Tenderer hereby notifies the Employer that the Curriculum Vitae of the proposed Contracts Manager is as attached hereto including certified copies of qualifications and confirms that the proposed Contract's Manager is currently employed by the Tenderer.

Should a substitution be allowed, only a person with the same or higher qualifications and experience will be accepted.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date
Name Position
Tenderer

T2.3.6 CV OF SITE AGENT

The Tenderer hereby notifies the Employer that the Curriculum Vitae of the proposed Site Agent is as attached hereto including certified copies of qualifications and confirms that the proposed Site Agent is currently employed by the Tenderer.

The Site Agent is the person to whom the Contractor has assigned the responsibility of decision making and supervision on all matters relating to the on-site activities. He shall be committed to the project fulltime. Should a substitution be allowed, only a person with the same or higher qualifications and experience will be accepted.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date
Name Position
Tenderer

T2.3.7 CV OF GENERAL FOREMAN

The Tenderer hereby notifies the Employer that the Curriculum Vitae of the proposed General Foreman is as attached hereto including certified copies of qualifications and confirms that the proposed General Foreman is currently employed by the Tenderer.

Should a substitution be allowed, only a person with the same or higher qualifications and experience will be accepted.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.3.8 CV OF HEALTH AND SAFETY OFFICER

The Tenderer hereby notifies the Employer that the Curriculum Vitae of the proposed Health and Safety Officer is as attached hereto including certified copies of qualifications and confirms that the proposed Health and Safety Officer is currently employed by the Tenderer. The Health and Safety Officer must be SACPCMP registered.

Should a substitution be allowed, only a person with the same or higher qualifications and experience will be accepted.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

T2.3.9 FINANCIAL REFERENCES

The Tenderer shall attach to this form a letter from the bank at which he declares he conducts his account. The contents of the bank's letter must state the credit rating that it, in addition to the information required below, accords to the Tenderer for the business envisaged by this tender.

The Tenderers banking details as they appear below shall be completed.

In the event that the Tenderer is a joint venture enterprise, the same required details as specified above of all members of the joint venture shall be provided and attached to this form.

DESCRIPTION OF BANK DETAIL	BANK DETAILS
Name of Account Holder	
Account Number	
Name of Bank	
Branch Name	
Branch Code	
Bank Rating (Current) Attach letter from Bank	
Bank and Branch Contact Details	

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed Date

Name Position

Tenderer

C1 AGREEMENT AND CONTRACT DATA

- C1.1 FORM OF OFFER AND ACCEPTANCE
- C1.2a CONTRACT DATA (PART 1)
- C1.2b CONTRACT DATA (PART 2)
- C1.3 FORM OF PERFORMANCE GUARANTEE (PRO FORMA)
- C1.4 HEALTH AND SAFETY MANDATORY AGREEMENT
- C1.5 DISCLOSURE STATEMENT (PRO FORMA)
- C1.6 ADJUDICATION BOARD MEMBER AGREEMENT (PRO FORMA)
- C1.7 CONFIRMATION OF RECEIPT OF CONTRACT (PRO FORMA)

C1.1 FORM OF OFFER AND ACCEPTANCE

1 OFFER

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

CONTRACT NO. 115/2020 : UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

The Tenderer, identified in the offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the tender schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the Tenderer, deemed to be duly 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 VALUE-ADDED TAX IS:

.....
.....
..... Rand (in words);

R..... (in figures)

This offer may be accepted by the Employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Contractor in terms of the Conditions of Contract identified in the Contract data.

For and on behalf of the Tenderer:

Signature(s) of authorized agent(s) Date:

Name(s)

Capacity of authorized agents:

Name and address of organization:

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

Witness:

Signature Date:

Name

2 ACCEPTANCE

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

The terms of the Contract are contained in:

Part C1 : Agreements and Contract data (which includes this agreement)

Part C2 : Pricing data

Part C3 : Scope of work

Part C4 : Site Information

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

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

The Tenderer shall, within two weeks after receiving a completed copy of this agreement including the schedule of deviation (if any), contact the Employer's Agent (whose details are given in the Contract data) to arrange the delivery of any securities, bonds, guarantees, proof 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 (5) 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 and on behalf of the Employer:

Signature(s) of authorized agent(s) Date:

Name(s)

Capacity **INFRASTRUCTURE AND ENGINEERING DIRECTORATE**

Name and address of organization:

**Kouga Local Municipality
P O Box 21, JEFFREYS BAY, 6330**

Witness:

Signature Date:

Name

3 SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the conditions of tender.
2. A Tenderer's covering letter shall not be included in the final Contract document. Should any matter in such letter, which constitutes a deviation as aforesaid become be the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents, and which it is agreed by the parties becomes an obligation of the Contract, shall also be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

A Tenderer's covering letter shall not be included in the final Contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, be the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

1. Subject
Details
2. Subject
Details
3. Subject
Details
4. Subject
Details
5. Subject
Details

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

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 and on behalf of the Tenderer:

Signature(s) of authorized agent(s) Date:

Name(s)

Capacity of authorized agents:

Name and address of organization:

.....

.....

.....

Witness:

Signature Date:

Name

For and on behalf of the Employer:

Signature(s) of authorized agent(s) Date:

Name(s)

Capacity **INFRASTRUCTURE AND ENGINEERING DIRECTORATE**

Name and address of organization:

**Kouga Local Municipality
P O Box 21, JEFFREYS BAY, 6330**

Witness:

Signature Date:

Name

C1.2a CONTRACT DATA (PART 1)

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

Copies of these Conditions of Contract may be obtained at the Tenderer's own cost from the SAICE (Tel: 011-805 5947).

PART 1: CONTRACT-SPECIFIC DATA PROVIDED BY THE EMPLOYER

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

No.	Clause	Description
1	1.1.1.5	The Commencement Date shall be the date on which the Contractor receives a copy of the signed Form of Offer and Acceptance and schedule of deviations if applicable.
2	1.1.1.13	The Defects Liability Period is 12 Months , measured from the date of the Certificate of Completion.
3	1.1.1.14	The time for achieving Practical Completion, calculated from the Commencement Date, is 8 months.
4	1.1.1.15	The Employer is the Kouga Local Municipality.
5	1.1.1.16	The Employer's Agent is Bosch Projects represented by an employee duly authorised to do so. <u>Add the following to the clause :</u> Any reference to the term "Engineer" in this Contract shall mean "Employer's Agent" and vice versa.
6	1.1.1.17	Add the following to the clause: Any reference to the term "Engineer's Representative" in this Contract shall mean "Employer's Agent's Representative" and vice versa.
7	1.1.1.26	The pricing strategy is Re-measurement.
8	1.2.1.2	The Employer's address for receipt of communications and notices is: INFRASTRUCTURE AND ENGINEERING DIRECTORATE 33 Da Gama Road JEFFREYS BAY 6330 Contact Person : Mr A Perils Tel : (042) 200 2200 Email : aperils@kouga.gov.za

No.	Clause	Description
9	1.2.1.2	The Employer's Agent's address for receipt of communications and notices is: Bosch Projects P O Box 27185 Greenacres Port Elizabeth Port Elizabeth Contact Person : Mr L Streicher Tel : (041) 363 0598 Email : streicherl@boschprojects.co.za
10	3.2.3	The Employer's Agent shall obtain specific approval from the Employer before executing the following functions or duties according to the following Clauses of the General Condition of Contract: New Clause 3.2.3.1 For expenditure on the Contract that exceeds the Contract Sum. Existing Clauses: 3.3.1 Nomination of person as Employer's Agent's Representative. 5.7.2 Night Work. 5.8 Non-working times. 5.12 Granting of extension of time excluding Clause 5.12.2.2 (Abnormal climatic conditions). 5.13 Reduction of penalty for delay. 5.14.4 The issue of a Certificate of Completion. 5.16.1 The issue of a Final Approval Certificate. 6.3 Variations of a value greater than R 20 000 or when any of the contingencies will be utilised. 6.6 Instruction to expend on Provisional and Prime Cost Sums 6.11 Adjustment of General Items & Approval of Claims. 8.2.2.2 Order to repair and make good damage arising from any "excepted" risk.
11	3.2.4	<u>Add the following to the clause :</u> The Employer has appointed an independent Health and Safety Agent (HSA) on this Contract in terms of the Construction Regulations, 2014 as promulgated in terms of section 43 of the Occupational Health and Safety Act, 1993. The Contractor shall prepare a Health and Safety Plan in accordance with the Site Specific Health and Safety Specification and submit such to the appointed HSA for legal compliance assessment and verification / approval prior to any works commencing. The Kouga Local Municipality Health & Safety Official will conduct a review of the approved Health and Safety Plan to verify compliance with the Health and Safety Specifications.

No.	Clause	Description
12	3.2.5	<u>Add the following additional sub-clause :</u> The Employer's Agent shall have the authority to suspend, without any additional cost, portions of the Works if there are any acceptance test results outstanding (including level control), as required in terms of the relevant standardised or project specific specifications.
13	4.3.1	<u>Add the following to the clause :</u> The Contractor shall comply with the : • Basic Conditions of Employment Act, Act No 75 of 1997; • National Environmental Management Act, Act 107 of 1998; • The Basic Conditions of Employment Act, Act No 75 of 1997; • Occupational Health and Safety Act, Act No 85 of 1993; • Construction Regulations 2014; • Health and Safety Specification prepared by the Employer in terms of the Construction Regulations 2014; • Any and all other relevant applicable laws, regulations, statutory provisions and agreements.
14	4.3.3	<u>Add the following new clause:</u> "Contractor's Designer The Contractor and his designer shall accept full responsibility and liability to comply with the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and the Construction Regulations, 2014 for the design of the Temporary Works and those part of the Permanent Works which the Contractor is responsible to design in terms of the Contract"
15	4.12.2	Notwithstanding the requirements of this clause, the Contractor's appointed Construction Manager shall be solely dedicated to this contract and shall be on site at all times when work is being performed.
16	4.12.4	<u>Add the following new sub-clause :</u> The Contractor shall submit a comprehensive progress report at least 24 hours prior to monthly site meetings. The progress report shall consist of at least the following documents on a monthly basis: • Approved programme indicating the base programme, actual and planned percentage complete of each item including the "time now" line; • A summary of the progress to date; • Updated realistic cash flow; • Any delays encountered or anticipated, including rainfall statistics for the month; • An information required schedule indicating any information or drawings required; • Plant and Labour Report; and Failure to submit the complete progress report will result in a fine of R 10 000 being deducted from the next payment certificate by the Employers Agent.

No.	Clause	Description
17	5.3.1	The documentation required before Commencement of the Works are: • Health and Safety Plan (Refer to Clause 4.3) • Initial Programme (Refer to Clause 5.6) • Security (Refer to Clause 6.2) • Insurance (Refer to Clause 8.6) • Letter of good standing with the Compensation Commission • Letter of Good Standing with the Building Industry Bargain Council
18	5.3.2	The Contractor is required, within 14 days of the Commencement Date, to submit the documents listed in Contract Data clause 5.3.1 to the Employer's Agent for his approval.
19	5.4.2	Access to and possession of the Site shall not be exclusive to the Contractor, but as set out in section C3.1.5: Temporary Works. The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for the purposes of the Works.
20	5.1.1 5.8.1	Delete the words "between sunset and sunrise" in the first line and replace with "outside normal working hours". <u>Add the following to the clause :</u> Normal working hours shall be those as stated in the applicable Sectoral Determination applicable to a 5 (five) day week (Monday to Friday) from 07:00 to 17:00. Non-working days are Saturdays and Sundays. Special non-working days are : • Public holidays; • Election day of the local government elections and national elections (when applicable); and • The official year-end holiday up to a maximum of 25 calendar days (including special non-working days).
21	5.8.1.5	<u>Add the following new sub-clause:</u> The cost of supervision by the Employer's Agent or his representatives outside of normal working hours (Monday to Friday) in accordance with this Clause shall be to the Contractor's account.
22	5.12.2.2	<u>Add the following to the clause:</u> The time-period specified as the time for completion includes allowances for those days on which it is expected that work, on the critical path items of the works, would be prevented due to weather conditions such as wind, rain falling or the subsequent waterlogged condition. Based on average weather conditions of wind, rain and sunshine the allowances are: • 3 working days per month for the months of May to October

No.	Clause	Description
		2 working days per month for the months of November to April If the Contractor has been prevented by these weather conditions from working on the critical path items of the works, then he must notify the Employer's Agent in writing. The submission shall be made within five calendar days of the resumption of work. The Employer's Agent shall upon considering all the relevant factors determine the extension of time to be granted on the basis that an extension of time to the Contract will only be granted if the total number of days upon which work on the critical items was prevented, exceeds the total number of days calculated in terms of the above allowance and considering the official Contract period as a whole. The tendered sums of the appropriate time-related items shall be increased to take account of the extensions of time granted.
23	5.12.2.4	<u>Amend the clause to read as follows:</u> Any disruption which is entirely beyond the Contractor's control except for internal (Contractor's own or his subcontractors labour) unrest, disruptions, strikes, lock-outs, etc.
24	5.12.3	<u>Delete clause 5.12.3 and replace with the following:</u> "If an extension of time is granted, the Contractor shall be paid such proven additional costs based on tendered rates including for special non-working days, if applicable, as are appropriate regarding any other compensation which may have already been granted in respect of the circumstances concerned."
25	5.12.5	<u>Add the following new clause:</u> Critical Path Provision A delay in so far as extension of time is concerned, will be regarded as a delay only if, on a claim by the Contractor in accordance with the General Conditions of Contract, the Employer's Agent rules that all progress on an item or items of work on the critical path of the approved programme for the execution of the Works by the Contractor, has been brought to a halt. Delays on normal working days only, based on a working week of five normal working days, will be taken into account for the extension of time.
26	5.13.1	The penalty for failing to complete the whole of the Works is R 4 000 per calendar day.
27	5.14.1	The requirements for Practical Completion are: Submission of As-Built Drawings and Operating Manuals Completion of all notified defects, Once all test certificates have been issued.
28	5.14.5.5	<u>Delete Clause 5.14.5.5 and replace with:</u> "Insurance of the works shall continue until the expiration of the Defects Liability Period, in terms of the new Clause 8.6 contained in this Contract Data."

29	5.16.3	The latent defect period is: • 10 years, The latent defects period shall commence on the date of the Final Approval Certificate.
30	6.2.1	Replace the wording “as selected” in Clause 6.2.1 with “as stated”. The security to be provided by the Contractor shall be a Fixed Performance Guarantee of 10% the Contract Sum. The Fixed Performance Guarantee shall be from an Insurance Company or Financial Institution that is registered with the Financial Services Board in terms of the Financial Intelligence Centre Act. The Fixed Performance Guarantee shall be jointly and severally bound with the Contractor, in accordance with the provisions of the Form of Guarantee. Any other form of security including a Retention Money Guarantee is not permitted. The wording of the fixed performance guarantee shall be identical to the pro-forma provided under Clause C1.3: Form of Guarantee.
31	6.2.2	Replace the entire contents of Clause 6.2.2 with the following: “If the Contractor fails in his obligations to provide the stated security within the period stated in Clause 5.3.2, or if the fixed performance guarantee shall differ from the pro-forma provided under Clause C1.3: Form of Performance Guarantee of the Contract Data, the Employer may terminate the Contract in terms of Clause 9.2.”
32	6.2.3	<u>Replace the entire contents of clause 6.2.3 with the following:</u> The Contractor shall ensure that the fixed performance guarantee remains valid and enforceable until the issue of the Certificate of Completion.
33	6.8.2	Contract Price Adjustment Schedule is not applicable on this Contract
34	6.8.3	Price adjustments for variations in the costs of special materials are not allowed.
35	6.10.1.5	The percentage advance on materials on site not yet built into the Permanent Works is 80%.
36	6.10.1.7	<u>Add the following to sub-clause</u> ... or any other fines that become due under the Contract.
37	6.10.3	<u>Replace the entire contents of Clause 6.10.3 with the following:</u> Payment of the amounts referred to in Clauses 6.10.1.1, 6.10.1.2, 6.10.1.3 and 6.10.1.4 shall be subject to a retention by the Employer of an amount (called the “retention money”), being the percentage retention stated in the Contract Data, of the said amounts due to the Contractor, until the retention money reaches the “Limit of retention money” stated in the Contract Data. The percentage retention shall be 10% of payments due up to the “Limit of retention money” which shall be 5% of the Contract Sum.

38	6.10.4	Replace the wording "within 28 days" in Clause 6.10.4 with the wording "within 45 days", but will endeavour to pay within 30 days".
39	6.10.4.1	<u>Add the following new sub-clause:</u> The Contractor is required to submit the complete, correct and signed monthly Expanded Public Works Programme (EPWP) reports, together with the monthly statement. Payment to the Contractor will not be certified by the Employer's Agent until the complete EPWP reporting for the specific month is provided. In addition, a fine for late submission of R10 000 per occurrence will be applicable if submitted after the 5th of the month. The penalty for not achieving the 10% subcontracting to local EME's/SMME's will be 1 percent (%) for every percentage (%) of the 10% threshold where the target is not achieved and is liable to be deducted on a monthly basis as determined by the Employer's Agent.
40	6.10.6.2	<u>Replace clause 6.10.6.2 with the following new clause:</u> No interest shall be payable to the Contractor upon any moneys retained or overdue in terms of the Contract.
41	8.3	<u>Amend sub-clause 8.3.1.12 of clause 8.3 as follows:</u> "The design, specification or instruction of the Employer's Agent, Employer (represented by an employee authorised to do so), or defects in the materials supplied by the Employer for incorporation in the Works".
42	8.6 8.6.1	• Insurance Submit copies of receipts of registration, or payment for the premiums for the following insurances, as required by the new Clause 8.6 in this Contact Data. (a) Insurance of the works, Plant intended for incorporation in the Works, and of all materials on the Site intended for incorporation in the Works against damage or physical loss arising from whatever cause, for the period for which the Contractor is responsible for the Works in terms of Clause 8.2.1, and for a sum insured which shall be the aggregate as set out in Clauses 8.6.1.1.1 to 8.6.1.5 or not less than R20M as stipulated in Table 4 in Clause 7.9 of the Kouga Municipality SCM Policy document (or as amended from time to time). (b) Proof of registration with the Department of Labour as an employer, in terms of the Compensation for Occupational Injuries and Diseases Act 1993, as amended (c) Common Law Liability Insurance for the duration of the Contract Period and with a minimum Limit of Indemnity of not less than R1 000 000 for any one accident; (d) Insurance on an All Risks basis for construction plant, equipment and other things (except those intended to incorporation into the

		works) brought onto the site to the full value of such construction plant, equipment and other things; (e) Motor Vehicle Liability Insurance, comprising a minimum of Balance of Third Party motor risks, including Passenger Liability, subject to a minimum limit of R2,5 million; (f) Where the Contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the site, the Contractor shall satisfy the employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication, then such interest shall be noted by endorsement to the Contractor's Policies of Insurance. (g) Imported equipment or component parts or materials to be supplied in terms of this Contract which require any process of assembly or finishing in South Africa prior to delivery to the site are to be insured by the Contractor up to the commencement of transit to site of the assembled or finished equipment, component parts or materials, unless special arrangements are made with the Employer. These insurances shall be maintained in force for the duration of the Contract, including any Defects Liability Period and in respect of Sub-Contractors, the Contractor shall be deemed to have complied with the provisions of the requirements relating to insurance by ensuring that the Sub-Contractors have effected such insurance.
43	8.6.6	The Contractor and/or Sub-Contractor shall provide, as a minimum, the following: (a) Proof of registration with the Department of Labour as an Employer, in terms of the Compensation for Occupational Injuries and Diseases Act 1993, as amended. (b) Common Law Liability Insurance for the duration of the Contract Period and with a minimum Limit of Indemnity of not less than R20 000 000 for any one accident. (c) Insurance on an All Risks basis for construction plant, equipment and other things (except those intended to incorporation into the works) brought onto the site to the full value of such construction plant, equipment and other things. (d) Motor Vehicle Liability Insurance, comprising a minimum of Balance of Third Party motor risks, including Passenger Liability, subject to a minimum limit of R2,5 million. (e) Where the Contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during

		manufacture or fabrication, then such interest shall be noted by endorsement to the Contractor's Policies of Insurance (f) Imported equipment or component parts or materials to be supplied in terms of this Contract which require any process of assembly or finishing in South Africa prior to delivery to the site are to be insured by the Contractor up to the commencement of transit to site of the assembled or finished equipment, component parts or materials, unless special arrangements are made with the Employer.
44	8.6.7	These insurances shall be maintained in force for the duration of the Contract, including any Defects Liability Period and in respect of Sub-Contractors, the Contractor shall be deemed to have complied with the provisions of the requirements relating to insurance by ensuring that the Sub-Contractors have effected such insurance.
45	8.6.8	The Contractor may effect, at his own cost, any insurance additional to that effected by the Employer which he deems necessary in his own interests. The Employer reserves the right to call for full information regarding such insurances.
46	8.6.9	The insurances to be provided by the Contractor and Sub-Contractor shall be effected with Insurers on terms approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall, if required by the Employer, produce to the Employer the Policy or Policies of insurance and the receipts for payment of the current premiums.
47	8.6.10	If the Contractor fails to effect and keep in force the insurances referred to, then the Employer may effect and keep in force any such insurance and pay such premium or premiums as may be necessary for that purpose and, from time to time, deduct the amount paid by the Employer from any monies due or which may become due to the Contractor or recover same as a debt from the Contractor.
48	8.6.11	Where the Contractor is responsible for the appointment of Sub-Contractors, then the Contractor shall (a) ensure that potential and appointed Sub-Contractors are aware of the whole content of this Contract; and (b) ensure the compliance of Sub-Contractors with this Contract clause, where applicable. The Contractor warrants that he shall give all notices and shall observe all the terms and conditions and requirements of all insurances applicable to this Contract.
49	9.1.4	<u>Replace Clause 9.1.4 with the following:</u> Up to the time of termination of the Contract by either party in terms of this Clause, or until the Contractor gives notice in terms of this Clause to terminate the Contract and the Contractor is precluded from exercising his right to terminate the Contract because the Employer agrees to bear any resultant additional costs provided for in Clause 9.1.2.2 hereof, the Contractor: a) will be entitled to an extension of time for working days lost as may be approved by the Employer's Agent, and b) will be reimbursed the cost of delay to be agreed with the Employer's Agent.

		Where the circumstances described in Clauses 9.1.1 and 9.1.2 are applicable only to a certain portion of the Contract, the Employer's Agent will decide after consulting the Contractor, to what extent the Contract as a whole is affected and whether or not a claim in terms of this Clause can be submitted.
50	9.2.1	<u>Delete "or" at the end of Clause 9.2.1.3.7 and add the following three Clauses after Clause 9.2.1.3.8:</u> 9.2.1.3.9 Has failed to provide the required insurances or fixed performance guarantee within the prescribed time; 9.2.1.3.10 Has committed a corrupt or fraudulent act during the tender process or the execution of the Contract; or 9.2.1.3.11 Has benefitted from an official or other role player committing any corrupt or fraudulent act during the tender process or in the execution of the Contract.
51	10.3.2	Amicable settlement in terms of Clause 10.4 shall be followed for all disputes prior to referring any dispute to adjudication or arbitration. The parties may appoint an impartial third party to assist with the amicable settlement, but this is optional and is subject to written agreement between the parties.
52	10.5.1	Dispute resolution shall be by ad-hoc adjudication.
53	10.5.3	The number of Adjudication Board Members to be appointed is one (1).
54	10.7.1	The determination of disputes which are unresolved in terms of Clause 10.5.3 shall be by arbitration.
55		<u>Add the following additional clauses:</u> 1. Details to be confidential The Contractor shall treat the details of the Works in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the Employer's Agent. 2. Fine for Health and Safety and / or Environmental non-conformance / non-compliance The Contractor shall be subject to a fine for health and safety and / or environmental non-conformances / non-compliances based on the outcome of the monthly audits as follows: - The first finding of a non-conformance / non-compliance in an audit report is considered as a warning to the Contractor. The Contractor must affect the necessary changes to correct the non-conformance / non-compliance by the date of the following audit. - The second finding of the same non-conformance / non-compliance in any of the succeeding audits are considered as an official non-conformance / non-compliance.

		• The third finding of the same non-conformance / non-compliance in any of the succeeding audits are considered as a recurring non-conformance / non-compliance and the Contractor may be charged a fine of R 2 000 such non-conformance / non-compliance finding. • Recurring non-conformances / non-compliances do not have to take place consecutively for the fine to be charged. The fine for recurring non-conformance / non-compliance findings will be increased as per the following formula: $f(x) = R\ 2\ 000.00 \times (x - 2)$ where (x) indicates the number of times the same non-conformance / non-compliance has been identified in the audit. The fine will be deducted from the contractors' monthly payment certificates. Example: <table><tr><th>Description</th><th>Amount (per non-conformance finding)</th></tr><tr><td>First finding of non-conformance</td><td>$(R\ 2\ 000.00) \times (1 - 2) = R\ 0.00$</td></tr><tr><td>Second finding of same non-conformance</td><td>$(R\ 2\ 000.00) \times (2 - 2) = R\ 0.00$</td></tr><tr><td>Third finding of same non-conformance</td><td>$(R\ 2\ 000.00) \times (3 - 2) = R\ 2\ 000.00$</td></tr><tr><td>Fourth finding of same non-conformance</td><td>$(R\ 2\ 000.00) \times (4 - 2) = R\ 4\ 000.00$</td></tr><tr><td>Fifth finding of same non-conformance</td><td>$(R\ 2\ 000.00) \times (5 - 2) = R\ 6\ 000.00$</td></tr></table> 3. Fine for poaching Poaching of any wildlife and/or livestock by any means within the surrounding area of the Contract will not be tolerated. Furthermore, the Contractor will be fined R20 000.00 per offence. If the guilty individual is caught, he / she shall be permanently removed from the site with immediate effect.	Description	Amount (per non-conformance finding)	First finding of non-conformance	$(R\ 2\ 000.00) \times (1 - 2) = R\ 0.00$	Second finding of same non-conformance	$(R\ 2\ 000.00) \times (2 - 2) = R\ 0.00$	Third finding of same non-conformance	$(R\ 2\ 000.00) \times (3 - 2) = R\ 2\ 000.00$	Fourth finding of same non-conformance	$(R\ 2\ 000.00) \times (4 - 2) = R\ 4\ 000.00$	Fifth finding of same non-conformance	$(R\ 2\ 000.00) \times (5 - 2) = R\ 6\ 000.00$
Description	Amount (per non-conformance finding)													
First finding of non-conformance	$(R\ 2\ 000.00) \times (1 - 2) = R\ 0.00$													
Second finding of same non-conformance	$(R\ 2\ 000.00) \times (2 - 2) = R\ 0.00$													
Third finding of same non-conformance	$(R\ 2\ 000.00) \times (3 - 2) = R\ 2\ 000.00$													
Fourth finding of same non-conformance	$(R\ 2\ 000.00) \times (4 - 2) = R\ 4\ 000.00$													
Fifth finding of same non-conformance	$(R\ 2\ 000.00) \times (5 - 2) = R\ 6\ 000.00$													
56		<u>Add the following additional clause:</u> The Employer's Agent reserves the right to suspend portions of the Works if there are any test results outstanding (including level control), as required in terms of the relevant standardised or project specific specifications.												
57		<u>Add the following additional clause:</u> The contractor shall submit the following documents monthly at the progress/site meetings: a) Updated realistic cash flow b) Progress report c) Updated Programmes												
58		A fine of R1000.00 per offence will be instituted for unnecessarily disturbing, damaging or destroying trees, shrubs or vegetation within or outside the demarcated site.												

C1.2b CONTRACT DATA (PART 2)

PART 2: DATA PROVIDED BY THE CONTRACTOR

No.	Clause	Description
1	1.1.1.9 1.2.1.2	The Contractor is: The Contractor's address for receipt of communications and notices is : Telephone: Facsimile: Address (Postal) : Address (Physical) :
2	6.5.1.2.3	The percentage allowance to cover overhead charges is

C1.3 FORM OF PERFORMANCE GUARANTEE (PRO FORMA)

PERFORMANCE GUARANTEE

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

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" means:

"Works" means:

"Site" means:

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

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

Amount in words:

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

Amount in words:

Type of Performance Guarantee: Fixed

"Expiry Date" means: Date of issue of the Certificate of Completion

CONTRACT DETAILS

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

1. FIXED PERFORMANCE GUARANTEE

- 1.1. Where a fixed Performance Guarantee has been selected. The Guarantor's liability shall be limited to the amount of the Guarantee Sum.
- 1.2. The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by

the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.

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

2. CONDITIONS APPLICABLE TO FIXED PERFORMANCES GUARANTEES:

- 2.1. The Guarantor hereby acknowledges that:

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

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

- 2.2. Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:

- 2.2.1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;

- 2.2.2. A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;

- 2.2.3. A copy of the aforesaid payment which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.

- 2.3. Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

- 2.3.1. The Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or

- 2.3.2. A provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and

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

- 2.4. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1

- 2.5. Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of the Performance Guarantee shall bear interest at the prime overdraft rate by the Employer's Bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 2.6. Payment by the Guarantor in terms of 3.2 or 3.3 will only be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 2.7. Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 2.8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have right to claim his from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 2.9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 2.10. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 2.11. This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 2.12. Where the 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 of section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

C1.4 OCCUPATIONAL HEALTH AND SAFETY MANDATORY AGREEMENT

Refer to the Health and Safety Specification.

C1.5 DISCLOSURE STATEMENT (PRO FORMA)

Date:

Contract:
.....

Contractor:

Employer:

Employer's Agent:

Dear Sirs

I am willing and available to serve as ad-hoc / standing Adjudication Board Member in the above mentioned Contract.

In accordance with the General Conditions of Contract for Construction Works Adjudication Board Rules relating to the disclosure statements by selected or nominated persons to the adjudication, I hereby state that:

1. I shall act with complete impartiality and know of nothing at this time, which could affect my impartiality.
2. I have had no previous involvements in this project.
3. I do not have any financial interest in this project.
4. I am not currently employed by the Contractor, Employer or Employer's Agent.
5. I do not have any financial connections with the Contractor, Employer or Employer's Agent.
6. I do have or have not had a personal relationship with any authoritative member of the Contractor, Employer or the Employer's Agent which could affect my impartiality.
7. I undertake to immediately disclose to the parties any changes in the above position which could affect my impartiality or be perceived to affect same.

Should there be any deviation from the foregoing statements, details shall be given.

I further declare that I am experienced in the work which is carried out under the Contract and in interpreting the Contract documentation.

Name in full

Signature

C1.6 ADJUDICATION BOARD MEMBER AGREEMENT (PRO FORMA)

This Agreement is entered into between:

Adjudication Board Member:

Name:

Physical Address:

Postal Address:

E-mail Address:

Facsimile Number:

Telephone Number:

Mobile Number:

Contractor:

Name:

Physical Address:

Postal Address:

E-mail Address:

Facsimile Number:

Telephone Number:

Mobile Number:

Employer:

Name:

Physical Address:

Postal Address:

E-mail Address:

Facsimile Number:

Telephone Number:

Mobile Number:

The parties entered into a Contract for (name of project) which provides that a dispute under or in connection with the General Conditions of Contract for Construction Works, Third Edition 2015 (GCC), must be referred to ad-hoc adjudication.

The undersigned natural person has been appointed to serve as Adjudication Board Member and together with the undersigned Parties agree as follows:

1. The Adjudication Board Member accepts to perform his duties in accordance with the terms of the Contract, the GCC, Adjudication Board Rules and this Agreement.

2. The Adjudicator undertakes to remain independent and impartial of the Contractor, Employer and Employer's Agent for the duration of the Adjudication Board proceedings.
3. The Adjudication Board Member agrees to serve for the duration of the Adjudication Board proceedings.
4. The parties may at any time, without cause and with immediate effect, jointly terminate this Agreement.
5. Unless the Parties agree, the Adjudication Board Member shall not act as arbitrator or representative of either Party in any subsequent proceedings between the Parties under the Contract. No Party may call the Adjudication Board Member as a witness in any such subsequent proceedings.
6. The standing Adjudication Board's duties shall end upon the Adjudication Board Member(s) receiving notice from the Parties of their joint decision to disband the Adjudication Board.
7. The Adjudication Board Member shall be paid in respect of time spent upon or in connection with the adjudication including time spent travelling:
8. A monthly retainer of(amount) fornumber of months), and / or
9. A daily fee of (amount) based on anumber) hour day, and / or
10. A hourly fee of (amount), and / or
11. A non-recurrent appointment fee of (amount) which shall be accounted for in the final sums payable.
12. The Adjudication Board Member's expense incurred in adjudication work shall be reimbursed at cost.

Upon submission of an invoice for fees and expenses to the Parties, the (Contractor/Employer*) shall pay the full amount within 28 days of receipt of the invoice and shall be reimbursed by the other Party by half the amount so that fees and expenses are borne equally by the Parties. This Agreement is entered into:

Contractor's signature:

Contractor's Name:

Place:

Date:

Employer's signature:

Employer's Name:

Place:

Date:

Adjudication Board Member's signature:

Adjudication Board Member's Name:

Place:

Date:

C1.7 CONFIRMATION OF RECEIPT OF CONTRACT (PRO FORMA)

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

The (day) of (month) (year)

At (place)

It is hereby agreed that the official commencement date of the Contract will be:

The (day) of (month) (year)

For and on behalf of the Contractor:

Signature(s) of authorized agent(s)

Date:.....

Name(s)

Capacity of authorized agent(s):

Witness:
(Name)

.....
(Signature)

C2: PRICING DATA

- C2.1 PRICING INSTRUCTIONS
- C2.2 BILL OF QUANTITIES
- C2.3 SUMMARY PAGE FOR BILL OF QUANTITIES

C2.1 PRICING INSTRUCTIONS

C2.1.1 PREAMBLE TO THE BILL OF QUANTITIES

C2.1.1.1 The method of measurement published by the South African Bureau of Standards in Clause 8 of the Standardised Specifications for Civil Engineering Construction is applicable, subject to the variations and amendments contained in the section “Applicable SABS 1200 standardised specifications”.

C2.1.1.2 Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardised or Scope of Work, as applicable, shall prevail.

A payment reference column is provided in the Bill of Quantities to assist the Tenderer when pricing this tender. Certain items may not have a payment reference and the onus is on the Tenderer to refer to the relevant specifications as stated above to ensure that the item is priced correctly. If in doubt the Tenderer shall preferably seek clarification or else qualify any assumptions made.

C2.1.1.3 The clauses in a specification in which further information regarding the bill item can be obtained appear under “Reference clause” in the Schedule. The reference clauses indicated are not necessarily the only sources of information in respect of bill items. Further information and specifications may be found elsewhere in the Contract documents. Standardised Specifications are identified by the letter or letters which follow SABS in the SABS 1200 series of specifications, e.g. G for SABS 1200 G.

C2.1.1.4 Unless otherwise stated, items are measured nett in accordance with the drawings, and no allowance is made for waste. The Bill of Quantities has to be completed in black non-erasable ink and the Tenderer is referred to the Tender Specifications in regard to the correction of errors.

C2.1.1.5 The quantities set out in the Bill of Quantities are the estimated quantities of the Contract Works, but the Contractor will be required to undertake whatever quantities may be directed by the Employer’s Agent from time to time. The Contract Price for the completed Contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

C2.1.1.6 The prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

C2.1.1.7 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill of Quantities.

C2.1.1.8 Except where rates only are required, the Tenderer shall insert all amounts to be included in his total tendered price in the “Amount” column and show the corresponding total tendered price.

- C2.1.1.9 All prices or rates inserted in the Bill of Quantities shall EXCLUDE VAT. Provision has been made on the Summary Page, of the Bill of Quantities, for the addition of VAT.
- C2.1.1.10 Arithmetical errors of responsive tenders will be corrected in terms of clause 5.9 of SANS 10845 - Part 3.
- C2.1.1.11 The units of measurement described in the Schedule/Bill of Quantities are metric units. Abbreviations used in the Schedule/Bill of Quantities are as follows:
- | | | | | | |
|----------------------|---|-----------------------|----------|---|------------------|
| mm | = | millimetre | h | = | hour |
| m | = | metre | kg | = | kilogram |
| km | = | kilometre | t | = | ton (1 000 kg) |
| m ² | = | square metre | No. | = | number |
| m ² .pass | = | square metre-pass | sum | = | lump sum |
| ha | = | hectare | MN | = | MegaNewton |
| m ³ | = | cubic metre | MN.m | = | MegaNewton-metre |
| m ³ .km | = | cubic metre-kilometre | P C sum | = | Prime Cost sum |
| ℓ | = | litre | Prov sum | = | Provisional sum |
| kℓ | = | kilolitre | % | = | per cent |
| MPa | = | Mega Pascal | kW | = | kilowatt |
- C2.1.1.12 The quantities set out in the Bill of Quantities are the estimated quantities of the Works, but the Contractor will be required to undertake whatever quantities as may be directed by the Employer's Agent from time to time. The Contract Price for the completed Contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.
- C2.1.1.13 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered or where a word or phrase such as "included" or "provided elsewhere" will be accepted as a rate of nil (R0,00) having been entered against such items and covered by the other prices or rates in the Schedule.
- Any work executed to which such a pay item applies, shall be measured under the appropriate items in the Bill of Quantities and valued at a rate of nil (R0,00). The rate of nil shall be valid irrespective of any change in the quantities during the execution of the Contract.
- C2.1.1.14 The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule as detailed in Section C1.2 Contract Data (Part 1).
- C2.1.1.15 The Bills of Quantities must be completed by the insertion of rates / prices in accordance with the instruction described in the items above. As this Contract is a re-measurable Contract and not a Lump Sum Contract, a blank bill of quantities with only a lump sum amount will not be accepted.
- C2.1.1.16 Except where rates only are required, the Tenderer shall insert all amounts to be included in his total tendered price in the "Amount" column and show the corresponding total tendered price.
- C2.1.1.17 Correction of entries made by the Tenderer shall be in in terms of clause 5.9 of SANS 10845 Part 3 as amended by the Tender Data.
- C2.1.1.18 Those parts of the contract to be undertaken by EME's has been marked in the Bill of Quantities under EME column. These items are for guidance only and not on exhaustive list of all items to be undertaken by EME's, or that must be undertaken by EME's.

- C2.1.1.19 Those parts of the contract to be constructed using labour-intensive methods have been marked in the Bill of Quantities with the letters "LI" in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than the plant specifically provided for in the scope of work, is a variation to the Contract. The items marked with the letters "LI" are not necessary an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any requirements in the generic labour intensive specification in the Scope of Works.
- C2.1.1.20 Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

NOTE:

Tenderers are to refer to the Scope of Works and in particular the Specification Data when pricing the Bill of Quantities. Certain clauses in the Standardised Specifications and the Particular Specifications have been omitted, amended or added to and these changes must be taken into account when pricing the tender.

C2.2 BILL OF QUANTITIES

AS PER SABS 1200 & SABS 0120

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 1: PRELIMINARY & GENERAL
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
1		SECTION 1: PRELIMINARY & GENERAL					
1.1	SABS 1200A	FIXED CHARGED ITEMS					
1.1.1	PSA 8.3.1	Contractual requirements	Sum	1			
	8.3.2	Establishment of Facilities on the Site:					
	8.3.2.1	Facilities for Engineer					
1.1.2	8.3.2.1 (a) PSAB 3.2	a) Furnished office (1 No)	Sum	1			
1.1.3	PSAB 8.3.1	c) Contract Name board (2 No.) and Identity Boards (2 Nos.) with supports erected & moved complete.	Sum	1			
1.1.4	8.3.2.2	Facilities for Contractor					
	8.3.2.3	Facilities for the Contractor including offices, storage sheds, workshops, laboratories, ablution and latrine facilities, tools and equipment, water supplies, electric with water, access and accommodation of traffic.	Sum	1			
1.1.5	8.3.3	Other fixed charge obligations	Sum	1			
1.1.6	8.3.4.	Removal of Engineer's and Contractors site establishment and reinstatement of site on completion	Sum	1			
1.2	SABS 1200A 8.4	TIME RELATED ITEMS					
1.2.1	PSA 8.4.1	Contractual requirements (including insurances)	Sum	1			
1.2.2	8.4.2	Operate and maintain facilities on Site:					
	8.4.2.1 (c)	Facilities for Engineer as listed in Item 1.1.3	Sum	1			
1.2.3	PSAB 3.2	Facilities for Contractor as listed in Item 1.1.4	Sum	1			
1.2.4	8.4.3	Supervision	Sum	1			
1.2.5	8.4.4	Company and Head Office overhead costs	Sum	1			
1.2.7	SABS 1200 A 8.4.5 PSA 8.4.5	Other time related obligations: Provision of Security Personnel	Month	6			
1.2.8	PSA 8.15	Community Liaison Officer	Month	6		7900	R 47 400,00
1.2.9	8.8.2	Accommodation of traffic for road crossings, access and along road (refer to SANS 1921-2)	Sum	1			
SECTION 1 : PRELIMINARY AND GENERAL - Carried Forward							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 1: PRELIMINARY & GENERAL
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 1 : PRELIMINARY AND GENERAL - Brought Forward							
	PSA 8.4.6	Compensation for delays incurred					
1.2.10		(a) Plant	Sum/day	15			
1.2.11		(b) Labour	Sum/day	15			
1.2.12		(c) Supervision	Sum/day	15			
1.2.13		(d) Other services, facilities etc. not covered by (a), (b) and (c).	Sum/day	15			
1,3	SABS 1200 A 8,5	SUMS STATED PROVISIONALLY BY ENGINEER					
1.3.1	PSA 8.5	a) Acceptance Control Testing	Prov Sum	1			R 20 000,00
1.3.2	8.5 (b)	b) Overheads, charges and profit on (a) above	%	20000			
1.3.3		e) Provision sum for work undertaken by Kouga Municipality Electrical Division	Prov. Sum				R 20 000,00
1.3.4		f) Overheads, charges and profit on (a) above	%	20000			
1.3.5		g) Provision sum for work undertaken by Kouga Municipality Water division	Prov. Sum				R 20 000,00
1.3.6		h) Overheads, charges and profit on (a) above	%	20000			
1.3.7		Complying to EPWP, QA and Project Reporting (Annexure F and G)	Prov. Sum	-			R 20 000,00
1,4	PSA 8.7	DAYWORKS (PROVISIONAL)					
1.4.1		Labour					
1.4.1.1		Allow for total remuneration paid to workers	Prov Sum				R 20 000,00
1.4.1.2	PSA 8.5	Percentage adjustment on Item 1.4.1.1 for Contractor's overheads and profit (State % and extend as an amount)	%	20000			
1.4.1.3		Skilled	h	20			Rate Only
1.4.1.4		Semi-skilled	h	20			Rate Only
1.4.1.5		Unskilled	h	20			Rate Only
1.4.2		Materials					
1.4.2.1	8.5 (b.1)	Net cost of goods or materials	Prov Sum				R 50 000,00
1.4.2.2	PSA 8.5	Percentage adjustment on Item 1.4.2.1 Contractor's overheads and profit (State % and extend as an amount)	%	50000			
1.4.3		Contractors own Plant					
1.4.3.1	8.5 (a)	Allow for all-inclusive cost of using Contractor's own plant on site.	Prov Sum	1			R 50 000,00
1.4.4	8.8.4 (a)	Plant hired by the Contractor					
SECTION 1 : PRELIMINARY AND GENERAL - Carried Forward							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 1: PRELIMINARY & GENERAL
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 1 : PRELIMINARY AND GENERAL - Brought Forward							
1.4.4.1	8.5 (b.1)	Net cost of hired plant	Prov Sum	1			R 50 000,00
1.4.4.2	PSA 8.5	Percentage adjustment on Item 1.4.4.1	%	50000			
1.4.5		Survey Beacons/Pegs					
1.4.5.1	8.5 (a)	Search for, record, reference and protect	Sum	1			
1.5	8.8	TEMPORARY WORKS					
1.5.1	8.8.2	Dealing with traffic or accommodation of traffic and erecting signage	Sum	1			
1.5.2	PSA 8.8.6	Dealing with water	Sum	1			
1.5.3		Dealing with Public	Sum	1			
1.5.4	8.8.4	Dealing with existing infrastructure	Sum	1			
1.5.5		Barricading of Trenches	Sum	1			
1.5.6	PSL	Equipment for Testing					
1.5.6.1		Equipment supplied for testing and disinfection of structures and pipelines from existing infrastructure, including transportation costs (Prov.).	Sum	1			
1.5.6.2	8.8.1 PSA 5.8	Access to works including all temporary roads, excavations and ramps, etc.	Sum	1			
1.6	PSA 8.9	PROVISIONS FOR HEALTH & SAFETY					
1.6.1		Provisions for fulfilling OH&S functions	Sum	1			
1.6.2		Provision for preparing a Hazard Identification and Risk Assessment (HIRA)	Sum	1			
1.6.3		Provision for the development of a documented Plan of OH&S Method Statements and/or Safe Work Procedures	Sum	1			
1.6.4		Provision for preparing a project specific OH&S Plan	Sum	1			
1.6.5		Provisions for the Implementation and Management of the OH&S Plan	Sum	1			
1.6.6		Provision for ensuring Contractor(s) compliance to statutory requirements, including monitoring and auditing of Contractor(s)	Sum	1			
1.6.7		Provision for OH&S training, promotion and awareness	Sum	1			
SECTION 1 : PRELIMINARY AND GENERAL - Carried Forward							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 1: PRELIMINARY & GENERAL
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 1 : PRELIMINARY AND GENERAL - Brought Forward							
1.6.8		Provision for emergency preparedness & response plan (This item should include: First Aid, Fire and Explosions, Acts of Nature, Hazardous Chemical Substances and Flammable Substances Spillage, Political Unrest and Violence and/or Terrorism).	Sum	1			
1.6.9		Provision for occupational health (Medicals – pre and post employment; Physical and Psychological for work at elevated heights; Medical surveillance for hazardous work; Baseline & audiometric screening tests; HIV and AIDS Programmed; etc.). Contractor is to make allowance for 30 people.	Sum	1			
1.6.10		Provision for protective equipment & protective clothing. Contractor is to make allowance for 30 people.	Sum	1			
1.6.11		Provision for OH&S equipment. Contractor is to make allowance for 30 people.	Sum	1			
1.6.12		Provision for ensuring public health and safety	Sum	1			
1.6.13		Provision for occupational health and safety signage, pictograms and notices	Sum	1			
1,7	PSA 8.12	PROVISIONS FOR ENVIRONMENTAL MANAGEMENT PLAN (EMP)					
1.7.1		Provisions for fulfilling EMP functions	Sum	1			
1,8	PSA 8.10	Provision for EME Manager	month	6			
SECTION 1 : PRELIMINARY AND GENERAL - Carried Forward to Summary							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 2: SOCCER FIELD
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	LOCAL CONTENT %	RATE	AMOUNT
2		SECTION 2 : SOCCER FIELD (Refer to Drg. No. 8011/004/GTH/004)					
2,1		Stripping TOPSOILING					
2.1.1		Strip field and dispose of all grassing to to a depth of 50mm	m ²	7700			
2.1.2		Rip and recompact existing top soil 150mm deep to 90% MOD AASHTO density	m ³	1200			
2.1.3		a) Supply, delivery, placement and compaction of approved topsoil 150mm layer thickness from commercial sources and compact to 90% MOD AASHTO	m ³	1200			
2,2		GRASSING					
2.2.1		Supply and plant instant lawn (Cynodon dactylon) including fertilizing topsoil.	m ²	7700			
2,3		MAINTENANCE					
2.3.1		Allow for maintaining grass to soccer field for a period of 6 months including watering, weeding, fertilising, mowing, replacement of dead plants, etc on a monthly basis	Month	6			
2.3.2		Allow for Watering costs during establishment using reclaimed water from the Humansdorp Waste Water Treatment Works incl. transport	k/l	5000			
SECTION 2: SOCCER FIELD - Carried Forward to Summary							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 3: IRRIGATION SYSTEM
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	LOCAL CONTENT %	RATE	AMOUNT
3,1	1200DB PSDB-8.3.2	IRRIGATION Earthworks (Pipe Trenches) a) Excavate in all material for trenches, For pipes from 40ø up to 75ø:					
3.1.1		a) 0-1m	m	100			
3.1.2		b) 1-2m	m	20			
3.1.3		c) Excavate and dispose of unsuitable material from trench bottom	m³	5			
3.1.4	8.3.3 8.3.3.1	Excavation ancillaries Make up deficiency in backfill material (Provisional)	m³	5			
3.1.5	8.3.3.3	Compaction in road reserves	m³	10			
3.1.6	8.3.5	Existing services that intersect or adjoin a trench a) Services that intersect a trench	No	5			
3.1.7		b) Services that adjoin a trench	m	50			
3.1.8	1200DB 8.2.2.3	Bedding (Pipes) Supply only of bedding by Importation: From commercial sources a) Selected granular material	m³	5			
3.1.9		b) Selected fill material	m³	5			
3,2	1200L PSL 8.2.1	Medium-pressure pipelines Supply, lay and bed pipes complete with couplings					
3.2.1		c) 50ø HDPE PE100 PN 10	m	50	100		
3.2.2		d) 40ø HDPE PE100 PN 10	m	50	100		
3.2.3	8.2.3	Extra over 8.2.1 for the supplying, laying and bedding complete with couplings Saddles:					
3.2.4		d) 50 x "1"	No	2			
3.2.5		d) 40 x "1"	No	2			
3,3	8.2.3	Other fittings:					
3.3.1		e) 50dia Straight Coupling		1			
3.3.2		f) 50 x "1 1/2" Male Tee		1			
3.3.3		g) 50 x "2" Male Adaptor		1			
3.3.4		h) 50 x 40 Reducer		1			
SECTION 3: IRRIGATION - Carried Forward							

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UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 3: IRRIGATION SYSTEM
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 3: IRRIGATION - Brought Forward							
3.4	8.2.3	Valve Boxes:					
3.4.1		a) 400 x 300 Rectangular Valve Box incl. concrete bases as per dwg 7602		2			
3.4.2		b) 550 x 380 Rectangular Valve Box		1			
SECTION 3: IRRIGATION - Carried Forward to Summary							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
4		SECTION 4: ABLUTION FACILITY (Refer to Drg. No.8011/004/GTH/005 to 8)					
4,1		EARTHWORKS					
		NOTE: All prices for excavation or filling are to include for "bulking".					
4.1.1	PD 1	Excavate in earth not exceeding 2m deep below natural or made up ground level for foundation trenches.	m ³	95			
4.1.2		Extra over all excavations in earth for excavations in hard rock (Provisional)	m ³	25			
4.1.3	PD 7	Spread and level filling from excavations under solid floors and steps and compact to 93% MOD AASHTO dry density	m ³	10			
4.1.4		Spread and level filling supplied by the Contractor under solid floors and compact to 93% MOD AASHTO dry density	m ³	95			
4.1.5	PD 4	Cart away surplus excavated material not exceeding 1,5 km away including spreading and levelling	m ³	85			
4.1.6	PD 10	Approved ant poison applied to ground surfaces in strict accordance with the manufacturers' instructions	m ²	200			
4,2	1200 G 8.1.3.3	CONCRETE, FORMWORK AND REINFORCEMENT					
		Concrete					
		Unreinforced 25MPa cement concrete in:					
4.2.1		Foundations	m ³	15			
4.2.2		Steps	m ³	5			
4.2.3		Ramps and Apron (Provisional)	m ³	3			
4.2.4	PF	Reinforced 25MPa cement concrete in: Surface Beds including apron	m ³	25			
4.2.5	PE	Formwork Temporary smooth formwork to concrete (use and waste) Edge not exceeding 150 mm high	m	10			
4.2.6		Riser exceeding 150 and not exceeding 400 mm high	m	5			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.2.7	PF	Reinforcement Steel rod reinforcement Bars of various diameters as reinforcement to slabs.	kg	500			
4.2.8		Fabric reinforcement reference No 395 lapped 150mm at all edges to concrete surface beds or slabs	m ²	250			
4.2.9		Sundries Strike off and cure the top surface of concrete surface beds.	m ²	250			
4.2.10		Strike off and cure the top surface of concrete ramps and apron to falls including forming of reedings	m ²	250			
4.2.11		Strike off and cure the top surface of concrete surface beds including floating with a power trowell.	m ²	250			
4,3	PI	BRICKWORK Common Brick Supply and install common brickwork in 5 : 1 cement mortar including wire ties, cutting etc:					
4.3.1		110 mm Selected local stock brick (Internal)	m ²	410			
4.3.2		230 mm Selected local stock brick (Foundations)	m ²	20			
4.3.3	PI 13 PI 13	Face Brick Supply and install approved face bricks, pointed in 5 : 1 cement mortar with half round weather struck joints including cleaning on completion Repair brickwork in existing changerooms with the supply and placing of brickwork to match existing bricks 110 mm Selected local face brick (External)	m ²	105			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.3.4		Builders work in connection with electrical installation Allow for forming holes, chases etc, for building in or passage of pipe conduit through walls, ceilings, floors, roofs, joiner fittings etc., the provision of recesses, niches etc. for junction boxes, switches, switchboards and light fittings and for making good in all trades thereafter.	sum	-		-	
4.3.5		Sundries Bed wall plate in (6 : 1) cement mortar	m	65			
4.3.6		75mm Wide steel mesh reinforcement built into brick walls	m	450	100		
4.3.7		150mm Wide steel mesh reinforcement built into brick walls	m	650	100		
4.3.8		Set up and build in steel door frames	N ^o	11	100		
4.3.9		Set up and build in steel windows	N ^o	8	100		
4.3.10		Forming recess 460 x 660 x 85 mm deep in 230 mm wall for meter enclosure, including all rough cutting, etc.	N ^o	1	100		
4.3.11	PI 10	2mm and 1.2mm Thick galvanised hoop iron cramp, 32mm wide, twice screwed to wood frame and bent as required or lapped around and spiked to roof member, with end split and spread and build into brickwork.	N ^o	40	100		
4.3.12		Ventalation Leave or form 225 x 150 mm flue through one brick wall and render around in cement mortar	N ^o	10			
4.3.13		150 x 225 Vermin proof air bricks and built into flue	N ^o	10			
4.3.14		Prefabricated Prestressed Lintols 102 x 70 mm Precast concrete lintol, bedded at ends on brickwork in 3 : 1 cement mortar including temporary intermediate props.	No	22	100		
4.3.15		1.6 x 70 mm Precast concrete lintol, bedded at ends on brickwork in 3 : 1 cement mortar including temporary intermediate props.	No	16			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4,4	PJ	WATER PROOFING					
4.4.1		150 Micron polyethylene sheeting laid under concrete surface beds and vertically, lapped 150 mm and sealed with 48 mm wide approved adhesive tape on both sides at all joints (Measured nett).	m ²	270			
4.4.2		0,375 mm Thick type B horizontal brick damp proof course under walls, cills, etc. including laps the full width of the wall (measured nett).	m ²	100			
4.4.3		Clear silicone sealant applied at junction of window or door frame and face silicone sealant applied at junction of window or door frame and face brickwork.	m	95			
4,5	PL	CARPENTRY AND JOINERY					
		Timber Work Supply and install all timberwork, incl. cutting, fixing, bracing and sealant					
4.5.1		9,0 m beams Changeroom roof (228 x 50)	N ^o	16			
		4,2 m beams - Store room roof (228 x 50)	N ^o	4			
4.5.2		114 x 38 mm Wall plate	m	45			
4.5.3		76 x 50 mm Purlins	m	270			
4.5.4		Wrot face to softwood	m ²	10			
4.5.5		Two coats of Creosote on sawn timbers before fixing	m ²	5			
4.5.6		End of 38 x 114 mm softwood rafter splay cut.	N ^o	20			
4.5.7		Pressed Fibre Cement 10 x 225 mm Fascia or barge board screwed to ends or roof timbers with countersunk head brass screws and metal H-section cover strips at joints.	m	65	100		
4.5.8		Mitred intersection of fascia and barge board.	N ^o	6			
4.5.9		Apex mitre of barge board.	N ^o	4			
		Insulation					
4.5.10		"Sisalation RSA 420" laid over purlins.	m ²	185			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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UPGRADING OF THE KWANOMZAMO SPORTS FACILITY
SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.5.11		Ceilings and Cornices 38 x 38 mm Brandering for ceiling boards (elsewhere), spaced at 400 mm centres in both directions fixed with and including 76 mm stout galvanised nails driven on skew	m ²	185	100		
4.5.12		6,4 mm "Herculite" gypsum plaster board ceiling panels fixed to timber battens in symmetrical pattern to suite the various rooms including metal H-section cover strips at joints.	m ²	185			
4.5.13		75 mm Coved gypsum plaster cornice planted on	m	90			
2.5.14		Extra for forming 600 x 600 mm framed trap door in ceiling including cutting and fitting roof timbers around opening and 25 mm half round timber edge strip around edge of trapdoor.	N ^o	2			
4,6	PSX 16	ROOF COVERINGS					
4.6.1		Manufacture, supply, store and install 0.53mm IBR roof sheets (SAFINTRA TRIMFLUTE or similar approved)	m ²	185	100		
4,7	PO	METAL WORK					
		Steel Windows					
		Supply and install hot dipped galvanised steel windows.					
4.7.1		Window type NES 4 size 1511 x 654 mm.	N ^o	6	100		
4.7.2		Window type NES 7 size 1022 x 654 mm.	N ^o	2	100		
		Steel Doors					
4.7.3		Supply and install standard steel doors complete with frames, hinges and locks (230 x 813 mm)	N ^o	6	100		
4.7.4		Supply and install standard steel doors complete with frames, hinges and locks (110 x 813 mm)	N ^o	6	100		
		Steel Burglar Proofing					
4.7.5		Burglar proofing to be "Heavy Duty" and to be					
4.7.6		Supply and install hot dipped galvanised steel burglar proofing to window type NES 4	N ^o	4	100		
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.7.7		Supply and install hot dipped galvanised steel burglar proofing to window type NES 7	N ^o	2	100		
4.7.8		Supply and install hot dipped galvanised steel burglar proofing to external doors	N ^o	6	100		
4,8	PP	PLASTERING					
		Internal Plaster					
4.8.1		Install 4 : 1 cement plaster 12mm thick to vertical brick walls, incl. Narrow widths and rounded angle	m ²	1365			
4.8.2		Horizontal brick or concrete soffits.	m ²	5			
		External Plaster					
4.8.3		Install 4 : 1 cement plaster 12mm thick to vertical brick walls, incl. Narrow widths and rounded angle	m ²	15			
4.8.4		Horizontal brick or concrete soffits.	m ²	5			
4,9	PQ	TILING					
		4mm Thick white glazed ceramic wall tiling size 152 x 152 mm fixed with adhesive and pointed in white cement to:					
4.9.1		Walls in splashbacks	m ²	4			
		Sundries					
4.9.2		Single compartment soap dish built into wall.	N ^o	8			
4.9.3		Toilet roll holder built into and including forming recess in brick wall.	N ^o	4			
4.9.4		Cut and fit tiling around small pipe.	N ^o	8			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY

BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4,10	PR	PLUMBING AND DRAINAGE					
	PR10	Rain Water Disposal					
		Aluminium rainwater goods.					
		115 x 125 x 115 mm VHV box section eaves gutter with spigot and socket joints made with approved bituminous mastic compound and secured with 6 mm diameter galvanised gutter bolts and asphaltic felt and galvanised steel washers, finished externally with neatly trowelled smooth fillets in cement mortar and fixing to falls on and including approved stock pattern aluminium alloy brackets screwed to fibre-cement fascia at not exceeding 1m centres, including all short lengths, cutting, etc.					
4.10.1			m	22	100		
4.10.2		Extra on gutter for stopped end.	N ^o	2			
4.10.3		Extra over gutter for nozzle outlet to suit 100 x 76 mm pipe, including galvanised wire balloon grating	N ^o	2	100		
4.10.4		100 x 76 mm Rainwater pipe fixed to walls	m	8	100		
4.10.5		Extra on rainwater pipe for bend	N ^o	6	100		
	PR	Sanitary Plumbing					
		Spigoted and Socketed Rigid uPVC pipes and fittings, including short lengths and cutting jointing with rubber O rings.					
4.10.6		40 mm diameter soil, vent or anti syphonage pipe fixed to walls	m	2	100		
4.10.7		40 mm diameter soil, vent or anti syphonage pipe laid in chase in concrete floor	m	12	100		
4.10.8		110 mm diameter soil, vent or anti syphonage pipe fixed to walls	m	30	100		
4.10.9		Extra over uPVC piping for: 40 mm Bend	N ^o	25	100		
4.10.10		110 mm Bend	N ^o	8	100		
4.10.11		40 mm Bend with inspection eye	N ^o	10	100		
4.10.12		110 mm junction	N ^o	3	100		
4.10.13		110 mm straight pan connector	N ^o	4	100		
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.10.14		Traps 40 mm "Flexi" butyle rubber reseal "S" trap complete with necessary clips and joint to uPVC pipe	N ^o	8	100		
4.10.15		40 mm diameter brass shower trap complete with chromium plated hinged grating and frame set in outlet and setting in concrete floor and joint to uPVC pipe.	N ^o	8			
4.10.16		Sundries Galvanised iron wire balloon grating set in top of 110 mm pipe.	N ^o	4			
4.10.17		Joint of W.C. pan to 110mm uPVC pipe.	N ^o	4			
4.10.18	PR27	Sanitary Fittings 560 x 405 mm "Vaal Springbok" white glazed fireclay lavatory basin with overflow, 32 mm chromium plated waste union, plug, chain and stay, two 15 mm "Cobra ECCP No. 111" pillar taps and fixing in position on and including one pair "Vaal 8118" white enamelled cast iron concealed brackets bolted to tiled wall.	N ^o	4			
4.10.19		Low level WC, suite comprising white vitreous china pan with "P" or "S" trap, outlet, plastic double flap seat, 11 litre white enamelled cast iron low level cisten and 40 mm diameter chromium plated drawn steel bent flush pipe, including fixing pan in position on floor and cistern to wall and jointing flush pipe to cistern and pan	N ^o	4			
4.10.20		415 x 315 x 275 "Vaal Flatback" vitreous china wall hung bowl urinal with 38 mm chromium plated domical grating and chromium plated top inlet spreader. To be fixed to wall with two hangar brackets and installed with exposed top inlet flushvalve "Cobra FJ6000 Flusmaster" with FJT 5.5 flushpipe.	N ^o	4			
4.10.21		Water Supplies Poly Propylene Piping: 20 mm diameter pipe and fixing to walls in chase elsewhere.	m	50			
4.10.22		15 mm diameter pipe and fixing to walls in chase elsewhere.	m	30			
4.10.23		32 mm diameter pipe and fixing in roof space.	m	30			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY

BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.10.24		20 mm diameter pipe and fixing in roof space.	m	30	100		
		Conex bends					
4.10.25		25 mm Bush.	N ^o	15			
4.10.26		25 mm Bend.	N ^o	15			
4.10.27		25 mm reducing Bush.	N ^o	15			
		Extra over Polyethylene Piping for:					
4.10.28		15 mm Coupling.	N ^o	25			
4.10.29		20 mm Coupling.	N ^o	15			
4.10.30		15 mm Bend.	N ^o	15			
4.10.31		20 mm Bend.	N ^o	15			
4.10.32		15 mm Tee.	N ^o	10			
4.10.33		20 mm Tee.	N ^o	10			
		Service Pipes, Stop Cocks, etc.					
4.10.34		15 mm diameter copper service pipe average 450 mm girth.	N ^o	20			
4.10.35		Shower set comprising one pair 15 mm "Star" ECCP, No. 128 undertile stopcocks, one overhead shower arm with wall flange CP No. 027 and one shower rose CP. No. 068BJ including joints to steel pipes	N ^o	8	100		
4.10.36		15 mm "Ball O Stop" valve including two copper unions and joints to steel pipe	N ^o	20	100		
4.10.37		25 mm brass full-way wedge valve with wheelhead and joints to steel pipe	N ^o	4	100		
4.10.38		Supply and install "Clean Heat" Low pressure solar geyser, 200 litre capacity (incl. all fitting and connections to proposed system) or similar approved, installed in accordance with manufacturers specifications.	N ^o	4	100		
		Sundries					
4.10.39		Excavate for and build stop valve chamber size 220 x 220 x 450 mm deep internally with 75 mm concrete base, half brick sides and with concrete kerb at top finished smooth on exposed surfaces and rebated for and fitted with a cast iron hinged cover and frame.	N ^o	1			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY

BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.10.40	PR	Soil Drainage Spigoted and Socketed Rigid uPVC pipes and fittings, including short lengths and cutting and jointing with Rubber O Rings 110 mm uPVC pipe in ground including excavation not exceeding 750 mm deep	m	8			
4.10.41		110 mm uPVC pipe in ground including excavation not exceeding 750 mm and not exceeding 1500 mm deep	m	5			
4.10.42		110 mm bend	N ^o	8			
4.10.43		110 mm bend with inspection eye.	N ^o	8			
4.10.44		110 mm Junction	N ^o	8			
4.10.45		110 mm Junction with inspection eye.	N ^o	8			
4.10.46		Sundries Cast iron rodding eye cover and frame and setting in top of 110 mm pipe.	N ^o	16			
4.10.47		110 mm Gully trap with one 50 mm side or vertical inlet and 110 mm outlet jointed to drain pipe and hopper head fitted with cast iron grating and frame, the whole set on and encased in concrete carried up 75 mm above ground as kerb, dished down to grating and finished smooth on all exposed surfaces in 3 : 1 cement render with angles rounded, including necessary excavation and formwork.	N ^o	4			
4.10.48		Testing Test drainage work, water supplies and plumbing work to approval of the Engineer and leave perfect.	Sum				
4.10.49		Holes, Sleeves, Chases, Etc. Prices must include for making good to all surrounding finishes. Cut chase in brickwork for pipe not exceeding 50 mm diameter.	m	30			
4.10.50		Cut chase in concrete floor for pipe not exceeding 50 mm diameter.	m	10			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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SECTION 4: ABLUTION FACILITY
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.10.51		Hole through face brick wall for pipe not exceeding 50 mm diameter.	N ^o	20			
4.10.52		Hole through face brick wall for pipe exceeding 50 mm and not exceeding 110 mm diameter.	No.	10			
4.11	PS	GLAZING					
4.11.1		Supply and install clear float glass 4 mm thickness in panes exceeding 0,1 and not exceeding 0,5m ² to steel fixed with putty	m ²	4			
4.11.2		Supply and install approved obscure 4 mm glass in panes exceeding 0,1 and not exceeding 0,5 m ² .	m ²	4			
4.12	PU	PAINTING					
	PU1.2	Paint on plaster					
		Prepare, apply one coat plaster primer and two coats approved super acrylic PVA paint on:					
4.12.1		Plastered walls internally	m ²	1365			
4.12.2		Fibre cement fascia and barge board	m ²	7			
4.12.3		Prepare and apply 2 coats bitumus paint on: Brick skin including working around wire ties.	m ²	270			
	PU1.3	Paint on Metal					
		Etch and apply one coat zinc primer, one undercoat and two finishing coats approved universal gloss enamel paint on:					
4.12.4		Steel sashes and frames (both sides measured).	m ²	3			
4.12.5		Steel doors and frames	m ²	120			
4.12.6		Burglar proofing	m ²	6			
		Special Coatings					
		Clean with spirits of salts solution and apply two coats silicone based brick dressing in strict accordance with the manufacturer's instructions:					
4.12.7		Face brick walling externally	m ²	200			
SECTION 4 : ABLUTION FACILITY - Carried Forward							

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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 4 : ABLUTION FACILITY - Brought Forward							
4.12.8		PROVISIONAL SUMS The following provisional sums are to cover work carried out by specialists who are to be nominated by the Engineer. Unless otherwise described as nett, all provisional sums include 5% cash discount to the Contractor. Under the items described as "Profit" the Contractor is to allow for any additional profit he may require. Under items described as "Attendance" the Contractor is to allow for providing every facility to the specialists carrying out the relevant work, for taking delivery and storing of materials, and for providing the use of all ordinary scaffolding and plant. Furniture and Shelving					
4.12.9		Provide the sum of R30,000 (Thirty thousand rand) for furniture, fittings and shelving installed complete.	Sum				R 30 000,00
4.12.10		Add for profit on last if required.	%				
4.12.12		Timber manufacture Contractor to design and supply approved timber structure design drawings / details to Engineer for approval and compliance. Although roof has been detailed as a flatroof, apitched roof will also be accepted.	Sum	-	100	-	
4.12.13		Timber manufacture Contractor to allow for any additional costs not allowed for in the schedule below due to design provided.	Sum	-		-	
SECTION 4 : ABLUTION FACILITY - Carried Forward to Summary							

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SECTION 5: GUARD HOUSE
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
5		SECTION 5: GUARD HOUSE (Refer to Drg. No. 8010/004/GTH/009)					
5,1	SANS 1200C	EXCAVATION					
5.1.1	8.2.1	Clear and grub	m ²	42,00			
5.1.2	8.2.3	Remove and grub all trees stumps regardless of girth	N ^o	1,00			
5.1.3	8.1.10	Remove top soil to nominal depth of 150mm and stockpile	m ²	42,00			
5,2	1200D	EARTH WORKS					
5.2.1	8.3.2(a)	Excavate in all materials and use for backfill or dispose, as ordered	m ³	5,50			
5.2.2	8.3.3(a)	Excavate for restricted foundations, floors, footings and pipe trenches in all materials and use for backfill or embankment or dispose	m ³	1,00			
5.2.3	8.3.3(b)	Extra over Item 5.2.2 for excavation in hard rock material	m ³	1,00			
5,3	8.4.3	Concrete					
		Unreinforced 25MPa cement concrete in:					
5.3.1		Foundations	m ³	1,00			
5.3.2		Concrete strip footing	m ³	3,50			
5.3.3		Ramps and Apron	m ³	2,00			
		Reinforced 25MPa cement concrete in:					
5.3.4		Floor slab	m ³	1,00			
	BW-E	Formwork					
		Temporary smooth formwork to concrete (use and waste)					
5.3.5		Edge not exceeding 150 mm high	m	23,00			
	1200G	Reinforcement					
	8.3.1	Steel rod reinforcement					
5.3.6		Bars of various diameters as reinforcement strip footing	kg	350,00	100,00		
5.3.8		Fabric reinforcement reference No 395 lapped 150mm at all edges to concrete surface beds or slabs	m ²	15,00			
SECTION 5: GUARD HOUSE - Carried Forward							

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SECTION 5: GUARD HOUSE
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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 5: GUARD HOUSE - Brought Forward							
5.4	PI	BRICKWORK Common Brick					
5.4.1		Supply and install brickwork in 5:1 cement mortar including wire ties, cutting, etc. 110mm selected local stock brick (internal)	m ²	43,00			
5.4.2		Face Brick 5:1 cement mortar with half round weather struck joints including cleaning on completion, 110mm to match existing face brick (external)	m ²	10,00			
5.5	PP	PLASTERING Screeds					
5.5.1		ABE screed PU on horizontal concrete surfaces trowelled smooth to receive floor (green) finish or similar approved	m ²	7,00			
5.5.2		Internal Plaster Install 4 : 1 cement plaster 12mm thick to vertical brick walls, incl. Narrow widths and rounded angle	m ²	10,00			
5.5.3		Horizontal brick or concrete soffits.	m ²				
5.6	PK	ROOF COVERINGS					
5.6.1		Supply, store and install fibre cement roof sheeting "Nutech BigSix" Fixing in strict accordance with the manufacturer's specifications by an approved Brownbuilt contractor	m ²	20,00			
5.7	PU	PAINTING Paint on plaster					
5.7.1		Prepare, apply one coat plaster primer and two coats approved super acrylic PVA paint on: Plastered walls internally	m ²	10,00			
5.7.3		Paint on Wood Prepare, stop and apply two coats approved varnish on: Hardwood doors and frames.	N ^o	2,00			
		Prepare, knot prime stop, and apply one coat pink wood primer, one undercoat and two coats approved universal eggshell enamel paint on:					
SECTION 5: GUARD HOUSE - Carried Forward							

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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 5: GUARD HOUSE - Brought Forward							
5.7.4		General surfaces of eaves timbers.	m	20,00			
5.7.5		Special Coatings Clean with spirits of salts solution and apply two coats silicone based brick dressing in strict Face brick externally	m ²	30,00			
5.7.6		Ventilation Leave or form 225 x 150 mm flue through one brick wall and render around in cement mortar	N ^o	2,00			
5.7.7		150 x 225 Vermin proof air bricks and built into flue	N ^o	2,00			
5.7.8	PG	Prefabricated Prestressed lintels 1200 x 108 x 70 mm Precast concrete lintel, bedded at ends on brickwork in 3 : 1 cement mortar including temporary intermediate props.	No	3,00	100		
5.8	PO	ALLUMINIUM WINDOWS Note: All steel windows are to be hot dipped galvanised and including burglar bars.					
5.8.1		a) Windows Type HS 1512 (1500 x 1000)	N ^o	2,00	100		
5.8.2		b) Windows Type PT66 (600 x 600)	N ^o	1,00	100		
5.8.3		b) Windows Type FPW (690 x 1200)	N ^o	1,00	100		
5.9	PL	DOORS & CEILINGS Supply and install timber / steel doors complete as detailed including hot dipped galvanised burglar gates to external doors.					
5.9.1		a) Doors (813 x 2100)	N ^o	2,00	100		
5.9.2		Supply and install 1200 x 600mm suspended ceiling on mineral fibre board, including all patent suspension fittings. According to manufacturer's specification	m ²	10,00	100		
5.9.3		Extra for forming 600 x 600 mm framed trap door in ceiling including cutting and fitting roof timbers around opening and 25 mm half round timber edge strip around edge of trapdoor.	N ^o	1,00	100		
SECTION 5: GUARD HOUSE - Carried Forward							

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SECTION 5: GUARD HOUSE
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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 5: GUARD HOUSE - Brought Forward							
5,10	PR	DRAINAGE Rain Water Disposal 115 x 125 x 115 mm Aluminium VHV box section eaves gutter with spigot and socket joints made with approved bituminous mastic compound and secured with 6 mm diameter galvanised gutter bolts and asphaltic felt and galvanised steel washers, finished externally with neatly trowelled smooth fillets in cement mortar and fixing to falls on and including approved stock pattern aluminium alloy brackets screwed to pvc fascia at not exceeding 1m centres, including all short lengths, cutting, etc.					
5.10.1			m	10,00	100		
5.10.2		Extra on gutter for stopped end.	N ^o	4,00	100		
5.10.3		Extra over gutter for nozzle outlet to suit 100 x 76mm pipe, including galvanised wire balloon grating	N ^o	4,00	100		
5.10.4		100 x 75 mm Aluminium box rainwater down pipe fixed to walls	m	6,00	100		
5.10.5		Extra on rainwater pipe for bend	N ^o	6,00	100		
5,11	PL	CARPENTRY AND JOINERY Timber Work Supplier to supply design for approval of roof truss arrangement prior to manufacturer and to provide shop drawings and engineering truss certificate					
5.11.1			Sum	1,00	100		
5.11.2		Supply and install all timberwork, incl. cutting, fixing, bracing and sealant 2m span truss	N ^o	5,00	100		
5.11.3		114 x 38 mm Wall plate	m	12,50	100		
5.11.4		76 x 50 mm Purlins	m	40,00	100		
5.11.5		38 x 38mm Branderling (ceiling)	m	50,00	100		
5.11.6		Wrot face to softwood	m ²	3,00	100		
5.11.7		Two coats of Creosote on sawn timbers before fixing	m ²	4,00	100		
5.11.8		End of 114 x 38mm softwood rafter splay cut	N ^o	10,00	100		
SECTION 5: GUARD HOUSE - Carried Forward							

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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 5: GUARD HOUSE - Brought Forward							
5.11.9		Facia and Barge Boards 225 x 75 x 9 mm Fascia screwed to ends or roof timbers with countersunk head brass	m	10,00			
5.11.10		225 x 75 x 9 mm Barge board screwed to ends or roof timbers with countersunk head brass	m	10,00			
5.11.11		Mitred intersection of fascia and barge board.	N ^o	4,00			
5.11.12		Insulation Supply and install sisalation FR405 (or similar approved) to underside of roof in accordance with SANS 10400 and 10177	m ²	10,00			
5.12	PN	IRON MONGERY Supply and install ironmongery to manufactures specifications and approved by the Engineer before fixing. Finish to all ironmongery is to be stainless steel unless otherwise described. Hinges					
5.12.1		100 mm Stainless Steel butt hinges	N ^o	4,00	100		
5.12.2		Locks Three lever mortice lockset with lever handle furniture	N ^o	2,00	100		
5.12.4		20 mm diameter pipe and fixing to walls in chase elsewhere.	m	5,00	100		
5.12.5		15 mm diameter pipe and fixing in roof space.	m	2,00	100		
5.12.6		20 mm diameter pipe and fixing in roof space.	m	2,00	100		
5.12.7		Extra over Polyethylene Piping for: 15 mm Coupling.	N ^o	4,00	100		
16.11.3		15 mm diameter pipe and fixing to walls in chase elsewhere.	m	15	100		
16.11.4		20 mm diameter pipe and fixing to walls in chase elsewhere.	m	5	100		
5.12.8		20 mm Coupling.	N ^o	4,00	100		
5.12.9		15 mm Bend.	N ^o	5,00	100		
5.12.10		20 mm Bend.	N ^o	5,00	100		
SECTION 5: GUARD HOUSE - Carried Forward							

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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 5: GUARD HOUSE - Brought Forward							
5.12.11		15 mm Tee.	N ^o	2,00	100		
5.12.12		20 mm Tee.	N ^o	2,00	100		
5.12.13		Service Pipes, Stop Cocks, etc. 15 mm diameter copper service pipe average 450 mm girth.	N ^o	2,00	100		
5.12.14		15 mm "Ball O Stop" valve including two copper unions and joints to steel pipe	N ^o	2,00	100		
5,13	PR	SANITARY PLUMBING Spigoted and Socketed Rigid uPVC pipes and fittings, including short lengths and cutting jointing with rubber O rings.					
5.13.1		40 mm diameter soil, vent or anti syphonage pipe fixed to walls	m	8,00	100		
5.13.2		110 mm diameter soil, vent or anti syphonage pipe fixed to walls	m	5,00	100		
5.13.3		Extra over uPVC piping for: 40 mm Bend	N ^o	3,00	100		
5.13.4		110 mm Bend	N ^o	2,00	100		
5.13.5		40 mm Bend with inspection eye	N ^o	2,00	100		
5.13.6		110 mm junction	N ^o	1,00	100		
5.13.7		110 mm straight pan connector	N ^o	1,00	100		
5.13.8		Traps 40 mm "Flexi" butyl rubber reseal "S" trap complete with necessary clips and joint to uPVC pipe	N ^o	1,00	100		
5.13.9		Sundries Cast iron rodding eye cover and frame and setting in top of 110 mm pipe.	N ^o	1,00	100		
5.13.10		110 mm Gulley trap with one 40 mm side or vertical inlet and 110 mm outlet jointed to drain pipe and hopper head fitted with cast iron grating and frame, the whole set on and encased in concrete carried up 75 mm above ground as kerb, dished down to grating and finished smooth on all exposed surfaces in 3 : 1 cement render with angles rounded, including necessary excavation and formwork.	N ^o	1,00			
SECTION 5: GUARD HOUSE - Carried Forward							

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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 5: GUARD HOUSE - Brought Forward							
5.13.11		Approved pressure reducing valve and joints to steel pipe including connectors	N°	1,00			
5.13.12		Extra Over for insulation of hot water pipes, as per Manufacturer's specification	Sum	1,00			
5.14		MISCELLANEOUS					
5.14.1		a) Ceramic handwash sink including hot and cold water taps with 100 x 100 glazed tile splashback 450mm high	N°	1,00			
5.14.2		b) Ceramic Toilet set	N°	1,00			
5.15		TESTING AND COMMISSIONING					
		Testing and Commission					
		Test and commission the complete installation - Gate House - including the handing in of all test results to the Engineer.					
5.15.1			Sum	1,00			
5.15.2		Timber manufacture Contractor to design and supply approved timber structure design drawings / details to Engineer for approval and compliance. Although roof has been detailed as a flat roof, a pitched roof will also be accepted.	Sum	1,00	100		
5.15.3		Timber manufacture Contractor to allow for any additional costs not allowed for in the schedule below due to design provided.	Sum	1,00			
5.16		PROVISIONAL SUMS					
		The following provisional sums are to cover the work to be carried out by specialists who are to be nominated by the Engineer.					
		Furniture					
5.16.1		Provide the sum of R20,000 (Fifty thousand rand) for furniture and fittings installed	Prov Sum	20 000			
5.16.2		Add for profit on above if required.	Sum	2 000			
SECTION 5 : GUARD HOUSE - Carried Forward To Summary							

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SECTION 6: ACCESS ROAD & FENCING

BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6		ACCESS ROAD AND FENCING (Refer to Drg. No. 8010/004/GTH/012)				
6,1	SANS 1200DM	Earthworks Roadbed preparation and compaction of in-situ material				
6.1.1	8.3.3 (a)	Compact to 93% Mod AASHTO density	m ³	246		
6.1.2	8.3.4	Cut to fill and compact to 93% Mod AASHTO density	m ³	24		
6,3	SANS 1200 DM	Wearing Course Construct 100 mm thick wearing course from commercial sources, compacted to 95% Mod AASHTO. (Wearing course to conform to TRH20, Table 2)				
6.3.1	8.3.16		m ³	125		
6.3.2		Construct 600mm wide concrete v-channel to dwg 8011/004/GTH/013	m	212		
6,4	SANS 1200 C	Boundary Wall Excavation				
6.4.1	8.2.1	Clear and grub	m ²	1290		
6,5	1200D	EARTH WORKS				
6.5.1	8.3.2(a)	Excavate in all materials and use for backfill or dispose, as ordered	m ³	420		
6.5.2	8.3.3(b)	Extra over Item 5.2.2 for excavation in hard rock material	m ³	5		
6,6	SANS 1200 GA	Concrete Reinforced 25MPa cement concrete in:				
6.6.1		Concrete strip footing	m ³	125		
6.6.2		Concrete in-fill	m ³	45		
6.6.2	8.3.1	Reinforcement Bars of various diameters as reinforcement strip footing and wall.	t	3		
6,7		CEMENT BLOCKS Supply and construct cement block wall to a height of 2.7m with Inca-140 Pilaster block piers at 3.1m center to center spacing complete with low slump in-fill concrete in blocks:				
6.7.1		390 x 190 x 140 Blocks	m ³	240		
6.7.3		Inca-140 pilaster blocks	m ³	90		
SECTION 6 : ACCESS ROAD & FENCING - Carried forward to Summary						

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SECTION 8: NEW GUARD HOUSE (SMALL POWER)
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
8		SECTION 8: GUARD HOUSE (SMALL POWER) (See Dwg. 8010/009/315)					
8,1	ITEM SES 5	LV SUPPLY Supply and fix with glue triangular yellow stickers with black electrocution symbol in black frame; stickers to be 200mm per side, mounted centrally above each column of panels along the top section of the panel					
8.1.1	ITEM SES 12		No	2			
8.1.2	ITEM SES 5	Supply, installation, testing and commissioning of a three phase 30A LV DB, Bottom Entry, rated 3kA, including the following components:	No	1			
8.1.3		MCB - 30A, 1 pole	No	1			
8.1.4		MCB - 20A, 1 pole	No	1			
8.1.5		MCB - 15A, 1 pole	No	1			
8.1.6		E/L CB - 63A, 1 pole	No	1			
8.1.7		Isolator - 63A	No	1			
8,2		CABLING Supply, installation, testing and commissioning of PVC 3c Insulated Armoured 600/1000V Copper Cable buried in a trench 650mm deep					
	(4)	4mm ²					
8.2.1		Supply	m	20	90		
8.2.2		Install	m	20			
8,3		COPPER WIRE Supply, installation, testing and commissioning of single core Insulated Copper Earthing Wire					
	(2)	2.5mm ²					
8.3.1		Supply	m	5	90		
8.3.2		Install	m	5			
	(3)	1.5mm ²					
8.3.3		Supply	m	9			
8.3.4		Install	m	9			
		SECTION 8 : GUARD HOUSE (SMALL POWER) - Carried Forward					

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BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 8 : GUARD HOUSE (SMALL POWER) - Brought Forward							
8.3.5	(1)	Supply, installation, testing and commissioning of single core Insulated Copper Wire.					
		2.5mm² Black					
8.3.6		Supply	m	5			
8.3.7		Install	m	5			
	(2)	2.5mm² Red					
8.3.8		Supply	m	5			
8.3.9		Install	m	5			
	(3)	1.5mm² Black					
8.3.10		Supply	m	9			
8.3.11		Install	m	9			
	(4)	1.5mm² Red					
8.3.12		Supply	m	9			
8.3.13		Install	m	9			
8,4	ITEM SES 23	CABLE AND COPPER WIRE TERMINATIONS					
		Supply, deliver, install and connect 3c PVC					
	(4)	4mm²					
8.4.1		Supply	No	2	90		
8.4.2		Install	No	2			
	(1)	Compression PVC gland for two Insulated					
		2.5 mm2					
8.4.3		Supply	No	9	90		
8.4.4		Install	No	9			
8,5		LUMINAIRES					
	(2)	Type B BEKA Series 31 LED 10W Ceiling/Wall Mounted with SS inserts OR Similar Approved					
8.5.1		Supply	No	1			
8.5.2		Install	No	1			
SECTION 8 : GUARD HOUSE (SMALL POWER) - Carried Forward							

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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 8 : GUARD HOUSE (SMALL POWER) - Brought Forward							
8.5.3	(3)	Type C BEKA LEDStream 16 LED 36W in marine grade aluminium casing with stainless steel stirrup OR Similar Approved Supply	No	1			
8.5.4		Install	No	1			
8.5.5	(5)	Type E BEKA Series 31 LED 20W Ceiling/Wall Mounted with SS inserts OR Similar Approved Supply	No	1			
8.5.6		Install	No	1			
8.5.7	(13)	12m Galvanised and Matt Silver Powder Coated tapered pole with 76mm pole top diameter, access door, base plate and 15A SPCB, planted 1.7m deep with 76mm spigot Supply	No	1	100		
8.5.8		Install	No	1			
8.6	ITEM SES 33	SWITCHES AND OUTLETS					
8.6.1	(1)	10A, 1 Lever, 1 Way, Flush mounted switch unit complete with PVC cover and PVC screws or clipped PVC cover, 100mm x 50mm Supply	No	1			
8.6.2		Install	No	1			
8.6.3	(5)	10A, 2 Lever, 1 Way, Flush mounted switch unit complete with PVC cover and PVC screws or clipped PVC cover, 100mm x 50mm Supply	No	1			
8.6.4		Install	No	1			
8.6.5	(12)	16A, Normal Double wall Flush mounted switch socket outlet complete with white PVC cover and PVC screws or clipped PVC cover and wall box, 100mm x 100mm Supply	No	2			
8.6.6		Install	No	2			
SECTION 8 : GUARD HOUSE (SMALL POWER) - Carried Forward							

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SECTION 8: NEW GUARD HOUSE (SMALL POWER)
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ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	LOCAL CONTENT %	RATE	AMOUNT
SECTION 8 : GUARD HOUSE (SMALL POWER) - Brought Forward							
8.6.7	(18)	5A unswitched socket outlet for connection of luminaries . Supply	No	3			
8.6.8		Install	No	3			
8,7	(3)	CABLE MARKERS, WIREWAYS AND TRUNKING 100 x 100 Galvanized Steel Wall Boxes					
8.7.1		Supply	No	2	100		
8.7.2		Install	No	2			
8.7.3	(4)	100 x 50 Galvanized Steel Wall Boxes Supply	No	2			
8.7.4		Install	No	2			
8.7.5	(9)	20mm PVC conduit chased in wall, casted into concrete slab and/or installed in ceiling void including all fixtures and fittings Supply	m	16			
8.7.6		Install	m	16			
8,8		EARTHING					
8.8.1		Earthing of the complete electrical installation according to SANS 10142 regulations	Sum	1			
8,9		TEST AND COMMISSION					
8.9.1		Testing and commissioning of complete electrical installation and issuing of Certificate of Compliance	Sum	1			
8,1		ADDITIONAL ELECTRICAL WORKS					
8.10.1		Sum allowed to be utilized as instructed by electrical engineer	PC Sum				
SECTION 8 : GUARD HOUSE (SMALL POWER) - Carried Forward To Summary							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 9: GRAVITY SEWERS
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	LOCAL CONTENT %	RATE	AMOUNT
9	SABS 1200 DB PSD 5.2.1.3	SECTION 9 : GRAVITY SEWERS					
9.1	8.3.1(a)	SITE CLEARANCE					
9.1.1.1		Clear vegetation, grass, shrubs, etc. and trees of girth up to 1m along route of sewer over 5m (max) width	m	200			
9.1.1.2	8.3.1 (c) PSD8.6	Removal and stockpile, maintain and reinstate topsoil (100mm deep) along route of sewer to a max width of 1.2m	m ²	240			
9.2	SABS 1200DB PSD8.10 PSA8.20	EXCAVATION					
9.2.1		Exploratory excavation in all materials to a maximum depth of 1.5m, backfill, compact, shoring and dispose of unsuitable material within 0.5 km (Prov.)	m ³	10			
9.2.2	8.3.2(a) PSD8.12 PSA8.20	Excavate by mechanical methods in all materials for trenches backfill, compact and dispose of surplus/unsuitable material, including double handling of excavated and backfill material for pipes from 110mm to 315mm in diameter for width of 1.05m and depths:					
9.2.2.1		b) 1,0 1,50	m	200			
9.2.3	8.3.2(b)	Extra-over Item 2.2.2 for Hand Excavation					
9.2.3.1		a) 0,00 1,25	m	30			
9.2.3.2		b) 1,25 1,50	m	30			
9.2.4	8.3.2(b)	Extra over Items 2.2.2 for excavation in hard rock (provisional)	m ³	50			
9.2.5	8.3.2(c) PSDB8.13	Excavate and dispose unsuitable material from trench bottom, supplying approved material, from commercial sources, backfilling and compaction (Prov.)	m ³	20			
9.2.6	SABS 1200 DA 8.3.6	Spreading topsoil to a thickness of 100mm	m ²	150			
9.2.7	8.3.3.1 PSDB 8.13	Make up deficiency in backfill material (Prov.)					
9.2.8		c) by importation from commercial sources or off site sources selected by the contractor	m ³	20			
Section 9 : Gravity Collector Sewer - Carried Forward							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 9: GRAVITY SEWERS
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	LOCAL CONTENT %	RATE	AMOUNT
Section 9 : Gravity Collector Sewer - Brought Forward							
9,3	8.3.5.1 8.3.5(a)	DEALING WITH EXISTING SERVICES					
9.3.1		Temporary protection of :					
9.3.1.1		Underground Telkom cables	N ^o	2			
9.3.1.2		Underground electrical cables	N ^o	2			
9.3.1.3		Communication/ electrical cables	N ^o	2			
9.3.1.4		Watermains up to 375mm dia.	N ^o	2			
9.3.1.5		Sewers up to 450mm dia.	N ^o	2			
9.3.1.6		Fence	m	100			
9,4	PSLB 5.2.2 SABS 1200LB	PROVISION OF BEDDING (Class B)					
9.4.1	8.2.1	From trench excavation:					
9.4.1.1	PSLB 3.1	Selected granular material	m ³	10			
9.4.1.2	PSLB 3.2	Selected fill material	m ³	10			
9.4.2	8.2.2.2	From borrow pits:					
9.4.2.1		Selected granular material	m ³	20			
9.4.2.2		Selected fill	m ³	65			
9.4.3	8.2.2.3	From commercial sources:					
9.4.3.1		Selected granular material	m ³	20			
9.4.3.2		Selected fill material	m ³	65			
9.4.3.3	PSDB 8.3.8	19mm crushed stone (Prov.)	m ³	20			
9,5	PSLD 3.0	PIPEWORK					
9.5.1	SABS 1200LD PSLD	PVC Pipework					
		Supply, bed, lay, joint and air test uPVC heavy					
9.5.1.1		160mm diameter	m	200	100		
Section 9 : Gravity Collector Sewer - Carried Forward							

TENDER NO.115/2020
UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

SECTION 9: GRAVITY SEWERS
BILL OF QUANTITIES

ITEM No	PAYMENT REFERS	DESCRIPTION	UNIT	QUANTITY	LOCAL CONTENT %	RATE	AMOUNT
Section 9 : Gravity Collector Sewer - Brought Forward							
9,6	PSLD 8.2.3	MANHOLES					
9.6.1	SABS 1200LD 8.2.3	Supply and construct 160mm dia Precast manholes to Drawing No.8019/018/13 sewer manholes complete with 25 MPa precast concrete frame and lockable covers as detailed, incl. watertightness, benching, F.C. channel and building in of puddle pipes					
		For manholes constructed on 160, 200, 250 and 315mm dia sewers:					
		Over and including					
9.6.1.1		0,00 1,5m	N ^o	8			
9.6.1.2		1.5m 2.0m	N ^o	1			
9.7	PLSD 8.2.6	ERF CONNECTIONS					
		Excavate, supply all fittings, laying, bedding material, backfill and testing all erf connections to a min grade of 1:60.					
		Lay erf connections into 160 and 200mm dia. Main Sewer using 110mm dia. PVC pipes as detailed above for the following option					
		Option 1					
9.7.1		(Depth 150 - 405mm)	N ^o	2	100		
9.8	PSLD 5.7	PIPE PROTECTION					
9.8.1	8.2.7	Encasing of pipes in 20 MPa concrete where ordered by the Engineer.	m ³	1			
9.9	C3.4.10.4	CONNECTION TO EXISTING MANHOLE					
		Allow for all costs involved in connecting to existing manhole reticulation, including for inter alia breaking in, dealing with flow (if any), casting in of pipework, benching and making good					
9.9.1		160 mm diameter sewer	N ^o	2			
SECTION 9: GRAVITY SEWERS - Carried Forward to Summary							

KOUGA LOCAL MUNICIPALITY
UPGRADING OF THE KWANOMZAMO SPORTS FACILITIES
TENDER NO: 115/2020
SUMMARY OF BILL OF QUANTITIES

	AMOUNT
SECTION 1: PRELIMINARY & GENERAL	R.....
SECTION 2: SOCCER FIELD	R.....
SECTION 3: IRRIGATION SYSTEM	R.....
SECTION 4: ABLUTION FACILITY	R.....
SECTION 5: GUARD HOUSE	R.....
SECTION 6: ACCESS ROAD & FENCING	R.....
SECTION 7: MISCELLANEOUS WORKS	R.....
SECTION 8: NEW GUARD HOUSE (SMALL POWER)	R.....
SECTION 9: GRAVITY SEWERS	R.....
NET TOTAL OF TENDER (CARRIED FORWARD)	_____
NET TOTAL OF TENDER (BROUGHT FORWARD)	_____
ALLOW 10% FOR CONTINGENCIES TO BE EXPENDED AS DIRECTED BY THE ENGINEER AND TO BE DEDUCTED IN WHOLE OR IN PART IF NOT REQUIRED	
SUBTOTAL	_____
ALLOW 15% VALUE ADDED TAX	_____
TOTAL AMOUNT CARRIED TO FORM OF TENDER	_____

SIGNATURE OF TENDERER:

DATE:

ON BEHALF OF:.....



DIRECTORATE: INFRASTRUCTURE AND ENGINEERING

OCTOBER 2020

TENDER NUMBER: 115/2020

UPGRADING OF THE KWANOMZAMO SPORTS FACILITY

(GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS, THIRD EDITION, 2015)

VOLUME 2 of 2

A tender for an estimated Category 4CE or higher CIDB Registered Contractors

ISSUED BY:	PREPARED BY:
The Technical Director Infrastructure and Engineering Directorate 33 Da Gama Road JEFFREYS BAY 6330 Contact Person : Mr A Perils Tel : (042) 200 2200 Email : aperils@kouga.gov.za	Bosch Projects P O Box 27158 Greenacres PORT ELIZABETH 6057 Contact Person : Mr L Streicher Tel : (041) 363 0598 Email : Streicherl@boschprojects.co.za

Registered Name of Tenderer:	
TRADING NAME OF TENDERER:	
Registration No. of Entity:	
Contact Person:	Kouga Supplier Code:
Tel. No.:	E-mail Address:
Cell No.:	Fax No:
CIDB CRS Number(s):	CIDB Grading:
FINANCIAL OFFER:	

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KOUGA LOCAL MUNICIPALITY

DIRECTORATE: INFRASTRUCTURE AND ENGINEERING

TENDER NUMBER: 115/2020

UPGRADING OF KWANOMZAMO SPORTS FACILITY

THE CONTRACT PART C3 (OF 4): SCOPE OF WORKS
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- C3.1 Description of the Works**
- C3.2 Engineering**
- C3.3 Procurement**
- C3.4 Construction**
 - Part A : General**
 - Part B : Variations to Standard Specifications**
 - Part C : Particular Specifications**
- C3.5 Management**
- C3.6 Health and Safety Requirements and Procedures**

C3.1: DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Employer's overall objective is to upgrade and refurbish the existing multi-purpose sports facility located in KwaNomzamo, Humansdorp to allow for future public use.

C3.1.2 OVERVIEW OF THE WORKS

The KwaNomzamo Sports Facility is the only multi-purpose sports facility in the Kouga Region that can accommodate athletics, rugby, soccer, squash, tennis, netball, bowls, cricket and indoor sports as well as enough practice space in one facility and therefore needs to be upgraded to comply with the norms and standards of the Department of Sports, Arts and Culture (DSRAC). However, the facility is in dire need of upgrading / refurbishment and maintenance. The aim of this project is to upgrade the existing sports facilities to meet the standards of the DSRAC.

C3.1.3 EXTENT OF THE WORKS

This Contract covers the following works, namely:

- Secondary Match Field:
 - Import topsoil and re-grass Secondary Match Field and surrounding berms
 - Design and installation of Irrigation system and connections.
 - Field Markings
- Ablution Facilities:
 - Build new ablution facilities at secondary fields.
- Fencing and Access Gates:
 - Repair perimeter wall around main sports field
 - Install access gates
 - Construct guard houses at entrances
- Irrigation :
 - Provide irrigation system and connection
- Area Lighting:
 - Replace/ Repair damaged electrical kiosks and cables.
 - Minor maintenance on pylons and light fittings.

C3.1.4 LOCATION OF WORKS

The KwaNomzamo Sports Facility is situated in the literally in the heart and centre of the town of Humansdorp, making the facility accessible to all community members with easy access from the R330 main route between Humansdorp and St Francis Bay. Refer to Appendix A for the Locality Plan.

C3.1.5 TEMPORARY WORKS

Traffic and Site Access

No roads may be closed without prior permission.

Other Services

The Contractor shall ensure that the position of all existing services affected by the works have been verified before construction works commences.

Where the contractor is responsible for damage for which repairs must be carried out by the Employer, the cost of these repairs will be recovered by means of a deduction from the Contractor's monthly Payment Certificate.

C3.1.6 EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

C3.1.6.1 REQUIREMENTS FOR THE SOURCING AND ENGAGEMENT OF LABOUR

1.1.1 The minimum rate of pay set for local labour shall be based on the Bargaining Council for the Civil Engineering Industry (BCCEI) for a Grade 1 worker which currently is:

- Average wage rate of R37.04/hr, or as gazetted is applicable across all sector projects within the Kouga Local Municipality.
- Worker payment should be effected through bank transfer and proof shall be availed and attested by the payee
- Worker affiliation with the UIF should be consistently monitored by the contractor and should form part of the continuous reports and deliverables.

1.1.2 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 have 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

1.1.3 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.

1.2 Specific provisions pertaining to SANS 1914-5

1.2.1 Definitions

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

1.2.2 Contract participation goals:

1.2.2.1 There 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.

1.2.2.2 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.

1.2.3 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.

1.2.4 Variations to SANS 1914-5

1.2.4.1 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.

1.2.4.2 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.

1.3 Training of targeted labour

1.3.1 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.

1.3.2 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.

1.3.3 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– Cinderella Makunike, Fax Number 012 328 6820 or email cinderella.makunike@dpw.gov.za Tel: 083 677 4026

1.3.4 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.

- 1.3.5 The contractors shall do nothing to dissuade targeted labour from participating in the above mentioned training programmes.
- 1.3.6 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 1.3.4 above.
- 1.3.7 Proof of compliance with the requirements of 1.3.2 to 1.3.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

C3.2: ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

Design item / level of design	Party responsible for Design / Supply of drawings
Concept, feasibility and overall process	Employer
Basic engineering and detail layout to tender stage	Employer
Final design to approved for construction stage	Employer
All temporary works	Contractor
Record drawings	Contractor

C3.2.2 DESIGN BRIEF

Where drawings of the structures have been prepared by the Employer's Agent, the Contractor shall base their drawings on the Employer's Agents drawings and shall check that their equipment fits into and can operate satisfactorily within the structures shown on the Employer's Agent drawings. Drawings, dimensions and details of existing infrastructure and equipment are supplied to the Contractor in good faith, however, the Contractor shall base the design of their infrastructure and equipment on actual dimensions and details measured/recorded on Site by them and approved by the Employer's Agent. Any inconsistencies, including any conflict between the Employer's Agent drawings and the actual dimensions measured on site, shall immediately be drawn to the attention of the Employer's Agent, in writing.

C3.2.3 DRAWINGS

C3.2.3.1 SPECIFICATION AND DRAWINGS

The specification and drawings generally show the character and extent of the proposed work, and shall not be held as showing every minute detail of the work to be executed.

Contractors shall ensure that their copy of the specification is complete and that all drawings as listed have been received.

These drawings will, in terms of Clause 5.9 of the General Conditions of Contract (2015), be issued to the Contractor by the Employer's Agent/Employer on the commencement date and from time to time as required as guidance only.

Drawing No.	Description	Size
8011004-GTH-001	LOCALITY PLAN	A4
8011004-GTH-002	SCHEMATIC LAYOUT	A3
8011-004-GTH-003	OVERALL LAYOUT	A3
8011-004-GTH-004	LAYOUT PLAN - SOCCER FIELD	A3
8011-004-GTH-005	CHANGE ROOM - PLAN LAYOUT	A3
8011-004-GTH-006	CHANGE ROOM - ELEVATIONS	A3
8011-004-GTH-007	CHANGE ROOM SECTIONS	A3
8011-004-GTH-008	CHANGE ROOM SURFACE BEDS LAYOUT	A3
8011-004-GTH-009	GUARD HOUSE - PLAN LAYOUT & DETAILS	A3
8011-004-GTH-010	TYPICAL GATE & WALL DETAILS	A3
8011-004-GTH-011	VALVE AND CHAMBER DETAILS	A3

C3.2.3.2 RECORD DRAWINGS ('AS-BUILT')

The Contractor shall mark up on drawings provided to him for this purpose the exact positions and details of all infrastructures, pipelines and the like constructed under this contract. The marked-up drawings shall be handed to the Employers Agent monthly as the work progress. The Certificate of Completion shall not be issued before the Employers Agent is in receipt of all marked up drawings and other as-built information.

C3.2.4 WORK SEQUENCE

The sequence in which the work must be carried out, must be established in consultation with the Civil and Electrical Contractors, Engineer and any other Contractors on site.

C3.2.5 CONSTRUCTION METHODS

Construction methods used shall be environmentally friendly as fast as possible. No construction methods that will result in long term or permanent damage to the surrounding natural environment shall be allowed.

Care shall be taken when mixing, transporting and placing concrete to avoid spillage and wastage.

All construction work shall be undertaken in accordance with the Occupational Health and Safety Act and Construction Regulations.

C3.2.6 SERVICES KNOWN TO BE IN THE VICINITY OF THE WORKS SITE

Before any work commences the exact positions of all services must be located and the services identified, marked and recorded on plan for inclusion in the as-built drawing.

Items have been allowed in the Bill of Quantities for dealing with and protecting existing services where they are known.

The Contractor, shall however, ensure that prior to construction all the necessary Record Drawings and Way-leaves for all services have been obtained and verified on site by the relevant service providers in his presence. The Contractor must request in writing the relevant official to indicate the said services within 48 hours prior to the commencement of the work, after which the responsibility rests with the service department if the services are not indicated to the Contractor as requested.

The Contractor shall take whatever extra precautions are required to protect all existing services from damage during the period of the Contract. Any damage to existing services indicated by the relevant service providers or other damage as a result thereof, shall be for the Contractors account.

C3.2.7 ASPECTS REQUIRING PARTICULAR ATTENTION

Refer to Clause C3.4.6

- Connection into existing services
- Protection of the environment
- Quality Assurance (QA)

C3.2.8 SERVICE CONDITIONS

All plant shall be designed for the climatic conditions pertaining to the service.

C3.2.9 DAMAGE TO BUILDINGS

The Contractor shall be held responsible at all time for all damage to the buildings and plant due to negligence of any of his workmen or that of his sub-Contractors. The Contractor at his cost shall repair any damage arising out of such negligence.

C3.2.10 SUPERVISION - ELECTRICAL

The work shall at all times, for the duration of the contract be carried out under the supervision of a skilled and competent representative of the Contractor who a Licenced Installation Electrician and who shall be able and authorised to receive and carry out instructions on behalf of the Contractor. A sufficient number of workmen shall be employed at all times to ensure satisfactory progress of the work

C3.2.11 PROVISION OF BUILDING WORKS FOR ELECTRICAL PLANT

The Contractor must supply full details of his requirements regarding work to be carried out by the Civil Contractor, including dimensions and positions of all openings, ducts etc., in walls and floors, and full particulars of all holding down bolts, cable holes for motors, etc. The Contractor shall supply all retaining devices like studs and bolts. Where a defect is found this shall be reported to the Engineer timeously so that corrective action can be taken. Under no circumstances shall delays and consequential cost be entertained due to the failure to ensure that the mountings are correct.

C3.2.12 BALANCING OF LOAD

The Contractor is required to balance the load as equally as possible over the multiphase supply.

C3.2.13 POWER SUPPLY

The low voltage system is a 400 volt three phase, four wire, 50 Hz system with a maximum fault level of 6.5kA.

C3.3: PROCUREMENT

C3.3.1 SUBCONTRACTING: PORTION OF WORKS RESERVED FOR EME's SUBCONTRACTORS

This specification covers the requirements of the Employer for the use and development of EME's as subcontractors on civil engineering projects.

C3.3.1.1 DEFINITIONS

For the purposes of the Scope of Works, the definitions given in the General Conditions of Contract for Construction Works (2015), the Standard Specifications and the Scope of Works, together with the following additional definitions shall apply:

- (i) **“Contract”** shall have the meaning assigned thereto in Clause 1.1.1.7 of the General Conditions of Contract for Construction Works (2015).
- (ii) **“Contractor”** shall have the meaning assigned thereto in Clause 1.1.1.9 of the General Conditions of Contract for Construction Works (2015).
- (iii) **“EME”** shall mean an enterprise with an annual turn total revenue of R 5 million or less, and owned or managed by black people, as defined in C3.3.4.
- (iv) **“Main Contract”**: shall mean the contract entered into between the Employer, who is the Kouga Local Municipality, and the Contractor.
- (v) **“EME Committee”**: The EME Committee shall be selected after award of the Main Contract, and its members shall consist of:
 - a. The Contractor, or his/her representative
 - b. The Employers Agent, or his representative
 - c. PMU Manager
 - d. SCM Manager
 - e. LED Manager (or delegated official)
- (vi) **“EME's Subcontract”** shall mean the contract entered into between the Contractor and any EME subcontractor.
- (vii) **“EME Work Package”** shall mean that portion of the Works which shall be set aside for construction by an EME.
- (viii) **“Contract Value”** shall mean the Contract Sum (as stated in the Form of Offer and Acceptance) less VAT, less Contingencies, less Section A: Preliminary and General and less items H4 up to and including H7.

C3.3.2 RESOURCE STANDARDS

Ten (10%) of the work will be sub contracted to EME's to expedite the objectives of Integrated development plan and economic development.

C3.3.3 SCOPE OF MANDATORY SUBCONTRACT WORKS

It is the requirement of the Kouga Local Municipality and this tender that 10% of the works needs to be subcontracted out to local EME's.

It is the Contractor's responsibility to ensure that this target percentage is attained. The contractor will during the implementation stage of the contractor provide monthly progress reports indicating the percentage spend on local EME's and if the target of 10% are not met, the contractor needs to indicate how he will achieve this,

No additional mark-up or costs will be payable to the contractor for work to be undertaken by EME's. Provision is made though for the main contractor to appoint an EME Manager to oversee works undertaken by EME's.

C3.3.4 PROPOSED EME COMPONENT BREAKDOWN

The following activities are reserved (but not restricted to) for EME's:

- Grassing,
- Paving,
- Trench excavations, and
- General building works

C3.3.5 PREFERRED SUBCONTRACTORS

Subcontractors shall be EME's. An EME's is defined as an enterprise with an annual total revenue of R 5 million or less. The company or economic activity that is owned by black persons and where there is substantial management control by Black People. Ownership refers to economic interest, whilst management refers to the membership of any board or similar governing body of the enterprise. The Broad-Based Black Economic Empowerment Act No. 53 of 2003, principles shall apply to BE's.

Enterprises shall comply with the following:

- Business shall be registered within the Kouga Local Municipality boundaries,
- Must be registered with the CIDB to a relevant class i.e CE or GB,
- Must have a current valid Tax Clearance Certificate.

C3.3.6 SUBCONTRACTING PROCEDURES

A list of EME's will be provided to the contractor by the Kouga Local Municipality after the award of the contract to price for works that can be undertaken by EME's. In cases where there is no database, EME's will be invited to submit their company profiles preference given to ward based EME's.

The Employer, Employer's Agent together with the Contractor shall evaluate the tenders received in accordance with the provisions of the Standard Conditions of Tender contained in Annex F of Standard for Uniformity in Construction Procurement. The evaluation and adjudication panel shall comprise of equal representatives from the Employer, Employer's Agent, the CLO (as an observer), Social facilitator and the Contractor. The Employer requires the EME Committee to form the Evaluation Panel. The Contractor with assistance from the Employer's Agent will draw up mini tender documents for the EME's to price a closing date and the venue to submit it will be announced. The main contractor then has to evaluate the rates and present them to the EME committee for approval. Rates are to be agreed by the EME committee.

The Contractor shall without delay award and enter into contract with the successful tendering subcontractor based on their accepted tender submission. Deviations from the tender document shall not be accepted by the employer and the SAFCEC Agreement shall be used (Format attached).

The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

C3.3.7 ATTENDANCE ON SUBCONTRACTORS

An allowance is made in the bill of quantities for managing the subcontractors during the course of the contract. The following items may be required:

- Allowance for procuring (tender) for the subcontract/s
- Allowance for mark up on the actual cost of the subcontract works
- Allowance for managing the subcontract
- Allowance for mentoring, supervising and site training
- Allowance to pay contractors within 7 days after submission of invoice

C3.3.6.1 PROCEDURE FOR ENGAGING EME'S ON THE PROJECT

The conditions of subcontract shall stipulate that the tenderer must be registered with the Construction Industry Development Board, in the relevant category, according to the estimated value of the Work Package.

The Contractor, with assistance from the Employer Agent, must undertake the following tasks in appointing EME's:

- Get a list of EME's from the Kouga Local project manager or invite profiles of contractors.
- together with the EME Committee, adjudicate and award the tenders;
- sign a subcontract agreement for each Work Package with the successful EME subcontractor using the SAFCEC format;
- assist and monitor the EME subcontractors with their work output and quality;

- issue subject to the approval of the Employer a Certification of Completion to each EME subcontractor.

The Contractor shall ensure that EME's are appointed timeously, so as not to delay the programme on the Main Contract in any way.

The above tasks are more fully described below.

C3.3.6.2 TENDER PROCESS FOR APPOINTING EME'S

1. Supply Chain Management Policy

The Contractor shall procure the services of EME'S's by following a process similar to that of the Municipality's Supply Chain Management Policy, so as to ensure fairness and equity. Tenders, of which the estimated value is below R 200 000, may be procured by obtaining three quotes. However, for work packages whose estimated value exceeds R 200 000, tenders shall be invited from names of EME's that will be provided. A List of companies will be given to the main contractor and he will invite all those companies to submit tenders. A contractor will be given names in a principle of 50% more than the required number to choose from.

The Contractor shall invite tenders and shall be responsible for the issuing of the subcontract tender documents to prospective tenderers. The Employer's Agent will monitor and approve this process.

The Contractor shall adjudicate the tenders with the assistance of the EME Committee and shall enter into a subcontract agreement with the successful EME.

All conditions of tender, as they applied to the Main Contractor on this Contract, shall apply where relevant, to the tenders for EME subcontracts.

2. Conditions of Tender

The conditions of the subcontract agreement shall be in accordance with the General Conditions of Contract for Construction Works (2015). The contract will also specify:

- (a) the terms and conditions relating to the recruitment, employment and remuneration of workers engaged on the contract works; and
 - (b) details of any training to be provided to the temporary workforce.
 - (c) detail of accepted rates
 - (d) Payment terms which should be 7 days after issuing of an invoice on labour only contracts and where the main contractor is supplying material and plant
- No early settlement discount will be charged.

3. Assistance to the Tenderers

- (a) The Contractor shall be responsible for ensuring that prospective EME tenderers fully comprehend the following:

- Implications of the liabilities and responsibilities inherent in the subcontract into which the tenderer proposes entering;
- implications of the tendered rates;
- scope and extent of the works included in the subcontract;
- proper procedures for the submission of the tender;
- Procedures and basis on which tenders will be adjudicated and the subcontract awarded.

4 Adjudication

- (a) The Contractor shall receive all tenders at a location identified by him, with all sealed tender submissions being placed in a proper tender box for this purpose.
- (b) All tenders received shall be evaluated by the Employer's Agent and the person (Contracts Manager) mandated to act and sign on behalf of the main Contractor
- (c) The EME Committee shall have the right to interview any Tenderer for them purpose of:
 - Clarifying any aspect of the tender;
 - Verifying the eligibility of the Tenderer;
 - Querying abnormally high or low rates and prices, and
 - Clarifying rates and prices which are not in balance with other tendered rates and prices
- (d) The correction of obvious errors shall be carried out in accordance with the requirements of the CIDB Conditions of Tender.
- (e) Adjudication of the tenders received will be made by the EME Committee. The Contractor shall be prepared to explain the process of adjudication to all Tenderers and motivate his method of award, as may be necessary. All un successful and successful tenderers needs to be notified in writing

5. Award of Tenders

The Contractor must award the work to the successful EME Tenderer where after a subcontract agreement will be signed between the Contractor and the successful EME Tenderer using the attached SAFCEC format.

C3.3.8 ATTENDANCE ON EME SUBCONTRACTORS

The Contractor shall closely manage and supervise all EME's and shall manage, guide and assist each EME in all aspects of management, carrying out and completion of his subcontract. This shall typically include assistance with planning his works, sourcing and ordering of materials, labour relations, monthly measurements and invoicing procedures etc. The extent and level of such management, guidance and assistance, to be provided by the Contractor shall be commensurate with the expertise of relevant EME and shall be directed at enabling the EME's to achieve the successful carrying out and completion of the subcontract.

The Contractor shall be required to appoint an EME Construction Manager who will be responsible to assist EME's as and when required. The EME Construction Manager's duties are specified in Clause PSA 8.5.4 below.

“PSA 8.17 EME CONSTRUCTION MANAGER”

Assistance to the EME Subcontractors

The Contractor shall, in addition to the requirements of Clause 4.4 of the General Conditions of Contract for Construction Works (2015), guide, assist and mentor all eligible potential EME's wishing to submit tenders, in the proper completion and submission of their particular tenders, including advice and guidance on how to establish rates.

The Contractor shall employ on a full-time basis, a construction manager on the Contract who will manage the EME's and report on progress to the EME Committee. Such Construction Manager must be adequately experienced with EME work and the development thereof and will be subject to the approval of the Employer. The assistance rendered by the Construction Manager, shall *inter alia*:

- (i) be given at a level and to the extent which is commensurate with the expertise and resources of the EME,
- (ii) be given in a manner which is neither prescriptive, dictatorial, nor coercive towards the EME;
- (iii) not be utilized by the Contractor to manipulate the rates and prices submitted, to his advantage, and
- (iv) be given in a manner which does not unfairly prejudice or favour any particular EME.

The EME Construction Manager will work with and manage the EME Subcontractors throughout the Contract but will only be on site during times when EME subcontractors are performing work.

The EME construction manager shall be a dedicated resource whose only responsibility is to manage the EME subcontractors and as such shall not be the site agent or any other person employed on the contract for other purposes.

C3.3.9 CONTRACTOR'S OBLIGATIONS TO SUBCONTRACTED EME'S

1. Dispute Avoidance and Resolution Procedures

The Contractor shall at all times:

- (a) apply the terms and conditions of the subcontract fairly and justly, taking due cognizance of the level of sophistication and experience of the particular EME concerned.

- (b) closely manage and supervise all EME's and wherever feasible, give reasonable warning to EME's when any contravention of the terms of the subcontract has occurred or appears likely to occur. The Contractor shall whenever feasible, give the EME's reasonable opportunity to make good any such contravention, or to avoid such contravention and shall render all reasonable assistance to the EME in this regard.

When taking any disciplinary actions or imposing any penalties as are provided for in the subcontract, the Contractor shall explain fully to the EME's that such actions are provided for in the subcontract.

If any dispute should arise between the Contractor and an EME such dispute shall be resolved in accordance with the provisions of the subcontract.

2. Quality of Work and Performance of the EME subcontractor

2.1 Quality

The contractor shall be fully liable for the quality of work done by the EME as of that work is done by the main contractor. All works are to be done according to the specs and as specified in the tender document.

2.2 Performance

If the EME Subcontractor, in the opinion of the Employer's Agent, fails to comply with the criteria as listed below, the Employer's Agent shall issue a written warning to the Contractor, stating all the areas of non-compliance. A copy of the letter of warning shall be forwarded to the Employer. The criteria may include, but are not limited to, the following:

- (a) Acceptable standard of works as set out in the specifications in the subcontract.
- (b) Progress in accordance with the time constraints in the subcontract.
- (c) Punctual and full payment of the workforce and suppliers.
- (d) Site safety
- (e) Accommodation of traffic.

The EME Subcontractor shall have 14 days from the date of receipt of the letter of warning by the Contractor to address and rectify the issues raised by the Employer's Agent, with the exception of points (d) and (e), for which the reaction time shall be 24 hours. Failure to do so, will be sufficient grounds for the Contractor to terminate the subcontract, provided that the EME Committee is satisfied that the Contractor has made every effort to correct the performance by the EME Subcontractor.

C3.3.10 ISSUING OF COMPLETION CERTIFICATE

The Contractor shall, within 7 days of the completion of each subcontract completed in accordance with the provisions of this specification, issue free of charge to the EME, a Certificate of Completion. The format, layout and appearance of certificates issued shall be agreed by the EME Committee, provided always that they shall be respectable and presentable in accordance with the general standards of normal business practice. All certificates issued shall be co-signed by the Employer's Agent and a senior representative of the Contractor, who has been duly authorized thereto.

The Certificate of Completion shall provide the following information:

(a) Main Contract data:

- (i) Contract title;
- (ii) Contractor's full name and address;
- (iii) Employer's Agent's name and address;
- (iv) Employer's name.

(b) Subcontract data:

- (i) EME name and address;
- (ii) Scope or extent of the subcontract works;
- (iii) Value of the subcontract works;
- (iv) Duration of the subcontract;
- (v) Date of completion of the subcontract;
- (vi) Description of the training undergone by the EME.

C3.3.11 CONTRACTOR'S LIABILITY

No provision or requirement set out in this specification shall be deemed to relieve the Contractor of any liability or obligation under the contract, and in accordance with the provisions of Clause 4.4 of the General Conditions of Contract for Construction Works (2015), the Contractor shall be fully liable for the acts, defaults and neglects of any EMEs, his agents or employees, as fully as if they were the acts, defaults and neglects of the Contractor, his agents or employees.

C3.3.12 MEASUREMENT AND PAYMENT

Under the work packages set aside for EMEs, the EME shall be responsible for all labour, plant, equipment, tools, materials and any other incidentals that may be required to carry out the works in accordance with the specifications.

In cases where the EME is unable to have the above then the main contractor is to provide plant, equipment, tools, material and other items needed by the EME in order to implement his work and such contracts will be regarded as labour only sub-contractors.

The Main Contractor shall supervise and manage the EME work at all times in order to ensure compliance with the specifications and drawings.

The Main contractor shall pay EME's 7 days after issue of an Invoice. The main contractor will not charge EME's handling costs i.e bank charges, early payment discounts etc.

C3.3.11.1 PAYMENT OF EME'S

EME's are to be invited to submit their payment certificates or claims fortnightly, and are to be paid by the contractor within 7 days.

Payment of EME's may not be delayed pending payment of the contractor by the Employer.

C3.3.13 GENERAL

Claims for extension of time due to delays caused by EME's will not be entertained; the main contractor is to programme in his work factoring the use of EME's.

Non-performance of EME's shall be dealt with in terms of the clause 10 in the SAFCEC sub contractor agreement.

i. Retention

A five percent (5%) Excluding vat of the sub contract value will be deducted as retention on EME with half to be released on issue of the completion certificate for the EME.

ii. Sub contracting by EME's

The Main contractor shall not permit the invited EME sub contractor to further sub contract on any other conditions than those applying in the project specification to subcontractors or EME subcontractor

iii. Joint Venturing & Consortium

The EME committee shall decide whether to permit the invited EME sub contractor to enter into Joint Ventures or form a consortium with an external EME.

C3.3.14 Penalties for non-compliance with sub-contracting

Should the main contractor do the work that is earmarked for sub-contracting to EME's. The main contractor will be charged a penalty of 100% of value of any work he/she has done. The amount will be deducted from the monthly payment certificate.

C3.3.15 PROFORMA SAFCEC AGREEMENT

The standard Pro-Forma SAFCEC Subcontract Agreement shall apply for the appointment of EME's.

C3.4: CONSTRUCTION: PART A

WORKS SPECIFICATION

C3.4.1 APPLICABLE SABS 1200 STANDARDS FOR CONSTRUCTION WORKS

The Standardised Specifications listed below are applicable to the contract. It shall however be noted that reference is made in certain of the specifications to other standardised specifications which may or may not be included in the list below. Where such specifications are not included, they shall however be deemed to be included in the contract documents.

South African Bureau of Standards, Standardized Specifications for Civil Engineering Construction. SABS/SANS 1200 series, specifically:

SANS 1200 A	– 1986	General
SANS 1200 AB	– 1986	Employer's Agents Office
SANS 1200 C	– 1980	Site Clearance (As amended 1982)
SANS 1200 D	– 1988	Earthworks (As amended 1990)
SANS 1200 DA	– 1988	Earthworks (small works) (As amended 1990)
SANS 1200 DB	– 1989	Earthworks (Pipe Trenches)
SANS 1200 DM	– 1981	Earthworks (Road, Subgrade)
SANS 1200 GA	– 1982	Concrete (Small Works)
SANS 1200 L	– 1983	Medium Pressure Pipelines
SANS 1200 LB	– 1983	Bedding (Pipes)
SANS 1200 LD	– 1981	Sewers
SANS 1200 LE	– 1981	Stormwater Drainage
SANS 1200 MK	– 1996	Kerbing and channeling
SANS 1200 M	– 1996	Roads (General)
SANS 1200 ME	– 1981	Sub Base
SANS 1200 MM	– 1981	Ancillary Roadworks

These have not been bound into the document but are available for inspection at the offices of the Consulting Engineers or can be obtained as follows:

- Standards South Africa, contactable at 012 428 6666

The Contractor shall have available for reference on site at all times a full set of the above specifications, together with any other to which they refer.

These specifications shall remain the property of the Contractor but shall be made available to the Engineer whenever required throughout the duration of the contract.

Project specific variations to these standardized specifications are included as Scope of Work: Part B. In the event of any discrepancy with a part or parts of the standard specifications, the bill of quantities or the drawings, the project specifications described in Scope of Work: Part B shall take precedence.

C3.4.2 APPLICABLE PARTICULAR STANDARDS

- PAA: Appointment of CLO & Labour employment conditions
- PA: Landscaping and grassing
- PE-PZ Building Specifications

C3.4.3 Applicable national and international standards

- The Standard Regulations for the Wiring of Premises as issued by the South African Bureau of Standards (SANS 10142-1);
- The Occupational Health Safety Act No. 85 of 1993;
- N.O.S.A. Safety Guidelines;
- The Local Fire Office Regulations;
- The Municipal by-laws and any special requirements of the local Supply Authorities of the area or district concerned;
- The applicable IEC Specifications or the BS Specifications where no SANS or IEC Specifications exist;
- The National Building Regulations;
- Post Office Regulations;
- Earthing design and installations, SANS 10199;
- The protection of structures against lightning, SANS 10313;
- Interior lighting (artificial) SANS 10114 Part 1;
- Emergency lighting SANS 10114 Part 2;

No claims for extras in respect of failure by the Contractor to comply with any of the above regulations shall be considered.

Where conflict exists between any of the above regulations and the specifications, the said conflict must be referred to the Engineer in writing for his ruling.

In addition to the above Contractors are advised that only the highest standard of workmanship shall be accepted and that all materials supplied must be strictly in accordance with this specification. If workmanship and/or materials are not suitable, the Engineer will request that the work is repeated or the materials returned until a satisfactory standard is achieved. No additional payment shall be made in respect of any remedial works.

The term “project specifications” appearing in any of the SABS 1200 standardised specifications must be replaced with the terms “scope of work”.

The variations and additions to the specifications listed in C3.4.3.1 are included/detailed to in SCOPE OF WORKS – C3.4 CONSTRUCTION: PART B: VARIATIONS TO THE STANDARD SPECIFICATIONS. And C3.4 CONSTRUCTION: PART C: PARTICULAR SPECIFICATION

C3.4.4 MATERIALS SAMPLES AND SHOP DRAWINGS

Where materials to be used in the works are required to comply with a SABS/SANS specification, they will be accepted as complying with the SABS/SANS specification if one of the following is satisfied.

- The display of a SABS/SANS mark on the product with a copy of the SABS/SANS certificate that allows the manufacturer to use the mark, or
- All the criteria in the relevant SABS/SANS specification is measured and confirmed on site or in an approved laboratory.

The same will apply to materials specified to comply with ISO, BS, ASTM or other international specifications

C3.4.5 KNOWN SERVICES

The positions of existing services, insofar as they are known, are shown on the drawings. Items have been allowed in the Schedule of Quantities for dealing with and protecting services.

C3.4.6 TREATMENT OF EXISTING SERVICES

Before construction work commences, all existing services must be located and marked. The contractor is to take levels of all the exposed services and forward to the Employer’s Agent before any work can commence. The Employer’s Agent will then check levels against design and only then will the Employer’s Agent allow the Contractor to continue with the works. The Contractor is to allow for the exposing of services and subsequent checks by the Employer’s Agent in their programme. All existing services are to be located by hand-excavation. The Contractor shall take whatever precautions are required to protect these services from damage during the period of the Contract.

C3.4.7 USE OF DETECTION EQUIPMENT FOR THE LOCATION OF UNDERGROUND SERVICES

The Contractor shall take all the necessary steps to ascertain the location of existing services before commencing any section of the works and shall exercise the greatest care when working in the vicinity of such services. No more than three weeks and not less than one week before commencing his operations in any particular area, the Contractor shall obtain from the relevant authority the latest available drawings showing the location of services already installed.

The Contractor shall take all the necessary steps to protect any existing works against damage which may arise as a result of his operations on Site. The Contractor shall bear the cost of the repair of damage to any service, the possible existence of which could reasonably have been ascertained by him in good time.

Where the Contractor is responsible for the cost of repairs carried out by a Service Authority, the Contractor will be billed directly by the Service Authority concerned.

C3.4.8 DAMAGE TO SERVICES

The Contractor shall so carry out all his operations as not to encroach on, or interfere with, trespass on, or damage adjoining lands, buildings, properties, road structures, pipelines, places and things, in the vicinity of the Works and so as not to interfere in any way at any time with the smooth and continuous operation of the existing facilities.

C3.4.9 REINSTATEMENT OF SERVICES AND STRUCTURE DAMAGED DURING CONSTRUCTION

All repairs will be done to the standard of the service before the damage was incurred. Where owners of existing services may elect to repair damages themselves, the contractor will still remain liable for any claims that the owners of the service may make to compensate for the costs involved.

C3.4.10 EXCLUSIONS

- Supply and installation of pump-motor sets, mechanical equipment, cranes, piping, valves; and
- Civil, structural and building work except where sleeves are required underneath roadways

C3.4.11 STORAGE

The Contractor must provide adequate and secure storage, to the satisfaction of the Engineer, for all materials. All material must, in addition be stored or stacked in positions that shall not interfere with other work in progress in the area.

C3.4.12 BOLTS, NUTS, WASHERS, BRACKETS AND MOUNTING ACCESSORIES

All bolts, nuts washers, fixing and mounting accessories shall be manufactured from galvanised steel. Should accessories manufactured from mild steel or any other corrosive material be used on site, the Engineer shall instruct the Contractor to remove such accessories and replace them at the Contractors expense.

C3.4.13 SERVICE AND FACILITIES PROVIDED BY THE EMPLOYER

Source of Water Supply

The Contractor may make application to the Municipality's Water Division for a water supply point, and shall bear all the costs for the installation of such supply point. Water used by the Contractor from the Employer's mains will be charged for at the tariffs ruling at the time of use. A raw water supply point is available at the Howiesonspoor pumpstation.

The Contractor shall make himself thoroughly acquainted with the regulations relating to the use of water and shall take adequate measures to prevent the wastage of water. The Employer accepts no responsibility for the shortage of water due to any cause whatsoever, nor additional costs incurred by the Contractor as a result of such shortage.

The Contractor shall take note that no direct payment will be made for any costs incurred for the provision of a water supply point nor for the cost of water drawn. Payment for the aforementioned shall be deemed to be covered by the rates and prices tendered and paid for the various items of work included under the Contract.

Source of Power Supply

The Contractor is to make his own arrangements with the Electricity Department for a supply of electricity, if required, and shall pay establishment and consumption costs at the tariffs ruling at the time.

Location of Camp and Materials storage area

The camp site and storage area will be indicated to tenderers at the site inspection for the contract.

The Contractor shall confine his camp and storage of materials to the areas designated. On completion of the construction works the surface of the areas utilised shall be re-instated.

C3.4.14 FACILITIES PROVIDED BY THE CONTRACTOR

Temporary Offices

Site meetings will be held in the Contractor's site office.

Sanitary Facilities

The Contractor shall supply chemical toilets for use by his workmen. The number of toilets shall be based on one toilet per fifteen personnel on site.

Under no circumstances will the Contractor's staff be allowed to use public toilet facilities.

Telephone Facilities

A site telephone will not be required by the Employer's Agent, but the time-related tendered rate for the Contractor's telephone shall include for local official calls by the Employer's Agent or his Representative.

C3.4.15 OTHER FACILITIES AND SERVICES

SECURITY

The provision of security for the Contractor's Site Establishment shall be his own responsibility and no claims for additional security measures taken during the currency of the contract will be considered.

Unless expressly allowed for in the contract sum, the Contractor shall in connection with the works, provide and maintain, at his own cost, all lights, guards, barriers, fencing and watching when and where necessary or as required by the Engineer or by any competent statutory or other authority for the protection of the works or for the safety and convenience of the public.

The minimum security requirement is for the Contractor to Employ Security Guards from an approved Security Company to give 24 hours security, 7 days a week.

REFUSE CONTAINER & DISPOSAL

Adequate containers for collection of refuse shall be provided by the Contractor. All containers shall have lids. Arrangements for refuse disposal shall be made with the relevant authority.

C3.4.16 VEHICLES AND EQUIPMENT

The Contractor must make available survey equipment to the Employer's Agent's Representative as may be required from time to time throughout the contract. Details are included in the Scope of Works – C3.4 Construction: Part B.

C3.4.17 NOTICE BOARDS

The contract nameboard required shall be as detailed on the nameboard drawing bound into the back of this document.

C3.4.18 SITE USAGE

The Contractor shall also provide sumps, pumps, furrows, berms and/or coffer dams to divert water flow away from the construction activities; and other temporary works as may be necessary to minimise damage, inconvenience or interference, for 24 hours a

day, 7 days a week throughout the period of Construction, to adequately protect the works from flooding and damage by stormwater.

C3.4.19 PERMITS AND WAY LEAVES

The Contractor will be required to take cognisance and comply with the general way-leave requirements of the various service providers, where applicable, during the contract period. The Contractor is to liaise with the Employer's Agent to establish who they require to make contact with prior to commencement of the Works. The following Departments would need to be contacted,

1. Kouga Technical Directorate
2. Eskom
3. Any other service provider

C3.4.20 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATIONS TO EXISTING WORKS

It is the Contractor's responsibility to satisfy himself that the dimensional accuracy, alignment, levels and setting out of existing structures or components are compatible with the proposed works before construction commences. Should this not be the case, the Contractor is to notify the Client's representative as soon as possible and no claims will be entertained as a result of the incompatibility of the proposed works.

C3.4.21 WATER FOR CONSTRUCTION PURPOSES

With the exception of the first test, water for cleaning and testing is to be provided by the contractor.

Sufficient water is to be made available by the Contractor for the testing of all the elements that require cleaning, testing and disinfection of the works.

C3.4.22 SURVEY CONTROL AND SETTING OUT OF THE WORKS

Before commencement of the work, the Contractor is to liaise with the Employer's Agent to establish the exact status of all pegs and servitudes in the area. The position of all erf pegs found will be recorded on a marked up print of the area.

On completion of the Contract the pegs that have unavoidably disturbed will be replaced by the Employer. Pegs which have, in the opinion of the Employer's Agent, been disturbed due to the negligence of the Contractor, will be replaced at the Contractor's cost.

Benchmarks with levels and co-ordinates are available on site. Setting out will be done using co-ordinates supplied by the Employer's Agent.

C3.4: CONSTRUCTION: PART B

PART B: VARIATION TO THE STANDARD SPECIFICATIONS

In certain clauses the standard specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.

The number of each clause in this part of the project specification consists of the prefix PS followed by a letter corresponding to the part of SABS 1200 being changed and a number corresponding to the number of the relevant clause in the standard specifications.

The number of the new clause which does not form part of a clause in the standard specification and which is included herein, is also prefixed by PS followed by a letter corresponding to the part of SABS 1200 being added, followed by a new number. The new numbers follow on the last clause numbers used in the relevant section of the standard specifications.

PSA GENERAL

PSA 3 MATERIALS

PSA 3.1 QUALITY

Where a material to be used in this Contract is specified to comply with the requirements of an SABS Standard Specification, and such material is available with the official SABS mark, the material used shall bear the official mark.

PSA 4 PLANT

PSA 4.1 MEDICAL FACILITIES AND SAFETY EQUIPMENT

Suitable first aid services required for this contract shall include, inter alia, a First Aid cabinet fully equipped and maintained with the minimum contents as listed in the Annexure (Regulation 3) of the General Safety Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period.

The Contractor shall provide personal safety equipment and facilities as required by Regulation 2 of the General Safety Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993)

PSA 5 CONSTRUCTION

PSA 5.2 Watching, Barricading and Lighting

Add the following

“The Contractor shall comply in all aspects with the requirements of the Occupational Health and Safety Act (Act 85 of 1993)”.

PSA 5.8 Access to Properties

Notwithstanding subclause 5.8 the Contractor shall, where practicable, maintain free access for other parties to make use of the site, and in this regard he may be called upon to carry out special works as itemised in the Schedule of Quantities. Other parties may include employees of the local authority, other contractors, members of the public who require access to adjoining properties and employees of various departments such as Eskom, etc.

Road crossings and access to erven must be provided by the Contractor at all times. The Contractor shall, at his own expense, provide suitable crossings for residents and other Contractors requiring access to the Site. Such temporary service trench crossings shall be in the form of portable bridges, temporary backfill or other approved means and shall be capable of permitting the safe passage of vehicles of mass not exceeding 2 tons. The Contractor shall also be responsible for maintaining such crossings and for removing same when they are no longer required.

If as a result of restricted road reserve widths and the nature of the works, the construction of by-passes is not feasible, construction shall be carried out under traffic in order to provide access to the erven and properties.

The Contractor may, with the approval of the Employer's Agent, arrange with the occupiers of the affected erven and properties to temporarily close off a portion of a

street, road, foot-path or entrance, provided that the Contractor shall give due notice to the occupiers of the intended closure and its probable duration and shall as punctually as possible re-open the route at the prescribed time. Where possible the road shall be made safe and re-opened to traffic overnight. Any such closure shall be an arrangement between the Contractor and the occupiers and shall not absolve the Contractor from his obligations under the Contract to provide access at all times. Barricades, traffic signs and drums shall be provided by the Contractor to suit the specific conditions.

If the Contractor intends to close off a bus route the relevant authorities shall be notified 24 hours prior to the work. If the Contractor intends to close off a taxi route, he shall advise and liaise with local taxi association in this regard. All roads may only be closed between the hours of 08:30 – 15:30.

Items have been included in the Preliminary and General Section of the Schedule of Quantities for the provision of access to properties.

Payment shall be a lump sum for providing access to all erven and properties, which lump sum shall be full compensation for providing access to erven and properties at all times and shall include for any additional costs due to construction under traffic, for making arrangements with the occupiers of erven and properties to temporarily close off routes and for taking the necessary precautions to provide for the safe and easy passage of traffic through the areas under construction.

PSA 5.9 Accommodation of Traffic

(New Clause)

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 Roadworks in Urban Areas**”, as published by the Department of Transport.

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

PSA 5.10 EME Construction Manager

(New Clause)

The Contractor shall employ on a monthly basis, in addition to Clause 4.4 of the General Conditions of Contract (2015) an EME Construction manager on the Contract who will guide, assist manage and mentor all EME's appointed on the contract, and report on progress at the contract site meetings. Such a Construction Manager must be adequately experienced with EME work and the development thereof and will be subject to the approval of the Employer. The assistance rendered by the EME Construction Manager, shall *inter alia*:

- (i) Be given at a level and to the extent which is commensurate with the expertise and resources of the EME,
- (ii) Be given in a manner which is neither prescriptive, dictatorial, nor coercive towards the EME;
- (iii) Not be utilized by the Contractor to manipulate the rates and prices submitted, to his advantage, and
- (iv) Be given in a manner which does not unfairly prejudice or favour any particular EME.

The EME Construction Manager will work with and manage the EME Subcontractors throughout the Contract but will only be on site during times when EME subcontractors are performing work.

The EME construction manager shall be a dedicated resource whose only responsibility is to manage the EME subcontractors and as such shall not be the site agent or any other person employed on the contract for other purposes.

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.3 Scheduled Fixed-Charge and Value-Related Items

PSA 8.3.1 Contractual Requirements

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 Contract Data.

PSA 8.4 Scheduled Time-Related Items

PSA 8.4.1 Contractual Requirements

The Contractor shall tender a lump sum in the Bill 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 SABS 1200:A.

The Contractor will not be paid Time-Related Preliminary and General charges for any Special Non-Working Days, as stipulated in C1.2: Contract Data (Part 1), which shall be deemed to have been allowed for in his rates.

PSA 8.4.2 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:

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

*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 8.4.5 Other Time-related Obligations

Provision of Security Personnel..... Unit: month

This item shall cover the cost of providing such security personnel the Contractor deems appropriate, taking cognizance of the location of the site and the historical record of incidents of crime in the area.

PSA 8.4.6 Compensation in terms of Clause 5.12.2.4 of the General Conditions of Contract – 2015 and clause 9.1.4 of the Contract Data, for delays incurred. (New Clause)

- (a) PlantUnit : Sum per working day
- (b) Labour :Unit : Sum per working day
- (c) Supervision.....Unit : Sum per working day
- (d) Other services, facilities etc.
not covered by (a), (b) and (c).....Unit : Sum per working day

The sum tendered for each item shall cover the full and final standing cost per day of delaying the specified resource or facility and no additional compensation shall apply, notwithstanding any provisions to the contrary in the contract documents, or in respect of any extension of time granted in relation to the circumstances described in Clauses 5.12.2.4, 9.1.1 and 9.1.2 of the General Conditions of Contract - 2015.

For the purposes of calculating the total delay, a working week shall be held to consist of five working days and a working day 9 hours.

Payment for partial standing of any of the scheduled resources for a day or part there of, or the standing of a complete resource for a part day, will be made pro-rata in proportion to an appropriate factor assessed by the Employer's Agent.

The amount by which compensation for delays is adjusted shall be subject to the contract price adjustment formula as defined in the General Conditions of Contract - 2015.

This payment item shall only apply to delays which in the opinion of the Employer's Agent are due to the circumstances described in Clauses 5.12.2.4, 9.1.1 and 9.1.2 of the General Conditions of Contract - 2015.

The cost of delays incurred for all other circumstances shall be treated as provided for in the General Conditions of Contract -2015.

The provision of this clause shall in no way prejudice the rights of either the Employer or the Contractor to determine the contract in terms of the provisions in clause 9.1 of the General Conditions of Contract - 2015.

The Contractor shall take note that no payment will be considered for any additional cost incurred in protecting his plant and site establishment, as well as for costs incurred in respect of damage to constructional plant and equipment.

PSA 8.4.7 Miscellaneous Items (New Clause)

An item which, in the payment clause column of the Bill of Quantities, refers to this clause (PSA8.4.7), will be measured in the unit scheduled.

The sum or rate for such item shall cover the cost of all materials, labour and plant required to execute and complete the work as specified, described in the Bill of Quantities or shown on the drawing(s).

PSA 8.4.8 Freehaul and Overhaul (New Clause)

Notwithstanding any clauses in this Scope of Work, or any clauses in the Standardised Specification dealing with the definition, measurement and/or payment for transport, freehaul and/or overhaul, no measurement or payment for overhaul will be made. All haulage will be considered to be freehaul and the cost thereof will be deemed to be covered by other rates in the Bill of Quantities.

PSA 8.5 Sums stated provisionally by Employer's Agent (Subclause 8.5)

Amend the penultimate sentence of Subclause 8.5 to read:

"The percentage rate for 8(b)(2) above shall cover the Contractor's overheads, charges and profit on the work covered by the sums provisionally stated for (b)(1) above. Payment will be made on the basis of the sums actually paid for such work."

PSA 8.7 Daywork (Subclause 8.7)

Provisional sum items are scheduled for Daywork labour, materials and plant (owned and hired by the Contractor). Percentage allowance on net cost items are scheduled for Daywork labour, materials and plant hired by the Contractor.

The Contractor will be paid:

- a) the actual cost of labour, materials and hired plant,
- b) an amount being the tendered percentage times the actual cost of labour, materials and hired plant, and
- c) the cost at agreed rates for plant owned by the Contractor.

PSA 8.8 Temporary Works

PSA 8.8.2 Accommodation of Traffic

A specific item has been included in the Bill of Quantities to allow the Contractor to cover the costs of accommodating traffic in the Thomas Baines reserve at all times. At least 7 days advance notice must be given to residents/visitors that will be affected before excavations/work can commence near any particular road. Unless it

is impossible to do so, roads must remain open for access to the community/visitors at all times unless written permission is granted by the Employer's Agent.

The sum shall cover the effect on the Contractor's programme, delay in the works, damage to or loss of a deviation, supply, erection and moving and re-erection of all necessary traffic signs, drums, barricades, the provision of flagmen and any other operation or equipment, plant or labour necessary.

Payment under this item will be made on a pro-rata basis to the duration of the contract.

PSA 8.8.4 Existing Services

All existing services and protection thereof to be handled in a manner as detailed in C3.4.11 to C3.4.17, but not limited to those items. Payment will be according to "Dealing with Existing Services" in the schedule of quantities.

PSA 8.8.6 Dealing with water

Temporary works are required by the contractor to deal with the flow of water through the works. The rate tendered for this item shall be deemed to cover the installation of such a system, the maintenance thereof, and the necessary reinstatement on completion of the works.

PSA 8.8.7 Provide barricading around open excavations where required by the Employer's Agent. The rate shall cover all costs to install and maintain safety barricading around excavations where required by the Employer's Agent.

**PSA 8.9 Compliance With OHS Act And Regulations (New Clause)
(Including The Construction Regulations 2014)**

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 2003) at all times for the full duration of the Contract. The successful tenderer shall provide the Employer's Agent with a complete breakdown of this tendered sum. This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance."

The sum shall include the management and compliance of the EME's to the OHS Act.

PSA 8.10 Provisional Sum for Accredited Training (New Clause)

Add the following payment Items:

(a) Accredited training by the Department of Labour (provisional)..Prov. Sum

(b) Handling costs and charges for Contractor.....Percentage (%)

The Contractor will liaise with the Employer's Agent and the Community Liaison Officer for the training requirements of targeted local labour and arrange for formal training with the local Department of Labour, or other accredited training service providers.

PSA 8.11 Training of Employer's Staff in the Operation and Maintenance of the Works.

Add the following payment Items:

- (a) Accredited training for Staff.....Sum
(b) Handling costs and charges for Contractor.....Percentage (%)

The Sum shall include all costs for the Contractor to provide training sessions to all plant personnel in the new equipment that will be installed.

The training is to be based on 2 x 4hour training sessions by an accredited, competent service provider.

PSA 8.12 Compliance with the Environmental Management Plan (New Clause)

The tendered sum shall include full compensation to the Contractor for compliance with the Environmental Management Plan. This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance.

Add the following payment Items:

- (a) Compliance with the Environmental Management Plan Sum

PSA 8.13 Permits and Wayleaves (New Clause)

Although the Employer's Agent will provide wayleave drawings, the Contractor shall be responsible for liaising with the relevant service authorities and shall obtain his own wayleaves / approvals before commencing construction.

The Contractor will be required to take cognisance and comply with the general way-leave requirements of the various services providers, where applicable, during the construction of the pipeline. The Contractor is to liaise with the Employer's Agent to establish who they require to make contact with prior to commencement of the Works.

PSA 8.14 Barricading of Trenches (New Clause)

Barricading of trenches must be provided where there are open trenches. Excavated material must also be placed surrounding the trench to form a berm to prevent animals/people accidentally falling into excavations. Payment to be included in the excavation rates.

Where excavations pose a danger to the community/visitors/animals they are to be closed during the weekends and Public Holidays.

PSA 8.15 Appointment of CLO

The sum shall include all costs to remunerate the CLO for the duration of the contract.

PSA 8.16 Survey Beacons/Pegs

The rate shall include all costs to locate, record, reference and protect survey points, benchmark, erf boundary pegs and other reference pegs and expose on completion of the works.

PSA 8.17 EME Construction Managers.....Unit: Man Month

(New Clause) The contractor shall employ an EME construction manager who will manage the EME's and report on progress at the contract site meetings. Such Construction Manager must be adequately experienced with EME work and the development thereof and will be subject to the approval of the Employer.

The EME construction manager shall be a dedicated resource whose only responsibility is to manage the EME subcontractors and as such shall not be the site agent or any other person employed on the contract for other purposes.

The assistance rendered by the Construction Manager, shall *inter alia*:

- a) Be given at a level and to the extent which is commensurate with the expertise and resources of the EME,
- b) Be given in a manner which is neither prescriptive, dictatorial, nor coercive towards the EME;
- c) Not be utilized by the Contractor to manipulate the rates and prices submitted, to his advantage, and
- d) Be given in a manner which does not unfairly prejudice or favour any particular EME.

The EME Construction Manager will work with and manage the EME Subcontractors throughout their involvement on the contract, but may only be on site during times when EME subcontractors are performing work. During the time that EME subcontractors are performing work, the EME Construction Manager shall be available on site during normal working hours.

PSA 8.18 EME Subcontract Works (Description).....Unit: Provisional Sum

(New Clause) Provisional sums have been allowed for reserved work packages for work awarded to subcontractors selected in consultation with the Employer in accordance with Clause C3.3.2. The sum paid shall be as certified by the Engineer for work completed by the EME Sub-Contractor(s).

PSA 8.19 Training Allowance Paid to Targeted Labour In Terms of Formal Training (New Clause)

A Provisional amount is allowed for the training allowance to be paid to targeted labour while undergoing formal training.

Add the following payment Items:

- (a) Training allowance to Targeted Labour in Terms of Formal Training (Provisional).....Prov. Sum
- (b) Handling costs and charges for Contractor.....Percentage (%)

PSA 8.20 Transport and Accommodation of Workers for Training (New Clause)

A provisional sum is allowed for transport & accommodation of workers for training, where it is not possible to undertake the training in close proximity to the site.

Add the following payment Items:

- (a) Transport and Accommodation of workers for training.....Prov. Sum
- (b) Handling costs and charges for Contractor.....Percentage (%)

PSA 8.21 Compliance to EPWP Reporting (New Clause)

A provisional sum is allowed for the compliance to EPWP reporting by contractor.

Add the following payment Items:

- (a) Compliance to EPWP reportingProv. Sum

PSA 8.22 Provisional Sum for Work to be undertaken by Eskom (New Clause)

Add the following payment Items:

- (a) Work undertaken by Eskom (provisional).....Prov. Sum
- (b) Handling costs and charges for Contractor.....Percentage (%)

PSA 8.23 Provisional Sum for Training of KOUGA LOCAL Staff Training (New Clause)

The rate shall include all costs to train all operators at the Waainek WTW plant, for a period of 8 hrs in the running of the plant.

Add the following payment Items:

- (a) Training allowance to KOUGA LOCAL staff
..... Sum
- (b) Handling costs and charges for Contractor.....Percentage (%)

PSA 8.24 Servicing of Installed Equipment (New Clause)

The rate shall include all costs for the main contractor (or his deligate sub-contractor to visit the WTW and inspect, lubricate & service all installed equipment under this contract.

Add the following payment Items:

- (a) Servicing of installed equipment..... Rate

PSA 8.25 Testing and Commissioning (New Clause)

The general requirements for the commissioning of equipment as well as the standards laid down for acceptance tests of material and equipment applies.

Commissioning procedures as stipulated by the suppliers of equipment shall at all times be strictly adhered to.

The commissioning of specialised equipment shall be undertaken by the supplier or an approved specialist.

All safety protection systems shall be fully commissioned and set points properly checked out and adjusted, before equipment shall be allowed to run for commissioning purposes.

The responsible Commissioning Technician shall be present to supervise the operation and adjustment of the equipment during the entire commissioning stage. All instrumentation required to measure flows, electrical power absorbed, temperatures, pressures, velocities or sound, shall be provided by the Contractor. All commissioning data shall be fully tabulated in conjunction with the design data, and submitted to the Engineer prior to any performance inspections or acceptance tests being carried out by the Engineer.

Where the Engineer is to witness tests, the Contractor shall ensure that the Engineer receives one week's prior notice in writing, before such tests commence. Tests to demonstrate the capacity specified and general operating characteristics of all apparatus etc., shall be made under the direction of the Engineer at the time of final inspection under conditions imposed by him.

After completion, either in part or as a whole, the complete installation shall be subject to acceptance tests by the Engineer.

The Contractor must assist the Engineer during any test carried out and must supply all tools and instruments for testing purposes.

PSAB EMPLOYER'S AGENT'S OFFICE

PSAB 3 MATERIALS

PSAB 3.1 Nameboards

Delete: "The standard board of the South African Institution of Civil Engineer" and replace by "the standard nameboard of the Employer's Agent's Department, in accordance with Drawing PSA 2 of Standard Details July 2007".

Add: "In addition, the Contractor shall provide and erect two Identity Boards in accordance with Drawing PSA 3 of Standard Details July 2007". They shall be placed and moved, as directed by the Employer's Agent Representative.

PSAB 3.2 Office Building(s)

Add the following:

One office complete with desk, chair and double door cabinet is required under lock and key. The Employer's Agent and contractor would share this office. .

PSAB 3.3 Car Port

"2 No Carports required."

PSAB 4 PLANT

PSAB 4.1 Telephone

A telephone will not be required for the Employer's Agent.

PSAB 5 CONSTRUCTION

PSAB 5.5 Survey Assistants

The Contractor shall provide a survey assistant for full time use by the Employer's Agent for the duration of the Contract. The survey assistant shall have at least a Grade 12 level of education and be employed from the local community. The survey assistants will assist the Employer's Agents Representative with survey work, measurement, recording of construction record information and other work as directed by the Employer's Agent.

The remuneration of the survey assistant with minimum Grade 12 education is to be determined by the Contractor.

PSAB 8 MEASUREMENT AND PAYMENT

PSAB 8.1 Name Boards

The rate is to include for the manufacture and erection of 2 nameboards as per the municipal standard drawings PSA 2 and PSA 3, and as detailed in PSAB 3.1.

PSAB 8.2.3 Survey Assistant
(New Clause)

Payment for the survey assistant shall be at the tendered daywork rates for the hours worked in assisting the Employer's Agent Representative.

PSC SITE CLEARANCE

PSC 3 MATERIALS

PSC 3.1 Disposal of Material

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

“Debris arising from clearing and grubbing or from the demolition of structures on site shall be removed by the Contractor and disposed of at a Municipal approved tip site.

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

PSC 5 CONSTRUCTION

PSC 5.1 Areas to be Cleared and Grubbed (sub-clause 5.1)

Only the approved minimum area required for the execution of the Works including areas on which material shall be stockpiled for later re-use or on which material shall be dumped and spread, shall be cleared and grubbed.

For the pipe trenches indicated by the Employer’s Agent, generally a sufficiently wide strip equal to the trench width plus the estimated allowance for trench side slopes plus the width of stockpiled backfill and a 600 mm width (which shall be maintained alongside the trench) plus the width of access to the trench shall be cleared of vegetation. The width shall, however, not exceed 10 m.

PSC 5.2 Conservation of Topsoil (Sub-clause 5.6)

Topsoil up to a depth of 100 mm, if available, shall be removed from the above specified cleared areas and stockpiled on approved sites for later re-use.

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.1 Site Clearance

Cleaning of the pipeline route will be measured and paid per linear m. The tendered rate shall cover as specified in Subclause 8.2.1(a), and removing and disposing the vegetation as specified in C3.4.6.

PSC 8.2 Removal and Conservation of Topsoil (sub-clause 8.2.10)

The rate tendered for the removal of in situ topsoil shall, in addition to the items listed in Sub-clause 8.2.10, also cover the cost of stabilizing and protecting the stockpiles of topsoil in accordance with PSD5.2.1.2.

PSC 8.2.11 Demolish Items(Sub-Clause 8.2.10)

The rate shall include all costs for the breaking up and removal of items to be demolished as specified including loading and disposing at an approved waste site.

PSD EARTHWORKS

PSD 3 MATERIALS

PSD 3.1 Classification For Excavation Purposes

Delete SABS 1200:D Clause 3.1 and replace with the following:

PSD 3.1.1 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 Employer's Agent 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 PSD 3.1.2(a) and (b).

PSD 3.1.2 Classes of Excavation

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

(a) Hard rock excavation

Hard rock excavation shall be excavation in material (including undecomposed boulders exceeding 0.17 cubic metres 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.

(b) 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.

PSD 5 CONSTRUCTION

PSD 5.1 EXPLOSIVES (SUB-CLAUSES 5.1.1.3)

Notwithstanding Sub-Clause 5.1.1.3, the Employer's Agent shall be notified at least Forty-eight (48) hours beforehand of the Contractor's intention to use explosives on site.

It shall be incumbent on the Contractor to make himself aware of restrictions to blasting imposed by the KOUGA LOCAL and other similar authorities. Where the presence and location of the pipeline or Eskom power lines etc. are known or are shown on the Employer's Agent's drawings at tender stage the Contractor must make allowance in his rates and programmes for restrictions and delays which may result from restrictions imposed by the authorities.

The Contractor to provide the Employer's Agent with a detailed method statement for approval, of the anticipated blasting method for each blasting occasion. Track-rigs are not permitted.

PSD 5.1.2.5 Negligence (Sub-clause 5.1.2.5)

The Contractor shall be liable for all damages to services caused as a result of the Contractor's negligence.

PSD 5.2 Excavation and Placing (Sub-clauses 5.2.2 and 5.2.3)

After clearing and before placing any fill material the Employer's Agent approval of the suitability of the in-situ material shall be obtained. The Employer's Agent shall direct, if the nature of the excavated material so requires (as is the case with clayey material), that certain portions of the excavated material be placed only in specific sections of the embankments. The Contractor will receive no additional payment for such selection.

Where excavated material, which is designated as suitable fill material becomes contaminated or is mishandled or misplaced by the Contractor, he shall remove the contaminated material and/or replace the shortfall with suitable material at his own expense.

PSD 5.2.1.2 Conservation of Topsoil

Add the following to Clause 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."

PSD 5.3 Borrow Pits (Sub-clauses 5.2.2.2 and 5.2.3)

Unless off-site borrow pits are shown on the Employer's Agent drawings or are designated by the Employer's Agent at tender stage, the Contractor shall make his own arrangements for the importation of material of a specified quality, when and if required, from borrow pits outside the Contract Site.

PSD 5.2.3.1 Placing and Compacting – Embankments (Sub-clause 5.2.3.1)

Notwithstanding subclause 5.2.3.1, for cohesive soils the upper 600mm of all fills shall be compacted to a minimum of 93% MAASHTO density.

PSD 5.2.3.1 Rock Fills (Sub-clause 5.2.3.1)

Rock excavated from cut shall be used in the portion of the fill that is more than 1m below finished level. The rock material shall be deposited in layers of thickness at least sufficient to accommodate most of the rock material, provided that the thickness of the uncompacted layer does not exceed 750mm. The rock fill shall be spread and sorted by a bulldozer of adequate size to obtain layers of uniform thickness. Oversize material (i.e. any rock having a maximum dimension exceeding 600mm) shall be either broken down to size or, where by the nature of the material this is impracticable, dozed to the outside of the embankment and removed as spoil.

After the material has been spread, the interstices shall be filled with small rock or fine grained material and if, after the addition of such material, the stone layer is still too rough to roll, sufficient fine-grained material shall be added to blind the surface,

or the unevennesses shall be broken down by knapping. The layer shall then be watered and given six passes of a 6t vibrating roller or four passes of a 10t vibrating roller. If the 'lock' or the void in the finished layer is not to the satisfaction of the Employer's Agent, he may order spot dumping and hand distribution of suitable fine material, and the application of further water between passes and such additional rolling as he may consider necessary for a dense stable embankment fill to be obtained.

The upper portion of the fill within 1m of finished level shall be constructed in layers of thickness not exceeding 300mm before compaction. The layers shall be formed with material containing no lumps, stones, or clods that, after being broken down and compacted, have any dimension greater than 150mm.

PSD 5.4 Compaction (Sub-clause 5.2.4)

The upper 600 mm of all fills shall be compacted to a minimum of 93% MAASHTO density.

Where material is carried to spoil, or to fill low areas, filling shall be done, unless otherwise specified, in accordance with sub-clause 5.2.3.1 except that compaction requirement will be relaxed. In such cases each layer of material deposited shall be compacted by spreading with earthmoving equipment and by routing construction traffic such that the whole of each layer is traversed by heavy equipment.

PSD 5.5 Disposal of Material

All surplus material and all unsuitable material from excavations and clearing and grubbing operations shall be removed from the Site by the Contractor and shall, notwithstanding Sub-clause 5.1.6, be disposed of at the site described in C3.4.6.

PSD 5.6 Topsoiling

Topsoil shall be placed as directed in sub-clause 5.2.5.2 on the faces of embankments and other flatter areas, disturbed by construction activities, to a nominal thickness of 100 mm after light compaction.

PSD 5.7 Over Excavation for Work Space Subclauses 5.2.2.1 (b) and (c) and Subclause 5.2.3.2)

Other than for sides of mass concrete, slabs and footings, no concrete shall be placed against the sides of excavations.

For external concrete faces below ground level, the Contractor shall over excavate to provide sufficient working space which shall be backfilled with selected excavated material complying with the requirements of Subclause 3.2.2. The backfill shall be brought up in layers not exceeding 300 mm (before compaction) and compacted at optimum moisture content to a density of at least 95 % of MAMDD.

PSD 5.8 Filling in Over Break Under Structures

All overbreak in hard material under structures shall be cleared of loose material and the resulting voids filled with blinding concrete unless otherwise directed by the Employer's Agent.

PSD 7 TESTING

PSD 7.1 Tests to Contractors Account

The Contractor shall make arrangements with a soils testing laboratory to undertake the following tests and to pass the test results to the Employer's Agent. The costs of such tests shall be included in the rates tendered for the appropriate item in the Schedule of Quantities.

- a) Material Imported from Outside the Contract Site as a Working Surface, or for Fill Material:

One CBR and indicator test per 500 m³ of compacted material brought on site. (Beach or river sand will normally be exempted from this requirement). A sample and one CBR and indicator test of the material proposed for importation shall be submitted to the Employer's Agent for approval prior to the commencement of importation.

- b) Fill Material in Place:

One density and moisture content per 200 m³ of compacted fill.

- c) Compacted Sub-Grade or Finished Level:

One density and moisture content per 500 m² of compacted surface area.

Should any of the above density tests fail to comply with the specified requirements, the Contractor shall at his own expense, remedy the failure and submit a new test to the Employer's Agent.

PSD 7.2 Tests to the Employers Account

Where CBR, indicator tests and the like are required on material from within the Contract Site, the Contractor shall also make arrangements with an approved soils testing laboratory to undertake these tests, the costs of which will be per sample tested and reported to the Employer's Agent.

PSD 7.3 Material or Compaction Standard not to Specification (Sub-Clause 7.3)

The Employer's Agent shall have free access to the site and will undertake numerous inspections of the work in progress to ascertain compliance with the specifications. The Contractor shall be prepared at any time to demonstrate such compliance and will be required to establish conformity line, level, cross-section and tolerance by the use of straight-edge, tape, level, etc.

The Employer's Agent may also require additional tests to those specified in Clause PSD 7 above. Where such additional tests prove compliance with the specification, the Employer will meet the costs. Where such tests fail the Contractor shall meet the costs to remedy the tests that failed.

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.1 Extra-over Payment for Excavation Classification

No extra payment will be made for excavation that is classified as "intermediate excavation" in accordance with PSD3.1. The cost of excavation of intermediate material shall be covered by the tendered rate for excavation in all materials.

PSD 8.2 Topsoiling

The rate for topsoiling shall cover the cost for the excavation of the topsoil, hauling, stock piling and maintaining during the construction period. Once the topsoil is required to be placed, loading, hauling, spreading to a thickness of 100 mm and compacting is required. The width (max) of top to be stripped is 5m.

PSD 8.3 Form Embankment

Measurement will be by volume of the formed embankment.

The rate shall cover all costs in taking the material from the stockpiles and placing and forming the embankment fill blanket over the sewer pipeline and against manholes and chambers. It shall also include the cost of selecting the material to be carefully placed on top of the pipeline and directly against the concrete structures, without causing damage to the concrete surfaces.

PSD 8.4 Excavation for Working Space

Excavation for working space will be measured as the vertical area of the concrete below ground level formed with formwork.

The tendered rate shall include for the cost of backfilling as specified.

PSD 8.5 Unavoidable Over Breaking in Hard Rock

No separate payment will be made for the removal and disposal of unavoidable overbreak material from excavations in hard rock. All extra costs associated with the occurrence of overbreak, including the subsequent filling in of the resulting voids, will be held to be included in the various tendered rates.

PSD 8.6 Freehaul And Overhaul

Notwithstanding any clauses in this Scope of Work, or any clauses in the Standardised Specification dealing with the definition, measurement and/or payment for transport, freehaul and/or overhaul, no measurement or payment for overhaul will be made. All haulage will be considered to be freehaul and the cost thereof will be deemed to be covered by other rates in the Bill of Quantities.

PSD 8.7 Cut

Measurement will be by volume.

The rate for cut shall cover the cost for the excavation of the material, hauling, stock piling and maintaining during the construction period. Once the excavated material has been used in the fill operation all remaining material to be spoiled at a suitable spoil site, located by Contractor, off-site and dispose of surplus material.

PSD 8.8 Fill

Measurement will be by volume.

The rate for fill shall cover the cost for taking delivery of material that has been stockpiled, loading, hauling, spreading and compacting in layers of 150 mm to 93% Mod AASHTO. It shall also include the cost of selecting the material to be carefully placed on top of the pipeline and directly against the concrete structures, without causing damage to the concrete pipe and surfaces.

PSDB EARTHWORKS (PIPE TRENCHES)

PSDB 3 MATERIALS

PSDB 3.1 Classes of Excavation

Delete the contents of Clause 3.1 and replace with the following:

“ The classification shall be as described in PSD 3.1”.

PSDB 3.3 Selection

Notwithstanding Subclause 3.7, in terms of which the Contractor has a choice regarding methods of selection, the Contractor is required to use selective methods of excavation. The Contractor shall selectively remove and separate the sandy material from unsuitable material and place it adjacent to the trench for re-use as backfill, selected backfill, selected granular material or for other use as ordered by the Employer's Agent.

PSDB 3.5 Backfill Materials

Delete the contents of Clause 3.5(b) and replace with the following:

“Materials used in the reinstatement of trenches beneath or within a new roadway, up to underside of the road layers, shall be 37,5mm basecourse quality material conforming to SABS 1200 MF compacted in 150mm layers to 98% Mod. AASHTO density. The area subject to loads from road traffic shall be held to apply for a width of 150mm beyond the back of kerb.”

PSDB 3.6 MATERIALS FOR REINSTATEMENT OF EXISTING ROADS AND PAVED AREAS

PSDB 3.6.1 Subbase and base;

Delete the contents of Clause 3.6.1 and replace with the following:

“Where trenches cross existing surfaced roads the following will apply:

- (a) The service (pipe, cable etc.) shall be laid on a bedding cradle, and covered with a fill blanket, as specified in section LB (Bedding - Pipes) SABS 1200 or in the Scope of Works.
- (b) The remaining portion of the trench, from the top of the fill blanket to the road surface, shall be filled with cellular trench backfill material.
- (c) The specification for this material is as follows:-
 - (i) Definition : Material shall consist of a cellular light-weight concrete incorporating large volumes of controlled micro-air cement and sand.
 - (ii) Density Range : 150 - 1400 kg/m³ and have an equivalent CBR value greater than 100.
 - (iii) Consistency : Material shall be of a pickable nature after final setting.
 - (iv) Admixture : The admixture is a pre-foam organic compound accelerated by the addition of calcium chloride. Chloride free additive must

- be used where the outer casing of the service being covered is metallic.
- (v) Setting Times : The finished product must achieve initial set within 90 minutes. It must then be able to carry light traffic.
- (vi) Specifications : British Standards draft S.W.P. 146 of July 1990.

PSDB 3.6.4 Bituminous and Premix Surfacing

Delete the contents of Clause 3.6.4 and replace with the following:

“Where this project is undertaken simultaneously with the construction of bituminous and/or premix surfaced roads, a hot premix and/or bituminous surfacing in accordance with the specifications applicable to the road surfacing shall be used in the reinstatement of the road surface. Where the construction of surfaced roads do not form part of this project a hot premix (type IVa or 7mm sidewalk mix) laid on a cleaned surface which has been previously tack coated with an anionic emulsion shall be used in the reinstatement of the road surface.”

PSDB 5 CONSTRUCTION

PSDB 5.1 Precautions Relating to Explosives (Sub-clause 5.1)

With reference to subclause 5.1.1.3 of SABS 1200D or subclause 5.1.1.3 of SABS 1200DA, the Employer's Agent shall be notified at least 48 hours beforehand of the Contractor's intention to use explosives on site.

The Contractor to provide the Employer's Agent with a detailed method statement for approval of the anticipated blasting for each blasting occasion. No damage is permitted to any businesses and dwellings in the vicinity. Track-rigs are not permitted.

PSDB 5.1.2.3 Sloping Ground

Delete the Sub-Clause and add:

The Contractor shall be responsible throughout the duration of the Contract, inclusive of the Defects Liability Period, for the provision of all soil erosion preventative measures necessary to protect the trenches, pipeline(s) and land utilised by the Contractor during the Contract from any adverse effects of soil erosion, settlement, scour, etc, resulting from the construction of the Works.

Cross-embankments, generally extending across the full width of the working strip, consisting of low earth mounds shaped to rounded form and so oriented as to have a fall of 1% along their length, shall be constructed with compacted material having a minimum density of 90% modified AASHTO density and minimum dimensions and maximum spacing dependent on the slope of the ground along the length of the pipeline, as indicated in the drawings and/or Environmental Specification.

Cross-embankments shall be constructed to the same minimum standards and dimensions indicated above wherever artificial slopes have been formed on the working strip or other areas used during construction and with the approval of the Employer's Agent, are permitted to be so left.

Berms may also be constructed using hessian cloth or plastic sandbags.

PSDB 5.1.5 Trench Excavations (*additional sub-clause*)

The precautions for excavations as specified in Clause 5.1.1 of Section 1200 DA, and the relevant clauses in PSDA, shall also apply to all trench excavations.

The Contractor shall take all the steps necessary to ensure that no person is required or allowed to work in a trench or any other unsupported overhanging excavation which is more than 1,5 m deep, and any excavation which has not been adequately supported, shored or braced if there is any danger whatsoever of the sides of the excavation collapsing. The support, shoring or bracing to be designed and constructed by the Contractor, shall be strong and sturdy enough to support the sides of the excavation in question.

PSDB 5.3 Site Clearance and Reinstatement in Developed Areas (subclause 5.3 and 5.9)

The Contractor shall employ due care in the protection of all existing improvements when carrying out excavations in developed areas and shall confine his works to the smallest practical area so as to minimise damage. He shall also remove and set aside for future replacement, plants or improvements that lend themselves to reinstatement.

Before commencing excavation in a developed area, the Contractor shall, to the satisfaction of the Employer's Agent, prepare a written record of the location and extent of existing plants and improvements within and adjacent to the anticipated construction area. The Employer's Agent drawings may form a part of this record where they show sufficient detail.

Where, in the opinion of the Employer's Agent, the Contractor has proceeded with due care, replacement or repair of damaged or removed improvements shall be at the Employer's expense. Where, in the opinion of the Employer's Agent, the Contractor has caused unnecessary destruction or damage, replacement or repair of improvements shall be to the Employer's Agent's approval and at the Contractor's own expense.

Work shall at all times be carried out with a minimum of disruption to residents, and the Contractor shall give advance notice of his intention to enter upon a property or the impending closure of roads, or driveways.

PSDB 5.4 Excavation

Add: "The excavation of trenches across a concurrently constructed carriageway shall commence after the subgrade layer has been accepted. The pipe/duct shall be laid and the trench backfilled to the acceptable requirements, including density testing before the construction of the next layer may commence".

PSDB 5.6.3 Disposal of Soft Excavation Material

Delete the contents of Clause 5.6.3. and replace with the following:

"Excess material arising from the excavations will be disposed of at a designated tip site. The rate for spoiling of excess material shall include for the loading and carting of material, and the off-loading at the tip site. The Contractor shall be responsible for

all charges levied at the tip site. The current charges applicable may be obtained from the Municipality's Cleansing Division.

Where topsoil is encountered this will be set aside on site and re-used later."

PSDB 5.6.6 Completion of Backfilling

Add: "If in the opinion of the Employer's Agent's Representative the Contractor is lagging in the backfilling of trenches, he will be entitled to order that no further excavation takes place until the backfilling operation has caught up."

PSDB 5.7.2 Areas Subject to Traffic Loads

All trenches underneath and within 2,0 m of the carriageway of the access road will be considered to be subject to traffic loads and the backfill material and compaction in these trenches shall comply with the requirements of PSDB3.5 and Sub-clause 5.7.2.

PSDB 5.9.7 Procedure for Backfilling with Trenchfill

(New Clause)

- (a) The cellular backfill material (hereinafter called "trenchfill") is ordered from the supplier, and is delivered to site in a truck-mixer. The material is poured directly into the trench, and no vibrating or additional compaction is necessary.
- (b) The trenchfill shall be cast flush with the surrounding road surface, and trowelled to an even surface.
- (c) After the trenchfill has set, either the same day or the following day, the top 40mm of the trenchfill must be scabbled off using a pick, or paving breaker and the depression reinstated using hot asphalt. After compaction, the asphalt must be finished flush with the surrounding road surface.
- (d) The asphalt reinstatement of the trench will be carried out by the Municipality or, in the case where the works are being performed by a contractor, the contractor may carry out the reinstatement.

PSDB 5.9.8 Safety

(New Clause)

- (a) During the time period between pouring the trenchfill into the trench, and the setting of this material, it is imperative that no person or animal be allowed to gain access to the trench. Suitable barricades shall be provided around the trench and a guard placed on duty at the trench until the material sets.

Should the trenchfill not be set by nightfall, safety lamps shall be placed on the barricades.

- The responsibility for public safety lies with the Contractor.

PSDB 7 TESTING

PSDB 7.1 Testing and Compaction of Backfilling to trenches and Reinstatement of Surfaces (Sub-clause 7.1)

The Contractor shall carry out density tests as specified in TMH1, in the positions indicated by the Employer's Agent, to determine the compaction of the backfill

material in the trenches and the material used for reinstating the road construction layers. No single test result which is below the specified density, will be accepted.

In the case of trenches in areas subject to traffic load, the contractor shall, notwithstanding the terms of the second sentence of Sub-clause 7.1, bear the cost of all density tests carried out except as follows:

Where the test results are equal to or exceed the specified density, the Employer will bear the cost of that number of those tests ordered by the Employer's Agent in excess of one test per 20 m³ of compacted material, based on the total volume of backfill and reinstated road layers, including the replacement of any over excavation, in areas subject to traffic loads.

The Contractor shall also bear the cost of those density tests, carried out by the Employer's Agent, of which the test results are below the specified density.

Add the following Sub-Clauses:

7.2 Other Tests on Materials from within the Site

In addition to the provisions made for density testing in Clause 7.1 above, the Employer's Agent may call for any other tests such as CBR, indicator tests, etc. to be carried out on any material from within the site to determine the suitability of such material for use in any section of the Works.

The Contractor shall supply the samples required for such tests and shall include for the provision of such samples in his rates. The costs of the successful tests will be borne by the Employer.

7.3 Tests on Materials Imported from Outside the Site

Wherever material is to be imported from outside the site for use in any portion of the works, the Contractor shall make arrangements with a soils testing laboratory for tests to be carried out to indicate the suitability of such material for use in the relevant portion of the Works.

The results of such tests shall be reported to the Employer's Agent. The costs of such tests shall be included in the rates tendered in the Schedule of Quantities for the provision of such materials.

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.3.2 Excavation

Delete the contents of payment Clause 8.3.2(b)(1). For the purpose of measurement and payment, material other than hard rock will not be separately classified.

PSDB 8.3.3.1 Deficiency in Backfill Material

Add the following to sub-clause 8.3.3.1:

The rate for 8.3.3.1(c) shall also include for compaction of basecourse quality backfill as per PSDB 3.5

PSDB8.3.6.1 Reinstate road surfaces

- (a) Extra-over for backfilling trenches using Trenchfillm³
- (b) Hot asphalt type IVA (min thickness 25mm)m²
- (c) 7mm Sidewalk Mix (min thickness 25mm).....m²

For item (a) the volume will be computed from the length of trench as applicable, and the width determined from the applicable side allowances specified in 8.2.3, and the depth from road surface to top of selected fill blanket. Payment for this item will be additional to that for excavation covered by 8.3.2.

For items (b) & (c) the area will be computed from the length of paved trench surface as applicable and the width determined from the applicable side allowances specified in 8.2.3. The final compacted thickness of the layer must be not less than 25mm. The rate shall also include the reinstatement of the existing layerworks. Where there is doubt with regard to the thickness and type of the existing layerworks, it shall be taken as a 150mm G5 subbase compacted to 95% MOD AASHTO density and a 150mm layer G2 base compacted to 100% MOD AASHTO density.

The rate shall cover the cost of temporary accommodation of traffic (including the signs and by-passes), arranging for safety of the public, excavation (including breaking up, removal and disposal of surplus material) and the subsequent reinstatement as specified in 5.9, and shall include the cost of delays and the cost of any risk of having to repair damage as specified in 5.10. The rate to comply with the requirements of PSDB5.9.7 and 5.9.8.

PSDB 8.3.8 Crushed Stone in Trench Bottom

Crushed stone will be measured by the volume of stone placed in trenches where the Employer's Agent has ordered, in writing, the provision of a layer of crushed stone beneath the pipes.

The volume will be calculated as $V = L \times W \times T$, where L is the relevant length of trench, W is defined in Drawings DB-4 and T is the specified thickness of the stone layer.

Geotextile blanket will be measured by area, calculated in square metres as $A = L \times (2W + 0,50)$. No further allowance will be made for overlaps.

The unit rates shall cover the cost of additional excavation and disposal of material and supply and placing of the stone and/or the geotextile blanket.

PSDB 8.8 Reinstatement of Minor Roads

The terms of Subclause 8.3.6 shall be applicable to measurement and payment of the reinstatement of minor roads except that the rate shall include the cost of the supply and placing of an approved gravel in lieu of subbase and base.

PSDB 8.9 Road Crossings

Extra-over payment will be made for individual road crossings. The measurement will be by m² and payment will become due when the crossing has been completed.

The tendered sums shall cover the additional costs involved in constructing the necessary temporary traffic bypasses which may be required at each crossing, the delay caused to excavation in having to complete laying and backfilling a portion of the pipe sleeve before the balance of the excavation can be completed, as well as the additional costs involved in having to lay the water main inside the sleeve, having to deal with traffic, removal of all temporary works, and reinstating the whole area upon completion of the crossing.

PSDB 8.10 Exploratory Excavations to Expose Existing Services

The Contractor will be required to expose existing services which may include Telkom, electrical, sewers and existing water mains, some of which are shown on the drawings, and others of which no record exists.

Services must be successfully exposed and levels taken by Contractor and plotted on drawings by the Employer's Agent, prior to work commencing in an area.

An item is provided in the Schedule of Quantities for hand excavation to prove services and measurement will be based on the volume of material excavated.

The Contractor shall submit a written request to the Employer's Agent for their approval prior to any exploratory excavation taking place.

PSDB 8.11 Soil Crete

Supply, mix and place soilcrete with 8% Ordinary Portland Cement with approved gravel in road crossings where Instructed by the Employer's Agent
Unit m³

The soilcrete will be measured net by volume to the specified width and depth. The rate shall cover the cost of formwork and the soilcrete. The soilcrete will be mixed with a mechanical concrete mixer.

Typically the volume required will be as follows:

Density of soil x percentage required

= 1890kg/m³ x 8%

= 151kg of cement per cubic metre of soil

PSDB 8.12 Freehaul And Overhaul

Notwithstanding any clauses in this Scope of Work, or any clauses in the Standardised Specification dealing with the definition, measurement and/or payment for transport, freehaul and/or overhaul, no measurement or payment for overhaul will be made. All haulage will be considered to be freehaul and the cost thereof will be deemed to be covered by other rates in the Bill of Quantities.

PSDB 8.13 Unsuitable Material

Replace unsuitable material with G5 material and compacted to 95% MOD AASHTO density

The rate shall cover the costs for acquiring the required material from commercial sources, and delivering it to points alongside the trench spaced to suite the

Contractor's methods of working. Payment for backfill with the G5 is deemed to be covered in the tendered rates.

PSG CONCRETE (STRUCTURAL) (SABS 1200 G)

PSG 2 INTERPRETATIONS

PSG 2.1 Supporting Specifications

Add the following:

SABS 1491 Part I : Ground Granulated Blastfurnance Slag (GGBS)

SABS 1491 Part II : Pulverised Fly Ash (PFA)

SABS 1491 Part III : Condensed Silica Fume (CSF)

PSG 2.3 Definitions

Under (a) add:

“Constructional joint: a joint required on account of constraints or convenience in the method of construction and that is not a movement, contraction or expansion joint.”

PSG 2.4.1 Exposure Condition

All concrete on the Works shall be as specified for severe exposure condition.

PSG 2.4.2 Strength Concrete

Mix 35 Mpa/20 means strength concrete Grade 35 Mpa with 20 mm stone.

PSG 2.4.3 Joints

Notwithstanding Subclause 2.4.3, “designated joints” will only be joints that are shown on the drawings. Any other joints that are required by the Contractor as a result of his construction constraints or for any other reason, whether approved by the Engineer or not, will not be considered to be designated joints as defined in Subclause 2.4.3, i.e they will be considered to be “non-designated” joints.

PSG 3 MATERIALS

PSG 3.2.1 Applicable Specifications (Subclause 3.2.1)

Delete the paragraph and replace with the following:

Ground granulated blast furnace slag (GGBS) used on the Works shall be from a source to be approved by the Engineer and shall comply with the requirements of SABS 1491 Part 1, as amended

Pulverised Fly Ash (PFA) used on the Works shall be from a source to be approved by the Engineer and shall comply with the requirements of SABS 1491 Part II, as amended.

Condensed Silica Fume (CSF) used on the Works shall be from a source to be approved by the Engineer and shall comply with the requirements of SABS 1491 Part III, as amended.

Unless otherwise specified no other cement other than cement types CEM I, CEM II/A-S, CEM II/B-S, CEM II/A-V or W, CEM II/B-V or W, and CEM II/A-M shall be used without written consent of the Engineer first being obtained.

PSG 3.2 Cement (Subclause 3.2)

All cement used in the Works shall be Portland cement complying with SABS 471, unless noted otherwise for specific items.

PSG 3.2.3 Storage (Subclause 3.2.3)

Unless approved by the Engineer, cement kept in storage for longer than 8 weeks shall not be used in the Works.

PSG 3.3 Water (Subclause 3.3)

Only potable water from an approved source may be used for mixing concrete. Water from a river or stream may however be used for curing.

PSG 3.4 Aggregate (Subclause 3.4)

Both the coarse aggregate (stone) and the fine aggregate (sand) shall comply with the relevant requirements of SABS 1083.

The nominal stone size specified in the concrete grade (e.g 30 Mpa/40 mm) shall mean stone conforming to the grading specified in SABS 1083 for the nearest equivalent size, i.e 40 mm means stone that complies with SABS 1083 for 37,5 mm size.

Concrete using reactive aggregates (Subclauses 3.2 and 3.4)

The Contractor shall provide the Engineer with sufficient data to enable him to assess the degree of alkali-aggregate reactivity of the aggregates to be used for concrete.

Where reactive aggregates such as Malmesbury Group aggregates, and certain Table Mountain Formation and other quartzitic aggregates are used for concrete, the Contractor shall, in order to ensure that the concrete is not subject to alkali-alkali content such that the total equivalent sodium oxide content of the concrete is less than 2,8 kg/m³.

(NOTE: The equivalent sodium oxide content (alkali content) is measured as (Na₂O + 0,658 K₂O). for cement it is expressed as a percentage by mass, for concrete it is expressed in kg/m³).

in the case of other aggregates that are less reactive the Engineer will determine the type and degree of precautionary measures to be adopted.

Before casting any concrete the Contractor shall provide acceptable evidence that the requirements of this clause are being met.

PSG 3.4.2 Use of Plums (Subclause 3.4.2)

The use of plums will not be permitted.

PSG 3.5.1 Admixtures (Subclause 3.5.1)

The use of admixtures will be subject to the approval of the Engineer. The unformatted listed in Subclause 3.5.1 shall be approved.

PSG 3.9 Joint Materials (New Clause)

The joint materials shall be resistant to ultraviolet light and to biological degradation.

PSG 3.10 Concrete (New Clause)

Concrete for the blinding layer, manhole bases and the surround to pipes shall be grade 15/19.

Concrete for the structure shall be grade 35/19.

Site Batching

For grade 35/19 concrete, cement types CEM I (OPC, Duratech), CEM II /A (Eagle Plus), CEM II/B FA (Structcrete, Durastruct, Surecrete) shall be used. No site blending of cement extenders will be permitted without the permission of the Engineer.

Ready Mixed Concrete

For grade 35/19 concrete, a CEM I or CEM II cement and pulverised fly ash (PFA) may be blended together such that the combined cementitious material comprises a minimum of 65% CEM I or CEM II cement and a maximum of 35% PFA by mass.

Alternatively, for grade 35/19 concrete, a CEM I or CEM II cement and ground granulated blastfurnance slag (GGBS) and/or condensed silica fume (CSF) may be blended together such that the combined cementitious material comprises a minimum of 65% CEM I or CEM II cement and a maximum of 35% GGBS and/or CSF by mass.

The minimum combined cementitious material shall not be less than 375kg and not more than 450kg per cubic metre.

Minimum cement/water ratio shall be 2.0.

PSG 3.11 Polythene Sheeting (New Clause)

Polythene sheeting, where specified on the drawings, shall be in accordance with SABS 952.

PSG 3.12 Waterstops (New Clause)

Waterstops, where specified on the drawings, shall be manufactured from virgin polyvinyl chloride (PVC) that complies with the following minimum performance requirements:

Tensile strength 12, 2Mpa (min)

Elongation at break 25% (min)

Water soluble content 0,15% (max)

Softness (BS 2571) 38 to 50

Waterstops shall be 150mm wide. The waterstops in the floor joint will be the rearguard type "Expandite Supercast Rearguard R" or similar approved and in the walls will be the dumb-bell type "Expandite Supercast Waterfoil" or similar approved.

PSG 3.13 Joint Fillers (New Clause)

Joint fillers, where specified on the drawings, shall be of resin bonded cork board having a maximum water absorption of 3% by volume and complying with ASTM D 1752 with regard to recovery, extrusion, expansion and compression.

PSG 4 PLANT

PSG 4.3 Mixing Plant and Vibrations (Subclause 4.3 and 4.4)

Standby mixers and vibrators of adequate capacity and with an independent power unit shall be maintained on the site for immediate use in the event of breakdown of the regular mixers or failure of the power supply.

PSG 4.5.3 Formwork Ties (Subclause 4.5.3)

The use of sleeves for formwork ties through the walls of water-retaining structures will not be permitted. Ties, when cast in, shall have some form of positive anchorage to prevent any rotation when loosening formwork.

PSG 4.6 Formwork : Chamfers and Fillets (New Clause)

All internal and all exposed external angles in concrete work shall have 20 mm x 20 mm fillets and chamfers respectively unless otherwise specified or ordered. The top edge of the slab that is to receive an applied finish shall not be chamfered.

PSG 5 CONSTRUCTION

Reinforcement

PSG 5.1.2 Fixing (Subclause 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 5.3 Cover (Subclause 5.1.3)

In Subclause 5.1.3(a) amend the words "... or stirrup" to read: "bar, secondary reinforcement, tie stirrup, tying-wire knots or wire ends".

Add to Subclause 5.1.3 : "Tying wire may not encroach on the specified minimum cover by more than a single strand thickness".

The reinforcement shall be fixed with the minimum cover as specified on the drawings, or as indicated in the following table:

Type of Construction	Min. Cover, mm
1. <u>Slabs and Walls</u> a) Plastered and unplastered internal work b) Exposed to water pressure c) External walls d) Exposed to backfill or corrosive atmosphere	The greater of 20 or d
Type of Construction	Min. Cover, mm
2. <u>Columns</u> 3. <u>Beams</u> a) End cover beyond hooks b) All other surfaces	The greater of 40 or d The greater of 25 or 2d The greater of 25 or d
4. <u>Piles</u> a) Precast piles and or faces poured against formwork b) On unformed faces poured against ground	40 75
5. <u>All structures in sea water or in marine atmosphere</u>	50
6. <u>Structures in contact with backfilling or corrosive atmosphere</u>	50

7. Footings	
a) Members cast on a blinding layer	50
b) Members cast in contact with the ground	75

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

- i) by using "cover blocks" manufactured from dense, strong cement/sand formed in a block with wire ties, cured under water for a minimum period of 7 days.
- ii) by the use of plastic spacers, set in an orientation so that no pockets of air can be trapped beneath them during vibration of the concrete.

PSG 5.1.6 Spacers (New Clause)

Spacers of approved design include approved plastic or other proprietary spacers, or purpose made precast mortar blocks.

The tie wires cast into the spacer blocks shall be fully galvanised, Class A as per SABS 675-1993.

Where mortar blocks are used they shall be properly shaped (60 x 60 mm) so as not to slip out of position and shall be made of the same mix as the mortar of the concrete in which they are to be placed. The mix design for the spacer blocks shall be submitted to the Engineer for approval and no spacer blocks shall be cast until the mix design for the spacer blocks has been approved. The mortar shall be accurately batched and well compacted by means into the moulds to result in blocks free from honeycombing, with a density of at least 2300 kg/m³ and with a durability matching that of the parent concrete. The mortar blocks shall be cured in water for at least 7 days. Mortar blocks which have not been manufactured and cured strictly in accordance with these requirements, or which are in any other way considered unsatisfactory by the Engineer, will be rejected and shall be removed from the Site.

FORMWORK

PSG 5.2.1 Classification of Finishes (Sub-Clause 5.2.1)

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

- (a) A rough finish shall be obtained from formwork constructed of sawn timber, plywood, steel panels or other approved materials arranged without particular regard to pattern or the smoothness of the concrete surface.
- (b) A smooth finish shall be obtained from formwork constructed of planed timber, plywood, good quality steel panels or other approved materials all with close fitting square edges arranged in neat uniform patterns and imparting a smooth uniform surface to the concrete. The surface classification is Class 2 – Rubbed Finish.

PSG 5.2.2 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 the formwork and supports shall be the responsibility of the Contractor and shall be designed and detailed by a registered professional engineer, if required by the special conditions of contract, and submitted for approval by the Engineer.
- iii) Forms shall be so designed as to support their self mass, the load exerted by the wet concrete and by the vibration, construction or other loads to which they may be subjected. Where the concrete is to be prestressed, the formwork shall be constructed in such a manner that the elastic compressive shortening of the concrete during the tensioning of the tendons is not unduly hindered. The maximum deflection of any formwork component shall in no case exceed $1/360^{\text{th}}$ of its span. Form soffits shall be built to a camber corresponding to their probable deflection under load so that the finished concrete shall conform accurately with the lines and dimensions shown on the drawings.
- iv) The inner faces of forms shall be such as will impact the specified finish to the concrete. Solid steel forms may be used for precast beams and circular columns. Elsewhere, except where otherwise specified or the written consent of the Engineer has been obtained, only wrought timber or approved shuttering boards shall be used for forms in contact with exposed concrete faces.
- v) 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.
- vi) Wedges and clamps shall be used in preference to nails for securing the form components and wire ties or tie bolts in reinforced concrete must be capable of complete removal after use, except as otherwise specified.
- vii) In the cases where the accommodation of traffic during the construction period is required, false work shall be designed to span underlying road systems with a minimum headroom of 5,0m unless otherwise specified.

PSG 5.2.3 Cleaning Before Concreting

All dirt, sawdust, chips and other foreign matter shall be removed from between the forms before any concrete is deposited

PSG 5.2.5 Removal of Formwork (Sub-Clause 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 the 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, unless 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 Time in Days

*Average daily temperature of the atmosphere adjacent to the concrete as measured by a maximum and minimum thermometer. When the average daily temperature is between 5°C and 15°C the minimum stripping times shall be interpolated from the Table.

The table assumes that the member concerned is not subjected to any heavy construction loads and that the total force to be supported is not more than half the design load. Where heavier loads are to be carried, no stripping of soffits shall be permitted until the concrete has attained its full strength. Any days during which the average temperature was below 2°C shall be completely disregarded.

PSG 5.4 Pipe Box-Outs

Unless otherwise shown on the drawings, the infill to pipe box-outs shall be constructed as follows:

- a) Reinforcement shall be cut at centre of box-out and bent around pipe.
- b) Existing concrete shall be scabbled to expose sound concrete and all loose material removed.
- c) Concrete surfaces shall be saturated with water for 24 hours, and a cement/sand slush applied prior to concreting the infill.
- d) Infill concrete shall be grade 30 MPa with nominal 13 mm stone, have a slump of 100 mm, and be well compacted.

Concrete

PSG 5.5.1.1 General (Subclause 5.5.1.1)

The concrete mix design for strength concrete must be prepared in an approved laboratory and the results of actual test mixes must be submitted for approval together with 7-day and 28-day strength test results. Special attention is drawn to the fact that the concrete mix must provide a very dense and impervious concrete.

No concrete shall be cast until the mix designs have been approved by the Engineer. The Engineer may call for revised mix designs at any stage during the Contract.

PSG 5.5.1.4 Chlorine Content (Subclause 5.5.1.4)

With reference to Table 4, efflorescence will not be acceptable on any exposed concrete surface.

PSG 5.5.1.7 Strength Concrete (Subclause 5.5.1.7)

All concrete for the Works shall be considered to be strength concrete in terms of Subclause 5.5.1.7. No concrete shall be cast until the mix designs have been

approved by the Engineer. The Engineer may call for revised mix designs at any stage during the Contract.

PSG 5.5.2 Batching (Subclause 5.5.2)

Batching of strength concrete shall be by mass.

Concrete from a central concrete production facility (Subclauses 5.5.3.2 and 7.3)

Concrete from a central concrete production facility other than on the Site of construction will be permitted and test results obtained by such a production facility as part of its quality control system are acceptable for evaluation in terms of Subclause 7.3.

Casting of concrete in excavation (Subclause 5.5.5)

Structural concrete shall not be cast directly against the side of any excavation without the use of forwork unless prior approval has been obtained in writing from the Engineer.

Concrete used in pipe trenches for encasement may be cast directly against the side of the excavation. Concrete for thrust/anchor blocks shall be cast directly against the side of the excavation.

PSG 5.5.3.2 Ready-Mixed Concrete (Sub-Clause 5.5.3.2)

The Contractor may elect to use ready-mixed concrete subject to the prior approval of the Engineer.

Ready-Mixed concrete shall not be delivered to site before the Contractor has furnished the Engineer with a copy of his letter to the Supplier in which he has included the following:

- i) The compressive strength of concrete at twenty-eight days.
- ii) The nominal maximum size of aggregate.
- iii) The type of cement.
- iv) The required slump at the point of delivery; being the site; and
- v) An instruction to the Supplier to provide details of the admixture proposes to use, if applicable.

The Contractor shall have delivered with each truck load of ready-mixed concrete a delivery note from the Supplier on which the following information is noted:

- i) The compressive strength of the mix.
- ii) The actual concrete mix proportions.
- iii) The slump.
- iv) The time at which water was added to the mix.
- v) The time of arrival of the truck on site.

- vii) The time the concrete discharge is completed, and
- viii) The quantity of concrete supplied.

These delivery notes are to be kept on site, being available for inspection at any time.

A maximum delivery period of 90 minutes from the time water is added to the concrete mix to the actual discharge of concrete on site shall be permitted. The discharge period including placing of the concrete shall not exceed 30 minutes.

The use of ready-mixed concrete shall in no way relieve the Contractor of any of his responsibilities for providing concrete complying with the specifications.

PSG 5.5.7 Construction Joints (Subclause 5.5.7)

a) General

The edge of joints, exposed to view in the finished structure, shall be formed with suitable beads to provide a straight edge true to line and level.

As soon as practical, but not before 15 hours after placing, the construction joint surface shall be prepared to receive fresh concrete. This preparation, as specified in 5.5.7.3(a) to (d), shall be such as to remove all latency or inert and strengthless material which may have formed and the specified chipping or sand blasting shall be such as to produce a roughened surface all over.

When concreting is interrupted concrete surfaces shall be protected from the sun as specified in Subclause 5.5.8(d) or by means of hessian kept damp until concreting is resumed.

All constructional joints (both designated and non-designated, see PSG8.1.4), (i.e all joints other than movement, contraction and expansion joints) shall be dealt with as specified in Subclause 5.5.7.3.

Unless construction joints between designated joints shown on the drawings are authorized by the Engineer in writing, concrete in the floor and wall shall be cast continuously between the designated joints shown on the drawings.

Only the joints indicated on the drawings shall be deemed designated joints. Should the Contractor wish to introduce additional joints to facilitate his construction procedure, such joints shall be deemed non-designated joints and shall be in positions and of types as approved by the Engineer.

b) Formed Joints (Generally vertical or near vertical)

Formed joints will be considered to be designated joints as defined in Subclause 2.4.3.

Each joint shall be formed as shown on the drawings, complete with shear key rebates, waffle formwork, V-feature, waterstops, "Flexcell" or similar joint filler, dowel bars and their PVC tubes, etc as indicated.

c) Non-designated Joints

Any non-designated joints shall be identical to designated joints, as shown on the drawings, which would be used in similar positions and perform the same function.

d) Unformed Joints

Unformed joints, whether shown on the drawings or not, whether ordered by the Engineer or not, will not be considered to be designated joints as defined in Subclause 2.4.3.

e) Joints between floors and walls and pillars

Construction joints between foundations or footings and walls, or piers standing on them, shall not be made flush with the supporting surface, but shall be made at a distance above the floor or footing on the drawings or approved by the Engineer. The "kicker" (starter stub) shall be cast as an integral part of the bottom, floor or footing.

f) Fibreboard

Fibreboard shall be provided between concrete sections wherever shown on the Drawings. Fibreboard shall be impregnated and treated with a special bituminous compound to protect it from weathering e.g. "Flexcell", as manufactured by Fosroc (Pty) Ltd or a similar approved board of comparable composition, which shall be securely fixed in position to avoid distortion or displacement while concreting operations are in progress.

g) Joint Former

Joint former for use in joints shall be approved by the Engineer. It shall consist of a highly resilient closed cell polymer foam (the resiliency shall not be less than 90% recovery after compression to half original thickness), capable of giving effective support to sealing compounds in movement joints, and able to withstand permanent immersion in water without disintegration.

Minimum required specifications:

Normal density	:	100
Elongation at break point	:	98%
Tensile strength at 70%	:	782kPa
Tear strength of width	:	5.4N/mm

h) Waterstops

Polyvinyl chloride (PVC) and/or rubber waterstops shall be of approved manufacture and shall be provided with lugs and fixing. The minimum elongation at break point shall be 360% at 25°C. In the case of PVC waterstops, regenerated PVC will not be accepted. The waterstops shall be of the size and shapes shown on the drawings and as scheduled. Prior to use all waterstops shall be carefully stored to avoid damage or contamination by oil, grease, the sun etc.

i) Polyurethane Joint Sealants

The joint sealant shall be a two component polyurethane complying with SABS 110/73 and the cured material shall have the following properties :

- (i) a service temperature range of -50°C to $+80^{\circ}\text{C}$
- (ii) it shall not flow
- (iii) hardness shall be ± 25 Shore A (by method 6.12.2.1 of SABS 110-73)
- (iv) movement must **never exceed 25% of neutral width of joint**
- (v) adhesion to the specified surface shall be such that failure takes place within the material and not at the contact face
- (vi) it shall not be affected by sewage, water, dilute acids and alkalis, fats, vegetable oils and petroleum products
- (vii) it shall be extremely resistant to atmospheric oxidation

Surface preparation : Before the joint sealer is applied, the surfaces of the joint shall be thoroughly cleaned and primed in accordance with the manufacturer's instructions.

Approval : Before any joint sealers are applied, approval by the Engineer in writing shall be obtained. The material shall be applied strictly in accordance with the manufacturer's instructions and any cleaners or primers applied as required.

j) Joints with Waterstops

Where shown on the Drawings, joints shall be formed in concrete work embodying waterstops embedded in the concrete. It is essential that the waterstops are held securely during concreting by using suitable shuttering and a clamping device for holding the waterstop in position, nailing not being permitted except through the lugs provided for the purpose. The concrete adjacent to the waterstop shall be carefully placed and compacted to avoid honeycombing and to ensure full contact between the water-stop and the adjacent concrete.

After one half of the waterstop has been set into concrete and before the concreting of the succeeding section is commenced, the faces of the concrete against which the succeeding section is about to be cast shall be thoroughly cleaned by brushing with a wire brush, care being taken not to damage the waterstop.

k) Movement Joints

Joint recesses to receive sealing compound are to be formed to the dimensions and shapes indicated on the Drawings. These recesses are to be formed with rough sides and so shuttered that the shuttering can be removed without any timber having to be left in the recesses. Shuttering shall be left in the joints until the joints are ready for priming and filling with sealant. After the removal of the shutters, joints shall be cleaned by mechanically operated wire brushes and all dust removed.

l) Sealing Joints

The sealing of the expansion joints is to be carried out by the Contractor under the supervision of a representative of the specialist firm supplying the sealing

compounds and materials. The Contractor is to be responsible for supplying these approved materials, transporting them to site, storing and using them as required, and providing all labour, tools, equipment and everything necessary to prime and fill the joints.

Before priming and sealing, the joints are to be thoroughly cleaned and dried out by a method approved by the Engineer.

No sealing of joint recesses is to be carried out until at least 21 days after the adjacent concrete has been cast.

Every care shall be exercised by the Contractor to ensure that the work shall be carried out in accordance with the requirements of this Specification and in strict conformity with any special instructions given by the manufacturers for the proper use and treatment of the sealing materials provided by them.

All internal joints in the floors and the external joints in the roof shall be sealed either with an approved sealant or alternatively, if instructed by the Engineer, with a 190 mm wide butyl rubber strip of 3 mm nominal thickness (Expoband or similar approved) consisting of two laminations, one layer being fully vulcanised rubber and the other layer being unvulcanised rubber.

The concrete surface onto which the butyl rubber strip is to be laid must be sound, dry and dust free and must be fully cured and free from curing compound. The concrete surfaces on either side of joints shall be finished smooth and level and free from all dirt, dust, laitance, loose material and irregularities with no vertical misalignment between each side of the joint to be sealed. Any portions that are not so finished shall be ground down at the Contractor's expense. The butyl rubber strip is to be installed strictly in accordance with the manufacturer's instructions and adhered to the concrete surfaces so as to form a permanently watertight joint.

Payment for the construction joints shall be measured per linear metre for the various types of construction joints. The rate shall include for all shuttering at the joints, scabbling of the concrete surface and the supply and installation of either an approved sealant or a butyl rubber strip, adhesive, and everything necessary to achieve the objective of a watertight joint.

PSG 5.5.8 Curing and Protection (Subclause 5.5.8)

a) Curing compound

The use of membrane curing compounds will be allowed on vertical faces or steeply inclined faces (i.e steeper than 45° to the horizontal) of cast in-situ members of the structures subject to the Contractor producing sufficient, satisfactory cube crushing strength test results where the crushing strength of cubes which have been cured with the proposed membrane shall be at least 85 % of the crushing strength of the water cured cubes.

Before any membrane curing compound is used, each batch shall be tested on a trial surface to ensure that it forms a satisfactory membrane, and any compound which is unsatisfactory in the opinion of the Engineer, shall be rejected. Curing membranes will be disallowed if permanent discolouration of the concrete takes place. Surfaces where curing membranes are used shall be treated in such a manner that the final concrete texture and colour blends in with the rest of the concrete work. Furthermore, the Engineer shall, at his discretion, require the Contractor immediately to adopt an effective alternative means of curing any area of

the structure to which a membrane has been applied which, in the opinion of the Engineer is unsatisfactory. The curing compound used shall be to the approval of the Engineer. Wax based curing compounds will not be permitted.

PSG 5.5.9.2 Hot-weather Conditions (Subclause 5.5.9.2)

No placing of concrete shall take place if the ambient temperature exceeds 32°C, or is likely to rise to above 32°C during the casting period or within eight hours after casting is completed.

If concrete is to be cast during times of high ambient temperature or hot drying winds, the Contractor shall be responsible for taking the necessary steps to keep the placement temperature as low as possible. Such steps include the spraying of the course aggregate with water, the painting of silos with a reflecting aluminium paint, the insulation of tanks and pipelines, and the protection of concrete ingredients against the direct rays of the sun. The area of the pour shall be shaded before and during concreting and the concrete shall be shaded from the time of mixing until eight hours after placing. Wind breakers shall be erected if necessary.

PSG 5.5.9.2 Prevention and Repair of Plastic Shrinkage Cracks

The Contractor shall take whatever measures are necessary to prevent plastic shrinkage cracking in the concrete. Particularly on dry windy days or hot sunny days the Contractor shall make provision for fine spraying of the concrete surface with water within one hour of casting or covering of the concrete with black plastic sheeting. It may be necessary to change the aggregate or the concrete mix proportions.

If plastic shrinkage cracking occurs, the cracks shall be closed up by re-vibrating the concrete with a poker vibrator, within about three hours of casting. Once the cracks have been closed, the concrete shall be kept thoroughly wet, or covered with plastic sheeting for at least a further three hours.

PSG 5.5.10 Concrete Surfaces (Subclause 5.5.10)

a) Screeded Finish

After placing and compacting, the concrete on a top (unformed) surface shall be struck off with a template to the designated grades and tamped with a tamping board to compact the surface thoroughly and to bring mortar to the surface, leaving the surface slightly ridged but generally at the required elevation. No mortar shall be added, and noticeable surface irregularities caused by the displacement of coarse aggregate shall be made good by re-screeding after the interfering aggregate has been removed or tamped.

b) Wood-Floated Finish (Subclause 5.5.10.1)

Where wood-floating is ordered or scheduled, the surface shall first be given a finish as specified in PSG 5.13.1) (Subclause 5.5.10.1) and, after the concrete has hardened sufficiently, it shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screeding marks.

c) Steel-Floated Finish

Where steel-floated is specified or scheduled, the surface shall be treated as specified in PSG 5.13.1) except that, when the moisture film has disappeared and

the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be steel-trowelled under firm pressure to produce a dense, smooth, uniform surface free from trowel marks.

d) Power Float Finish

Where power floating is specified or scheduled the surface shall be treated as specified in PSG 5.13.2) except that when the moisture film has disappeared, and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be power floated to produce a dense, smooth and uniform surface free of all trowel marks. In corners and areas of restricted access the concrete surface shall be finished by steel floating in accordance in PSG 5.13.2).

The timing of power-floating is critical to its success. Power-floating steel shall not commence until the concrete can support the weight of a man without indentation and until the moisture sheen has disappeared. Thus several hours will have to elapse after concreting has been completed before this operation can commence. Night work may therefore be required.

PSG 5.5.11 Watertight Concrete (Subclause 5.5.11)

The reservoir, mixing race, sedimentation tanks, filters and pump stations (floor, walls and roof) shall be considered to be watertight concrete and Subclause 5.5.11 shall apply.

No vertical or inclined construction joints of any kind will be permitted in the perimeter walls of water-retaining structures unless these have been specially ordered or authorised by the Engineer.

PSG 5.5.14 Repair of Defects (Subclause 5.5.14)

All defects in the concrete shall be made good as soon as possible after the formwork has been removed. Further placing of concrete in the affected section may be prohibited by the Engineer until he is satisfied that the repair work has been correctly carried out.

Add the following :

Patching and Repair

Where defects do not warrant the removal of defective concrete, one or more of the following procedures shall be required by the Engineer:

- a) Where the structural strength might be affected and must be restored, repairs may be effected by the application of either pneumatically- placed mortar or of a mortar made of silica sand and an approved epoxy formulation mixed and applied in accordance with the manufacturer's recommendations.

In addition, if the Engineer deems it necessary, an approved epoxy type resin shall be injected into cracks or honeycombed areas, by means of a suitable gun applied through nipples previously fixed in the concrete at appropriate intervals.

- b) Where there are no fears as to structural strength, all defective material shall be chipped away until a dense uniform surface of concrete exposing solid coarse aggregate is obtained. Feathered edges shall be cut away to form surfaces perpendicular to the concrete face. Seized shutter bolts shall be cut back to at

least 35mm into the concrete. All loose material shall be hosed away and the surface of the cavity shall be saturated with water for at least 3 hours, after which a thin layer of neat cement mortar shall be applied to the surface. The cavity shall then be filled with stiff mortar mixed in the same proportions of cement to sand as that used in the original concrete. The mortar shall be thoroughly tamped into place in layers. The use of up to 30% white cement in place of the normal cement may be required to reduce the darker appearance of a patch. An interval of thirty minutes shall then elapse before a final surface tamping is given to the patch, after which the surface shall be treated to resemble the surrounding concrete as closely as possible. Board marks may be reproduced by striking a suitable piece of timber held against the plastic concrete. The patch shall be neat and workmanlike in appearance and after completion it shall be kept wet over a period of at least three days.

PSG 5.16 “No-fines” Concrete (New Subclause)

A nominal aggregate size of 19 mm shall be used in the manufacture of “no-fines” concrete.

The concrete shall be mixed in the following proportions:

Cement : 50 kg

Aggregate : 0,40 m³

Water : 22,5 l

PSG 5.17 Pipes and Conduits Embedded in Concrete(New Subclause)

Except with the approval of the Engineer no pipes other than those shown on the drawings shall be embedded in the concrete.

PSG 5.18 Concrete in Wet Ground (New Subclause)

The design for the structures to be built in wet ground makes full allowance for the conditions likely to be encountered on Site. The documents and drawings indicate what is required to be built. However the Contractor shall be fully responsible for keeping the excavations free from water whilst the construction work is being carried out. The methods by which he proposes to achieve this shall be approved by the Engineer before being implemented. The cost of dewatering shall be included in the tendered rates for the construction work and no separate payment shall be made for such dewatering throughout the construction period.

PSG 5.19 Grouting (New Subclause)

Grouting shall be done to the instruction of the Engineer using materials of suitable consistency as follows. Unless otherwise directed, grouting mixtures shall consist of 1 part cement to two parts concrete sand by volume, well mixed and with sufficient water added to obtain the required consistency. Where recesses to be filled are of appreciable dimensions, the Engineer may direct the Contractor to replace a proportion of sand with fine stone to reduce shrinkage. The Engineer may also require the Contractor to use non-shrink or other additives in grouting mixtures where these are allowed for in the Schedule of Quantities.

PSG 5.19.1 Liquid Grout

Where liquid grout is required for bolt holes etc, water shall be added in such quantity that, when the material is thoroughly mixed and stirred, it shall flow readily so as to fill all recesses and air spaces in the work to be grouted. Before grouting any section of the work with liquid grout, the surfaces to receive grout shall first be thoroughly cleaned and flushed with water. The grout shall then be introduced in such a manner as to fill effectively all recesses. When the grout has set the surface of the work shall be finished off flush and smooth with cement mortar.

PSG 5.19.2 Grouting of Pipes/Specials through Walls

Where entry holes for pipes/specials have been provided in the walls, the Contractor shall be responsible for the grouting in of such pipes/specials regardless of whether or not these have been supplied by himself.

Before commencing the positioning in holes of any pipes/specials the Contractor shall:

- (a) remove all shuttering and boxing remaining in the holes;
- (b) make any alterations required to the position and shape of the holes and reinforcing steel (lacing bars, etc) in the holes
- (c) thoroughly clean and scabble the sides of the holes so as to obtain satisfactory bond surface for the new concrete (including the post-forming of "frogs" where longitudinal forces are to be restrained by the concrete); and
- (d) free all surfaces of the pipes/specials of all coatings, and thoroughly scrape and clean the pipes/specials.

After accurately positioning the pipes/specials in the respective holes, the Contractor shall fix the pipes/specials in a suitable manner to prevent movement.

Immediately prior to grouting being carried out by the placing of mortar and concrete around the pipes, the surface of the existing concrete shall be saturated with water. All surplus water shall be removed and the surface covered with a layer, approximately 12 mm thick, of mortar consisting of 3 parts concrete sand and 1 part cement.

The concrete ingredients shall be mixed and placed as dry as possible to obtain a dense, waterproof concrete. Where a watertight seal is required, the concrete shall be carefully worked around the puddle flange, if any, and the pipe barrel or body of the special, and shall be vibrated in layers so as to obviate any falling away from pipe/special surfaces of the concrete already placed.

The whole shall, when set, form a dense, homogeneous, and waterproof mass. A spare vibrator with an independent power source shall be kept in readiness to ensure continuity of placing in the event of the breakdown of the duty vibrator.

Smooth formwork that has been suitably strengthened for use with a vibrator shall be provided for facing the concrete around each pipe/special.

PSG 5.19.3 Dry-packed Grout

When dry-packed grout is specified, under baseplates etc, only sufficient water shall be added to make the mixture ball when squeezed in the hand. Before any grouting

is done with dry caulking the surfaces between which the caulking is to be placed shall first be thoroughly cleaned and flushed with water. All surplus visible water shall be wiped or blown away and the dry caulking shall be forcefully rammed or hammered into place using suitable tools. Exposed surfaces shall be finished off neatly with a trowel and extensive exposed areas shall be covered with wet sacking and kept damp for at least 24 hours.

Where additives are required for grouting operations, these shall be brought on to site in the manufacturers unopened containers and used strictly in accordance with the manufacturer's instructions which the Contractor shall not fail to obtain. If necessary, the Engineer may require the Contractor to undertake preliminary tests to check the behaviour of proprietary additives under the conditions pertaining on the site.

PSG 5.19.4 Epoxy Grout (Epoxy mortar type only)

The manufacturer's instructions shall be observed when an epoxy grout is used.

PSG 5.20 Cement Mortar (New Subclause)

Where cement mortar is specified for filling around pipes etc, water shall be added to obtain a firm paste which can be worked with a trowel but is not fluid. Surfaces to receive mortar shall be well wetted and excess water allowed to drain, or be removed. The mortar shall be worked into place with a trowel or tamping rod, exposed surfaces floated off and covered with wet hessian for 24 hours and allowed to harden without disturbance.

PSG 5.21 Blinding Concrete (New Subclause)

No blinding concrete shall be placed until the base formation has been inspected and passed by the Engineer's Representative.

All blinding concrete shall be a minimum of 50mm thick and laid true to levels and falls to suit the finished floor. All underdrain work is to be completed in a particular area before blinding is started. A sufficient area of blinding shall be prepared in advance of placing structural concrete to allow a minimum of 7 days curing time of the blinding layer.

PSG 5.22 Structural Concrete (New Subclause)

a) Wall Footings

The wall footings shall be cast with wall starters to form a horizontal wall construction joint as shown on the drawings. The construction joint between footing bays shall also be as shown on the drawings. At least 3 days shall elapse between pouring adjacent wall footings.

b) Walls

After the wall footings have attained a minimum strength of 10Mpa, but not later than 7 days, each bay of the wall section shall be cast to full height on the same day and vertical construction joints between bays shall be formed as shown on the drawings. At least 3 days shall elapse between the pouring of adjacent wall panels.

As soon as possible after the removal of the formwork in vertical joints or after the concrete has set in horizontal joints the surface laitance of the concrete shall be removed in order to expose the large aggregate and leave a solid surface.

Openings may be left in the form work on the outside face only for pouring and vibrating of the concrete provided they are closed properly and do not impair the concrete finish.

When concreting walls care shall be taken to ensure that there is no loose matter on the concrete surface and that it is wetted in order to assist the new concrete adhering to the existing concrete.

The Contractor's attention is particularly drawn to the fact that the walls form part of a water retaining structure and that no honeycombing will be tolerated. In order to ensure this, the mix proportions of the first 250mm depth of concrete placed in contact with the horizontal joint may be adjusted, with the approval of the Engineer, by reducing the amount of coarse aggregate. The Engineer's Representative may instruct the use of trunking in placing the concrete to avoid losses of fines due to adherence to reinforcement and formwork. The concrete shall be placed evenly over the surface to be covered without reliance on vibration to transport it horizontally. Special care shall be given in order to ensure full compaction at waterstops.

c) Floor

The floor shall be cast in panels as detailed on the drawings. Consecutively cast panels shall not adjoin one another. The floor panels shall be cast in a checker board pattern with a minimum of 3 days between the pouring of adjacent panels.

d) Columns

The column and column head shall be cast in one lift. The base of the column may be cast first provided a centrally placed starter is incorporated.

e) Alternative Means of Construction

The Contractor may propose alternative means of construction which shall be subject to the approval of the Engineer.

If the Engineer accepts any alternative means of construction it shall in no way result in increased costs. The Contractor shall pay for all additional construction joints.

f) Grouting in of Pipes and Specials

The Contractor shall be responsible for the casting of plinths and grouting in of pipes and specials and grouting up of base plates etc. for the Electrical/Mechanical Sub-Contractor (where applicable).

The Contractor shall be responsible for accurately setting his pipes and specials etc. and shall also be responsible for maintaining in position those items which have been installed by the Electrical/Mechanical Sub-Contractor (where applicable) until they have been grouted/concreted in.

The sides of all holes shall be thoroughly scabbled and cleaned before the pipes and specials are positioned.

The outside surface of all pipes and specials shall be cleaned before being concreted in.

The formwork shall be designed to ensure that it fits neatly around all embedded parts and forms a flush joint around the sides of the opening.

Special care shall be taken to ensure a water tight joint at the crown of the openings.

All grout used for grouting up base plates etc. shall be of the non-shrink type such as Pro-Struct 531 Five Star Grout, or similar approved. Before grouting up all scabbled surfaces shall be thoroughly soaked with water.

g) Valve Chambers

The chambers shall be constructed to dimensions shown on the drawings. No under-pinning of the structure will be allowed.

PSG 5.23 Joints (New Subclause)

a) General

Joints in the water retaining section of the structure shall be constructed as shown on the drawings. At each joint the concrete shall be finished to an even line and surface.

Any additional construction joints (to that shown on drawing), required by the Contractor shall be to the approval of the Engineer and shall be to the Contractors expense.

b) Waterstops

Waterstops, where specified on the drawings, are to be placed in wall and floor construction joints as shown on the drawings and in accordance with the manufacturers specifications.

All intersection points shall be factory made pieces.

All joints in straight lengths and between straight lengths and intersection pieces shall be hot welded in accordance with the manufacturer's instructions. Jointing other than by hot welding will not be permitted.

Waterstops shall be carefully positioned and tied to the reinforcement to prevent displacement. Every precaution shall be taken to ensure maximum compaction around the waterstop. Waterstops in the floor joints, however, shall be held back from their horizontal position until the concrete level is just above the final location of the waterstop. The waterstop shall then be returned to their horizontal positions ensuring that no voids are formed beneath them.

c) Bandage Sealing System

The internal surface of joints in the floor and walls, where specified on the drawings, shall be sealed with a 100mm wide surface mounted "Hypalon" bandage system having an epoxy fixing system, with all materials and procedures conforming to the "Sikadur-Combiflex" surface sealing system as produced by Sika (Pty) Ltd, or similar approved. The Contractor must ensure that where one Hypalon joint intersects another (at right angles or otherwise) that the two layers of interesting hypalon are not epoxied to each other and thereby restrained from moving, i.e. the Hypalon inside an intersecting joint must not be restrained by the epoxy adhesive and the full intended width should be free to move in the intended directions.

d) Roof Slab Joint Sealant

The construction joints on the top and sides of the roof slab where specified on the drawings, are to be sealed with a 75mm wide self adhesive aluminium foil strip (Bostik "Ditsit" or similar approved) which shall be installed in accordance with the manufacturers instructions. The "Ditsit" is to be taken over the edge of the roof slab and down the side of the wall for a distance of 500mm.

The construction joints on the soffit of roof slab are to be sealed with 2 coats of a 75mm wide application of Sika Top-Seal 107 (or similar approved) applied in accordance with the manufacturer's recommendations. The soffit of the roof slab is to be ground down 1.5 to 2mm with an angle grinder and then wire brushed and sprayed clean with water. The slurry is to be applied to a damp surface.

e) Ferrule Holes

Ferrule holes to accommodate tie rods for holding together shutters on opposite sides of the water retaining concrete walls are to be formed using smooth PVC ducts through which steel tie rods can be placed for purposes of construction. After the concrete has been placed, the shutters stripped and the tie rods and end cones have been removed, the PVC sleeves shall be drilled out with a suitably sized masonry drill so that the concrete surfaces are roughened. Thereafter the surfaces of the hole and cone area are to be cleared of all dust and loose material and primed with an approved latex compound ("Barralatex" or similar approved) and the holes caulked with a sand/cement/water/latex grout in accordance with the recommendation of the supplier of the latex compound.

PSG 5.23 Watertightness Testing of Concrete Structure (New Subclause)

a) General

Backfilling of excavations for tanks and other water retaining structures will only be permitted to commence once initial watertightness tests have been passed.

Any leaks which become evident during initial watertightness testing shall be remedied to the satisfaction of the Engineer and backfilling of the excavations shall only commence on written acceptance of the initial watertightness tests by the Engineer.

b) Approval of Water Retaining Structures

Notwithstanding any approval given by the Engineer in respect of construction work, an essential criterion for the acceptance of tanks, sumps and distribution chambers shall be that they pass the appropriate watertightness tests.

The water retaining structures shall be watertight against both, external ground water pressures and internal water pressures.

c) Watertightness tests for Structures

Watertightness tests on all structures shall be carried out in accordance with B.S. 8007: 1987 Clause 9.

d) Initial Watertightness Test

All inlets and outlets shall be sealed to the satisfaction of the Engineer. The structure to be tested shall be filled to top water level with clean water at an

approximately uniform rate not greater than 2m in 24 hours and shall be left standing for at least seven days to allow the concrete to absorb the water. At the Contractors request the Engineer will then inspect the structure and if he is satisfied that there are no leaks the final test shall be proceeded with.

e) Final Watertightness Test

The structure shall be topped up with water to top water level. The fall in the water level will be measured each day for a period of seven days.

Adjustments will be made to allow for evaporation and rainfall according to the following standards:

f) Evaporation – Adjustment Reduces Fall (where the structure is un-roofed)

Measurements made on 1 February, 6mm per day

Measurements made on 1 July, 2,5mm per day

Measurements made between the above dates: adjustment calculated pro-rata.

g) Rainfall – Adjustment Increases Fall

If rainfall should occur during a test the Engineer may assess an adjustment or may direct that the test be continued or repeated until a dry 7-day test has been obtained. Such continuation or repetition of the test shall be at the Contractor's expense.

h) Allowable Leakage

After taking into account the losses due to evaporation, the permissible drop in the surface level shall not exceed $1/500^{\text{th}}$ of the average water depth of the structure (in mm) in 7 days.

i) Testing of Roofs for Watertightness

The roofs of liquid-retaining structures should be watertight and should, where practicable, be tested on completion by flooding the roof with water to a minimum depth of 25mm for 24 hours or longer if specified. Where it is impracticable, because of roof falls or otherwise, to contain a 25mm depth of water, the roof should have water applied by a continuous hose or sprinkler system to provide a sheet flow of water over the entire area of the roof for not less than 6 hours. In either case the roof should be considered satisfactory if no leaks or damp patches shown on the soffit. Should the structure not satisfy either of these tests, then after the completion of the remedial work it should be retested in accordance with this clause. The roof insulation and covering should be completed as soon as possible after satisfactory testing.

j) Failure to Pass Test

Should any structure fail to pass any stage of the tests the defects shall be found and repaired and the tests repeated at the Contractor's cost until the structure passes all the tests.

In the event of any leakage becoming apparent during the maintenance period, notwithstanding that a satisfactory test for watertightness may have been carried out

on completion of the construction, the Contractor shall remedy the defect without delay to the satisfaction of the Engineer.

k) Measurement and Payment

The unit of measurement shall be by sum for the structure and shall include for all pumping, sealing all inlets, outlets, cleaning after testing, etc. necessary complete the test as specified.

Water will be provided to the Contractor free of charge for the initial filling of the reservoir. Should additional water be required for re-testing as a result of failure of the watertightness testing, this shall be for the Contractors account.

PSG 5.24 Roof Insulation (New Subclause)

Stone for the roof insulation shall be placed immediately after testing of the roof.

The stone shall consist of a hard washed stone, 19mm nominal size. It shall be distributed by rubber-tyred wheel barrows and deposited so as to avoid undue load concentrations.

PSG 5.25 Sterilisation of the Reservoirs (New Subclause)

Prior to the initial filling of the reservoir, the Contractor shall broom, clean and hose down the internal floor and wall surfaces with a pressure washer. Water used for cleaning purposes is to be led to waste. The reservoir is to be filled to a depth of 0,25m and the water then scoured to waste.

During the initial filling of the reservoir, the Contractor shall sterilise the reservoir by adding chlorine in the form of granular HTH, under the control of the Engineer. The reservoir is to be filled to a depth of 0,5m adding chlorine continuously to give a concentration of 50 parts per million. No further chlorine is to be added on further filling of the reservoir.

Prior to the reservoir being put into service, the chlorine content of the water shall be tested in order to ensure that it does not exceed 1,0 to 2,0 parts per million.

Should the concentration of chlorine be higher than required, the Engineer may call for additional measures in order to reduce the concentration of chlorine to within acceptable limits.

PSG 6 TOLERANCES

PSG 6.1 Permissible Deviations (Subclause 6.1.1)

Degree of Accuracy II shall apply except that abrupt changes in a continuous surface shall not be more than 3 mm.

PSG 7 TESTS

PSG 7.1 Frequency of Sampling (Subclause 7.1.2)

One sample shall consist of three concrete test cubes.

For each sample taken the position in the structure shall be recorded where the batch represented by that sample is placed.

Sampling of concrete of a particular grade shall be as specified in Subclause 7.1.2 with the following frequency of sampling referred to in Subclause 7.1.2.2 being amended to read as follows:

“A minimum of 4 samples per day of each grade of concrete placed or 6 samples for pours in excess of 10 m³ shall be taken”.

PSG 5.5.11 Watertightness Testing (Subclause 5.5.11)

The reservoir, being a water retaining structure, shall be subject to water tightness testing.

PSG 8 MEASUREMENT AND PAYMENT

PSG 8.1 Reinforcement (Subclauses 8.1.2.2 and 8.1.2.3)

Notwithstanding the method of measuring and paying for reinforcement specified in Subclauses 8.1.2.2 and 8.1.2.3, reinforcement will be measured and paid for as scheduled.

PSG 8.1.3.3 Concrete (Subclause 8.1.3.3)

The rates for concrete shall also cover:

- a) the cost of meeting the requirements of PSG 3.4,
- b) the cost of the preparation of design mixes by an approved laboratory and submission for approval by the Engineer.
- c) The cost of non-designated joints (see PSG 2.4)
- d) Screed finish of unformed surfaces as specified in PSG 5.13.2), and
- e) Wood-floated finish to exposed surfaces as specified in PSG 5.13.2).

PSG 8.2.7 Formwork (New Clause)

Edges of blinding layer and filling of overbreak in hard rock

No separate payment will be made for formwork to the edge of the blinding layer, nor for the filling-in of overbreak in hard rock. The rates tendered for concrete to the blinding layer shall cover the cost of such formwork and extra concrete needed to fill in the overbreak.

PSG 8.2.8 Kickers (New Clause)

Formwork to the edges of kickers will be measured with the formwork for the portion of the structure for which they provide the start (not as narrow widths).

Unformed surface finishes (Subclause 8.4.4)

The rates for unformed surface finishes shall cover the cost of providing the respective surface finish as specified in PSG 5.13.

PSG 8.5 Joints (Subclause 8.5)

Only designated joints as shown on the drawings will be measured for payment according to the length of each of joint constructed (see PSG 2.4).

The rate shall cover the cost of all materials, labour and plant required to construct each type of joint specified on the drawings, including the cost of all shuttering, treatment of the joint as specified in Subclause 5.5.7.3, the provision of chamfers as specified where concrete is exposed, as well as testing and repairing where necessary.

Non-designated joints will not be measured for payment.

PSG 8.5 Joints and Waterstops (Subclause 8.5)

Joints with waterstops will be measured by the net length of joint, with no allowance being made for jointing or wastage.

PSG 8.5.1 Formed Joints (New Clause)

Formed joints will be measured by the plane area of the joint.

The rates shall cover the cost of all operations and materials specified in Subclause 5.5.7 and PSG 5.11, and detailed on the drawings such as joint filler, dowel bars and tubes, bitumen coats, etc, but excluding waterstops or waterbars.

PSG 8.9 Plinths and Base-Plates (New Clause)

The pump unit shall be installed on a concrete plinth, raised from the general floor level of the building. If the existing plinth is not suitable the contractor shall allow for its demolition and replacement with a new concrete plinth to suit the new pumpset.

The pump shall be mounted together with the electrical motor on a common base-plate of rigid design, manufactured in epoxy-coated mild steel. Steel Anchor-bolts shall be provided for mounting the base-plate onto the concrete plinth. These bolts shall be electro-galvanised.

Base-plates and pipe supports shall be so constructed and the pumps so mounted, as to minimise misalignment caused by deflections arising from normal piping strains, hydraulic piping thrusts and similar causes.

Anchor-bolts shall not be less than M20. An approved pre-packed 2-part epoxy compound shall be used for grouting in of anchor-bolts.

PSGA CONCRETE (SMALL WORKS)

PSGA 3 MATERIALS

PSGA 3.1 Cement (sub-clause 3.2.1)

No cement other than ordinary Portland Cement or Portland Cement 15 shall be used without the written consent of the Employer's Agent.

PSGA 5 CONSTRUCTION

PSGA 5.1 Fixing of reinforcement (sub-clause 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 Employer's Agent.

PSGA 5.2 Classification of finishes (sub-clause 5.2.1)

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

a) A rough finish shall be obtained from form work constructed of sawn timber, plywood, steel panels or other approved materials arranged without particular regard to pattern or the smoothness of the concrete surface.

b) A smooth finish shall be obtained from form work constructed of planed timber, plywood, good quality steel panels or other approved materials, all with close fitting square edges arranged in neat uniform patterns and imparting a smooth uniform surface to the concrete.

PSGA 5.3 Strength concrete (sub-clause 5.4.1.5)

The Contractor shall, at an early stage in the contract, submit to the Employer's Agent for his approval, design mixes and the proposed slumps for each grade of concrete in each type of construction.

If design mixes are not submitted, the Contractor shall batch each grade of concrete in accordance with the mix proportions given in the table below:

		Hand Placed			Vibrated		
Grade Of	Minimum cement/	Approx materials Proportion per m ³			Approx Materials Proportion per m ³		
Concrete (Mpa)	Water Ratio	Cement (sacks)	sand (m ³)	stone (m ³)	cement (sacks)	sand (m ³)	stone (m ³)
10	1,09	4,6	0,80	0,75	4,4	0,75	0,79
15	1,30	5,5	0,77	0,77	5,3	0,74	0,85
20	1,56	6,4	0,70	0,77	6,1	0,67	0,85
25	1,80	7,2	0,65	0,72	7,0	0,83	0,84
30	2,02	8,1	0,65	0,73	7,8	0,62	0,86
35	2,26	9,0	0,63	0,72	8,7	0,61	0,78
40	2,50	9,8	0,59	0,68	9,6	0,58	0,86

The table given above lists the minimum cement/water ratio and approximate mix proportions by volume to produce 1m³ of finished concrete of each grade, for both

hand-placed (85 mm slump) and vibrated (35 mm slump) concrete. Proportions have been based on the use of ordinary Portland Cement, medium sand and 19 mm stone, and an allowance has been made for 5% by mass of water in the sand and a bulking of the sand of 22,5%.

Irrespective of whether the Contractor submits design mixes or adopts the proportions in the table above, it shall be incumbent on him to make up trial mixes as soon as he has established site, and to cast a minimum of 6 cubes for testing purposes.

Two (2) cubes each shall be crushed at 7 day, 14 day and 28 day intervals.

No structural concrete shall be placed until the Contractor has satisfied the Employer's Agent as to the suitability of the mixes and, particularly in the case of water retaining structures, the Employer's Agent shall have received at least the 7 and 14 day test results.

PSGA 5.4 Ready-mixed concrete (sub-clause 5.4.1.6)

The Contractor may elect to use ready-mixed concrete subject to the prior approval of the Employer's Agent.

Ready-Mixed concrete shall not be delivered to site before the Contractor has furnished the Employer's Agent with a copy of his letter to the Supplier in which he has included the following:

- a) The compressive strength of concrete at 28 days.
- b) The nominal maximum size of aggregate.
- c) The type of cement.
- d) The required slump at the point of delivery, being the site; and
- e) An instruction to the Supplier to provide details of the admixture he proposes to use, if applicable. The details/information provided shall be in accordance with the requirements of Sub-Clause 3.5.1 of SABS 1200G - Concrete (structural).

The Contractor shall have delivered with each truck load of Ready-Mixed concrete, a delivery note from the Supplier on which the following information is noted:

- f) The compressive strength of the mix.
- g) The slump.
- h) The date and time at which the mixing of the batch was commenced.
- i) The time of delivery; and
- j) The quantity of concrete supplied.

These delivery notes are to be kept on site, being available for inspection at any time.

PSGA 7 TESTING

PSGA 7.1 Testing (sub-clause 7.2)

All results of cube tests shall be immediately forwarded to the Employer's Agent.

PSGA 8 MEASUREMENT & PAYMENT

PSGA 8.2.5 Breaking into concrete

Break out (existing concrete) and/or extend existing concrete. Amount to allow for all works required for demolishing and/or extension of concrete.

PSLB BEDDING (PIPES)

PSLB 3 MATERIALS

PSLB 3.1 Selected Granular Material

Delete Subclause 3.1 and replace with the following:

Selected granular material shall be an aggregate, sand, or granular material, all of a non-cohesive nature, the grading analysis of which shows 100% passing a 9,5 mm sieve and not more than 5% passing a 0,075mm sieve (metric sizes). The Compactability Factor shall not exceed 0,4.

PSLB 3.2 Selected Fill Blanket

Selected fill material shall be an aggregate, sand, or granular material, all of a non-cohesive nature, the grading analysis of which shows 100% passing a 9,5 mm sieve and not more than 5% passing a 0,075mm sieve (metric sizes). The Compactability Factor shall not exceed 0,4.

PSLB 5 CONSTRUCTION

PSLB 5.1.1.2 Trench Bottom

The trench bottom shall be prepared in accordance with the requirements of Sub-Clause 5.5 of SABS 1200 DB as amended by Clause PSDB 5 of Scope of Works PSDB : Earthworks (Pipe Trenches).

PSLB 5.1.4 Compacting

Selected Granular Material and Selected Fill Material shall be compacted to 95% and 93% MAASHTO density, respectively, in maximum 150 mm layers.

PSLB 5.2 Construction of Bedding

Completion of the bedding cradle and placing of the selected fill blanket, and the main fill, shall commence as soon as possible after pipelaying has been completed. The Contractor shall meet all costs of operation ordered by the Employer's Agent to remedy defects in the trench caused by lengthy exposure.

PSLB 5.2.1 Class A Bedding

Add the following:

"or a period of 5 days has elapsed after the placing of the concrete in that section, whichever occurs first"

PSLB 5.2.2 Class B Bedding

The dimension "x" for all rigid and flexible pipes as referred to in drawing LB-1 and LB-2, shall be 150mm.

PSLB 5.4 Concrete Casing to Pipes

Where concrete encasement is specified, the Contractor shall place the encasement in accordance with details shown on the Employer's Agent drawings.

PSLB 7 TESTING

PSLB 7.1 Density Testing

Measurement and payment for density tests on the bedding cradle and fill blanket, where ordered by the Employer's Agent, will be by number per successful density test reported to the Employer's Agent.

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 Volume of Bedding Materials (sub-clause 8.1.3)

The volume of bedding material will be measured net, excluding the volume of the occupied pipe.

PSLB 8.1.5 Disposal of Displaced Material

In developed areas all displaced material shall be removed to designated sites and evenly spread to the Employer's Agent's satisfaction as covered in C3.4.6.

PSL MEDIUM PRESSURE PIPELINES

PSL 1 SCOPE

Add to sub-clause 1.1 "Drawings numbered L1, L2 and L3 are withdrawn and replaced by the Construction Drawings."

PSL 2 Code of Practice

Add to sub-clause 2.1.1 "All pipes, joints and fittings supplied under this specification shall, as a minimum, meet the requirements of AWWA C950, AWWA Standard for Fiberglass Pressure Pipe, and ASTM D3517, Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting-Resin) Pressure Pipe, in the case of pressure pipes."

PSL 3 MATERIALS

PSL 3.3 CI Pipes Fittings and Specials

Add: " All cast iron fittings to be cement mortar lined or Rillsan coated."

PSL 3.4 Steel Pipes and Fittings

All steel pipes to be used in this Contract shall be supplied by the Contractor to comply with 'Particular Specification for 100mm to 2230mm diameter Steel Pipe, Specials and Coatings and Linings' and must be manufactured in accordance with the requirements of API-5L specifications.

Pipes to be plain ended with bevelled ends for jointing by means of butt welds for pipes larger than 600mm diameter.

Flanged joints shall be supplied complete with rubber insertion 3 mm thick cut to the full depth of the flange and with all bolts, nuts and washers to BSS 10/1962 unless otherwise specified.

Before the application of any linings or coatings all surfaces shall be thoroughly cleaned and rust, grease, dirt and other contaminants or deleterious substances shall be removed.

After being subjected to surface preparation as specified above, and immediately after preparation the pipes shall be Rilsan coated internally and externally (see PDD), or similar approved.

Bolted flanged connections & "Arpol" couplings shall be wrapped as per PSL 3.9.6.

Unless otherwise specified, all flanges shall be to SABS 1123 Table 1600/3, 2500/3, 4000/3 and 6400/3 or to ASA 600.

PSL 3.4.4 FITTINGS AND SPECIALS

Add to the Sub-Clause:

Segmented bends shall be fabricated in accordance with Table 8 of BS 534 (1990) and the Table 6 below. Cut and shut bends are not permitted. All bends shall be fabricated with ends suitable for welding.

Table 6 : Fittings and Specials

C3.2	Deflection of Angle	
	1° to 5°	One pipe ends scarfed on site
	5° to 10°	Two pipe ends scarfed on site
	10° to 30°	2 segment bend
	30° to 60°	3 segment bend
	60° to 90°	4 segment bend

Bends greater than 90° shall be fabricated from combinations of items from the table above, but at all times adhering to the requirements of BS 534. Shop drawings of these bends shall be submitted to the Engineer for approval prior to manufacture. Tee pieces for air valve access; scour off-take etc shall be fabricated in accordance with Table 9 of BS 534 (1990). All other specials shall be fabricated in accordance with the relevant Clauses of BS 534.

PSL 3.8 JOINTING MATERIALS

PSL 3.8.3 Flanges and Accessories

Add to sub-clause 3.8.3:

"All flanges shall be drilled in accordance with SABS 1123. Mild steel (MS) specials shall be manufactured from 4,5 mm thick steel in accordance with BS 534 and protected against corrosion as specified in **PDD**".

"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 SABS 135. "

PSL 3.8.3.1 Bolted Connections (New Sub-Clause)

Add new Sub –Clause:

Bolted connections shall comply with the following:

- All pipes larger than 150mm in diameter, connected to equipment or fittings, or where specifically indicated, shall be flanged to SABS 1123 – 2000.
- All flanges shall be Type 3, plate flanges for welding and blank flanges shall be Type 8. Matched flanges shall correspond in construction and dimensions to flanges on equipment. Matched flanges shall be provided with the correct bolts, nuts and packing rings. All piping shall be clean before connections are made.
- Bolts, tie-bolts and nuts shall be galvanised to SABS 763 and shall comply with the relevant requirements of SABS 135 – 1985 and SABS 136 – 1985.
- The length of each bolt shall be such that after the bolt has been tightened, the end of the bolt shall not project above the nut by more than two threads. Tie-bolts on restrained couplings shall be fitted with “backing nuts”.
- All bolt threads shall be liberally coated with “Copper slip” or similar approved prior to assembly. Upon completion, bolt heads and nuts shall be wrapped with

the “Denso Mastic Blanket System” comprising of a priming solution, mastic blanket, petrolatum tape and lay-flat sheeting.

Satisfactory temporary end covers shall be provided by the Contractor for protection of flanges, prepared ends of open ended pipes and fittings and screwed ends, to prevent damage to internal lining during transportation and during handling on site.

PSL 3.8.4 Loose Flanges

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

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

PSL 3.9 CORROSION PROTECTION

PSL 3.9.2 STEEL PIPES

PSL 3.9.2.2 S Steel Pipes of Nominal Bore over 150mm

a)(2) Delete this sub-clause and substitute with: in the case of bitumen coatings all steel pipes, fittings and specials shall be coated in accordance with the requirement of SABS 1178:2002 Edition 1.02 – Type CB6A.

c) *Add to the Sub-Clause:*

Unless otherwise specified on the drawings, all steel pipe, fittings and specials with a cement mortar lining shall be in accordance with the requirements of the Australian Standard AS 1281:1993.

PSL 3.9.2.2.1 Making Good of Cement Mortar Lining at Welded Joints (New Sub-Clause)

Add new Sub-Clause:

The steel pipe is supplied with cement mortar lining cut back 50mm from each end. This entire void shall be filled with Epidermix 338 (or approved equivalent) and rendered smooth and flush with the surrounding lining as described below.

Surface Preparation

The cement mortar surface shall be rendered free of laitance, dust, oil, grease, fractured aggregate and other deleterious matter. The steel surface shall be rendered free of rust and other deleterious matter by wire brushing (apply white spirit if necessary).

Mixing

The base and activator shall be mixed in accordance with the manufacturer's requirements on a clean board, using a clean trowel or paddle. The mixture shall not be diluted. Mixing shall continue for five minutes after streaking disappears.

Application

The product shall be applied to the annular groove, with care taken to avoid air bubbles, particularly from the "dove-tails" in the cement mortar lining. Material that has "gone off" shall be discarded.

Finish

The product shall be smoothed with a dampened trowel to be flush with the adjacent cement mortar.

Safety

Uncured product must be regarded as toxic and shall be handled in accordance with the manufacturer's instructions. Adequate ventilation shall be provided whilst working within the pipeline.

PSL 3.9.2.2.2 Making Good of Damaged Cement Mortar Lining (New Sub-Clause)

Add new Sub-Clause:

Responsibility for Repairs

Once the Contractor has accepted undamaged pipe from the Supplier, any subsequent damage will be repaired at the Contractor's cost in accordance with the procedure below. Pipes with linings damaged prior to acceptance shall be recorded by both the Contractor and the Engineer's Representative and repaired in accordance with the procedure below. The rate for repair shall be per lineal metre.

Repair Procedure

The crack shall be ground out using a mechanical grinder down to the steel wall to form a "dove-tail" groove with a minimum width of 8mm. The groove shall be filled with Epidermix 338 (or equivalent approved), mixed and applied in accordance with the procedure set out in **3.9.2.2.1 "Making Good of Cement Mortar Lining at Welded Joints"**.

PSL 3.9.2.2.3 Cement Mortar Lining of Shop-Fabricated Specials (New Sub-Clause)

Add new Sub-Clause

Where shop-fabricated specials are to be manufactured from unlined steel pipe, these shall be lined after fabrication in accordance with the latest version of SABS 1200 LH. Small diameter pipe shall be epoxy coated in accordance with Sub-Clause **PSL 3.9.2.2.7 External Corrosion Protection of Shop-Fabricated Specials for Installation in Chambers**.

PSL 3.9.2.2.4 External Corrosion Protection of Welded Joints and Field Repairs (New Sub-Clause)

Add new Sub-Clause:

All steel pipes for field welding are supplied with the coating cut back 100mm from each pipe end. Where pipes are to be cut on site, the pipe coating shall be cut back 100mm from the welded joint. Once welding is complete and all weld splatter and burnt coating is removed, all field welded pipe joints shall be wrapped in the following manner.

This specification is based on "Denso" products, but alternative products may be accepted at the discretion of the Engineer. This procedure will also apply to the welding of bends and specials onto the pipe in the field.

Surface Preparation

The bare metal shall be cleaned and wire brushed to minimum St.2 standard and if necessary, degreased with white spirit. The adjacent pipe coating shall be cleaned to a minimum of 300mm either side of the joint and the edges "feathered" to achieve a tapered transition over a distance of 10mm. The sound, parent coating surface shall be roughened with sandpaper over an area 250mm from the joint.

Priming

The pipe surface up to 250mm on either side of the joint shall be primed using “Denso Primer D” (or equivalent approved). Care shall be taken to obtain an even film with no runs or sags. The primer shall cure for the minimum time stipulated by the manufacturer before application of the tape commences. Prime only those areas to be wrapped the same day. If primed areas are to be left overnight, these areas shall be re-primed before wrapping.

Profiling Tape

Apply a 1.5mm thick x 50mm wide “Denso Mastic Sealing Tape” (or equivalent approved) to the full circumference of the weld bead in accordance with the manufacturer’s requirements. Care shall be taken to ensure a smooth profile and to avoid air bubbles being trapped beneath the tape. (Note: The profiling tape may be omitted at the discretion of the Engineer. The Contractor shall nonetheless allow for the profiling tape in his/her rates).

Tape Wrapping

Thereafter, the joint shall be wrapped (minimum 55% overlap) with Denso Ultraflex 1250/300 starting at the roughened section (250mm from the welded joint) in accordance with the manufacturer’s requirements to create a 500mm wide wrapping, centred over the welded joint. A 100% overlap is required on the first and last revolutions of the tape wrapping operation. It is important that tension in the tape be released when the wrapping of the last half circumference of the pipe. The Contractor shall ensure that the wrapping overlaps or covers a minimum of 150mm of the pipe coating. A secondary or outer tape wrap layer is to be applied over the first layer with a 10% tape overlap.

Shrink-sleeves

An alternative to the repair of field joints on FBMDPE with tape wrapping is the use of shrink-sleeves. The shrink-sleeve is recommended at field joints, especially in areas of high clayey soils to reduce the effect of soil stresses. The surface preparation is to be carried as described above. The area to be reinstated is to be pre-heated and a WPC primer applied to the exposed steel including the roughened MDPE surface. The shrink-sleeve is to be applied in accordance with the manufacturer’s specification. The repair is to be visually inspected to ensure that a bead of mastic has exuded from the edges of the sleeve.

Adhesive Patch Repair (also known as PERP or “polyethylene repair patch” method)

This method is recommended for the repair of defects on FBMDPE pipe for repairs not exceeding an area of 200mm x 200mm. The surface preparation is to be carried as described above. The exposed metal in area to be reinstated is to be pre-heated to +/- 60 deg C and the adjacent area to +/- 40 deg C. A pre-cut piece of mastic PERP filler is to be placed over the exposed steel surface. The mastic is to be heated and smoothed with a paint scraper to cover all bare metal and to expel all voids. Cut a piece of PERP tape that overlaps the repair area by 100mm on all sides. The patch is to be heated until adhesive is exuded from the edges of the patch. Clean the area with a solvent (acetone is suitable) wipe. Spirally apply an over tape wrap with a 10% overlap ensuring tension to eliminate voids.

PSL 3.9.2.2.5 Making Good of Polyurethane Coating (New Sub-Clause)

All repairs required for damages to Polyurethane coatings shall be carried out strictly in accordance with the manufacturer's specifications. Surface preparation shall ensure that the bare surface of the pipe is cleaned and wire brushed to minimum St.2 standard and if necessary, degreased with white spirit. The Contractor shall ensure that making good of coating defects is carried out progressively as the pipe is being laid and shall not lag behind for more than three pipe lengths at each working front.

PSL 3.9.2.2.6 Making Good of Solvent Free Epoxy Lining (New Sub-Clause)

All repairs required for damages to Solvent Free Epoxy linings shall be carried out strictly in accordance with the manufacturer's specifications. Surface preparation shall ensure that the bare surface of the pipe is cleaned and wire brushed to minimum St.2 standard and if necessary, degreased with white spirit. The Contractor shall ensure that making good of lining defects is carried out progressively as the pipe is being laid and shall not lag behind for more than three pipe lengths at each working front.

PSL 3.9.2.2.7 External Corrosion Protection of Shop-Fabricated Pipe Bends (New Sub-Clause)

Add new Sub-Clause:

This shall be carried out in accordance with **PSL 3.9.2.2.4 External Corrosion Protection of Welded Joints**.

PSL 3.9.2.2.8 External Corrosion Protection of Site-Fabricated Pipe Bends (New Sub-Clause)

Add new Sub-Clause:

This shall be carried out in accordance with **PSL 3.9.2.2.4 External Corrosion Protection of Welded Joints**.

PSL 3.9.2.2.9 External Corrosion Protection of Shop-Fabricated Specials for Installation in Chambers (New Sub-Clause)

Add new Sub-Clause:

External corrosion protection of all mild steel specials to be installed within chambers shall be carried out in accordance with "Umgeni Water's Particular Specification for 164mm to 2230mm Diameter Steel Pipe, Specials, Coatings and Linings, 5.3.7 Solvent Free/Solvent Borne Liquid Epoxy".

Epoxy coating shall terminate 100mm short of ends for field welding.

PSL 3.9.2.2.10 Corrosion Protection of Flanged and Flexible Joints (New Sub-Clause)

Add new Sub-Clause:

All buried flanges and flexible joints shall in addition to being epoxy coated, be protected as described below. This specification is based on a "Denso" system. Alternative products may be used, subject to approval by the Engineer.

Surface Preparation

The entire joint and at least 500mm of the pipe on either side of the joint shall be cleaned of mud and other deleterious matter.

Priming

The cleaned joint and pipe shall be primed with “Denso Priming Solution”, or if moisture is present, with “Denso S105 Paste”. The priming shall extend to at least 400mm either side of the joint.

Application of Mastic Blankets

Narrow strips cut from “Denso Mastic Blankets” shall be applied to the joint to achieve a smooth profile with a 50mm splayed fillet being formed at the joint/pipe interface. Care shall be taken, particularly at bolts, to avoid the formation of air pockets. Complete “Denso Mastic Blankets” shall then be applied (mastic side down) to the joint until the joint is completely enveloped.

The blanket shall be overlapped at least 50mm and shall extend at least 150mm along the pipe barrel on each side of the joint. The ends of the blanket shall be bound to the barrel of the pipe on each end with 100mm wide “Denso Tape”. The “Denso Tape” overlaps shall be 50mm and shall extend 100mm onto the blanket and 150mm onto the pipe barrel.

Application of Protective Sheeting

The entire joint shall be wrapped with 350-micron polyethylene sheeting which shall end 400mm beyond the joint. The protective sheeting shall be secured to the pipe barrel and along the seam with 48mm wide “Denso Adhesive Tape”.

PSL 3.9.2.2.11Coating of Permanently Exposed Pipe (New Sub-Clause)

C3.3 Add new Sub-Clause:

All pipes which are to be permanently exposed shall in addition to corrosion protection at joints, be protected with the “Denso Acrylic Pipeline Tape (Steelcoat 500)” system or similar approved UV resistant coating. The pipe surface shall be prepared and the coating applied in strict accordance with the manufacturer’s instructions.

Surface Preparation

The pipe surface to be wrapped shall be cleaned of dirt, grime, grease and other deleterious matter, using white spirit if necessary. Allow to dry thoroughly.

Priming

Apply Denso Primer D to the prepared surfaces at a nominal coverage rate of 8m² per litre. Care shall be taken to obtain an even film with no runs or sags. Prime only those areas to be wrapped the same day. If primed areas are to be left overnight, these areas shall be re-primed before wrapping.

Tape Wrapping

The joint shall be spirally wrapped (minimum 55% overlap) with “Denso Acrylic Tape” (or approved equivalent) in accordance with the manufacturer’s requirements

such that the start and end points are located at buried sections of the pipe, before it is daylight. A 100% overlap is required on the first and last revolutions of the tape wrapping operation. It is important that tension in the tape be released when the wrapping of the last half circumference of the pipe.

Final Coating

One coat of "Densoflex Fire Retardant" shall be applied to the exposed pipe at a nominal application rate of 3m² per litre.

PSL 3.9.6 Corrosive Soil

Add to Sub-clause 3.9.6 :

"The soil within the PE municipal area is classified as corrosive. All metal flanged joints, saddles, bolts and nuts shall be protected by means of Denso paste and then wrapped to give a covering of at least three layers of Denso impregnated tape or other means of inhibiting corrosion approved by the Engineer or the Engineer's Representative".

PSL 3.10 Valves

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

"Valves shall be cast iron wedge type gate valves complying with the requirements of SABS 664-1989 as amended. They shall be Class 16, anti-clockwise closing, non- rising spindle type with cap. They shall bear the SABS quality mark. A test certificate as per Clause 3.5.20 of SABS 644 will be acceptable. When flanged valves are specified, the drilling shall be to Table 16/11 of BS 4504".

PSL 3.11.6 Surface Boxes

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

"For non-trafficked areas, surface boxes are to be the thermoplastic type as per City Engineer's Department Standard Detail Drawing No PSL 2/1". For trafficked areas surface boxes are to be cast iron type as per City Engineer's Department Standard Detail drawing No. PSL 2/2".

PSL 3.12 Hydrants (New Clause)

Hydrants shall be of the underground screw down type with an overall maximum height of 320 mm and rising spindle. The hydrant shall be opened by rotating the spindle in an anti-clockwise direction. The outlet connection shall be of the London Round Thread type. The hydrant must conform to SABS 1128: Part 1-1977.

PSL 3.13 Corrosion Protection (New Clause)

Unless otherwise specified or indicated on the drawings or Bill of Quantities, all bolts, nuts and washers shall be hot-dip galvanised to SABS 763 after threading. All bolts, nuts and washers within water retaining structures or exposed to rain water shall be fabricated from stainless steel.

The following corrosion protection specification shall apply to pipe work, specials and valves required under this Contract.

- pipes and specials - Rilsan coating (300μ) internally and externally
- Valves - Rilsan / FBE (300μ) coating internally and externally

All corrosion protection and repair work to coatings is to be carried out in accordance with manufactures specifications and as detailed in C3.6.

PSL 5 CONSTRUCTION

PSL 5.1.1 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.

For uPVC pipelines the pipe shall be laid to within 2,0m of the connection point. For HDPE pipelines the Contractor is to lay at least 300 mm past the connection point. In both cases the Water Division will complete the connection providing their own materials unless these have been ordered by the Engineer's Representative."

PSL 5.1 Laying (sub-clause 5.1)

Pipes shall be bedded uniformly on selected granular material (see SABS 1200 LB) and the use of blocks to support the pipes will not be accepted unless both pipes and blocks have been specifically designed for that purpose and recommended by the Manufacturer.

When laying pipelines around curves, F.C pipe joints may be deflected to a maximum of 3 degrees and uPVC pipes may be deflected to an amount not to exceed the manufacturer's recommendations. Where, because of the sharpness of curve, the above procedure is not practicable, short lengths of pipe, or a series of bends connected by straight pipes shall be employed.

The Contractor will be responsible for clearing the areas required for pipe storage, which shall include the removal of rock, stones and all burnable material. He shall also be responsible for maintaining the area in a clean and tidy condition for the duration of the Contract. No separate payment will be made for this operation.

Upon delivery of the pipes, fittings, specials and valves on site, they will be inspected jointly by the Engineer's representative and the Contractor. Any pipes, etc. found to be damaged shall be returned to the factory for repair or replacement; in which case the costs of additional transport, repair or replacement shall be borne by the Contractor.

The Contractor will be held fully responsible for the care and safety of all pipes and fittings, etc. on site, and shall bear the cost of all renewals, which may be necessary to make good losses, damages or breakage. Furthermore, he shall be fully responsible for handling and reloading material at the storage areas and for transporting and off-loading all such materials at their correct places along the pipeline route.

PSL 5.1.3 Keeping Pipelines Clean

The interior surfaces of all pipes, specials, valves and fittings shall at all times be kept free from dust, silt, foreign matter, and access by rodents, animals and birds shall be prevented. Pipes and specials shall not be used as shelters by staff or for the storage of garments, tools, materials, food containers or similar goods.

PSL 5.1.4 Depth of Cover

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

During Construction:

There shall be no less than 0,75m of cover over the pipes, where construction traffic is liable to cross them, hence 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 450 mm and not more than 600 mm below the final road surface.

Pipes beneath existing roadways:

The tops of pipes beneath a road shall not be less than 1,00 and not more than 1,25m below the road level.

PSL 5.2 JOINTING METHODS

PSL 5.2.3 WELDING (STEEL PIPELINES)

*Delete the title and replace with "**WELDING (STEEL PIPELINES)**".*

Delete the 1st sentence and replace with:

Field welding of steel pipelines shall be carried out in accordance with the relevant requirements of the latest version of API 1104. The Contractor, prior to commencement of welding, shall produce a qualified welding procedure in accordance with the latest version of API 1104, for the intended sizes, processes, positions and consumables to be used on this project.

Welding shall be carried out by Welders who are competent in terms of the procedure approval test given in API 1104. Prior to commencement of welding, the current qualification of each Welder must be produced in accordance with the welding procedure. Should constant repairs be required on welds carried out by one particular Welder, the Engineer may request that the Welder be re-tested or removed from the project.

PSL 5.2.3.1 Welding Procedure (New Sub-Clause)

Add new Sub-Clause:

Welding shall generally commence at the top of the joint and proceed downwards. In addition to the root weld, at least two further passes shall be made, none of which is to exceed 3mm in depth.

PSL 5.2.3.2 Aligning (New Sub-Clause)

Add new Sub-Clause:

The alignment of abutting ends will be such that the offset does not exceed 1.5mm. Line-up clamps may be used for the "fit-ups". The use of "bridges and wedges" or any other method that may introduce unnecessary stresses into the pipe is forbidden.

PSL 5.2.3.3 Weather Conditions (New Sub-Clause)

Add new Sub-Clause:

Welding shall not be performed under conditions that could affect the quality of the welded joint (e.g. high moisture or windy conditions). Windshields may be used where practical.

PSL 5.2.3.4 Clearance (New Sub-Clause)

Add new Sub-Clause:

The minimum clearance around the pipe during welding shall be 400mm. When welding in the trench, "fox holes" will provide adequate access for the Welders.

PSL 5.2.3.5 Visual Inspection (New Sub-Clause)

Add new Sub-Clause:

100% of each joint will be examined and the following criteria met:

PSL 5.2.3.5.1 Weld Bead

All welds shall be substantially uniform in appearance with the inner and outer weld beads not exceeding 1mm and 3mm in height respectively.

PSL 5.2.3.5.2 Undercut

Undercut will not be permitted under any circumstances.

PSL 5.2.3.5.3 Freedom from Defect

The weld, heat affected zone and surrounding parent metal shall be free from cracks, porosity and trapped slag.

PSL 5.2.3.5.4 Weld Splatter

All welds splatter must be removed prior to corrosion protection application.

PSL 5.2.3.6 Non-Destructive Testing (New Sub-Clause)

Add new Sub-Clause:

Radiographic testing will be performed on all butt welds and dye penetrant testing on fillet welds. **All** welds will be tested, adjudicated and repaired in accordance with API 1104. Testing of welds will be carried out on 100% of welds initially and this would be reduced to a minimum of 10% of welds, at the discretion of the Engineer,

as work proceeds and the Engineer is satisfied that the quality of welding is of an acceptable standard.

Repairs of welded joints shall be permitted in accordance with approved repair procedures. Repairs shall be re-examined using the relevant non-destructive testing method. All costs associated with the repair of defective welds will be borne by the Contractor.

Technicians performing examinations will be suitably qualified, to the satisfaction of the Engineer.

A DCVG (direct current voltage gradient) survey will be carried out on the pipeline within 3 to 6 months after the end of the pipeline construction, within the Defects Liability Period. All coating defects identified from the DCVG survey with a value greater than 3% IR, will need to be exposed and repaired by the Contractor at the Contractor's own cost. Depending on the extent of the defects identified, the Engineer may call for a further DCVG survey after the initial defects have been repaired by the Contractor, the cost of which shall be borne by the Contractor.

PSL 5.2.3.7 Quality Control (New Sub-Clause)

Add new Sub-Clause:

Records of which welds were carried out by each individual Welder as well as non-destructive testing results shall be submitted to the Engineer at each monthly site meeting. Should there be repetitive or serious defects, this information shall be forwarded to the Engineer immediately.

PSL5-3 Connection onto existing mains

See C.3.4.1.3 and C.3.4.8.1 The Engineer's written approval shall be obtained each time immediately before an existing main is opened to make a connection.

Before commencing the excavation of pipe trenches in the vicinity of a proposed connection, the Contractor shall excavate for, expose, survey and record the position and level of the connection point on the existing watermain.

The Contractor shall be responsible, through the Engineer, for liaison with the Employer to arrange and carry out the connection.

PSL 5.3 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 5.6 Valves and Hydrant Chambers

Delete in Sub-clauses 5.6.1 and 5.6.2 the reference to drawings L1, L2 and L3 and replace by "The Standard Details of the Municipal Water Division".

PSL 5.10 Disinfecting of Potable Water Pipelines

The disinfecting of the pipelines will be undertaken by the Contractor and the Municipal Water Division prior to connecting into the new main.

PSL 5.11 Markers for Fire Hydrants (New Clause)

Markers for Fire Hydrants are to be supplied and placed by the Contractor.

PSL 6 TOLERANCES

PSL 6.2 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 100 mm."

PSL 6.3 Alignment (Plan and Level)

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

PSL 7 TESTING

PSL 7.3.1 Test Pressure and Time of Test

Add to sub-clause 7.3.1.1: The Contractor's test equipment shall be connected directly to the flange of a hydrant tee - not through the hydrant's screwed outlet - or through a specially adapted end cap or a short, discardable pipe. Allowance may have to be made to the Contractor's test equipment to allow the placing of a Water Division's "in-line" check pressure gauge. If necessary, this will be requested by the Engineer prior to the start of a leakage test. Upon the successful conclusion of a leakage test, the removal of the Contractor's equipment from the tee and the fitting of the hydrant (supplied by Contractor) will be done by the Water Division when connecting the new reticulation."

Delete the contents of sub-clause 7.3.1.2 and replace by "The test pressure for the field testing shall be 1,35 MPa for Class 9 - uPVC, class 10 GRP and Class 10 HDPE pipes; 1,8 MPa for Class 12 - uPVC, class 12 GRP and Class 12 HDPE pipes."

Delete sub-clause 7.3.1.3 and 7.3.1.4.

Add to sub-clause 7.3.1.5; "Water used by the Contractor to fill the reticulation and during testing shall be water drawn from the Municipal mains and transported in a clean container. A metered connection may be installed by the Water Division upon the request of the Contractor and upon the payment of the prescribed fee. The bleeding off of air trapped within the reticulation shall only be carried out via the hydrants, erf connections or at the prescribed connection points to the existing reticulation by:

- (1) A bleeder system fitted to the end caps, or
- (2) A bleeder system fitted to a short length, say 500 mm, of a pipe included at the end of the new reticulation.

The Water Division will remove and return the end caps and short length of pipe to the Contractor once the new reticulation is connected.

PSL 7.3.3 Permissible Leakage Rates

Delete in sub-clause (a) the figure of "0,075" and replace by:

"0,0161 for Class C, AC pipes", or "0,0186 for Class D, AC pipes"

Add: "See standard drawings PSL 5/1, PSL 5/2, PSL 5/3 and PSL 5/4 for tables of permissible leakage rates for uPVC, and HDPE pipes. When testing reticulations made up of different types of pipes, the arithmetical sum of the respective calculated leakage rates for the various pipe types, diameters and lengths shall be taken as the maximum allowable leakage. Alternatively the Contractor may request that each section be tested separately in which case the additional tests, witnessing and connecting fees would be at his expense."

PSL 7.3.4 The Witnessing of a Successful Leakage Test by an Official of The Water Division.

The Contractor shall take note that the Engineer's Representative is required to ensure that an Official of the Water Division witnesses a successful leakage test of the whole new reticulation being put forward for acceptance. Visits to site of this official to witness the test after the initial visit will be charged at a rate determined by the Municipality, Water Division.

This amount shall be payable directly to the Municipality by the Contractor prior to each subsequent visit.

PSL 7.3.5 Removal of Test Equipment (New Clause)

Upon the successful completion of the leakage test the new reticulation will be deemed to be Municipal property and the Contractor shall not carry out any work on the pipes apart from the disconnection of his pump (but not his flange and pipe system from the hydrant tee), the completion of the backfilling to the pipeline and construction of the hydrant and valve chambers. The Water Division will connect in the new reticulation as soon as possible and the Contractor shall supply such materials, pipes and specials as detailed by the Engineer. The completion of backfill at the connection points and the surface restoration/reinstatement shall be carried out by the Contractor.

PSL 7.5 Subsequent Maintenance Period (New Clause)

Should leaks or defects develop during the Defects Liability Period they shall be rectified by the Municipality at the Contractor's expense. This will include the cost of re-testing and subsequent sterilization. During the Defects Liability Period the Municipality may carry out further pressure tests on the whole or part of the new reticulation and any necessary remedial work shall be carried out at the Contractor's expense.

PSL 7.6 The Witnessing of a water reticulation test (New Clause)

Procedure to be followed:

1.1 Application by Consulting Engineer.

- The Consulting Engineer must contact the Water Operations Division direct:

1.2 The Consulting Engineer must supply:

- 2 paper prints of the plan showing the extent of the layout to be tested.

- Calculations of the leakage rate scheduled in the types, diameter and lengths of pipe.
- A cheque for the connection fee made out to the City Treasurer.
- A cheque for the prescribed fee if the request is for a re-test.

1.3 The Consulting Engineer must:

- Witness a test so as to ensure that all is in order before arranging a test with the Infrastructure and Engineering Business Unit.
- Arrange for a test 48 hours before the test is required.

1.4 Preparations for the test.

Contractor to ensure that they adhere to the above procedures and time frames and to ensure that the items listed below are addressed.

- All areas of potential leaks should be exposed.(saddles, straight couplings, Tee pieces , joints , end caps etc.)
- All anchoring should be exposed (anchors on bends, valves, tees, etc.).
- The alignment of the proposed main and the existing main should be at the same level (for connection purposes), Therefore for this reason the existing main should be exposed.
- The ends of the reticulation must be visible.
- The take-off points from the main pipeline and the ends of all erf connections must be visible.
- Specials at changes of type of pipes must be visible.
- Flange adaptors without stainless steel bolts should be wrapped with Denso tape.
- Valves on the mains must be in the open position.
- It is not advisable to test against a closed valve, if this happens, it will be at the Contractor's risk.
- Any visible leak will result in automatic failure even if the water loss is within the permissible leakage rate.
- Testing equipment must be to the Municipal Water Division satisfaction (kpa calibrated gauges)
- The Contractor's Site Agent or nominee must be present.
- The Consulting Engineer's representative must be present.

If any of the above does not comply, the test will be deemed to have failed. If the test fails, the Consulting Engineer must apply for a re-test (at cost to the Contractor) after the problem has been rectified.

Once the pipe has been successfully tested, the contractor is not permitted to carry out any work on that section. Any repairs or alterations required on the pipe or fittings will be performed by the Municipality and will be for the contractor's account.

PSL 8 MEASUREMENT AND PAYMENT

PSL 8.2.1 Supply, Lay and Bed Pipes Complete with Couplings

Add: "The measured quantity of pipe length will only be included in the payment certificate after the reticulation has successfully passed a leakage test. Payment may be made for material on site up to this stage."

Pipelines will be measured per horizontal linear metre along the centreline of the pipeline and to the centreline of connecting mains.

Notwithstanding the requirements of Subclause 8.2.1, the rates for supplying laying and bedding pipes shall also cover the costs of cleaning and disinfecting the pipeline by the Contractor.

PSL 8.2.7 Corrosion Protection

Notwithstanding Subclause 8.2.7 and 8.2.15, the rates for pipes, valves, specials and couplings shall also cover the cost of all other corrosion protection as specified.

PSL 8.2.11 Anchor / Thrust Blocks and Pedastals

Notwithstanding Subclause 8.2.11 anchor/thrust blocks and pedestals will be measured only by volume of concrete to the net dimensions shown on the drawings or ordered.

The rate shall cover the cost of excavation, concrete, formwork.

PSL 8.2.17 Markers for Fire Hydrants (New Clause)

The rate shall include for the supply and installation of the hydrant markers in the verge as ordered.

PSL 8.2.18 Connection to Mains (New Clause)

An item shall be allowed in the Bill of Quantities, for the connection to existing mains by the **Camdeboo** Municipality Water Division, after acceptance of the reticulation.

PSL 8.2.19 Chambers (New Clause)

The rates tendered for the chambers shall cover the costs specified for thrust blocks and for all other necessary materials, such as air vents, access covers, locking bars, locks and access ladders to complete the chamber as detailed on the drawings (including 0,08 t of high tensile steel per m³ of concrete where not indicated on drawings). All pipework, specials and valves will be measured elsewhere.

PSL 8.2.20 Connection into Existing Reticulation

The connection into the existing 100mm ø manifold and 100mm ø pipeline will be paid by a single lump sum. The sum shall cover the total cost of locating, exposing and cutting into the pipelines.

The sums shall also cover the cost of liaising with the authority concerned to arrange for shutting down the respective pipelines, draining of the said pipelines, dealing with water, cutting pipes to fit, including turning if necessary, and the fitting of couplings to complete the connection or welding and, if required, the temporary sealing and anchoring of pipe ends for testing purposes, and corrosion protection to the cut pipe, and subsequent removal of seals and anchors. The specials required to make the connection will be measured separately. The tie into the 300mm ø pipeline is to be carried out in accordance with PSL 5.3.

PSLB BEDDING (PIPES)

PSLB 3 MATERIALS

PSLB 3.1 Selected Granular Material

Delete Subclause 3.1 and replace with the following:

Selected granular material shall be an aggregate, sand, or granular material, all of a non-cohesive nature, the grading analysis of which shows 100% passing a 9,5 mm sieve and not more than 5% passing a 0,075mm sieve (metric sizes). The Compactability Factor shall not exceed 0,4.

PSLB 3.2 Selected Fill Blanket

Selected fill material shall be an aggregate, sand, or granular material, all of a non-cohesive nature, the grading analysis of which shows 100% passing a 9,5 mm sieve and not more than 5% passing a 0,075mm sieve (metric sizes). The Compactability Factor shall not exceed 0,4.

PSLB 5 CONSTRUCTION

PSLB 5.1.1.2 Trench Bottom

The trench bottom shall be prepared in accordance with the requirements of Sub-Clause 5.5 of SABS 1200 DB as amended by Clause PSDB 5 of Scope of Works PSDB : Earthworks (Pipe Trenches).

PSLB 5.1.4 Compacting

Selected Granular Material and Selected Fill Material shall be compacted to 95% and 93% MAASHTO density, respectively, in maximum 150 mm layers.

PSLB 5.2 Construction of Bedding

Completion of the bedding cradle and placing of the selected fill blanket, and the main fill, shall commence as soon as possible after pipelaying has been completed. The Contractor shall meet all costs of operation ordered by the Engineer to remedy defects in the trench caused by lengthy exposure.

PSLB 5.2.1 Class A Bedding

Add the following:

“or a period of 5 days has elapsed after the placing of the concrete in that section, whichever occurs first”

PSLB 5.2.2 Class B Bedding

The dimension “x” for all rigid and flexible pipes as referred to in drawing LB-1 and LB-2, shall be 150mm.

PSLB 5.4 Concrete Casing to Pipes

Where concrete encasement is specified, the Contractor shall place the encasement in accordance with details shown on the Engineer's drawings.

PSLB 7 TESTING

PSLB 7.1 Density Testing

Measurement and payment for density tests on the bedding cradle and fill blanket, where ordered by the Engineer, will be by number per successful density test reported to the Engineer.

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 Volume of Bedding Materials (sub-clause 8.1.3)

The volume of bedding material will be measured net, excluding the volume of the occupied pipe.

PSLB 8.1.5 Disposal of Displaced Material

In developed areas all displaced material shall be removed to designated sites and evenly spread to the Engineer's satisfaction as covered in C3.4.6.

PSLC CABLE DUCTS

PSLC 3 MATERIALS

PSLC 3.2 Bedding

Delete Clauses 3.2.1 and 3.2.2 and replace with the following :

"Selected granular material shall be an aggregate, sand or granular material all of a non-cohesive nature, the grading analysis of which shows 100% passing a 13.2mm sieve and not more than 5% passing a 0,075mm sieve (Metric sizes). The Compactability Factor shall not exceed 0,4."

PSLC 5 CONSTRUCTION

PSLC 5.1.1 Excavation of Trenches

Material excavated other than hard rock, will not be separately classified for the purpose of measurement and payment. The unit rate for excavation shall cover excavation in soft and intermediate material.

PSLC 5.8 Road Crossings

Delete the last sentence and replace with :

"The duct(s) shall extend a distance of at least 0,5m beyond the backface of the kerb or the edge of the road, as applicable."

PSLC 5.10 Position to be Marked

Marking is required on both sides of the carriageway.

Delete in the second line : "..... the letters "GPO or ESC", as applicable, .." and replace with "..... the letters "T"and "E", as applicable."

Add : "The height of the letter shall be at least 100mm."

PSLC 8 MEASUREMENT AND PAYMENT

PSLC 8.2.2 Schedule Items

Delete payment clause 8.2.2(b) and add the following :

"8.2.2(b) **Extra over item (a) above for :**

Hard rock excavation Unit m³

C3.4: CONSTRUCTION: PART C

PART C: PARTICULAR SPECIFICATIONS

The following Particular Specifications are applicable to this contract

- PAA: Appointment of CLO & Labour employment conditions
- PA: Landscaping and grassing
- PE-PZ Building Specifications

PAA: APPOINTMENT OF COMMUNITY LIAISON OFFICER & LABOUR EMPLOYMENT CONDITIONS

PAA1 Duties and responsibilities of the community liaison officer

1. Represent the community and assist the Municipality, Contractor and the Engineer with communication between them and the community. Inform community regarding the project detail, safety precautions and programme.
2. Be available at the site offices generally between the hours of 07:00 and 09:00 and again from 15:00 until end of working day. Normal working hours will be from 07:00 am till 17:00.
3. Assist with relocation of people, where applicable.
4. Maintain an up-to-date record of potential employees within the community and provide the contractor with copies of this information.
5. To identify, screen and nominate labour from the community in accordance with the Contractor's requirements and determine, in consultation with the Contractor, the needs of local labour for employment and relevant technical training, where applicable.
6. Liaise between Contractor and labour regarding wages and conditions of employment.
7. Communicate daily with the Contractor on labour related issues such as numbers and skills.
8. Identify possible labour disputes, unrest, strikes, etc., in advance and assist in their resolution.
9. Have a good working knowledge of the contents of the contract document regarding labour and training matters.
10. Attend all meetings at which the community and/or labour is represented or discussed.
11. Attend contract site meetings and report on community and labour issues at these meetings.
12. Co-ordinate and assist with the obtaining of information regarding the community's needs (questionnaires, etc.).
13. Inform local labour of their conditions of temporary employment, to ensure their timeous availability and to inform them timeously of when they will be relieved.
14. Ensure that all labour involved in activities when tasks have been set, are fully informed of the principle of task based work.
15. Attend disciplinary proceedings to ensure that hearings are fair and reasonable.
16. Keep a daily written record of interviews and community liaison.
17. Arrange venues for training if required.
18. Assist with the training and education of the community regarding the correct usage of the services, where applicable.
19. Any other duties that may become necessary as the works progress.

PAA2 Benchmarking duties of the Community Liaison Officers

PAA2.1 Communication function –

- a) Represent the community and assist Municipality / Contractor / Engineer with communication between them and the community. Informs community of project details, safety issues and project plan.

- b) Attend all meetings at which the community and / or labour is represented or discussed.
- c) Inform employees of their temporary contract conditions to ensure their timeously availability and to inform them timeously of when they will be released from the project.
- d) Ensure that all temporary employees involved in activities when tasks have been set, are fully informed of the principle of the task based work.

PAA2.2 Availability_– Be available 8 hrs per day as well as after hours when required

PAA2.3 Physical Assistance - Assist with relocation of community

PAA2.4 Administrative

- a) Maintain up to date records of potential employees for current and future projects.
- b) Co-ordinate and assist with the obtaining of information regarding needs of the community via questionnaires etc.
- c) Keep a daily written record of interviews and any community liaison.
- d) Arrange venues for training when required.
- e) Complete all contractual documentation related to the employment contract of the temporary employees.

PAA2.5 Recruitment, Industrial Relations and Training activities: –

- a) Identify, screen and nominate labour in accordance to requirements of the contractor in conjunction with ward representative
- b) Liaise between contractor and employees regarding wages and conditions of employment.
- c) Communicate daily with Contractor on labour issues i.e. numbers and skills of the employees.
- d) Identify potential labour disputes, unrest, strikes in advance.
- e) Assist in resolving minor disputes.
- f) Attend contract site meetings and report on community and / or labour issues at these meetings. (must be able to interpret Labour Relations dynamics amongst the workforce)
- g) Attend disciplinary hearings to ensure that hearings are fair and reasonable.
- h) Assist with training and education of the community regarding the correct usage of the services being installed /constructed.

PAA3 Minimum employment conditions for conventional construction works

Contractors shall comply with the Basic Conditions of Employment Act (Act No 75 of 1997).

As a determination has not been made in terms of the aforesaid Act for the building sector, the minimum employment conditions which will apply to this Contract shall be guided by the most recent Sectoral Determination: Civil Engineering Sector published in the Government Gazette.

The following minimum conditions shall apply to this Contract and Contractors shall include such conditions in employment contracts:

PAA3.1 Employment contracts

The Contractor shall enter into an employment contract with every one of his/her employees, including short-term contracts i.e. contracts in which employment commencement and employment termination dates are specified. Short-term employment contracts will also apply an employee employed for only one day.

PAA3.2 Normal working hours

Normal working hours are from 07:00 to 17:00 from Monday to Friday. A tea break is taken from 09:00 to 09:15 and lunch from 12:30 to 13:00.

Actual hours to work and be paid for is 9 hours per day. If a lunch break of one (1) hour is taken then the normal working day will be as follows:

- Morning work sessions from 07:00 to 12:00.
- Lunch break from 12:00 to 13:00.
- Afternoon sessions from 13:00 to 17:00.

PAA3.3 Minimum wages

- Minimum wages shall be according to the Bargaining Council for the Civil Engineering Industry (BCCEI) Task Grade 3 which at the time of tender is R 38.96/hr.
- For a full day's work the hourly rate shall be multiplied by 9.
- Normal 5-day week hours of work shall be 45 hours and the wage calculated according to the applicable hourly rate.
- Overtime pay shall be 1.5 times the ordinary wage.
- An employee shall be paid fortnightly.

PAA3.4 Short time (excluding short time due to inclement weather)

If for reasons, which may be ascribed to the employee, e.g. arriving late for work or taking an afternoon off, the hours not worked shall be deducted from the daily wage calculation.

PAA3.5 Short time resulting from inclement weather

- If the Contractor informs his/her employees that no work will be done the following day due to inclement weather, no payment will be due to the employee for such a day.
- If the Contractor has not informed his/her employees that no work will be done due to inclement weather and no work or less than four (4) hours of work is possible during a day, the Contractor must pay the employee for four (4) hours of work.
- If more than four (4) hours of work is done, the Contractor shall pay the employee for the number of hours worked.

PAA3.6 Vacation leave

If an employee has been in full time employment for more than four (4) months, he/she shall be entitled to 1 day's paid leave for every seventeen (17) days the employee worked or was entitled to payment.

PAA3.7 Family responsibility leave

If an employee has been in full time employment for more than four (4) months, he/she shall be entitled to three days paid leave in a leave cycle of thirty-six (36) months of employment:

- When the employee's child is born.
- When the employee's child is sick.
- In the event of death of the employee's spouse or life partner, parent, grandparent, child or grandchild.

The employee shall provide the required proof to the Contractor of the event, failing which the leave shall be unpaid leave.

PAA3.8 Maternity leave

At least four (4) months unpaid leave.

PAA3.9 Sick leave

The employee shall be entitled to one (1) day's paid sick leave of normal wages for every twenty-six (26) days worked.

If an employee is absent for three (3) or more consecutive days, the employee shall provide a sick certificate from a registered medical practitioner to qualify for sick leave payment. If such certificate is not provided, no sick leave payment will be due to the employee.

PAA3.10 Piece work

Irrespective of the quantity of work done under a piece work system during a working week, the employee shall be entitled to a minimum of a week's wages determined as if no piece work applied.

The Contractor or employee may terminate an employment contract by giving notice of termination of not less than:

- On short period contracts i.e. a contract which states from which date work employment commences and on which day employment terminates, the terms of the employment contract shall apply.
- One week if employee has been employed for four (4) weeks or less, unless it is a short-term project.
- Two (2) weeks if employee has been employed for more than four (4) weeks but not more than one (1) year.
- Four (4) weeks if employee has been employed for more than one year.

PAA4 Employment conditions for labour intensive works and construction

The Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

This clause contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.

PAA4.1 Terminology

- “*department*” means any department of the State, implementing agent or contractor.
- “*employer*” means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP.
- “*workers*” means any person working in an elementary occupation on a SPWP.
- “*elementary occupation*” means any occupation involving unskilled or semi-skilled work.
- “*management*” means any person employed by a department or implementing agency to administer or execute an SPWP.
- “*task*” means a fixed quantity of work.
- “*task-based work*” means work in which a worker is paid a fixed rate for performing a task.
- “*task-rated worker*” means a worker paid based on the number of tasks completed.
- “*time-rated worker*” means a worker paid based on the length of time worked.

PAA4.2 Terms of Work

- Workers on a SPWP are employed on a temporary basis.
- A worker may NOT be employed for longer than 24 months in any five-year cycle on a SPWP.
- Employment on a SPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance ACT 30 of 1966.

PAA4.3 Normal Hours of Work

- An employer may not set tasks or hours of work that require a worker to work:
 - more than forty hours in any week.
 - on more than five days in any week; and
 - for more than eight hours on any day.

- An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
- A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

PAA4.4 Meal Breaks

- A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- An employer and worker may agree on longer meal breaks.
- A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.
- A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

PAA4.5 Special Conditions for Security Guards

- A security guard may work up to 55 hours per week and up to eleven hours per day.
- A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

PAA4.6 Daily Rest Period

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

PAA4.7 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

PAA4.8 Work on Sundays and Public Holidays

- A worker may only work on a Sunday or public holiday to perform emergency or security work.
- Work on Sundays is paid at the ordinary rate of pay.
- A task-rated worker who works on a public holiday must be paid:

- The worker's daily task rate, if the worker works for less than four hours.
- double the worker's daily task rate, if the worker works for more than four hours.
- A time-rated worker who works on public holiday must be paid:
 - the worker's daily rate of pay, if the worker works for less than four hours on the public holiday.
 - double the worker's daily rate of pay, if the worker works of more than four hours on the public holiday.

PAA4.9 Sick Leave

- Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
- A worker who is unable to work on account of illness or injury is entitled to claim one day's sick leave for every full month that the worker has worked in terms of a contract.
- A worker may accumulate a maximum of twelve days' sick leave in a year.
- Accumulated sick-leave may not be transferred from one contract to another contract.
- An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- An employer must pay a time-rated worker the worker's daily rate for a day's sick leave.
- An employer must pay a worker sick pay on the worker's usual payday.
- Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is:
 - absent from work for more than two consecutive days; or
 - absent from work on more than two occasions in any eight-week period.
- A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Disease Act.

PAA4.10 Maternity Leave

- A worker may take up to four consecutive month's unpaid maternity leave.
- A worker is not entitled to any payment or employment-related benefits during maternity leave.
- A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
- A worker may begin maternity leave:
 - four weeks before the expected date of birth; or
 - on an earlier date:
 - if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
 - if agreed to between employer and worker; or
 - on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.
- A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.
- A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

PAA4.11 Family Responsibility Leave

- Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances:
 - when the employee's child is born;
 - when the employee's child is sick;
 - in the event of a death of:
 - the employee's spouse or life partner;
 - the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

PAA4.12 Statement of Conditions

- An employer must give a worker a statement containing the following details at the start of employment
 - the employer's name and address and the name of the SPWP;
 - the tasks or job that the worker is to perform; and
 - the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
 - the worker's rate of pay and how this is to be calculated;
 - the training that the worker will receive during the SPWP.
- An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
- An employer must supply each worker with a copy of these conditions of employment.

PAA4.13 Keeping Records

- Every employer must keep a written record of at least the following:
 - the worker's name and position;
 - in the case of a task-rated worker, the number of tasks completed by the worker;
 - in the case of a time-rated worker, the time worked by the worker;
 - payments made to each worker.
- The employer must keep this record for a period of at least three years after the completion of the SPWP.

PAA4.14 Payment

- An employer must pay all wages at least monthly in cash or by cheque or into a bank account.
- A task-rated worker will only be paid for tasks that have been completed.
- An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.
- A time-rated worker will be paid at the end of each month.
- Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- Payment in cash or by cheque must take place:
 - at the workplace or at a place agreed to by the worker;
 - during the worker's working hours or within fifteen minutes of the start or finish of work;
 - in a sealed envelope which becomes the property of the worker.

- An employer must give a worker the following information in writing:
 - the period for which payment is made;
 - the numbers of tasks completed or hours worked;
 - the worker's earnings;
 - any money deducted from the payment;
 - the actual amount paid to the worker.
- If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.
- If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

PAA4.15 Deductions

- An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
- An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
- An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.
- An employer may not require or allow a worker to:
 - repay any payment except an overpayment previously made by the employer by mistake;
 - state that the worker received a greater amount of money than the employer actually paid to the worker; or
 - pay the employer or any other person for having been employed.

PAA4.16 Health and Safety

- Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
- A worker must:
 - work in a way that does not endanger his/her health and safety or that of any other person;
 - obey any health and safety instruction;
 - obey all health and safety rules of the SPWP;
 - use any personal protective equipment or clothing issued by the employer;

- report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

PAA4.17 Compensation for Injuries and Diseases

- It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- A worker must report any work-related injury or occupational disease to their employer or manager.
- The employer must report the accident or disease to the Compensation Commissioner.
- An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

PAA4.18 Termination

- The employer may terminate the employment of a worker for good cause after following a fair procedure.
- A worker will not receive severance pay on termination.
- A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the manager the employer in advance to allow the employer to find a replacement.
- A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available of the balance for the 24-month period.
- A worker who does not attend required training events, without good reason will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

PAA4.18 Certificate of Service

- On the termination of employment, a worker is entitled to a certificate stating:
 - the worker's full name.
 - the name and address of the employer.
 - the SPWP on which the worker worked.
 - the work performed by the worker.

- any training received by the worker as part of the SPWP.
- the period for which the worker worked on the SPWP.
- any other information agreed on by the employer and worker.

PROJECT SPECIFICATION

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PSLS. LANDSCAPPING

PSLS1EARTHWORKS

PSLS1.1 CUT TO FILL

The Contractor is responsible for the correct setting out of the works from reference points and fixed levels shown to him by the Engineer. Should the Contractor be aided by the Engineer in the setting out of the works or should the levels be checked by the Engineer, this will in no way exempt the Contractor from ensuring that the works are set out strictly according to drawings and specifications.

The Contractor shall provide the Engineer with all equipment and labour necessary for setting out the works, taking levels, making tests, etc. for the execution of the contract.

Levels around buildings to fall away from buildings at a fall no less than 1:50 to a valley or stormwater catchpit which will discharge the water away from the building. Revised soil levels around buildings always to be no less than 150mm below floor level inside the building. The above to be implemented unless otherwise specified.

Stormwater protection. The Contractor to take precautions during the construction period to ensure that no stormwater damage can take place, by forming temporary stormwater channels, keeping stormwater catchpit inlets, channels and pipes clear at all times and packing sandbags, if required, to divert stormwater away from the area being landscaped, including buildings and other structures in the landscape area.

Contractor shall grade and cross-grade over the site (on areas filled by others) to achieve final grades. All finished gradients are to be smooth-flowing, marrying with existing levels, eliminating abrupt angles and changes of levels. All earth shaping works are to be carried out in consultation with the Architect on site. Minor fillings and excavations are to be made as necessary to bring the grass and planting areas into running levels between paths and kerbs.

Should the Contractor excavate any areas in excess of those specified, he shall be responsible for the filling of such areas with an approved fill at his own expense. Such areas shall, at the time, be compacted to at least the same density as those areas surrounding it.

The unit rate for general cut to fill will be categorized as :

Hard rock cut to sub-fill

“Hard rock” shall, unless otherwise described, mean all rock which has to be blasted or broken up by means of hammers and chisels, etc. and shall include granite, quartzitic sandstone and other rock of a similar hardness as well as loose boulders exceeding 0.03m³ in volume.

Earth cut to fill

The nature of the ground referred to as “Earth” will include all ground which can be reasonably easily removed with hand implement – gravel, clay, sand, made-up ground, shale and any loose stones or pieces of building material (not decomposable) not exceeding 0,03m³ in volume.

Should the Contractor consider that any of the excavations are in ground of a more difficult nature than that described, he shall immediately give written notice to the Engineer, who shall decide whether the nature of the ground differs sufficiently to be taken into account in the measurement and valuation of the excavations.

Failure to give the Engineer notice to arrange for an inspection of the excavations in progress will result in the excavations being deemed to be in ground as described and being measured and valued accordingly.

The final 300mm of the earth shaping will be executed with soil free of stones and boulders larger than 40mm diameter. The stones in this soil layer may not be more than 10% of the soil volume.

The unit rates for the cut and fill in the categories above will include all the running costs for the machinery and the costs of labour to execute the earth shaping to a tolerance of not more than 75mm of the revised level, as set out on the drawings or as specified by the Engineer.

PSLS1.2 TOPSOIL AND TOPSOILING

Topsoil stockpiled on site or imported shall be clean, and the Contractor shall allow for removing all stones and alien materials, perennial weeds, roots and other plant matter. Imported topsoil is to be from an approved source. It shall be fertile with a humus and fibre content, of a medium texture, and be approved by the Engineer before use.

As topsoiling proceeds, all consolidated wheel tracks shall be forked over.

Any topsoil brought to the site without the approval of the Engineer will be deemed to be at the Contractor's risk, and he will be instructed to carry such topsoil off the site at his own expense unless instructions to the contrary be given by the Engineer.

Final grading of the top 150mm is to be carried out to ensure a true and specified level and slope and to avoid dishing or other depressions where water may collect. The use of a heavy roller to roll out humps will not be permitted, and any area that becomes unduly compacted during the grading operations shall be loosened by forking and harrowing.

Following blade grading, apply soil improvers as directed. These shall be separately and evenly applied, and shall be thoroughly worked into the topsoil.

The level of the topsoil is to be at least 50mm above all paved areas to allow for shrinkage and/or settlement.

The Engineer will indicate on site where topsoil is to be spread.

The supply and spread of topsoil will be priced as follows:

- 1.2.1 Import and spread of topsoil from source off the Campus.
- 1.2.2 Import and spread of topsoil from stockpile on site (hauling not further than 500m).

The unit rate per m³ includes all costs of labour, material and machinery to supply (from source off the Campus if required) and spread topsoil as specified.

PSLS1.3 CULTIVATION AND FINISHING OFF

Over all soft landscape areas shown as grass and planting, the Contractor is to cultivate the ground to a minimum depth of 150mm, bring to a fine tilth, and regulate to evenly running levels. All weeds, stones larger than 50mm, broken brick, concrete, perennial weeds and weed roots etc., shall be removed from all lawn and planting areas.

The Contractor shall include in his unit rate for carrying out any necessary cultivation from time to time, as and when instructed by the Engineer, to destroy all weed growth if, owing to the time of year, weather or other causes, there is a period of waiting between completion of the topsoiling works as specified and the actual planting operations.

Ploughing and ripping shall not be carried out within the branch spread of trees to be retained unless instructions are otherwise issued by the Engineer.

The unit rate per m² includes all costs of labour and machinery to loosen the areas as specified, the leveling and raking plus the gathering of undesirable material into piles to be removed.

PSLS1.4 REMOVAL OF RUBBLE

Landscape rubble will not include rubble generated by the Contractor i.e. plant containers, fertilizer bags, etc.

During the finishing off stage, rubble (large stones and other undesirable material) to be piled in measurable volumes for the Engineer to check before removing off site to dump.

During the earth shaping stage, large boulders and stones must be worked into the mounds so that they can be covered with a minimum of 500mm of soil to make up the final shaping as per drawings. Rubble will be disposed of in an approved waste pit. Dumping cost and distance to waste pit must be determined during the compulsory site inspection.

Unit rate per m³ includes all costs of labour and machinery and transport to gather all rubble, load and transport to waste pit and the dumping thereof plus the dumping costs.

PSLS2 CONSTRUCTION IN LANDSCAPE AREAS

PSLS2.1 BRICK MOWING EDGES

To be constructed between the shrub-groundcover plant beds and lawn areas, as indicated on Landscape Construction Dimension Drawing. See Standard Landscape Detail Drawing No 01 for construction. The brick mowing edge level shall follow the profile of the earth shaping. All brick mowing edges must be set out for approval by the Engineer prior to construction.

Where the edge is on earth fill, the base must be compacted in layers of 150mm to a density of 90% Mod AASHTO from the natural ground level of the bottom of the foundation. The soil level on the lawn area side of the brick mowing edge must be 25mm lower than the top level of the paver to make up the level if and when instant lawn is laid.

Paver for brick mowing edges will be clay 50mm thick 210 x 108mm paver to match the face brick finish on the outside of the buildings, subject to approval by the Architect of representative samples and the supplier. The pavers to be laid as header course 210mm wide with a 5 – 10mm joint filled with mortar and jointed, on a 75mm thick concrete foundation (189/25 MPa) with a slurry. Because of the discrepancy in brick sizes, it must be made up on the shrub bed side of the mowing edge.

The unit rate per linear meter will include all costs of labour and material for the excavation of the foundation for the edge, the compaction of the base of the trench, the supply and cast of concrete foundation, supply and lay of 210mm wide brick header course, with a joint and the filling of joint with mortar, and the jointing thereof.

PSLS2.2 SLEEVES

110mm diameter PVC sleeve pipes will be supplied by the Contractor under all the paving as indicated on Landscape Irrigation Drawing No. ... or by the Engineer on site.

The sleeves will be laid to depths of 450mm below paving level and will be 500mm longer on either side of the paving edge. The sleeves will be supplied with a 3mm diameter mild steel pull wire through the length of the sleeve and bent around the ends. The sleeve ends will be blanked off with plastic sheeting. The backfill on the sleeves will be free of stones for the first 150mm around the PVC pipe.

Backfill will be executed in layers of 150mm density of 93% Mod AASHTO .
When sleeves have been laid, a mark must be made with an angle grinder on the paver header course to indicate the position of the sleeves. The final sleeve positions must be marked up on “as-built” drawing to the nearest 150mm.

The unit rate per linear meter for the sleeves will include the costs for the excavation and backfill (compaction and selected backfill material) of trenches, plus the supply and installation of the sleeves (with pull wire and blanked off ends) and the marking of paver edges.

PSLS2.3 STEPPING STONES

Stepping stones will be placed through shrub beds to supply access to service ducts and irrigation turf valve points. Positions of stepping stones will be indicated on site by the Architect before planting commences.

50mm thick x 450mm x 450mm with exposed aggregate finish (grey) concrete stepping stones to be placed 200mm apart in a straight line and level or on an even slope where necessary.

Unit rate per stepping stone includes all cost of labour and material to supply and lay stepping stones, and the leveling and compaction of the soil base below to 90% Mod AASHTO density.

PSLS2.4 LITTER BINS

Wilson Cement (Johannesburg) BLOC 900 in grey exposed aggregate finish, or similar, to be positioned on site by the Architect. The bins will be situated in shrub beds along the edges of walkways on a 600 x 600 x 50mm thick exposed aggregate finish (grey) concrete tile as described in the item above.

Unit rate per litter bin includes all cost of material and labour to supply, transport to site and the installation of the litter bin and the concrete tile below in a level position.

PSLS2.5 BENCHES

Benches – Wilson Cement Maidstone – exposed aggregate grey – or similar. For position see Landscape Construction Dimension Drawing No. ...

Supports to be cast into concrete foundation 19/20 MPa, 250mm thick around the support and concrete foundation top level must be 150mm below final ground or paving level. The benches must be 100% level.

Unit rate per bench includes all costs of labour and material to excavate foundation supply and cast concrete foundation and the supply and installation of bench.

PSLS3 IRRIGATION

The irrigation will be semi-automatic quick coupling valve system to irrigate the soft landscape areas. A 30m hose (dragline) fitted with a sprinkler to be used, and on the sportsfields portable aluminium pipes and sprinklers will be used. The irrigation system will be supplied off the main ring feed system specified under another section of the Contract.. The material specified in this section is only for the irrigation system from the point where the reticulation is connected into the main water supply system.

PSLS3.1 PLASTIC Q/C VALVE

Unit rate per valve includes all cost of labour and material to install Rainbird model 33 or similar approved plastic quick coupling valve complete with all fittings in the manner shown in the respective detail drawings. The costs also include the UPVC sleeve housing and crusher stone drainage.

PSLS3.2 HYDRANT VALVE FOR SPORTSFIELD IRRIGATION

Rate per valve includes all cost of labour and material to install the hydrant valve and all fittings from T-piece off main line to valve, plus the construction of the manhole and CI frame and lid.

PSLS3.3 PORTABLE ALUMINIUM PIPE FOR SPORTSFIELD IRRIGATION

Bauer or Perrot. Unit rate includes costs to supply the piping with fittings:

B34/50 valve-opening elbow 50 x 50mm
B11/50, 90° bend, 50mm Φ
Side outlet tee 50mm Φ
Automatic riser saddle with footplate 50mm x 25mm
End cap 50mm Φ
Sprinkler riser 500mm x 20mm Φ
Rainbird 25 part circle sprinkler 4,0mm nozzle

PSLS3.4 PORTABLE SPRINKLER WITH HOSE

Brass or bronze part circle sprinkler similar to the Rainbird 35PJ ADJ series with nozzles of 3,97mm having a discharge rate of 1294/hr at 300 kPa and a radius of 13,4 meters, mounted on a cast aluminium sprinkler sled or 1,0 galvanised steel tripod, complete with a 30m length of 20mm Mega Plastics type 772 dragline hose and model 33K quick coupling key with swivel elbow to connect into the quick coupling valve.

Unit rate per sprinkler and hose includes all cost of labour and materials to make up the unit as specified.

PSLS3.5 PROCAST GARDEN SPRAYER WITH HOSE

Procast or similar approved cast aluminium vortex type garden sprayer complete with 30m of hose as specified in above item, and complete with model 33K key and swivel elbow to connect into the quick coupling valve.

Unit rate per sprinkler and hose includes all cost of materials to make up the unit as specified.

PSLS3.6 WATER SUPPLY CONNECTIONS FOR SPORTSFIELD IRRIGATION

Sum price includes all cost of labour and material to supply and install 75mm Φ T-piece connection on main ring feed system and 80mm Φ brass gate valve within a manhole with CI frame and cover (450 x 450mm – same Detail as manhole in Landscape Standard Detail No 03 plus all other fittings required.

PSLS3.7 BRASS BALL VALVE ASSEMBLY

Unit rate per control valve includes all costs of labour and material to install 25mm brass ball valves complete with all fittings, including the housing, and installed in the manner shown in the respective detail drawings.

PSLS3.8 FITTINGS FOR HDPE PIPES

Plasson or similar approved compression fitting for HDPE pipes type IV.

Unit rate per specified fitting includes all cost of material and labour to install the fitting.

PSLS3.9 FITTINGS FOR UPVC PIPES

Pipe fittings of UPVC or epoxy coated aluminium with lip seal type joints. These fittings will be installed in the main ring feed (specified in other section) from which the irrigation system will be fed.

Unit rate per specified fitting will include all costs of material and labour to install the fitting.

PSLS3.10 HDPE PIPES

Irrigation supply pipes between the connection points off the main ring feed and the quick coupling valves of class 10 high density polyethylene to SABS 533 of the diameters shown in the drawings.

Unit rate per meter of pipe includes all cost of labour and material to lay the pipe (of given diameter) in trenches.

PSLS3.11 UPVC PIPES FOR THE SPORTSFIELD IRRIGATION

Class 10 UPVC pressure pipes to SABS 966 in 6m lengths with integral lip seal joints of the classes and installed in the positions shown in the drawings.

Unit rate per meter of pipe includes all cost of labour and material to lay the pipe (of given diameter) in trenches.

PSLS3.12 EXCAVATE AND BACKFILL TRENCHES

Excavation and backfilling of trenches 700mm deep and 300mm wide for all UPVC pipes and 400mm deep and of any suitable width for all HDPE pipes in accordance with the relevant detail drawing. 100mm backfill around pipes to be free of all stones and hard objects. Backfill to be compacted in layers of 150mm to a density of 88% Mod AASHTO.

Unit rate per meter includes all cost of labour and machinery to excavate the trenches and to backfill and compact after the pipes have been laid.

PSLS3.13 IMPORT GRADED BACKFILL

This item is included in the Schedule of Quantities as a provision in the event that material from the excavations is found unsuitable in the opinion of the Engineer for backfilling of the trenches. For the purpose of payment, the quantity given will be subject to remeasurement.

Unit rate per m³ includes all cost of material, transport to site and the placing thereof around the pipe as specified above.

PSLS3.14 CONSTRUCT THRUST BLOCKS

Concrete thrust blocks constructed at all points in change of direction in the pipes or other equipment, and pressure testing of the pipe work between the supply point and the Q/C valves. The standard for pressure testing shall be a loss not exceeding 5,0l/hr per 100m of installed pipe and fitting at an initial pressure of 1500 kPa.

The sum price includes all costs of labour and equipment to flush and pressure test the system as specified.

PSLS4 PLANTING

PSLS4.1 GRASSING

PSLS 4.1.1 Kikuyu Lawn by Turf (Instant Lawn)

ORIGIN: Should the turf be from a source unknown to the Engineer, the Contractor shall supply a sample of the turf he intends using, for the Engineer's approval. All turves used on the site shall be of a similar type to the approved sample.

The grass shall be of close texture, of even density and green in colour. The turves should be sufficiently fibrous for turves to hold together when handled; excess fibre or mat is to be avoided. The grass shall have been closely mown to a maximum length of 25mm. It shall not be infected with pests or diseases.

Turves should be of rectangular shape, and of uniform thickness.

PREPARATION: All areas to be turfed are to be cultivated to a depth of at least 100mm, cleared free of rubbish and weeds, and brought to a fine tilth.

Before turfing, 2:3:2 fertilizer shall be raked into the top 100mm at a rate of 1kg per 10m² as the final tilth is reached. Before turfing, all lawn areas shall be moistened.

LAYING: Any turf brought to the site or laid prior to the approval of the Engineer, shall be deemed to be brought on or laid, at the Contractor's risk, and he will be instructed to lift or cart away such turf off the site, and replace or re-lay at his own expense unless instructions to the contrary be given by the Engineer.

Turf shall not be laid within 300mm of any tree trunk.

Turf areas adjoining buildings, boundary walls or fences shall be taken to the faces of these structures to give complete soil coverage.

No turf shall be laid until the topsoiling in whole or part has been satisfactorily completed by being brought to an even tilth and firmness. The turves shall be laid on prepared soil beds and firmed into position in consecutive rows with broken joints (as in stretcher bond brickwork), closely butted and to the correct levels. Where necessary, the turves should be lightly and evenly firmed with wooden beaters, the bottom of the beaters being frequently scraped clean of soil or mud.

The finished level of the turf should conform to the levels indicated, allowing for final settlement. Turves may be lightly rolled with a roller not exceeding 20kg to achieve final levels, but under no circumstances may a heavy roller be used except where authorized by the Engineer.

WATERING: Damage or failure due to neglect of watering shall be the responsibility of the Contractor. Any scorched or wilted turf shall be replaced at the Contractor's own expense.

PSLS 4.1.2 Kikuyu Lawn by Roots

All areas where lawn roots are to be planted shall be cultivated to a depth of at least 100mm, cleared free of weeds and rubbish, and brought to a fine tilth.

Before planting, 2:3:2 fertilizer is to be worked into the top 150mm of soil at the rate of 0,75kg per 10m².

Roots shall be laid horizontally with a 50% overlap in trenches 50mm deep.

After planting, planted areas to be lightly rolled (maximum mass of roller not to exceed 20kg) to eliminate all irregularities.

Planted areas are to be well watered after planting, and kept damp at all times until site is handed over. At site handover the lawn coverage must be a minimum of 70% per m².

Additional to the above fertilizer specification, the supply and spread of 2 x applications of 600kg/Ha of 3:2:1 (28) must be added to the m² rate. Unit rate per m² includes all cost of labor and material to supply fertilizer and prepare the area, the supply (plus transport) and planting of the lawn (turf or by roots) plus the rolling of the lawn thereafter. This unit rate per m² will also include the maintenance of the lawns until the landscaping section has been totally completed.

PSLS 4.1.3 Veld Grass

To be Cynodon Dactylon Bermuda (hulled), 60g of seed per Ha. Fertilizer to be worked into top 150mm of soil:

2:3:2	500kg/Ha
Ammonium sulphate	300kg/Ha

After the seed has been sown, the following to be applied:

Ammonium sulphate – 300kg/Ha every 6 weeks.

3:2:1 (28) – 300kg/Ha – 3 applications

Roll veldgrass areas with 40kg hand roller.

At hand-over the veldgrass coverage must be a minimum of 65% per m².

The m² rate includes all costs of labour and material to supply seed and fertilizer, the preparation of the ground, the sowing of the seed and the rolling thereof, plus the additional seeding, fertilizing and soil preparation in areas where seed had not germinated. This unit rate m² will also include the maintenance of the veldgrass until the completion of the total landscaping section.

PSLS4.2 TREES, SHRUBS AND GROUNDCOVERS

Trees and shrubs shall be true to name. Each specimen of tree or shrub shall be legibly labeled with its name and the name of the supplier.

Trees and shrubs shall be substantially free from pests and diseases, and shall be materially undamaged. No plants or exposed roots shall be subjected to adverse conditions, such as prolonged exposure to drying winds and sun, or subjected to waterlogging at any time after purchase.

Trees and shrubs shall be of size stated and supplied in the container size as specified.

All plant material shall be subject to the approval of the Engineer.

Trees and shrubs shall be set out according to the plant drawing provided. Before any planting commences all positions of trees and shrubs are to be checked by the Engineer.

In the event of any obstructions being encountered in the planting operations, alterations, alternate positions will be selected by the Architector Engineer. Relative positions of all trees and shrubs are subject to the approval of the Engineer, and they shall, if necessary, be relocated as directed as part of this contract.

PSLS 4.2.1 Trees

Holes for trees shall be trenched 1m x 1m x 1m in dimension and shall be prepared as follows:

0,25kg superphosphate per hole

0,125kg 2:3:2 fertilizer per hole

5 x 10 litre containers compost per hole 0,5kg bonemeal or bone phosphate per hole

The soil from each individual hole shall be removed from the hole and the above additives well worked into both the topsoil – which shall be kept in a separate pile – and the subsoil in equal proportions. The bottom of the hole shall be forked to break up the subsoil. Before planting, the prepared soil shall be returned to the hole and watered. A hole shall be excavated from the prepared hole to accommodate the root ball. After planting, the soil around the plant shall be well firmed down.

All trees to be staked. All stakes shall be placed in prepared holes and driven a minimum of 600mm into sold ground.

Stakes shall be iron fencing standards to suitable treated wooden stakes not less than 3m in length.

Trees shall be planted as close as possible to stakes without root crowding, and shall be fastened to stakes in at least two places viz: 150mm below top of stake and 1m below first tie, depending on height of stake. Adjustable plastic tree ties should be used.

All trees to be supplied with watering basins which must be maintained on a weekly basis until the completion of the maintenance period. A mound of soil around each tree shall be constructed to form a watering basin following the shape of the planting pit area, and firmly compacted. These mounds shall be at least 100mm high. After watering, any settlement within the basins shall be refilled to the required grade with prepared soil.

Trees not to be smaller than 1,8m excluding height of container, trunk size at base minimum of 50mm ø. All trees to be containerized.

Unit rate per tree includes all cost of labour and material to supply the tree, excavate the tree hole, supply the fertilizer and compost, the mixing thereof into the soil and the planting of the tree, plus the supply and tie of tree stake. The unit rate must also include all costs to maintain the tree until the total landscape section has been completed.

PSLS 4.2.2 Shrubs

Holes for shrubs shall be 0,5 x 0,5 x 0,5m in dimension and shall be prepared as follows:

0,25kg superphosphate per hole.
0,125kg 2:3:2 fertilizer per hold.
4 x 10 litre containers compost per hole.
0.25kg bonemeal or bone phosphate per hole.

Soil preparation and watering basins as specified in item 4.2.1.

Stock size plants will be plants in 4/ containers. Height of plants +450mm (excludes height of container) and crown ÷ 250mm ø.

Unit rate per shrub includes all costs of material and labour to supply the shrub, excavate the shrub hole, supply the fertilizer and compost, the mixing thereof into the soil and the planting of the shrub. Unit rate must also include all costs to maintain the shrubs until the total landscape section has been completed.

PSLS 4.2.3 Ground Cover Plants

Groundcover plants shall be true to name and shall be from an approved source.

Openrooted plants shall have an established root system, and shall be kept damp at all times before transplanting.

Openrooted planted will only be acceptable where specifically stated. All groundcover plants will be well established in the container size specified. Rooted cuttings will only be accepted where specifically stated.

All groundcover areas shall be cultivated to a depth of 100mm, cleared free of weeds and rubbish and brought to a medium tilth. Before planting, the following shall be raked into top 100mm:

0,25kg per m² superphosphate
0,05kg per m² 2:3:2 fertilizer
0,05 m³ per compost (5 x litre containers).

Individual holes shall be dug large enough to accommodate the roots, and spacing should be according to specifications. After planting all plants shall be well firmed down and watered.

Unit rate per groundcover plant will include all costs of labour and material to supply the groundcover plant, excavate the hole, supply and fertilize the area and the planting of the plant. The unit rate must also include all maintenance costs to maintain the area until the total landscape section has been completed.

PSLS5 MAINTENANCE

The Contractor shall continuously maintain all areas included in the contract during the progress of work, the maintenance period, and until final acceptance of the work.

PSLS5.1 LAWN

All lawn areas shall be fed every 6 weeks during the maintenance period with a dressing of 3:2:1 (28) fertilizer, 600kg/Ha.

Other maintenance shall consist of watering – 35mm precipitation per week, weeding, cutting, repair of all erosion and settlement, and replanting as necessary to establish a uniform and healthy stand of the specified type, and shall continue until the end of the specified maintenance period (1 cut per week).

All lawn shall be cut for the first time when runners reach a length of 100mm, or vertical growth has reached a height of 50mm. Lawn shall only be cut when the grass is dry except when continual rain necessitates the cutting of wet grass.

Lawn mowers shall not be set higher than 50mm, and a maximum of one third of the leaf length may be removed at one cutting.

All grass cuttings shall be collected and removed from the site unless otherwise specified by the Engineer.

All weed growth that is not removed by the cutting process must be removed from lawn areas and from the site. Weedkillers may only be used with written permission of the Engineer.

Any bare patches that may occur in the lawn larger than 0,25m² shall be replanted with the specified species in the same manner specified under item 4.1.

All unevenness in the lawn areas will be eliminated by riversand topdressing as and when necessary and indicated by the Engineer. Topdressing layers not to exceed a thickness of 20mm per dressing.

PSLS5.2 TREES, SHRUGS AND GROUND COVERS

The Contractor shall replace any plants at his own cost that may die from time of delivery to the site until the time of handing over. The species replaced shall be those originally specified unless otherwise agreed.

The Contractor shall carry out regular inspections to determine the incidence of pest or diseases. The use of insecticides and/or fungicides shall be with the approval of the Engineer.

All planted areas shall be kept free of all debris, and shall be weeded at regular intervals to maintain weed growth to a minimum.

The Contractor shall maintain watering basins in the manner specified in item 4.2.1 above.

All plant material shall be pruned and/or cut back from time to time as directed by the Engineer.

Shrub beds and trees to be mulched with a 25mm layer of well-rotted organic compost every 2 months during the maintenance period.

Unit rate per m² per month to maintain the landscaped areas will include all costs of labour, machinery and material to maintain the area as specified above.

The Client will ensure that water will always be available at no charge.

The Contractor must train ± 8 of the local labourers to maintain the project, so that they can be employed by the College after the completion of the maintenance period.

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PARTICULAR SPECIFICATION – BUILDING WORKS

PA SECURITY AND FENCING

PA.1 GENERAL

The specification for Fencing shall be that as published by the South African Bureau of Standards, CKS 451-1976 entitled Specification for Anti-Intruder Fences, with the following specific requirements:

PA.2 SECTION 3.1.1

The material of the posts, extension arms (cast integrally with the posts) and stays shall be pre-stressed concrete).

PA.3 SECTION 3.1.5

The material of the wire (other than barbed wire) shall be galvanised and plastic coated mild steel wire.

PA.4 SECTION 3.1.6(A)

The mesh shall be of 2,4 m width.

PA.5 SECTION 3.1.7

The barbed wire shall be double-stranded mild steel wire of diameter 2,5 mm with first class galvanised coating.

PA.6 SECTION 3.2.2

The extension arm shall be a single straight arm cast at an angle to the post of +/- 135°

PA.7 SECTION 4.1.1

The fence shall be erected in the position indicated on the drawing or as directed on site.

PA.8 SECTION 4.1.3

There shall be at least 5 straining wires.

PA.9 SECTION 4.2.6

The bottom of the mesh shall be attached to the ground by the following method:

A continuous trench of depth and width approximately 100mm shall be provided between the posts. The bottom of the mesh shall be positioned at a depth of at least

50mm in the trench. Anchor pegs shall be attached to the bottom row of apertures of the mesh at spacing not exceeding 1,0 m and their free ends driven into the base of the trench to a depth of at least 40 mm. The trench shall be filled with earth or other suitable material, well rammed .

PA.10 MEASUREMENT AND PAYMENT

Measurement shall be by the linear metre of the fence and the price tendered and paid shall cover the full cost of supplying and erecting the fence completed, as specified.

PA.11 IDENTIFYING PAINTWORK

A horizontal bar of paint approximately 200 mm wide shall be painted centrally on all security fencing and gates with an approve quality paint in accordance with specification PU2.8

PB STOCKPROOF FENCING

PB.1 SCOPE

This specification covers the requirements for stock proof fencing and gates.

PB.2 SUPPORTING SPECIFICATIONS

The specification shall be read in conjunction with the following specifications published by the South African Bureau of Standards.

CKS 451 - 1976 : “Specification for Anti-intruder Fences”

PB.3 MATERIALS

PB.3.1 Straining posts, gate posts and stays

Straining posts, gateposts and stays shall be of timber and comply with the relevant requirements of SABS 457. The straining posts and gateposts shall have a minimum diameter of 125 mm and shall be 2,15 m long. The stays shall have a minimum diameter of 100 mm and shall be 2,15 m long.

PB.3.2 Intermediate posts (standards)

Intermediate posts (standards) shall be steel Y-section posts and capable of withstanding a bending moment of 700 Nm imposed over their length. These standards shall be 1,86 m long and have a mass per unit length of 2,5 kg/m.

PB.3.3 Intermediate posts (standards)

Intermediate posts (standards) shall be steel Y-section posts and capable of withstanding a bending moment of 700 Nm imposed over their length. These standards shall be 1,86 m long and have a mass per unit length of 2,5 kg/m.

PB.3.4 Droppers

Droppers shall be of steel T-sections and have a ridged crosspiece. Droppers shall be 1,4 m long and have a mass per unit length of 550 g/m.

PB.3.5 Wire

All wire shall comply with the relevant requirements of SABS 675 and shall be light class galvanised.

Barbed wire shall be double stranded mild steel of 2,5mm diameter.

Plain wire shall be 2,24 mm diameter high tensile.

Tie wire shall have a diameter of 1,6 mm.

PB.3.6 Bolts, nuts and washers

Strain eyebolts, hinge bolts, bolts and nuts shall comply with the relevant requirements of SABS 135. Washers shall comply with the requirements of SABS 1149.

The nominal diameter of the bolts shall be M10 in the case of strain eye bolts, M12 in the case of bolts for bolting stays to straining posts, and M16 in the case of hinge bolts for gates.

PB.3.7 Pedestrian and vehicular gates

Pedestrian and Vehicular gates shall be Type A (general purpose single gate) with tubular frame and strained wire filling. Pedestrian gates to be 1,2 m high and 800 mm wide. Vehicular gates to be 1,2 m high and 3,6 m wide.

The main frame and bracing shall be manufactured of ductile weldable mild steel tubing with nominal internal diameters of 25 mm and 20 mm, respectively.

The gate frame and fittings shall have a hot-dip galvanised finish and the corners of the main frame shall be round.

Strained wire filling shall be of galvanised steel wire complying with the requirements of SABS 675 for mild steel wire with Class C (light) galvanised, spaced to suit the fence.

PB.3.8 Concrete

All concrete used in foundations shall have a minimum compressive strength of 10 MPa and shall comply with SABS 1200 GA.

PB.4 ERECTION

PB.4.1 General

The fence shall have a nominal height of 1,20 m. Both the bottom and the top strands of wire shall be barbed wire with alternating strands of plain and barbed wire between (6 strands barbed wire and 5 strands plain wire).

The bottom strand of wire shall be fixed nominally 100 mm above ground level, the next 5 strands shall be fixed 100 mm apart with the remaining top strands being 120 mm apart.

PB.4.2 Foundations

Each straining post, gate post, intermediate post and stay shall be embedded to full depth in a foundation hole of the following minimum dimensions:

- (a) Straining Post and Gate Post : 450 x 450 x 800 mm deep.
- (b) Intermediate Posts : 300 x 300 x 500 mm deep.
- (c) Stays : The hole shall have a length of 500 mm along the line of the fence and a width of 300 mm. The stay when in position, is to be approximately 45° to the post.

All foundation holes shall be at least half filled with concrete, except in the case of gate posts where the concrete shall be brought up to the height of approximately 50 mm above ground level.

The holes half filled with concrete shall be backfilled with soil, which shall be well rammed and consolidated.

PB.4.3 Posts

Straining posts shall be provided at all corners and other changes of direction, at acute variations in the level of the fence and along straights at minimum 500 m centres. Intermediate posts shall be spaced at 16 m centres.

Droppers shall be spaced at 4 m centres and shall be attached to the fence by tie wires using three full turns.

Gates shall not be hung on straining posts; instead, two additional posts shall be provided as gate posts at each gate.

PB.4.4 Stays

In general, two stays shall be bolted to each straining post. Straining posts at pedestrian access points and gateposts shall have only one stay. All stays shall be at 45° to the main posts, behind the wire and on the line of the fence.

PB.4.5 Barbed and plain wire

Each strand of wire shall have one end taken at least twice around a straining post, or passed at least twice through the eyebolt, with the free end twisted at least three times around the strand itself.

The wire shall be secured to each intermediate post by a tie wire, and the tie wire shall be secured to the barbed or plain wire by at least three complete turns on both sides of the post.

PB.4.6 Bolts, nuts and washers

One washer shall be placed under all nuts, and the end of bolts shall be burred over after erection has been completed.

PB.4.7 Vehicular gates

Vehicular gates shall be erected such that:

- (a) There is a gap of not less than 25 mm and not more than 50 mm between the hinge stiles and the gatepost.
- (b) There is a clearance of not less than 75 mm and not more than 150 mm between the bottom horizontal frame members and the ground.
- (c) When closed, there is a space of not more than 75 mm between the closing stile and the gatepost.

PB.5 MEASUREMENT AND PAYMENT

PB.5.1 Fence

Measurement shall be per linear metre of fence, with deductions made for all openings or gaps, and the price tendered and paid shall cover the full cost of supplying and erecting the fence complete, as specified.

Gates will be measured separately by number.

PC CONCRETE BLOCK PAVING (INTERNAL ROADS, PARKING AND PATHS)

PC.1 MATERIALS

PC.1.1 Bed Sand

Sand shall be a sharp washed sand containing not more than 3% of silt by weight and with not more than 15% retained on a 2,36 mm sieve.

PC.1.2 Jointing Sand

Jointing sand shall pass a 1,18 mm sieve and contain 90% material passing the 75 µm sieve. The sand shall be free of all soluble salts or contaminants likely to cause efflorescence or staining.

PC.2 CONSTRUCTION

PC.2.1 Sand Bed (Laying Course)

The laying course of sharp sand as specified shall be screeded to level between screed rails set to precise levels on the basecourse. Care is to be taken to avoid uneven compaction of the screeded sand and workmen should not be permitted to walk over the screeded area either during or after the screeding operation.

The road is to be screeded to a surcharge level to allow for compaction. In order to establish the correct level, an allowance of 1,4 x compacted thickness is generally adopted by to ensure that the surcharge is correct the final road level must be checked after the first few metres of blocks have been laid and vibrated into place. If the level is incorrect the blocks must be lifted and the sand raked and re-screeded to the correct level.

To help maintain uniformity the sand should be obtained from a single source and allowed to drain before use and covered over to minimise moisture changes.

PC.2.2 Surface Course

The blocks are to be laid in a herringbone pattern unless they are of an interlocking type.

The positioning of the first blocks demand extra care and they should be placed at the correct angle against a firm starting edge such as a kerb or channel.

The order of laying must ensure that the blocks can be placed easily and in such a way that it is not necessary to force a block between those already laid.

Each block must be placed firmly against its neighbours, being held slightly above the laying course so as not to disturb the sand until the block is in its correct position. Any damaged or disturbed blocks should be rejected.

All blocks must be laid so that they fit closely together. If joints begin to open they should be knocked together with a wooded mallet. Care must be taken not to tilt the blocks on the leading edge by standing on them.

Blocks up to and including 80 mm thickness are to be vibrated to their final level with a plate vibrator having an area of 0,2 to 0,4 m² and a centrifugal force of approximately 7 to 16 kN at a frequency of 75 – 100 Hz. For greater thickness the plate vibrator shall have an area of 0,35 to 0,5 m² and a centrifugal force of approximately 16 20 kN at a frequency of 75 – 100 Hz.

The vibrator should be passed at least 3 times over the whole area and should not be brought closer than 2m to the working face where blocks are unrestrained.

After this initial vibration, dry jointing sand as specified shall be brushed over the surface of the blocks and vibrated into the joints by a further 2 or 3 passes of the plate vibrator. After all the joints are filled surplus sand is to be swept away.

The finished surface of the paved area shall be uniform, true to cross-section and level and shall have not broken blocks or joint openings greater than 5 mm in width. When tested with a 3 mm straight edge the surface shall not vary from the underside by more than 10 mm. Levels of adjacent blocks shall not differ by more than 3 mm and the line of the pattern shall not deviate more than 15 mm from a 3 m straight edge.

PC.2.3 Edge Restraints

Adequate edge restraint in the form of kerbs, channels or concrete edgings suitably bedded and haunched in concrete must be provided around the paved areas.

PC.2.4 Infill at Edges

Areas against kerbs, manholes, etc, requiring infilling and which exceed 25% of the full block unit shall be filled with units cut to size using an approved cutting machine. Infill areas constituting less than 25% of a full block area and of 25 mm minimum dimension shall be filled with 25 MPa concrete. Smaller areas shall be filled with a 4:1 sand cement mortar.

PC.2.5 Laying Blocks Around Curves

The herringbone pattern should not be disturbed in an attempt to follow curves.

PC.3 MEASUREMENT AND PAYMENT

Measurement and payment shall be per m² of block paving laid. Payment shall include for the supply of blocks, bedding and jointing sand and all labour, tools and plant involved in spreading the sand, placing the blocks, compaction and filling joints, and for the cutting of blocks where necessary.

PD EARTHWORKS

PD.1 EARTHWORKS

Before commencing any earthworks the Contractor shall satisfy himself as to the accuracy of any levels indicated on the drawings as no claim will be entertained at a later date for any alleged inaccuracy in such levels.

Excavation to trenches, bases, etc., is measured the net width of concrete or other foundations and no allowance is made for battering sides. In measuring excavations this rule will be adopted irrespective of the size and extent to which excavations may have been executed.

Any excavations for trenches and holes taken out too deep shall be made up to the correct level with concrete (Class 20A) as later specified at the Contractor's expense, backfilling and ramming will not be accepted.

Rates are to include for trimming sides and stepping, levelling and ramming bottoms.

Unless otherwise described, the surplus material from the excavations, except when required for filling, is to be wheeled, deposited and spread on site as directed, within 100 metres of the perimeter of the building.

PD.1.1 Pickable material

Pickable Material is understood to include sand, earth, clay, gravel, soft shale, loose boulders less than 75 mm diameter, made up ground, etc., which is removable with pick and shovel.

PD.1.2 Soft rock

Soft Rock is understood to include outcrop, hard shale, mountain overburden, decomposed and weathered rock or rock of similar hardness and loose boulders from 75 mm diameter up to 0.03 m³.

PD.2 HARD ROCK

Hard Rock is understood to include granite, quartzite, sandstone, mountain stone or rock of similar hardness.

PD.3 BLASTING

In the event of the Contractor deciding to resort to blasting for the loosening of the ground to be worked, he must conform to the relevant Government Regulations governing blasting and must indemnify the Employer against any possible claims which might arise.

PD.4 MEASUREMENT OF EARTHWORKS

The method which has been adopted in this Bill of Quantities for the measurement of earthworks is that the site has been first excavated to the new formation levels. The foundation excavations have then been measured below such formation levels. This method will be adhered to in all

measurements of excavations, and should the Contractor wish to perform them in any other order or by any other method, he must allow for so doing in his rates.

PD.5 CARTING AWAY SURPLUS MATERIAL

The item measured for carting away of surplus excavated material is to include for loading onto transport and removing completely from the site. The volume measured is net as excavated, and the Contractor is to allow for bulking in his rate.

When an item is measured for carting away surplus excavated material and the Engineer's permission has been obtained to use such surplus material in the mixing of plaster, mortar, etc., the measured volume of material to be carted away will be adjusted accordingly.

PD.6 KEEP EXCAVATIONS FREE OF WATER

Allow for keeping excavations free from water and mud accumulating by seepage, rain, storms, floods, or any other water by pumping or baling or as maybe necessary.

PD.7 RISK OF COLLAPSE OF EXCAVATIONS

The items measured hereafter to the superficial area of the sides of the excavations (all sides measured) are to be priced by the Contractor to include for maintaining the sides of these excavations by such methods as he may choose to adopt, either by cutting back the soil to its natural angle of repose, or by open or close planking and strutting, or for any risk incurred by his failure to adopt any of the preceding methods.

Should any ground fall in other than that required to be excavated, owing to omission or inefficiency of planking and strutting, it will not be paid for as excavation and must be dug out and deposited on site or carried away, returned and refilled as directed by the Engineer.

Where excavations exceed 1,5 m deep the Contractor shall maintain all excavated faces in accordance with Government Regulations, as separately provided for.

PD.8 EARTH FILLING

Filling under solid floors and over site is to be executed with approved dry earth, free from clay and spread in layers not exceeding 200 mm thick, well watered, rammed and consolidated to optimum density. Prices for filling over site are to include for forming to falls, slopes, banks, etc.

When in the opinion of the Engineer, the density of the natural ground under surface beds is insufficient for the duty required, the surface shall be scarified to a depth of 150 mm with a mechanical ripper or other approved equipment watered as necessary and re-compacted as specified.

In fills, if the final layer required to bring the level of the surface up to that specified is less than 75 mm thick the preceding layer shall be scarified to a

depth of 100 mm, the final layer spread on the scarified surface and the whole compacted as described.

PD.9 GARDEN SOIL FILLING

Garden soil filling shall be rich, selected, well-sifted soil containing proper proportions of loam and leaf mould, and shall be lightly compacted.

PD.10 HARDCORE

Hardcore filling to be composed of hard broken bricks, stone or other approved hard material (not less than 25 mm and not exceeding 75 mm in section), evenly spread and levelled with the finer material on top, well consolidated by ramming and levelled off under solid floors, steps, landings, etc.

PD.11 PROTECTION AGAINST TERMITES

Ant-proofing under solid or suspended floors is to be executed by an approved and registered specialist firm of pest exterminators, who will be required to provide a written guarantee to the Engineer, that no subterranean termites will appear within the treated area, for a minimum period of 10 years. Particular care is to be taken in treating the soil on both sides of foundations, walls, piers, etc., and to ensure that the ground surface treated is not ruptured. Should the poisoned layer be ruptured at any point, it shall be made good and the affected area treated again.

PE FORMWORK

PE.1 STANDARD SPECIFICATION

All work involving formwork in the construction of concrete shall conform with the requirements of SABS 1200 G except where otherwise specified.

PE.2 DESIGN OF FORMWORK

The Contractor shall be wholly responsible for the design, sufficiency and strength of the formwork. If required, the Contractor shall submit design calculations and formwork proposals to the Engineer for approval before construction.

All formwork shall be constructed of timber, sheet metal or other approved material. The soffits of beams shall be erected to an approved upward camber, which shall not be less than 1 in 1000 except where windows are fixed directly to beam soffits in which case the soffits shall be level unless otherwise specified. The maximum deflection of any formwork component supporting wet concrete shall not exceed 1/360 of the span of that component. Gum-poles used as props shall not be less than 100 mm at any diameter.

No timber shall be used which shrinks or warps or swells to such an extent that the corners of concrete members will be damaged before the concrete has set hard.

On formwork to faces which will be permanently exposed, all horizontal and vertical formwork joints shall be so arranged that joint lines will form an approved uniform pattern on the face of the concrete. Where the Contractor proposes to make up the formwork from standard sized manufactured formwork panels, the size of such panels shall be approved by the Engineer before they are used in the construction of the Works. The finished appearance of the entire elevation of the structure and adjoining structures shall be considered when planning the pattern of joint lines caused by formwork and construction joints to ensure continuity and vertical lines.

Faces of formwork in contact with concrete shall be free from adhering foreign matter, projecting nails and the like, splits or other defects, and all formwork shall be clean and free from standing water, dirt, shavings, chippings or other foreign matter. Joints shall be sufficiently watertight to prevent the escape of mortar or the formation of fins or other blemishes on the face of the concrete.

Formwork shall be provided for the top surfaces of sloping work where the slope exceeds fifteen degrees from the horizontal (except where such top surface is specified as spaded finish) and shall be anchored to enable the concrete to be properly compacted and to prevent flotation. Care shall be taken to prevent air pockets being trapped against the upper shutter.

Openings for inspection of the inside of the formwork and for the removal of water used for washing down shall be provided and so formed as to be easily closed. Before placing concrete all bolts, pipes or conduits or any other fixtures which are to be built in shall be fixed in their correct positions, and cores and other devices for forming holes shall be held fast by fixing to the formwork or otherwise.

All exterior angles on the finished concrete of 90 degrees or less shall be given 20 mm by 20 mm chamfers unless otherwise shown on the drawings or as ordered by the Engineer.

No nails shall be driven nor ties or bolts or other devices shall be built into the concrete for the purpose of supporting formwork without the prior approval of the Engineer. The whole or part of any such supports shall be capable of removal so that no metal part remaining embedded in the concrete shall be nearer than 50 mm from the surface in the case of reinforced concrete and 150 mm in the case of unreinforced concrete. Small tubes of fibre cement maybe used up to the shutter. Holes left after removal of such supports shall be neatly filled with well rammed dry-packed mortar.

PE.3 CLASSES OF FORMWORK

Formwork may be of steel or timber and will be specified for use in accordance with the following classifications:

Class 1 - Rough formwork intended for use in forming concrete faces which will be covered by earth or brickwork, e.g. foundations, external faces of retaining walls and the like.

While the concrete faces resulting from the use of this class of formwork may be rough, the joints shall nevertheless be sufficiently tight to prevent leakage of mortar from the concrete.

Class 2 - Formwork intended for use in forming concrete faces which will be plastered or covered with tiles, mosaic or other similar finishes shall be such as to impart to the resultant concrete face a finish equal to that which would be obtained by use of sawn timber or ordinary steel plates.

Class 3 - Formwork intended for use in forming concrete faces which will not be covered other than by painting, if at all, shall be such as to impart to the resultant concrete face a finish equal to that which would result from the use of plywood faced shutter boards or special steel forms which are new when concreting commences and are thoroughly cleaned after each use. The concrete surfaces shall be free from porosities, blowholes and surface aggregate. If not attained after stripping of formwork, the Contractor shall achieve the specified finish and tolerance by the proper use at the correct time of carborundum blocks or other approved means.

When this class of formwork is used to form the soffits of slabs or the faces of walls or columns, no wire ties passing through the face of concrete shall be used and the arrangement of panels shall be symmetrically set out from edges or centre lines. Odd dimension fill-in panels shall be cut to size and symmetrically placed in approved positions. All joints between shutter panels shall be straight and tight to approval.

Class 4 - Special formwork for forming kerbs, pedestals and the like. This formwork shall be in the form of special moulds and shall be made of a non-staining material with a smooth unblemished surface such as sanded plywood, hard compressed fibre board or purpose made steel forms.

The finish shall be as for Class 3 formwork and trial casts shall be made with the forms and the Engineers approval obtained in writing before the forms may be used.

PE.4 TOLERANCES

Concrete surfaces resulting from the concrete have been cast against the formwork shall not depart from the intended lines or plane surfaces shown on the drawings by more than the following distances. Gradual departures from plane surfaces being defined as the out-of-true measurements of the concrete surfaces falling between the ends of a 3 metre long straight edge placed against such surfaces in all directions. Abrupt departures shall include lips between successive casts of concrete, fins and the like shall be brought to within tolerance by grinding or other acceptable means at the Contractor's expense.

In particular the departures from the levels of soffits of beams and slabs shown on the drawings shall not exceed the tolerances shown in the following table.

Formwork	Tolerance on positions of formwork	Gradual Departures	Abrupt Departures	Soffit Tolerances (Beams and slabs)
1		15 mm	10 mm	+ 15 or - 15
2	As per SABS	8 mm	5 mm	+ 10 or - 0
3	1200 G	5 mm	1,5 mm	+ 10 or - 0
4		3 mm	1,5 mm	-

A tolerance of 3 mm or 1/2 of 1%, whichever is the larger, shall be permitted on cross-section dimensions of structural members. For concrete stairs, the maximum variation permitted in successive dimensions between nosings shall be 3 mm vertically and 6 mm horizontally.

PE.5 SOFFIT GROOVE FORMERS

Where specified, forming strips of approved extruded plastic or similar material shall be inserted between adjacent formwork elements forming the soffit shutters to slabs or the face shutters to walls, in such a manner as to form grooves in the concrete soffits or faces along the formwork joints. The resultant groove shall have the shape of an inverted letter V and shall be 10 mm deep and 10 mm wide at the bottom. The grooves shall be straight and arranged in patterns to the Engineer's approval. Alternative shapes for the grooves will be considered.

PE.6 HORSING UP

Unless otherwise stated all horsing up under formwork is exceeding 1,5 metres and not exceeding 4,5 metres high.

PE.7 ADEQUATE SUPPORT FOR PROPS

Where props must be supported on filled material or on the natural ground, suitable precautions shall be taken to prevent settlement of the props. All vertical strutting and propping shall be founded on earlier construction which will afford the required support without settlement or damage. Particular care shall be taken with the propping of cantilevered beams and slabs in successive stories of construction. Props shall be placed vertically above one another and all props shall remain in position or be replaced immediately after striking the soffit formwork until all floors have been constructed.

In structures having in whole or part, two or more reinforced concrete floors, props to the approval of the Engineer, shall be provided under the soffits of beams and slabs or any floor which is being used to support the formwork and wet concrete of the floor above. These props shall not be removed until the formwork supporting the concrete of the floor above has been struck.

No formwork, however, is to be removed without the prior consent of the Engineer.

PE.8 RE-USE OF FORMS

Immediately after stripping, forms intended for re-use shall be thoroughly cleaned and re-conditioned and, in the case of steel forms, be oiled to prevent rusting. They shall be neatly stacked and protected from damage until required for re-use. Any formwork elements which have become damaged or distorted to such an extent that their re-use, will, in the opinion of the Engineer, result in the concrete or the surface of the concrete not complying with the requirements of this Specification, shall be removed from the Site.

PE.9 FORMWORK MOULD OIL

Formwork in contact with the concrete shall be treated with an approved non-standing mould oil to prevent adherence of the concrete, except where the surface is subsequently to be rendered. The Contractor shall ensure that the mould oil is completely compatible with the concrete surface treatment to be used, paint work and the like. Every precaution shall be taken to prevent the oil from coming in contact with the reinforcement or with concrete at construction joints. Surface retarding agents shall be used only when ordered by the Engineer.

PE.10 HOLES FOR ELECTRICAL WORK

Should steel formwork to be used by the Contractor must either allow the Electrical Specialist to drill holes through the formwork for fixing of junction boxes, or make other arrangements so that the junction boxes can be properly fixed.

PE.11 PRICES

Prices for formwork are to include for all straight cutting and waste, beam columns and wall intersections, fixing, horsing and wedging, also for easing, striking and removing, except where described as "left in".

PF STEEL REINFORCEMENT

PF.1 STANDARD SPECIFICATION

All work involving steel reinforcement in reinforced concrete shall conform with the requirements of SABS 1200 G.

PF.2 DEFINITION

Reinforcement shall mean all or any of the following: steel wire, round twisted or deformed steel bars and steel wire fabric mesh which are to be embedded in concrete for the purpose of assisting the concrete to resist forces which may be imposed on it or to prevent its cracking.

- (a) Reinforcing bars shall be of the grades specified on the drawings and in accordance with the “Standard Specification for Steel Bars for Concrete Reinforcement” SABS 920.
- (b) Steel wire fabric mesh shall be of the grade specified on the drawings and in accordance with SABS 1024.

PF.3 STORAGE OF REINFORCEMENT

Further to the requirements of SABS 1200 G the Contractor shall stack separately and label different types of reinforcement for positive identification.

Care shall be taken in stacking the reinforcement to avoid bending or twisting the bars or cages at the bottom of the stack due to the weight of the steel in the upper part of the stack.

PG PRECAST CONCRETE WORK

Cement, sand and stone shall be as described under the Concrete Work.

The manufacturer of precast units shall be so arranged as to ensure that the concrete units are cured for the correct time before handling.

Precast concrete units shall, where appropriate be constructed in accordance with British Standards as follows, being hydraulically pressed where possible.

<u>Type of Unit</u>	<u>Standard</u>
Concrete blocks	BS 2028
Concrete kerbs and the like	BS 340
Concrete flags	BS 368
Concrete cills	BS 1237
Concrete lintels	BS 1239

Other precast concrete units shall be manufactured from class 30 concrete or the class of concrete and to the sizes and details shown on the drawings, and the concrete shall comply in every respect with the provisions of the Contract whether such units are manufactured on Site or obtained from approved manufacturers.

The Contractor shall satisfy himself that the reinforcement detailed on the drawings is adequate to deal with the stresses which are likely to be imposed on the units by the method of handling, lifting and transporting adopted.

Units shall be adequately protected during storage, handling, lifting and transporting to avoid any straining or damage to the units. Any units so strained or damaged shall be rejected and replaced at the Contractor's expense. Projecting reinforcement, bolts, etc., shall be protected so that they are maintained in their correct position.

All units shall be clearly marked with date of manufacture and identification marks so that the marking will not be visible on the final structure.

PG.1 TOLERANCES

All units shall be within the tolerances below:

PG.1.1 Length

For dimensions not exceeding 300 mm + 3 mm to 0 mm

For dimensions exceeding 300 mm but not exceeding 3 m	$\pm 3 \text{ mm}$
For dimensions exceeding 3 m	+ 3 mm to 6 mm

PG.1.2 Squareness

When considering the squareness of a corner, the longer of two adjacent sides being checked should be taken on the base line. The shorter side should not vary in its distance from a perpendicular from the corner by more than 6 mm.

PG.1.3 Twist

Any corner should not be more than the tolerance stated below from the plane containing the other three corners:

PG.1.4 Flatness

The maximum deviation from a 1,5 m straight edge placed in any position on nominally plane surfaces, shall not exceed 3 mm.

PG.1.5 Warpage

Warpage shall not be more than 1 mm for each 600 mm ran.

PG.1.6 Absorption

Total water absorption shall not exceed 6,5% by weight.

Care must be taken during manufacture that no damage or staining or finished surfaces is caused by any releasing agents.

Prices are to include for all casing and moulds and for reinforcement as described. Unless otherwise described, finished work is to be finished to the proper surface described in the moulds.

All units shall be laid, bedded, jointed and fixed in accordance with the lines, levels and other details shown on the drawings.

Pre-stressed concrete lintels are to precast stock lengths wherever possible, but in all cases, are to have a minimum bearing of 220 mm each side of opening. Prices for lintels are also to include for propping in accordance with the manufacturer's instructions.

PH BLOCKWORK

PH.1 SAND

Sand shall be as obtained from an approved source and shall conform with the requirement of SABS 1090 - 1976 and be well graded from 5 mm down, in accordance with table 1 therein.

PH.2 LIME

All lime used shall be hydrated bedding mortar lime complying with the requirements of SABS Specification for Building Lime 523.

PH.3 CEMENT

Cement is to be as described under “Concrete Work”.

PH.4 MORTAR PLASTICS

Mortar Plastics shall comply with BS 4887 and shall be used in the proportions and manner recommended by the manufacturer.

PH.5 LIME MORTAR

Unless otherwise described, lime mortar shall be composed of four parts sand to one part lime by volume and allowed to slake for at least ten days before use. The mortar shall be kept moist until required for use by covering with wet sacks or other approved means.

PH.6 CEMENT MORTAR

Unless otherwise described, cement mortar shall be composed of 6 parts sand to 1 part cement by volume mixed in small batches which can be reasonably used up within half an hour of mixing. No mortar is to be retained and subsequently re-used the following day by the mixing in of additional cement.

PH.7 COMPOSITION MORTAR

Unless otherwise described, composition mortar is to be composed of 12 parts sand to 2 parts lime and 1 part cement by volume, the cement added to the mixture in small batches, immediately before use.

PH.8 AGGREGATES FOR BLOCKS

Aggregates for blocks shall be obtained from an approved source, shall be hard, durable and chemically inert, shall conform with the requirements of SABS 1083 and shall be washed clean.

PH.9 WATER

Clean fresh water from the Local Authority supply is to be used throughout the Works. Where there is no such supply the water shall be clean and free from injurious amount of acids, alkalis, sugar and other organic substances.

PH.10 CONCRETE BLOCKS

Unless otherwise described, concrete blocks are to be good, hard, sound, dry and well cured and shall comply with SABS 527. All soft wet or insufficiently cured blocks will be rejected and samples of all blocks are to be submitted to the Engineer and approved by him before the blocks are delivered on site in bulk. Blocks for foundations are to be selected for hardness.

All blocks used will be Class B unless otherwise approved by the Engineer.

Unless otherwise described, all blockwork is to be in stretcher bond with galvanised wall ties in accordance with SABS 28 built in between skins and evenly spaced at a density of not less than 4 ties per m² of wall area. Blocks shall under no circumstances be wetted in any manner before laying and at the stoppage of work at any time the top of the wall shall be covered to prevent moisture entering the blocks. The blockwork is to have the joints flushed up at every course solid throughout the whole width of each course and to be laid on a solid bed of mortar. The joints of all walls to be plastered are to be raked out as the work proceeds to form key for plaster. All walls to be carried up regularly so that no part be built more than 1,5 m higher than the adjoining walls. Mortar joints generally are not to exceed 10 mm thickness.

The price of blockwork is to include for all plumbed angels, forming reveals, and all square cutting. Where the building is of the concrete cage or frame construction and the blockwork is mostly in large panels between the concrete columns and beams, prices are to include for packing up against columns and under beams as required. Where concrete columns and beams are built before blockwork, prices are to include for packing blockwork up against columns and under beams as required.

Unless otherwise described, the skins of hollow walls are to be tied together with and including wall ties in accordance with SABS 28. Wall ties are to be 150 mm longer than the width of the cavity, staggered vertically and spaced not more than 1 m apart in every third course of blockwork. Prices are to include for keeping the cavities free of rubbish, mortar droppings, etc. Openings are to be left as required for this purpose and afterwards built up and made good.

Cross wall shall be built up flush against the existing wall with a control joint at the link. If the cross wall is of hollow concrete blocks, the two walls shall be tied together with metal anchors, starting at the first course above the damp-proof course and spaced at a vertical distance not exceeding 1 200 mm. The anchors shall be at least 3 mm thick, at least 30 mm wide and approximately 700 mm long, with a 50 mm right angle bend at each end, and these bends shall be embedded in mortar or concrete that is placed in the cores. If the cross wall is of solid blocks, the two walls shall be tied together with strips of 0,65 mm minimum thickness expanded metal reinforcing mesh placed in every second horizontal joint, stretching across the vertical joint between the walls. The strips shall be at least 450 mm long and of such width that there is mortar cover of at least 20 mm over the edges of the strips.

PH.11 CUTTING OF BLOCKS

Where cutting is necessary, blocks shall be cut with a bolster or, for facing work, preferably with a mechanical cutting disc. Where hollow blocks are cut and cavities or grooves are exposed at ends, angles, joints, reveals or elsewhere, the cavities shall be filled with mortar and finished flush with the block face.

PH.12 RAKING BACK OF BLOCKWORK

Corners and other advanced work shall be raked back and not raised above the general level of the remaining blockwork by more than 1 m at one lift.

PH.13 CORNERS

All corners shall be accurately constructed and the height of courses shall be checked by a gauge rod as the work rises. The bonding of corners shall be done in such a way as to preserve symmetry in the appearance of the work.

PH.14 REVEALS

The depth of reveals and rebates shall conform as far as practicable to the block size, in order to maintain the strength of the masonry and to avoid cutting of blocks.

PH.15 JOINTING AND POINTING

As the work proceeds mortar joints on the face of the wall shall be compacted to give a (concave, or, trowelled, or, V, or, flush) joint. Tooling shall be delayed until the mortar has stiffened slightly.

When joints are to be subsequently pointed, the face joints shall be raked out to a depth of from 13 to 20 mm and later refilled with mortar and pointed to give an approved joint. Tooling shall be delayed until the mortar has stiffened slightly.

PH.16 STORAGE OF BLOCKS

Blocks shall be carefully unloaded and handled so as to prevent chipping and breakage. Blocks shall be stacked on a level site. The top of each stack shall be kept covered at all times during rainy weather.

PH.17 BAGGING

Bagging down blockwork and exposed faces of concrete occurring in block walls, is to include for filling all joints, crevices and any defects with 3 : 1 sand and cement mortar and then rubbing over with wet rough sacking or brushes soaked in liquid 5 : 1 sand and cement grout.

PH.18 BLOCK REINFORCING FABRIC

Unless otherwise described, blockwork reinforcement is to be of approved S.A. manufactured welded high-tensile steel wire reinforcing fabric of the widths stated, cut to lengths and lapped full width at angles and passings. Rates are to include for building into block walls.

PH.19 HOOP IRON CRAMPS

Cramps to wood frames to be 2 mm galvanised hoop iron 30 mm wide and 230 mm girth with one end twice screwed to frame and other end built into blockwork in cement mortar and turned up into brick joint.

PH.20 HOOP IRON ROOF TIES

Ties to roof rafters is to be 4 mm galvanised wire 1 500 mm girth with one end wrapped around and spiked to roof timbers and other end built into head of block wall in cement mortar, or embedded into concrete beam or slab.

PH.21 WATERPROOFING CODE OF PRACTICE

The Contractor will be required to construct the work measured under the Blockwork trade in accordance with the requirements of SABS 021-1973 “The Waterproofing of Buildings”.

PH.22 CLEANING DOWN

Acid shall not be used to clean down concrete masonry walls.

PH.23 REMOVAL OF MORTAR DROPPINGS

Mortar droppings which fall on the wall ties in a cavity wall shall be removed and temporary openings shall be provided to permit the removal of the droppings from the bottom of the cavity.

PH.24 WEEPHOLES

Where required to drain away moisture, and where detailed on the drawings, weepholes shall be located in the first course above any damp proof course or bond beam, or the like, the holes being approximately 50 mm high and located in each end.

PH.25 DAMP-PROOF COURSES

The block course on which a damp-proof course is to be laid shall be flushed up with mortar to form an even bed free from projections liable to puncture or damage the damp-proof course.

Where a damp-proof membrane is extended over the full thickness of a hollow masonry wall not less than 150 mm thick, the membrane may be regularly pierced over the centre of each cavity in blocks forming the wall. The piercing shall not exceed 40 mm in diameter and the surface of the membrane adjacent to the piercing shall be depressed towards the piercing.

PH.26 BLOCKWORK OVER OPENINGS

All masonry built over openings shall be adequately supported for not less than 7 days.

Where hollow blocks are used the cores adjacent to the openings shall be filled with concrete (Class 20).

Lintels over openings shall bear on the full thickness of the wall with a bearing length, at each end, of at least 150 mm. Lintels may be of precast reinforced concrete, or may be formed in situ by the use of special lintel blocks filled with concrete and reinforced near the bottom with at least two 12 mm diameter mild steel rods.

PH.27 BEARING PLATES ON BLOCKS

Bearing plates on blocks shall be bedded in mortar similar to that used for the masonry and shall be set level.

PH.28 CONTROL JOINTS

Control joints shall be provided at positions indicated on the drawing and shall be constructed as shown.

PH.29 PROTECTION AGAINST DAMAGE

Finished masonry shall be protected where necessary to avoid damage during the building operations.

PH.30 PROTECTION OF NEW WORK

In order that the hardening and strength development of the masonry will not be adversely affected, all new work shall be suitably protected from rain and against the possibility of the work drying out rapidly.

PH.31 BRACING DURING CONSTRUCTION

Masonry walls constructed in locations where they may be exposed to high winds during erection shall not be built higher than ten times their thickness unless adequately braced, or until provision is made for the prompt installation of permanent bracing at the floor or roof level immediately above the storey under construction. Back-filling shall not be placed against foundation walls until they have been braced to withstand the horizontal pressure.

PI BRICKWORK

PI.1 SAND

Sand shall be as obtained from an approved source and shall conform with the requirement of SABS 1090-1976.

PI.2 LIME

All lime used shall be hydrated bedding mortar lime complying with the requirements of SABS specification for Building Lime 523.

PI.3 CEMENT

Cement is to be as described under “Concrete Work”.

PI.4 LIME MORTAR

Unless otherwise described, lime mortar shall be composed of four parts sand to one part lime by volume and allowed to slake for at least ten days before use. The mortar shall be kept moist until required for use by covering with wet sacks or other approved means.

PI.5 CEMENT MORTAR

Unless otherwise described, cement mortar shall be composed of 6 parts sand to 1 part cement by volume mixed in small batches which can be reasonably used up within half an hour of mixing. No mortar is to be retained and subsequently re-used the following day by the mixing in of additional cement.

PI.6 COMPOSITION MORTAR

Unless otherwise described, composition mortar is to be composed of 12 parts sand to 2 parts lime and 1 part cement by volume, the cement added to the mixture in small batches, immediately before use.

PI.7 BRICKS

Unless otherwise described, bricks are to be good, hard, sound, well burnt commons and shall comply with SABS 227. All soft or inferior bricks will be rejected and samples of all bricks are to be submitted to the Engineer and approved by him before the bricks are delivered on the site in bulk. Bricks for foundations to be selected for hardness.

Unless otherwise described, all brickwork is to be in stretcher bond with galvanised wall ties in accordance with SABS 28 built in between skins and evenly spaced at a density of not less than 6 ties per m² of wall area. Bricks are to be well wetted before laying the next course. The brickwork is to have the joints flushed up at every course solid throughout the whole width of each course and to be laid on a solid bed of mortar. The joints of all walls to be plastered are to be raked out as the work proceeds to form key for plaster.

All walls to be raked out as the work proceeds to form key for plaster. All walls to be carried up regularly so that no part is built more than 1,5 m higher than the adjoining walls. Mortar joints generally are not to exceed 10 mm thickness.

The pricing of brickwork is to include for all plumbed angles, forming reveals and all square cutting. Where the building is of the concrete cage or frame construction and the brickwork is mostly in large panels between the concrete columns and beams, prices are to include for packing up against columns and under beams as required.

Unless otherwise described, the skins of hollow walls are to be tied together with and including wall ties in accordance with SABS 28. Wall ties are to be 150 mm longer than the width of the cavity, staggered vertically and spaced not more than 1 m apart in every third course of brickwork. Prices are to include for keeping the cavities free of rubbish, mortar droppings, etc. Openings are to be left as required for this purpose and afterwards built up and made good.

PI.8 BAGGING

Bagging down brickwork and exposed faces of concrete occurring in brick walls, is to include for filling all joints, crevices and any defects with 3:1 sand and cement mortar and then rubbing over with wet rough sacking or brushes soaked in liquid 5:1 sand and cement grout.

PI.9 BRICK REINFORCING FABRIC

Unless otherwise described, brickwork reinforcement is to be of approved SA manufactured welded high-tensile steel wire reinforcing fabric of the widths stated, cut to lengths and lapped full width at angles and passings. Rates are to include for building into brick walls.

PI.10 HOOP IRON CRAMPS

Cramps to wood frames to be 2 mm galvanised hoop iron 30 mm wide and 230 mm girth with one end twice screwed to frame and other end built into brickwork in cement mortar and turned up into brick joint, or shot-bolted to concrete as necessary.

PI.11 HOOP IRON ROOF TIES

Ties to roof trusses to be 1,6 mm galvanised hoop iron 30 mm wide and 300 mm girth with one end wrapped around and spiked to roof timbers and other end built into head of brick wall in cement mortar, or embedded into concrete beam or slab.

PI.12 WATERPROOFING - CODE OF PRACTICE

The Contractor will be required to construct the work measured under the Brickwork trade in accordance with the requirements of SABS 021-1973 "The Water Proofing of Buildings".

PI.13 FACE BRICKWORK

Facing bricks generally to be best quality sound facing bricks, size approximately 222 x 106 x 73 mm thick rising four courses to 340 mm, even in size, shape and colour and equal to samples to be submitted to and approved by the Engineer before the signing of the Contract.

Special care must be taken to preserve arises and faces of these bricks during transit and handling. Any facing bricks brought on to the site that are not in accordance with the samples will be rejected by the Engineer, the delivery and removal of which will be solely at the Contractor's expense.

The face bricks are not to be used by the load, but are to be used from several stockpiles to ensure a uniform and even colour mixture. The joints are to be pointed as described while the work proceeds.

All cutting to facings is to be done with a carborundum or other approved saw. Where cutting in faced work is required, it shall be done over three or more bricks in order to maintain the flow of the brickwork.

All face brickwork is to be protected from damage during the progress of the work to the entire satisfaction of the Engineer, and cleaned down at completion, care being taken not to damage finished surfaces. No oiling will be allowed on any face brickwork.

PI.14 QUARRY TILES AND PAVINGS

To be approved quality, manufactured in the Republic of South Africa, even in thickness, truly square, free from cracks, twists and blemishes, uniform in colour and equal to samples to be submitted to and approved by the Engineer. Special care must be taken to preserve arises and faces during transit and handling. Any paving tiles, etc on the site which are not in accordance with the approved samples will be rejected by the Engineer, the delivery and removal of which will be solely at the Contractors risk.

PI.15 POINTING, ETC.

Except where otherwise specifically described, tiles are to be laid with continuous joints in both directions, bedded and jointed solidly in 3 : 1 sand and cement mortar and pointed on all exposed faces with slightly recessed joints with semi-dry cement mortar pressed in. On no account must liquid grout be poured in.

Tiles, etc must be well protected with clean sand or other approved material to prevent all possibility of damage or discolouration and thoroughly cleaned off at completion. No oiling will be allowed.

PI.16 PRICES

Are to include for all general square cutting and fitting. All cutting to tiles to be done with a carborundum or other approved brick saw.

PI.17 CLEANING OFF

Great care is to be taken to keep face brickwork, quarry tiles, etc, free from mortar as the work proceeds and at completion they are to be cleaned down with spirits of salts and water.

PJ WATERPROOFING

PJ.1 GENERAL

Where applicable, damp proofing and waterproofing shall comply in all respects with SABS 021 Code of Practice, "The Waterproofing of Buildings".

PJ.2 DAMP-PROOFING TO WALLS

Unless otherwise described bituminous sheet damp-proof courses are to comply with SABS 248 Type FV sheeting, lapped 150 mm at angles and passings, including cranking up as necessary and all cutting and waste.

Unless otherwise described uP.V.C. plastic sheet damp-proof courses are to be of rippled S.A. manufactured approved plastic sheeting complying with SABS 952 Type B, lapped 150 mm at angles and passings including cranking up as necessary and all cutting and waste.

PJ.3 DAMP-PROOFING TO FLOORS, ETC

Unless otherwise described damp-proofing to floors, etc, is to consist of S.A. manufactured approved plastic sheeting complying with SABS 952 Type C, in wide widths, laid with minimum 300 mm laps at all edges and laps sealed with pressure sensitive tape, all in strict accordance with the manufacturer's instructions.

Prices for all damp proof membranes are to include for all laps and all cutting and waste.

PK ROOF COVERINGS

PK.1 GENERAL

The Contractor is referred to the relevant clauses of SABS 021-1973 dealing with the waterproofing of external cladding, roofing materials and flashings.

PK.2 ASBESTOS CEMENT ROOFING

Corrugated asbestos cement roofing sheets and fittings are to be in accordance with SABS Specification No. 685 and 6,35 mm or 7 mm thick with pitch of corrugations at 178 mm. Roofing to be mitre cut at corners, lapped 44 mm at sides and with end laps as later described, and secured to wood purlins with No. 2 gauge galvanised drive screws 121 mm long each provided with one coned shaped uPVC and one galvanised steel cupped washer including drilling holes (no punching permitted). Roofing to steel angle purlins to be secured with 8 mm diameter galvanised hook bolts fitted with similar washers. Drive screws or hook bolts to be spaced one per sheet per purlin except along eaves, ridge and verges, where two per sheet per purlin are to be used. All roofing to be executed in accordance with the manufacturer's instructions.

Approved pattern asbestos cement roofing sheets are to be of the same material and specification as above described except side laps to be 79 mm and drive screws to be provided with one neoprene and one galvanised steel cupped washer. Drive screws or hook bolts to be spaced two per sheet per purlin.

PK.3 CLAY ROOFING TILES

Clay roofing tiles shall be in accordance with SABS 632 of pattern, size and colour described and shall be laid to "broken bond" with vertical joints and bottom edge of each course ranging perfectly straight.

PK.4 CONCRETE ROOFING TILES

Concrete roofing tiles shall be in accordance with SABS 542 except that the concrete in the body of the tile need not be coloured where tiles are to have natural stone granular finish, and of pattern, size and colour described. Tiling shall be laid in accordance with SABS 062 to "straight bond" with vertical joints and bottom edge of each course ranging perfectly straight.

Corrosion resistant tile clips of the MK 5 type are to be used at all exposed eaves and verge soffits.

PL CARPENTRY AND JOINERY

PL.1 TIMBER

All timber is to be well seasoned and free from sap, reasonably free from wavy edges, large, loose or dead knots, splits, shakes or other defects and to be sawn die square. The scantlings of all sawn timbers to hold full size when sawn.

PL.2 MOISTURE CONTENT

All timber to be kiln dried to a moisture content of 12 per cent.

PL.3 NOMENCLATURE OF TIMBERS

The names used in this Bill for imported timbers are those given in Supplement No. 1, to SABS 02 "Nomenclature of Standard Trade Names of Imported Commercial Timbers used in South Africa" and the Contractor is referred thereto.

PL.4 STORAGE OF TIMBER

All timber delivered to the site is to be properly stacked above the ground, either on rough bearers or platforms under cover and protected from inclement weather.

PL.5 TIMBER DIMENSIONS

For structural timber dimensions shall be of nominal sizes within the tolerances specified in SABS 563 unless net dimensions (actual sizes) are specified.

PL.6 PRE-TREATMENT OF TIMBER

Except where exemption has been obtained from the Division of Plant Control, Timber Control Offices, all permanent timber installed in the Buildings is to be treated before the arrival on site with a an approved preservative in terms of Government notice No. R658 of 15 September 1961, in accordance with SABS "Code of Practice for the Preservative Treatment of Timber."

The Contractor is to obtain a certificate from the merchant supplying the treated timber, to the effect that the timber has been treated against wood destroying insects. The Engineer has the right to remove samples of the treated timber for the purpose of having chemical tests carried out by the Division of Entomology or any other authority. The expense of such tests are to be borne by the Contractor, if the penetrations and absorptions do not comply with the standards laid down above.

PL.7 SOUTH AFRICAN SOFTWOOD

Unless otherwise described, all sawn structural timber of cross-sectional size 76 mm x 228 mm and under is to be South African Softwood of "Merchantable Grade" in accordance with SABS 563 and branded accordingly.

South African softwood branding and battens are to be in accordance with SABS 653 if not exceeding 50 mm in width and in accordance with SABS 563 if exceeding 50 mm in width, and branded accordingly.

PL.8 FINGER JOINTING ETC.

Timber for finger-jointing must be free from knots in, and for 100 mm from the finger joint which should be in accordance with the German Specification DIN (A60) 68140. The glue is to be approved for the specific use of the timber. Resorcinal formaldehyde or resorcinal phenolformaldehyde complying with B100 requirements of BSS 1204 - 1956 are suitable glues for all purposes.

Contractors wishing to use finger-jointed timber should supply a guarantee that the finger jointing complies with the above specification and that the glue is suitable for the particular member.

PL.9 FIR

Unless otherwise described, “fir” is to be understood to mean Baltic Red Deal of “Unsorted” quality or “Douglas Fir of Merchantable” quality.

PL.10 OREGAN PINE (DOUGLAS FIR)

Oregon Pine (Douglas Fir) for constructional purposes is to be “merchantable” quality. Oregon Pine (Douglas Fir) for joinery is to be “No 2 Clear and Better” quality specially selected and kiln dried.

PL.11 HARDWOODS

All hardwood to comply with SABS 737, Grade 2 and Better. Red Meranti and Iroko to be best quality, specially selected, well seasoned and free from sapwood. Red meranti to be even in grain and colour, selected from “Standard and Better” quality from Malaya.

All hardwood to be oiled, waxed or varnished, etc, is to be selected to match in colour, grain and texture.

PL.12 LAMINATED TIMBER

Structural glued laminated timber shall be in accordance with SABS 876.

PL.13 PLYWOOD

Plywood to be best quality of South African manufacture free from all blistering, cracking, twisting and other defects and glued with best waterproof glue under pressure.

PL.14 HARDBOARD

Hardboard to be in accordance with SABS 540 and of Tempered Quality unless otherwise described and if in sheets over 0.75 m² in area not sealed to a solid permanent backing internally, and all hardboard permanently fixed externally to be pre-stretched before fixing by thoroughly wetting the boards by scrubbing the screen

with water and a stiff brush or broom until a dark chocolate colour is obtained and then stacking the boards screen side to screen side for 12 to 24 hours and then air dried for 1 to 2 hours.

PL.15 BLOCKBOARD

Blockboard to be 21 mm thick 5 ply or 19 mm 3 ply, manufactured from kiln dried South African Pine timber core in 22 mm wide laminations 16,4 mm thick, two 1,5 mm cross grain veneer underlays and 1 mm long grain veneers face and back. All Commercial Hardwood veneers used in the manufacture of boards and shelving to be treated against insect infestation during manufacture of boards and shelving to be treated against insect infestation during manufacture with Boric Acid/Boron in accordance with the recommendations of the Department of Entomology. Bonding throughout is to be by means of heat and hydraulic pressure. All products to be sanded to a smooth finish. Blockboard with decorative veneers on face and back to be as above and faced with 0,6 mm decorative long grain veneers. Decorative veneer one side only blockboard is to be balanced with 1 mm veneer on reverse side. Edge strips to blockboard to be formed with 9,5 mm thick strips to match the face veneer and to be the full thickness of the board.

PL.16 PARTICLE BOARD PRODUCTS

Particle board to be of approved South African manufacture, comprising wood chips of uniform size, impregnated with either urea, poly-phenolic or other approved resin adhesive and bonded under heat and hydraulic pressure. Any work that is warped, twisted, chipped or in any other way defective, will be rejected.

PL.17 DECORATIVE PLASTIC LAMINATES

Decorative plastic laminates are to be of approved South African manufactured decorative melamine faced mica based laminate covering of approved colour, free from all defects and glued to wood or boarding with approved adhesive recommended by manufacturer.

PL.18 GYPSUM PLASTER BOARD AND CORNICES

Gypsum plaster board is to be in accordance with SABS 266. Gypsum cove cornices are to be in accordance with SABS 622.

PL.19 ASBESTOS CEMENT CELLULOSE SHEETS

Asbestos cement cellulose sheets are to be in accordance with SABS 685.

PL.20 JOINERY

All joinery, except that described as “stock”, is to be purpose made to detail constructed in accordance with the best approved practice, morticed and tenoned, dowelled, dovetailed, tongued, grooved, housed, glued, pinned, screwed or otherwise fabricated as is best suited for the particular part. All morticed and tenoned joints are to be pinned in addition to wedging and gluing.

Stock joinery is to be the best of its quality and kind and to approval.

No joinery is to be primed until it has been inspected and approved.

The Contractor is to allow for sinking and pelleting heads of all nails and screws where exposed in hardwood joinery and for cross tonguing all solid wood sections unobtainable in single widths.

Unless otherwise described all joinery is to be put in hand as soon as possible after the signing of the contract but all final cramping, wedging and gluing up is to be done just before the finished article is required for fixing.

Wherever possible, joinery shall not be placed or fabricated in position until the plaster has dried out.

Should the joints of any joiner's work, open or give before payment of the Final Certificate, such defective work shall be taken down, refitted and redecorated, or new joinery put in its place at the Contractor's expense.

Floor boards, skirtings, cornices and rails of all kinds are to be in long lengths where possible, and are to have splayed heading joints where necessary. Where these occur they shall be made virtually invisible.

All horns of door frames are to be checked and splayed back where frames are fixed projecting or flush with surface and built in.

PL.21 WROT WORK

All wrot woodwork is to be finished smooth and free from tool marks. Sizes of timbers are finished sizes unless otherwise stated.

Exposed woodwork, except where otherwise described, is to be wrought, well glass papered and brought to a smooth and fair face with all roughness of working tools removed.

Only brass screws may be used for hardwood Joiners' work.

The term "angle-rounded" where applied to angles in wrought woodwork denotes anything from 3 mm up to 10 mm radius and includes for housed and mitred joints. The term "arris-rounded" denotes that sharp angles are to be rounded off and only that no mitring is required.

All exposed angles of wrought woodwork are to be arris-rounded unless otherwise described.

PL.22 MITRES, ETC

Except where mitres, etc are separately measured, prices for all quadrants, architraves, cornices, skirtings, etc, are to include for all mitred and scribed angles, splays, stops, etc.

PL.23 PLUGS, NAILS ETC.

The prices for woodwork are to include for all plugs, nails, spikes, screws, etc that may be necessary. Where described as plugged, rates for joinery work are to include for plugging with hardwood or approved proprietary plugs to brickwork or concrete as the case may be.

PL.24 SHOT FIXING

Where timbers are described as shot fixed to concrete, rates for this work are to include for securely fixing timbers to concrete with an approved cartridge assisted tool; rates are to include for all nails, spikes, blanks etc.

PL.25 PROTECTION

All joinery liable to injury must be covered with temporary casing to the entire satisfaction of the Engineer. All exposed faces of joinery, which are eventually to be stained, oiled or varnished, must be oiled to preserve them during building operations.

Great care must be taken to protect these surfaces from damage or discolouration.

PL.26 DOORS

Framed, ledged, braced and battened doors are to be formed of stiles, rails, ledges or braces (when required) of the sizes later specified and filled in with 22 mm grooved, tongued and V-jointed boarding in narrow widths tongued on outer edges and fixed in grooves in stiles and top rail to finish flush with outer face of door and twice countersunk screwed at each intersection with ledges, braces and bottom rail, and inner edges of framing and abutting edges of boarding chamfered to form V-joint.

PL.27 FLUSH DOOR

PL.27.1 General requirements

Flush doors shall be solid laminated, semi-solid, chip core or hollow core and shall be capable of withstanding the racking, deflection, puncture and moisture resistance test laid down in SABS Specification 545. All glue used in the manufacture of doors shall comply with the requirements of the above specification.

Unless otherwise specified, face veneers shall be rotary cut, and shall be of timber specified, or where doors are to be painted shall be of timber suitable for painting.

Edge-strips to conceal the vertical edges of doors shall be not less than 10 mm thick and of same timber as face veneer; edge strips to meeting edges of doors in two leaves where edges are to be rebated, shall be not less than 20 mm thick.

Face veneer and edge strips to doors not being painted shall be free from all defects, but small defects in the veneer and edge strips will be permitted in doors that are to be painted, provided they are filled in such a way that the paint finish will not be impaired.

Faces of doors shall be machine sanded to a smooth and even surface.

All gluing together of core strips and gluing on of veneers, edge strips etc, shall be done under hydraulic pressure.

Bow, cup and twist in doors shall not exceed the following:

Bow	:	5 mm in the full height of doors,
Cup	:	3 mm in the full width of doors, and
Twist	:	6 mm

The top and bottom edges of doors showing end grain shall be sealed with lacquer, or other suitable material, before leaving the manufacturer's works and similarly sealed after doors are fitted into frames if the edges of doors are disturbed during fitting.

All timber in doors in services having all timbers treated against infestation by insect pests shall be treated against such pests as laid down in the specification referred to above.

PL.27.2 Construction

The four types of doors shall be constructed as follows:

i) Solid Laminated

Solid laminated flush doors shall have cores built up of vertical strips of well seasoned saligna gum, South African pine or other suitable and approved timber, not exceeding 25 mm in width, glued together into one solid unit without voids of any kind, and cross-banded on both sides with veneer not less than 3 mm thick (before sanding), and faced on both sides with veneer not less than 0,8 mm thick (before sanding). The cross-banding shall be glued to core and face veneer to the cross-banding.

Edge strips shall be provided to both edges of doors, and cross-banding shall stop against the edge strips (face veneer applied after the edge strips).

ii) Semi Solid Core

Semi solid laminated flush doors shall have cores built up of vertical strips of well seasoned saligna gum, South African pine or other suitable and approved timber, not exceeding 25 mm in width spaced apart evenly with similar vertical spacing strips to have a solid face area of not less than 40 - 50%, and with suitable top, lock, bottom and style rails and all glued together into one unit, and cross-banded on both sides with veneer not less than 3 mm thick (before sanding), and faced on both sides with veneer not less than 0,8 mm thick (before sanding). The cross-banding shall be glued to core and face veneer to the cross-banding.

Edge strips shall be provided to both edges of doors, and cross-banding shall stop against the edge strips (face veneer applied after the edge-strips).

iii) Chip Core

Chip core doors shall be constructed with cores of wood chips of uniform size, bonded together under hydraulic pressure with glue, fitted all round with framing of suitable and approved timber, securely glued to cores, and covered on both sides with plywood and face veneer, of a thickness not less than 3 mm (before sanding) and with both vertical edges of doors provided with edge-strips and with both vertical edges of doors provided with edge-strips and with face veneer taken over the edge of the strips, or two thicknesses of chip board, not less than 12 mm thick, glued to chipwood battens, spaced at not exceeding 100 mm apart and to rebated framing all

round, and provided with suitable size lock and hinge blocks as required and with additional framing and/or blocks where doors are to have glazed openings or are to be hung on spring hinges and the like, and covered on both sides with face veneer not less than 0,8 mm thick (before sanding). The framing to vertical edges of doors shall be of the same timber as face veneer and veneer shall cover the edge of the framing.

iv) Hollow Core

Hollow core doors shall have framework of well seasoned South African pine or other suitable and approved timber, comprising stiles and top and bottom rails, not less than 38 mm in width, and intermediate supporting members as required, all of laminated timber glued together for the full length, and provided at one edge with suitable size lock block of similar laminated timber, and filled in with cores of moulded pulp units giving not less than 50% area contact with the plywood covering, or with cores made up of strips and bars arranged horizontally and vertically to form a grid, with the strips or bars at such spacings as will ensure a flat even surface entirely free from undulations to the plywood covering. Additional framing shall be provided to doors having glazed openings.

Doors shall be covered on both sides with plywood and face veneer, of a total thickness of not less than 4 mm (before sanding), and edge-strips shall be provided to both edges of doors; plywood shall stop against edge-strips and face veneer shall stop against or be taken over the edge-strips.

PM FLOOR COVERINGS, PLASTIC LININGS, ETC

PM.1 RESILIENT FLOOR FINISHINGS AND SKIRTINGS

PM.1.1 Semi-flexible Vinyl Flooring

Semi-flexible vinyl (vinyl asbestos) flooring is to comply with SABS 581 of the sizes stated and of approved colour and equal to samples to be submitted to and approved by the Engineer.

PM.1.2 Flexible Vinyl (UPVC) Flooring

Flexible vinyl flooring is to comply with SABS 786, of the sizes stated and of approved colour and equal to samples to be submitted to and approved by the Engineer.

PM.1.3 Marble Linoleum

Cork backed linoleum is to comply with Specifications DIN - 51955, 51953, 0100, 51960 and 53389 and VDE 0100. The linoleum is to be of approved colour and equal to samples to be submitted to and approved by the Engineer.

PM.1.4 Laying and Fixing

The flooring is to be laid under guarantee by a firm of specialists on and including a cementing coat applied with a notched trowel, all in accordance with the material supplied and methods recommended by the manufacturer.

RATES: are to include for all straight cutting and waste, preparatory work to screeded floor surfaces (screeds elsewhere), fitting around door frames, joinery fittings and other obstacles and for protection and cleaning off at completion with soap and water.

PN IRONMONGERY

All ironmongery is to be to the Engineer's approval, and unless otherwise described, prices are to include for fixing to softwood or hardwood. Articles are to be fixed with screws of similar metal finish. No two locks are to have inter-changeable keys, and all locks are to have duplicate keys. All screws, bolts, spiles, nails, etc., required for the proper completion of the work are to be supplied by the Contractor.

Rates for ironmongery are to include for fixing, oiling and easing at completion.

Rates for ironmongery fixed to steel linings are to include for perforations, and tappings in linings as required. Non-standard lock striking plates and mortar guards when required are separately measured.

Keys to all locks, including duplicates, sub-master and grand-master keys where applicable, are to be suitably labelled and delivered to the Engineer upon completion or when requested.

Where ironmongery is referred to as proprietary types, such ironmongery is to be exactly of such proprietary types unless otherwise approved.

PO METALWORK

PO.1 WROUGHT IRON

Wrought iron is to be of the best quality and to be approved before fixing. It is to be forged clean from the anvil and to be sound and to have full threads to all screw work.

PO.2 NON-STRUCTURAL STEELWORK

All non-structural mild steel sections shall comply with BS4360; 1972 Grade 43A and the requirements of SABS 221 and 222.

All steelwork must be true to drawing, free from warps and twists, and generally constructed to any of the standards specified in Chapter 6 of Standard Building Regulations, as published in Government Gazette No. 2894 of 23rd October 1970, or amendments thereto.

All steel must be cleaned in accordance with SABS 064 to remove scale, rust, oil or grease and unless otherwise described, painted with an approved red lead based Type II Grade I priming coat in accordance with SABS 312 prior to dispatch from the works. Upon delivery to the site and again after erection all bared surfaces shall be made good.

Rates for steelwork are to include for all necessary cutting to lengths, shaping, holing, tapping, threading, forging, turning, fitting, assembling, riveting, welding and filing smooth and also for screws unless otherwise described.

All rails, etc., described as continuous are to be in long lengths with flush welded joints. All screwed work to have full threads. All welding is to be continuous unless otherwise described.

All bends to flat sections of metalwork are across flat unless otherwise described.

The mass of all steel has been calculated according to the theoretical mass list issued by Iscor and Steel Sales Company of Africa (Pty) Limited, and no allowance has been made for rolling margins, binding wire and waste. Any variations in the masses of the steel actually used from the above-mentioned mass list is to be for the Contractor's account and the listed masses will be adhered to in all calculations affecting the mass of steel.

PO.3 HOT DIP GALVANISING TO METALWORK

Metalwork specified to be galvanised shall, after fabrication and before leaving the manufacturer's works, be galvanised by the hot dip process in accordance with SABS 763.

Before being galvanised all surfaces of the metalwork shall be thoroughly cleaned in accordance with SABS 064 of all scale, rust, grease, oil and foreign matter by shot blasting or by pickling, and then fluxed ready for galvanising.

The spelter shall have a zinc content of not less than 98 per cent and the mass of coating per 0,1 m² of surface area of the metal shall not be less than 53,4 g (0,082 mm).

The zinc coating shall be even and continuous over all surfaces including site welds, entirely free of bare spots, dull rough patches, blisters and other imperfections, shall show no signs of peeling and shall be uniform in thickness.

PO.4 PRIMING MANUFACTURED METALWORKS

Steel windows, doors, door frames and other manufactured articles where so described are to be dip or spray primed with zinc chromate primer in accordance with SABS 909 before leaving the manufacturer's works.

PO.5 STEEL WINDOWS

Steel windows and steel doors shall be in accordance with SABS 727 and in addition shall comply with the following requirements:

Side hung and vertically pivot hung sashes shall open to at least 90 degrees, horizontally pivot hung sashes to at least 80 degrees and bottom hung sashes to 30 degrees.

Sashes hung at side to open out in windows above ground floors and not accessible externally shall be hung on cleaning hinges with brass pins and washers.

Industrial type windows shall be glazed from the inside and all other windows from the outside, unless otherwise described.

Suitable weather bars shall be provided where necessary to render the windows and doors perfectly watertight.

Frames of windows and doors where fixed to concrete shall be provided with suitable lugs or screw holes for screwing to plugs at the same intervals as the standard fixing lugs.

Windows, doors and components shall, before leaving the manufacturer's works, be primed unless described as hot dip galvanised.

Windows and doors, unless otherwise specified, shall be of "one piece" construction; those which are to be in more than one unit shall be joined with standard mullion/s and/or transome/s.

After windows and doors have been built in and before glazing they are to be overhauled adjusted and left in good working order.

PO.6 PRESSED STEEL DOOR FRAMES

Pressed steel door frames shall be of approved South African manufacture, constituted of mild steel cold-rolled sheet 1,63 mm thick for single, rebated frames and 1,22 mm thick for double rebated frames. Rebate sizes to be suitable for standard timber doors 44 mm thick.

Head and jamb members to be accurately bent to form the profile. Corners to be mitred and welded and also reinforced with 1,63 mm steel angles. Transomes for fanlights to be left into the jambs and all joints welded solid. Welds to be cleaning off

flush, leaving a perfect outside finish. Each frame to be provided with a pair of sturdy channel section tie bars, welded below the frame. Where required for additional strength, cross struts of the same section are to be welded between and at right angles to the main ties.

1,63 mm thick adjustable 228 mm long corrugated lugs with ends split and bent for building in are to be supplied with every frame, three to each side.

Before leaving the factory the linings are to be thoroughly cleaned free from scale, rust, grease, etc, and painted with one coat zinc-chromate primer, unless described as being hot dip galvanised. Linings are to be carefully protected in transit and during erection from twisting and dents.

PO.7 FITTINGS

Each from for single side-hung doors to be provided with the following:

- a) One pair 102 mm 5 knuckle loose pin steel hinges, with a 3-knuckle leaf welded securely onto the frame.
- b) One pair 76 mm 5 knuckle loose pin steel hinges, welded onto transoms, and suitable for a timber bottom hung fanlight.
- c) One adjustable chromium-plated strike plate with mortar guard, suitable for mortice locks of South African or British manufacture.
- d) Three rubber shock absorbers in rebate of lock jamb.

Each frame for double doors to be provided with the following:

Two pairs 102 mm 5-knuckle loose pin steel hinges, with 3-knuckle leaf welded securely onto the frame.

All hinges to have back plates welded on as reinforcement.

All perforations for bolts, etc, are to be provided with mortar caps welded to linings and all tappings for screws shall be provided with back plates welded on behind screws and fitted with steel countersunk set screws.

PO.8 SIZES ETC

The sizes given are approximate; the widths stated are to suit normal brick and concrete walls plastered on one or both sides and the first dimension stated is the total thickness of the wall and plaster to be lined. Careful references must be made to drawings and buildings for exact sizes and details for ironmongery before ordering. Any errors in this respect will be at the Contractor's expense.

PO.9 FIXING

The fixing and building in of linings is elsewhere allowed for.

PO.10 ALUMINIUM AND ANODISED ALUMINIUM

PO.10.1 Aluminium

Extruded sections are to of 50 STE or 50 STF alloy in accordance with BS 1474/HE 9 or of KE 45 alloy.

Aluminium sheets and strips are to be of 2SH4, or PO57S-H6 in accordance with BS 1470/SIC or 1470/POS4 respectively.

All alloys are to be anodising quality.

PO.10.2 Anodising

Where aluminium shall, unless otherwise described, be anodised for exterior exposure to a minimum thickness of 25 microns in strict accordance with grade AA 25 of BS 1615.

Anodising is to be of the colours as specified hereafter and equal to samples submitted to and approved by the Engineer. Where described as “natural” colour, anodising is to have a soft textured natural satin finish.

PO.10.3 Chrome-plating

Where described, chrome-plating is to be in accordance with BS 1224.

PO.10.4 Anodised aluminium louvre units

Adjustable glass louvered windows must comply with the Central Standardisation Committee Specification CKS 414/1974 and all suppliers of adjustable glass louvered windows must furnish proof of this compliance before acceptance of their product can be approved.

The sizes given are approximate and are not to be used for ordering purposes, but reference must be made to detail drawings for exact sizes.

Rates must include for all necessary holes, screws, packing pieces, threads and assembling and fixing in accordance with the methods employed and the materials supplied by the manufacturer's of the louvre units.

PO.10.5 Vitreous enamelled chalk boards

Vitreous enamelled chalkboards are to be formed with approved vitreous enamelled steel panels with flanged edges and non-glaring permanent olive green finish, complete with fixing lugs and vitreous enamelled or extruded aluminium chalk rail all as approved. Tenderers to submit a detailed specification.

Prices are to include for hanging panels to fixing lugs spaced at approximately 457 mm centres and for securing lugs and chalk rails to brickwork with special screws and plastic plugging compound as supplied by the manufacturer's of the panels, drilling mortices or wall plugs, rounding off front corner of each end of chalk rail to a 25 mm radius protecting from injury and cleaning down at completion, all in strict accordance with the manufacturer's instructions.

PP PLASTERING

PP.1 CEMENT, LIME AND SAND

Cement to be described under “Concrete Work”. Lime to be as described under “Brickwork” and to be slaked and run at least four weeks before being used. Sand to be described under “Brickwork”.

PP.2 PROPORTIONS OF CONSTITUENT PARTS OF PLASTER, RENDING, ETC

The mixes stated are proportions by volume. Water is to be accurately measured for each mix to the Engineer’s approval.

PP.3 LIME PLASTER FOR WALLS

Unless otherwise described, lime plaster for one coat work is to be in the proportion of 4 parts sand to 1 part lime(4:1). For two coat work the rendering coat is to be in the same proportion and the setting coat is to be white lime putty. The plaster of paris is not to be added to the mixture until immediately before the setting coat is to be applied and then to be thoroughly incorporated in the mixture.

PP.4 CEMENT PLASTER

Unless otherwise described, cement plaster to walls is to be in the proportion of 6 parts sand to 1 part cement for (5:1) internal work and 4 parts sand to 1 part cement for external work (4:1). Cement plaster to concrete ceilings, beams, etc., is to be in the proportions of 4 parts sand to 1 part cement (4:1).

PP.5 PREPARATION FOR PLASTERING GENERALLY

Joints in brickwork are to be raked out and the surface cleaned and wetted to receive plaster or tiling. Prices for plastering or tiling on concrete are to include for hacking if necessary to form key, brushing with a wire brush thoroughly wetting and flushing up with 3:1 cement grout.

PP.6 PREPARATION FOR PLASTER TO RECEIVE MOSAIC TILING

Joints in brickwork are to be raked out and all concrete surfaces are to be roughened by chipping at approximately 150 mm centres in both directions. All surfaces are to be thoroughly cleaned of all foreign and loose material, including grease, etc. and slushed with a wet mixture of Portland cement and a well graded clean sharp river sand in the proportion of one part cement to two parts sand (2:1), thrown on vigorously, left rough and allowed to harden before receiving the plaster coat. The section of brick and concrete surfaces are to be adequately adjusted by properly wetting the surfaces of a minimum of two days before application of the slush.

PP.7 PLASTERING GENERALLY

Plaster on walls shall be not less than 10 mm nor more than 15 mm thick unless otherwise described.

Unless otherwise described, all external plaster to be finished with a wooden float and internal plaster to be finished with a steel trowel, to a smooth, straight and even surface, free from tool marks and other blemishes, and any cracks, blisters and other defects are to be cut out and made good and the whole left perfect at completion.

Rates are to include for forming plain internal angles and internal angles of ceilings covered to not more than 25 mm radius, working around nibs, rafter feet etc. and into corrugations of iron or asbestos-cement sheeting where applicable.

All mouldings, weatherings, etc are to run to detail and prices are to include for dubbing out, forming templates, runners, etc, plastering on faces of flush concrete columns and beams in brick walls has been measured as “on vertical surfaces”.

PP.8 RENDERING ON CONCRETE FLOORS

PP.8.1 Code of practice

The Contractor will be required to execute the work described under this heading in accordance with the requirements of SABS 0109-1969 “Floor Finishes on Concrete”.

PP.8.2 Preparation of surfaces

Concrete surfaces to receive floor renderings are to be chipped if required, thoroughly cleaned with a wire brush, well soaked with water and to have a coating of neat cement grout applied immediately before the rendering coat is applied.

PP.8.3 Cement screeds

Unless otherwise described, screeds for asphalt and vinyl-asbestos tiling, block floors, linoleum, etc are to be composed of 3 parts sand and 1 part cement (3:1) to the thickness stated and trowelled to a smooth and even surface. Where it is the intention that floor screeds of adjoining rooms or areas shall be on the same level, sufficient brickwork at skirting level is to be omitted in dividing walls to ensure that levels on both sides of such walls are precisely the same.

PP.8.4 Cement rendering

Rendering unless otherwise described is to be composed of 3 parts coarse river and to 1 part cement (3:1) brought up to a smooth hard steel trowelled surface by repeated trowellings as required.

PP.8.5 Granolithic

Granolithic unless otherwise described is to be composed 2 parts approved hard stone chippings or hard coarse sharp washed granitic or quartzite sand, graded to pass a 10mm sieve, and be retained on a 5 mm sieve, ½ part sand and 0.1 part cement (2:1/2:1) brought up to a smooth hard steel trowelled surface by repeated trowellings as required.

PP.8.6 Non-slip granolithic

Granolithic where so described, is to be treated with carborundum chips evenly distributed and rubbed into the upper surface before granolithic has set. The carborundum must be saturated with water and applied at the rate of 1,4 kg m², well

rolled in or worked in with a steel trowel, all in strict accordance with the manufacturer's instructions and to the approval of the Engineer.

PP.8.7 Hardened granolithic

Granolithic where so described, is to be hardened by the addition of an approved hardening compound mixed into granolithic in the proportion of 10,5 kg per sack of cement, and in addition, dusted on with equal proportions of cement and well trowelled in (approximately 2 kg of compound per square metre of surface), all in strict accordance with the manufacturer's instructions.

PP.8.8 Generally

All granolithic work and rendering shall be done by experienced workmen, and properly protected and cured, final trowelling to be executed after the bleeding of water ceases and the finish has started to stiffen.

The work is to be laid in panels not exceeding 6 m² in area and finished with small V-joints or as described in these Bills of Quantities.

In no circumstances will the sprinkling on of dry cement, or a dry mixture of cement and sand be permitted.

Where rendering or granolithic is described as tinted, the requisite quantity of approved colouring materials is to be mixed with the cement. No dusting on of colouring material will be allowed. In no case should over 10 per cent of pigment be added to the cement.

Rates are to include for dressing to falls where required, for forming neat sunk V-joints to panels, protecting from injury cleaning down, and where tinted for finished with a coat of approved wax polish or stoep reviver well rubbed in at completion.

NOTE:

Mitres, etc.

Except where mitres, etc, are separately measured the prices for all slightly rounded angles, coves, V-joints, fair edges, skirtings, etc are to include for all mirrors, stops, etc.

Defects

All cracks, crazes, blows, blisters and other defects in plaster, granolithic ect, are to be made good the Engineer's approval.

PQ TILING

PQ.1 MATERIAL

PQ.1.1 Cement

Cement shall be ordinary Portland cement complying with SABS 471

PQ.1.2 Sand

Sand shall comply with SABS 1090 for the relevant types of tiling.

PQ.1.3 Glazed ceramic wall tiles

Glazed ceramic wall tiles and fittings shall comply with SABS 22.

PQ.2 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any tiling is commences. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key.

Descriptions of tiling shall be deemed to include for the necessary preparatory work. A portion of the tiling described as “on brick walls” (or Block walls) is on concrete column, beams and lintels flush with the face of the wall

PQ.3 TILING

Tiles shall be fixed in accordance with SABS 0107 and pointing shall be with waterproofed white cement. Joints shall be straight, continuous and tightly fitted.

Descriptions of tiling shall be deemed to include for all square cutting.

Descriptions of toilet paper holders, soap dishes, etc shall be deemed to include for building in and forming recesses where necessary.

PR PLUMBING AND DRAINLAYING

PR.1 DIAMETERS

All dimensions of pipes are internal diameters unless otherwise described.

PR.2 REGULATIONS

All drainage, sanitary and general plumbing work is to be executed in accordance with the Drainage and Plumbing Regulations of the appropriate Local Authorities and to the approval of the Engineer, and shall be tested throughout in accordance with the requirements of the Regulations and Engineer's instructions.

PR.3 REGISTERED PLUMBERS

Only registered plumbers are to be employed on any plumbing or drainage work in this Contract.

PR.4 GALVANISED SHEET IRON

Galvanised sheet iron shall be of the specified thickness flat mild steel (before galvanising) and coated with zinc of mass not less than 450g (Class B) per m², both sides included, unless otherwise described. All nailing and screwing shall be done with galvanised iron nails and screws. Rates are to include for clips, weltd edges, riveted and soldered seams and joints, wedging and labours in dressing as required.

PR.5 SHEET IRON GUTTERS

Sheet iron gutters shall be of galvanised sheet iron of thickness specified and shall have beaded edges and all joints riveted and soldered.

Gutters shall be laid to proper falls and shall be provided with angles, stopped ends and outlet nozzles as required. Angles shall be strengthened with 50 mm wide strips of 0,60 mm thick galvanised sheet iron soldered over the internal mitres inside the gutters.

Gutters shall be fixed on brackets of galvanised mild steel, of size specified bent to shape of gutters with front end taken up to underside of beaded edge of gutter, and each twice screwed to roof timbers. Gutters shall be bolted to brackets at front with 6 mm galvanised gutter bolts, one to each bracket, and positioned close up to underside of beaded edge of gutter.

Brackets shall be spaced at not exceeding 1 m centres.

PR.6 SHEET IRON PIPES

Sheet iron rainwater pipes shall be of 0,60 mm thick galvanised sheet iron, seamed at back and jointed with slip joints neatly soldered. Pipes shall be provided with offsets, elbows and shoes as required.

The pipes shall be fixed 25 mm clear of finished wall face on galvanised mild steel rainwater pipe brackets as specified spaced at not exceeding 2,4 m apart, and having tails built into walls in 3 : 1 cement mortar.

PR.7 SHEET COPPER

Sheet copper for covering flat roofs and for valley and gutter linings, flashings, soakers, eaves gutters, rainwater pipes and the like shall be cold rolled and of half-hard temper of the specified thickness. All nailing and screwing shall be done with copper or copper alloy nails and screws. Rates are to include for clips, weltd edges, riveted and soldered seams and joints, wedging and labours in dressing as required.

PR.8 SHEET LEAD

Sheet lead shall be best milled sheet of the full mass specified, and of equal thickness throughout. All nailing and screwing shall be done with copper or copper alloy nails and screws. Rates are to include for clips, weltd edges, tacks, wedging and labour in dressing as required.

PR.9 FIBRE CEMENT RAINWATER GOODS

Fibre cement rainwater goods are to be of approved South African manufacture. Residential half round, O.G. and square section gutters are to be spigot and socketed with both contact ends drilled, primed with an approved sealer, coated with mastic based compound approximately 6 mm thick, and each joint secured with one 6 x 38 mm galvanised iron verandah bolt with nut and two felt and two galvanised iron washers and steel spring washers if necessary. Industrial gutters also shall be socketed and jointed as before described but with addition of tarred hemp and with the number of 6 mm diameter bolts appropriate for the particular size of gutter.

Pipes are to be spigot and socketed and jointed with tarred hemp and water proofing compound lightly caulked in and pointed in (3 : 1) cement mortar.

PR.10 RAINWATER GOODS

UPVC gutters and downpipes shall comply with SABS 11 "Unplasticised polyvinyl chloride components for external rainwater systems".

PR.11 CONCRETE PIPES FOR STORMWATER

Concrete pipes for stormwater drainage are to be reinforced spun non-pressure S.C. type and Class B unless otherwise described in accordance with SABS 677. The piping may have self centering spigot and socket joints or be in plain lengths with loose collars, and jointed all in accordance with SABS 058, Code of Practice for Sewer and Drain Jointing. All joints are to be wiped clean inside.

PR.12 JUNCTION BOXES

At intersections of concrete stormwater drains, junction boxes are to be formed with chamber of sufficient size to take ends of pipes described and formed of cement concrete (Class 15) bottom and sides not less than 150 mm thick worked around

ends of pipes and having a 75 mm thick loose precast concrete cover with at least 75 mm bearing all round.

PR.13 STAINLESS STEEL PIPES

Stainless steel water piping up to 50 mm diameter is to be of 304 grade stainless steel to B.S. 4127. Compression pipe fittings are to be of stainless steel in accordance with BSS 864.

PR.14 GALVANISED MILD STEEL PIPES

Mild steel piping to be in accordance with BSS 1387 galvanised inside and outside of medium class, unless otherwise described, with screwed and socketed joints. The joints made with red lead and hemp to cold water piping and with graphite and hemp to hot water piping and all cut ends properly reamed out to remove burrs.

Fittings to pipes to be galvanised malleable cast iron fittings in accordance with SABS Specification 509.

PR.15 COPPER PIPES

Copper piping to be in accordance with SABS 460 Class 2 for fixing to walls, soffits, etc, and SABS 460 Class 3 for piping buried under ground. Pipes are to be bent in a proper tube bending machine. Compression pipe fittings are to be brass and of the expanded tube and cone type and coupling nuts and rotary sleeve pieces and of approved manufacture. Tenderers to submit specification.

PR.16 LEAD PIPES AND TRAPS

Lead Pipes and traps are all to be hydraulic drawn, of equal substance and full bore throughout. All soldered joints are to be wiped and brass unions must be used for jointing lead to iron.

PR.17 FIBRE CEMENT PRESSURE PIPES

Asbestos cement pressure pipes shall comply with the requirements of SABS 286 and shall be of the classes herein specified and shall be provided with bends, tees, crosses, reducers and other fittings as may be required which in the case of cast iron shall comply with the requirements of SABS 546.

Asbestos cement pressure pipes and fittings shall be jointed together by means of either:

- (a) cast iron short collar detachable couplings, each comprising, centre collar, rubber ring on each side of collar, and outer flange rings clamped against the rubber rings with bolts evenly tightened,
- or
- (b) asbestos cement collars fitted over the ends of pipes and each grooved for internally and fitted with rubber centre spacer ring and two rubber gaskets or with two rubber

gaskets only. The gaskets shall have holes all round on the water pressure side which will serve to expand the gaskets hydraulically by the water pressure in the pipes, and pipes shall be machine turned at ends to ensure proper fit between gaskets and pipes.

Cast iron bends, or asbestos cement pressure bends conforming in all respects to the straight asbestos cement pipes, shall be used at all changes of direction or grade in pipe lines where such changes exceed the angle of deflection permitted in the pipe couplings.

Branch connections 50 mm and less in diameter may be made at joints between pipes by the use of cast iron couplings described in (a) above, but of the long collar type and drilled and tapped for the connections, and branch connections 40 mm and less in diameter may be made in the pipes with saddle piece supplied by the manufacturer of pipes, bolted round the pipes and with pipes drilled and boss of each saddle piece drilled and tapped for the connection and positioned over the hole in the pipe with rubber washer between the boss and the pipe.

The manufacturers instructions regarding the laying and jointing of asbestos cement pressure pipes, including amount of expansion gap to be allowed between ends of pipes in cases where centre spacer ring is not provided, and maximum angular deflection that may be made in a pipe joint, shall be followed in all cases.

PR.18 UPVC WASTE AND VENT PIPES

uPVC waste and vent pipes and fittings are to be of unplasticised uPVC in accordance with SABS 967 and are to be jointed with solvent welded joints.

PR.19 CAST IRON PIPES

Cast iron pipes and fittings to be in accordance with SABS 746 and shall be made with a suitable grade of pig iron with a mixture of clean scrap iron and castings, shall be dark grey on fracture, easily drilled, tapped and filed of approved manufacture, stamped with a trade mark or manufacturer's name and coated inside and out with approved bituminous preservative solution. Pipes must be accurately laid or fixed and closely fitted together and jointed with gaskin and caulked with blue lead.

All bends and other fittings are to be of the same thickness as pipes.

PR.20 FIXING OF PIPES

Galvanised steel pipes are to be fixed to brickwork or concrete with approved galvanised malleable iron holderbats fastened with set screws and with spike cut and pinned or built in (3 : 1) cement mortar, and to roof and other timbers with stout galvanised iron saddle pipe clips screwed on.

Copper pipes are to be fixed to brickwork or concrete with bronze holderbats fastened with brass set screws and with spike cut and pinned or built in (3 : 1) cement mortar, and to roof and other timbers with stout copper clips, brass screwed on.

Lead pipes are to be fixed to brickwork or concrete with cast lead tacks or lugs soldered onto the pipes at not more than 1,3 m centres and fixed to plugs with screws and washers.

uPVC Pipes are to be fixed with approved uPVC pipe clips spaced at not exceeding 1,25 m centres to vertical piping and not exceeding 0.75 m centres to horizontal piping.

Cast iron pipes are to be fixed 40 mm clear of finished brickwork or concrete with cast iron hinged holderbats cut and pinned in (3 : 1) cement mortar and fastened with brass pins or bolts, and to roof and other timbers with suitable bolts through ears cast on to pipes.

Where mild steel or cast iron pipes are to be fixed to soffits or concrete slabs, they shall be slung to falls on 6 x 32 mm galvanised mild steel straps secured around pipes with 6 mm diameter galvanised steel bolts and nuts and with upper end built in, cut and pinned in cement mortar or suitably bolted to concrete.

PR.21 STOP COCKS, BIB COCKS ETC

Unless otherwise described, stop cocks, bib cocks, pillar cocks, etc, are to be brass screw down type of approved manufacture in accordance with SABS 226 and are to be screw jointed to iron pipes with red lead and hemp.

PR.22 BALL VALVES

Ball Valves shall comply with the requirements of SABS 752.

PR.23 SLUICE VALVES

Cast iron sluice valves shall comply with the requirements of SABS 664.

PR.24 PRESSURE GAUGES

Pressure gauges are to be 76 mm diameter with gauge cocks and they are to have full scale reading of 10 bar or 100 metres water gauge. They shall, if required, be fitted in positions shown on the drawings.

PR.25 FIRE FIGHTING EQUIPMENT

Fire Hose Reels:

Non-swinging rotary first-aid fire hose reels to be in accordance with SABS 543 and with solid side discs, 25 mm diameter waterway at bracket, incorporating rotary pressure joint to hose connection at hub, 25 mm screwed malleable iron Saunders Type "A" valve with "S" grade diaphragm and complete with all necessary fixing brackets, etc.

PR.26 FIRE HYDRANTS

Fire hydrants shall be of the wheel valve pattern with instantaneous coupling outlets, size 63,5 mm or 70 mm as described. Hydrants fixed in a horizontal position shall have oblique angle outlets and those fixed in a vertical or inclined position shall have right angle outlets.

The materials used in the manufacture of the hydrants shall be as laid down for the manufacture of couplings, branches, pipes, etc, in SABS 544 and the various requirements of instantaneous couplings, and dimensions of 63,5 mm outlets, shall be as laid down therein; dimensions for 70 mm outlets shall comply with the requirements for Morris instantaneous pattern couplings.

PR.27 SANITARY FITTINGS

All sanitary fittings to be approved by the Engineer before fixing. The Engineer will instruct that all sanitary fittings are to be properly pasted and covered with paper until the building is ready for handing over. The Contractor will under no circumstances whatsoever be allowed the use of various fittings and no fittings are to be finally connected up until the whole of the sanitary system is in position when the jointed up will be authorised.

PR.28 SOIL DRAINAGE

PR.28.1 Glazed Earthenware Pipes

All salt-glazed earthenware drain and sewer pipes and fittings are to be in accordance with SABS 559. The pipes are to be laid with rigid joints and unless otherwise

described all in accordance with SABS 058, Code of Practice for Sewer and Drain Jointing. All joints are to be wiped clean inside.

PR.28.2 upvc Drain Pipes

Unplasticised polyvinyl chloride sewer and drain pipes and fittings shall comply with the requirements of SABS 791 and installed in accordance With SABS 0112-1971 Code of Practice for “The Installation of Polythelene and Unplasticised UPVC Pipes”.

PR.29 DRAIN TRENCHES

The bottoms of trenches are to be well rammed and finished to even falls. The Contractor shall provide all necessary sight rails, boning rods, etc. The bottom of the trenches shall be excavated to even falls and the barrels of the pipes shall rest on solid ground and holes of sufficient size shall be cut around joints to enable the jointing and filleting to be properly performed. Any excavation taken out too deep shall be made up with cement concrete at the Contractor's expense. Fill in any soft and loose places in the trenches and uneven bottoming in rock cutting with similar cement concrete.

PR.29.1 Filling

Carefully fill in and pack with soil free from any rock around and 600 mm above pipes. The trenches are to be filled in layers to such depths as directed and are not to be rammed until the pipes have been covered to a depth of 600 mm. Fill in and ram the trenches to ground level.

PR.29.2 Inspection Chambers - Soil Drainage

Inspection chambers are to be formed by excavating to the required depth in pickable material, and to be constructed of one brick wall of extra hard burnt bricks in (3 : 1) cement mortar on a 150 mm thick cement concrete bottom projecting 114 mm beyond walls all round with the sides rendered internally in (4 : 1) cement plaster finished smooth, and the bottom steeply benched up with cement concrete brought up vertically at sides of channels to level with tops of main drains and then steeply sloped up to walls of chamber and finished smooth with (3 : 1) cement render. The top of chamber to be fitted with cast iron manhole cover as later described with frame of cover bedded in 76 mm thick cement concrete surround, splayed on top and finished with (3 : 1) untinted cement render steel trowelled and with angles rounded. Where necessary the sides of chambers are to be corbelled over in maximum 75 mm steps per course of brickwork or may be constructed with a 102 mm cement concrete (Class 20) properly reinforced slab bearing full width on all walls and rebated for manhole cover and frame.

Inspection chambers exceeding 1,8 m deep are to have a lower chamber of a minimum size 1060 mm x 760 mm internally and with a 150 mm reinforced cement concrete (Class 20) slab over and continued up the remaining height with a 610 x 450 mm shaft, not exceeding 750 mm high.

PR.29.3 French Drains

French Drains are to be 600 mm wide of length and depth below drain inlet specified with rubble walling of large stones laid dry to form a cavity under inlet size 300 x 300 mm from bottom of trench to 50 mm above inlet pipe and cover with and including flagstone or cast cement concrete slab size 800 x 600 x 75 mm thick, and with bottom

to falls and fill in up to invert level of drain with clean, hard, broken stone or clinker graded to sizes rejected by 38 mm ring and passed by a 75 mm ring and with a distribution drain 300 mm from bottom formed with 100 mm diameter socketed or plain stoneware pipes laid with loose dry joints or 12 mm wide open joints respectively to same fall as bottom of trench and cover with approved bituminous sheeting laid over the stone filling and lapped 75 mm at joints and fill in over with clean earth to ground level, lightly ram and level off and remove, deposit and level surplus earth on site where directed.

PR.29.4 Soakage Pits

Soakage pits to be size 2 m x 2 m or as described and depth specified below drain inlet with rubble walling of large stones laid dry to form cavity under inlet size 300 x 300 mm from bottom of pit to 50 mm above inlet pipe and cover with flagstone or cast cement concrete slab size 300 x 600 x 75 mm thick, fill in remainder of pit to invert level of drain pipe with clean hard broken stone or clinker too sizes rejected by a 38 mm ring and passed by a 75 mm ring, well graded, cover with approved bituminous sheeting lapped 75 mm at joints and fill in over with clean earth to ground level, lightly ram and level off and remove, deposit and level surplus earth on side where directed.

PR.29.5 Concrete Casing to Pipes

Concrete casing to drain pipes to be cement concrete (Class 15) of a minimum thickness equivalent to the diameter of the drain pipe and to include for casings, etc.

PR.29.6 Rates for Drains and Pipes in Ground

Rate for all pipes described as in ground are to include for excavating in pickable material to the depths stated, laying to even falls, handholes, allowing for risk of collapse of the sides of excavations and filling in and ramming. All pipe laying is to be carried out in accordance with the procedure described in SABS 058.

PR.29.7 Rates for Piping

The rates for all stoneware, concrete, cast iron, black iron, galvanised mild steel and copper pipes are to be included for all short lengths, cutting and jointing as described. The prices for copper, black iron and galvanised mild steel pipes are to include for plain sockets in the length to the pipes of all diameters.

PR.29.8 Keep Excavations Free from Water

The Contractor shall be responsible for keeping all excavations free from water by baling, pumping or otherwise and he must allow accordingly in his rates.

PR.29.9 Planking and Strutting

The Contractor shall be responsible for performing all planking and strutting and shoring that may be necessary to maintain excavated faces and to ensure the safety of the works at all times. He shall accept full responsibility in this connection and must allow in his rates accordingly.

PR.30 DESCRIPTIONS AND PREAMBLES

The Contractor is referred to the previous trade headings for preambles and full descriptions of materials and items not described in this trade.

PS GLAZING

PS.1 GLASS

All clear glass unless otherwise specified is to be of South African Manufacture, “Ordinary Quality” of the various masses and/or thicknesses mentioned, free from bubbles, scratches and other imperfections, and to be cut in panes to suit all glazed openings as required.

All obscured glass to be of type specified and to be free of devitrification, scratches and other imperfections, and must be left perfectly clean on completion. All glass broken before handing over the premises for occupation is to be replaced and surfaces made good by the Contractor.

Polished plate glass for glazing shall be transparent polished plate glass or approved Float Glass of “GG” quality and of the thickness stated. Glass for mirrors shall be of polished plate glass as described but specially selected.

Glazing sizes and thicknesses for sheet glass and plate/float glass shall be in accordance with Tables and 1 and 2 of SABS 0137 - 1978.

PS.2 GLAZING

Glazing generally shall be executed in accordance with SABS 0137 - 1978 Code of Practice for the Glazing and Fixing of Glass in Buildings” in particular the following aspects.

Putty for glazing shall comply with the requirements of SABS 680, of Type 1 for glazing in wood and of Type 2 for glazing in steel windows, doors, etc. Putty used for glazing in varnished, oiled or other natural colour finished wood shall be tinted to match the colour of the wood.

Glass fixed with glazing beads in unpainted hardwood doors shall be bedded on strips of rubber, expanded neoprene, expanded polyethylene or ribbon velvet, turned over on both sides of glass in the rebates to form a soft packing between the glass and the woodwork. In all cases the glass shall be well bedded in back putty in the rebates. Rebates for glass, other than in unpainted hardwood doors, or non-ferrous metals shall be primed before glazing.

The glazing contractor shall where required use an approved mastic type glazing compound, for glazing all aluminium windows. The glazing compound shall have a composition particularly adapted for use with aluminium windows and the methacrylate lacquer with which the windows are coated shall not require painting to protect it from drying out or deterioration.

Glass panes exceeding 0,4 m² in surface area and fixed with putty only in wood doors, sashes and the like shall be secured in addition with glazing sprigs, and in steel windows and doors with glazing pegs or clips inserted in holes in the steel framing.

Prices for glazing of laminated safety glasses are to include for glazing strictly in accordance with the manufacturer's instructions with non-hardening glazing compounds of approved tints and suitable for use with the fabric of the sashes, together with all necessary neoprene setting, spacing and location blocks. The

glazing compound must carry the manufacturer's warranty that it is compatible with laminated glass and that it contains no deleterious ingredient which may chemically affect or physically dissolve the vinyl butyryl interlayer of the laminated glass.

Glass panes shall have adequate glazing clearance between the edges of the glass and the rebates.

Putty shall be carefully trimmed and cleaned off with front putty worked to within 2 mm of the sight lines.

All soft or oily putty is to be replaced and all putty is to form a surface crust and have a smooth finish before any paints are applied.

PU PAINTING

All paints, oil stains, varnish, linseed oil, knotting driers, distempers, etc, are to be in accordance with the latest SABS Specification where applicable or of the quality, type and brand and manufacture specified and/or approved by the Engineer. All materials for paint work must be brought on to the site in unopened tins or drums. Unless specifically instructed by the directions or sanctioned by the Engineer, no paints are to be thinned or otherwise adulterated, but are to be used as supplied by manufacturers and direct from tins. Mixing of different coloured paints to obtain special tints may only be done with the sanction of the Engineer.

Where special brands of paints are to be used, the manufacturer's "priming" and all subsequent coats of paint suitable for that particular brand are to be employed, all in accordance with manufacturer's instructions. Wherever possible all paints used in this contract are to be manufactured by a member of the SA Paint Manufacturers Association.

In all cases Test Standards are to be set up under the supervision of the Manufacturer's Representative and such standard of finish maintained throughout the relative work to the full satisfaction of the Engineer. Where for any reason the Test Standard required cannot be achieved, information concerning this should be sought from the Manufacturer's Representative for requisite action. Any extra cost to be considered by the Engineer, on the basis of responsibility of issuing a variation order.

All colours and tints used throughout the work are to be selected and/or approved by the Engineer before painting of any description is commenced. Each coat of paint is to be a distinctive colour.

PU.1 PREPARATORY WORK

PU.1.1 Generally

All plaster, metal, wood or other surfaces which are to receive finishes of paint, lacquer, stain, oil distemper, lime wash or paint work of any other description are to be carefully inspected by the Contractor, or his principal painter, who must satisfy himself that such surfaces are in a fit state to take the paint work specified, before he allows any of this painters to commence the work. The Contractor, will be held solely responsible for all defective work condemned as a result of the Painter's failure to insist on receiving from the other trades, surfaces in the proper condition to allow first class finishes of the various kinds specified being applied to them.

Prior to commencing paint work of any description and before each coat is applied, surfaces are to be thoroughly dry and are to be rubbed down.

PU.1.2 On plaster, bagging, etc

All plaster work, etc, to be painted must be thoroughly brushed down to remove all traces of efflorescence, filled where necessary with suitable stopping or patching plaster and left perfectly dry and smooth.

PU.1.3 On metal

All metal to be painted shall be scraped and cleaned of all dust, rust and other surface incrustations shall be removed and surfaces left smooth. Also all oil and grease shall be removed and perfectly clean surface obtained.

PU.1.4 On wood

All wooden surfaces to be painted shall be properly knotted with best quality knotting, stopped after priming and rubbed down with glass paper. All wooden surfaces to be varnished, stained or oiled only, must have all plaster stains, pencil marks and other surface discolourations and blemishes removed, and must be stopped with tinted stopping to match final stain colour and be rubbed down to a smooth and perfectly clean surface with glass paper. All wooden floor surfaces are to be cleaned and smoothed off with a sandpapering machine before presentation to the Painter for finishing, and he must take all precautions to protect same against damage or discolouration prior to application and during drying of stain and/or oil finishes specified and until final protective wax polish is applied and properly rubbed in.

PU.2 MATERIALS AND APPLICATION

PU.2.1 On plaster, bagging, etc

Unless otherwise described, paint is to be carried into all recesses, reveals, cills, soffits, etc, and around all breaks, projections, etc, occurring within the height specified to be painted.

PU.2.2 Line wash

To be a prepared lime wash powder of South African manufacture mixed with water in accordance with the manufacturer's instructions, or a pre-mixed liquid brand approved by the Engineer.

PU.2.3 Colour wash

Is to be as last and tinted with yellow ochre to bring to a light cream colour.

PU.2.4 Distemper

Prepare as previously prescribed and twice distemper where specified with powder distemper in accordance with SABS 322 and mixed in accordance with the manufacturer's instructions.

PU.2.5 Emulsion paints, internally

Prepare as previously described and one preparatory coat of an approved filler/sealer mixed with the finishing paint in the proportion recommended by the manufacturer and two coats emulsion paint for interior use in accordance with SABS 633 (Grade 1) applied in strict accordance with the manufacture's instructions.

PU.2.6 Emulsion paints, externally

Prepare as previously described and three coats emulsion paint for exterior use in accordance with SABS 634 (Grade 1) (synthetic polymer base type) applied in strict accordance with the manufacturer's instructions.

PU.2.7 Gloss, flat or eggshell oil paints and high gloss enamel paints

Prepare as previously described, seal with one coat of alkali resisting primer and two undercoats in accordance with SABS 681 (Type 2) and one finishing coat of approved gloss, flat or eggshell oil paint or high gloss enamel paint in accordance with the relative SABS specification, applied in strict accordance with the manufacturer's instructions.

PU.2.8 On metalwork

Prepare as previously described, prime with zinc chromate primer in accordance with SABS 679 (Type 1) followed by the number of undercoats and finishing coats later described.

Galvanised iron and aluminium surfaces are to be pre-treated with a wash primer (Metal etch primer) in accordance with SABS 723 followed by a second primer, and the number of undercoats and finishing coats later described.

Decorative high gloss enamel paint for interior and exterior use is to be in accordance with SABS 630 (Type 1).

PU.2.9 On woodwork

Priming to wood surfaces to be executed with primers in accordance with SABS 678 (Type 1) for exterior work and (Type 3) for interior work. The number and type of undercoats and finishing coats to be as later described.

Decorative high gloss enamel paint for interior and exterior use is to be in accordance with SABS 630 (Type 1).

PU.3 GENERALLY

PU.3.1 Making good

All damaged paint work is to be touched up or redone. All painter spots, stains, etc, are to be removed from the floors, walls, doors, windows, etc, and the whole left perfect.

PU.3.2 Mixing paints

The Contractor will not be permitted under any circumstances to prepare or mix paints or similar materials on floors where the finishings are laid complete, and such rooms must not be used as workshops for any trades whatsoever. This clause will be strictly enforced and any damage done in neglect of this precaution will have to be borne by the Contractor to the extent of completely relaying the floor finish where damaged in any rooms or room. Merely cleaning up will not be acceptable.

PV LANDSCAPING AND GRASSING

PV.1 FERTILISER

The fertiliser used shall be one or more of the following types as determined by actual tests of the soil in which the grass or plants are to be planted:

- a) Lime
- b) Superphosphate
- c) Limestone Ammonium Nitrate

PV.2 GRASS CUTTINGS

Grass cuttings (springs) shall be of kikuyu or an approved type of local kweek.

PV.3 GRASS SEED FOR HYDROSEEDING

The grass seed shall comply with the requirements of the Government Seed Act No 20 of 1961.

PV.4 TOPSOIL

Topsoil shall consist of fertile, friable soil of loamy character and the areas from which it has been removed shall have been covered by natural vegetation normal to the region. Topsoil shall not be taken from swampy area unless authorised by the Engineer. Topsoil shall be obtained wherever suitable material exists, either in the road reserve from areas where cuts and fills are to be constructed, or at borrow pits from areas to be cleared. Suitable topsoil shall be stockpiled when clearing is done for construction of the formation or borrow pits and during construction of the formation.

The Engineer shall indicate where topsoil is to be removed. If the Contractor fails to stockpile the topsoil indicated, he shall obtain suitable topsoil from other sources when such topsoil is required, in which case no payment for overhaul or stockpiling shall be made.

In the event that not enough suitable topsoil is obtainable from the above mentioned areas, the Contractor shall obtain topsoil from other sources located by the Engineer.

C3.5: MANAGEMENT

C3.5.1 MANAGEMENT OF THE WORKS

C3.5.1.1 Applicable SANS and SABS standards

The SABS 1200 Standardised Specification listed in C3.4.1.1 are applicable

C3.5.1.2 Particular or Generic specifications

The following SABS 1200 Standardised Specifications for civil engineering construction are applicable:

- i) SABS 1200 A : General
- ii) SABS 1200 AB : Engineer's office

The provisions of SABS 1200 A and SANS 1200 AB take precedent over the provisions of any part of SANS 2001 that is applicable to the Contract. The variations and additions to these specifications are described in section C3.4 (applicable SABS 1200 standardised specifications)

C3.5.1.3 Planning and programming

Clause 5.6 of the Conditions of Contract requires the Contractor to submit a programme for the execution of the works. In addition to the requirements of Clause 5.6, the format and information shown shall comply to the following.

The Contractor shall submit his programme in a bar chart format showing clearly the following:

- The various stages of work planned to be completed per week in sufficient detail to be able to assess construction progress.
- Critical path activities and their dependencies.
- Key dates in respect of information to be provided by the Engineer and / or others.
- Anticipated value of work to be done during each month.
- His labour resources schedule which must distinguish between the Contractor's permanent labour and his temporary local labour employment.
- The lead time for training of local labour.

When drawing up his programme, the Contractor shall, among other issues, take into consideration and make allowance for:

- Expected weather conditions and their effects.
- Known physical conditions or artificial obstructions.
- The requirements and effects of employing labour intensive construction methods.
- The accommodation and safeguarding of public access and traffic.
- The lead time required for compliance with the Health and Safety Specification.

Failure to produce a detailed programme may prejudice the Contractor in any claim for an extension of time.

The contractor is to submit labour employment reports timeously, non-compliance may result in payments not being made.

If the programme submitted by the Contractor in terms of Clause 5.6 of the Conditions of Contract has to be revised because the Contractor is falling behind in his programme, he shall submit a revised programme of how he intends to regain lost time to ensure completion of the Works on or before the Completion Date, or within a granted extension of time. Proposal to increase the tempo of work must incorporate positive steps to increase production either by more labour and plant on the Site, or by using the available labour and plant in a more efficient manner.

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

The approval of a programme by the Engineer shall have no contractual significance other than the Engineer will be satisfied if the work is carried out according to the programme. The said approval shall not limit the right of the Engineer to instruct the Contractor to vary the programme if necessary.

C3.5.1.4 Environment

a) Sand and dust control

The Contractor shall, for the duration of the contract, take appropriate measures to control the dust and soil movement which may arise due to his operations.

b) Environmental Impact

The Contractor shall, for the duration of the Contract, ensure that good housekeeping practices are adhered to by all his staff and that of his subcontractors.

C3.5.1.5 Format of Site Communications

A Site Book in triplicate will be provided by the Contractor in which relevant matters shall be recorded and signed by the Engineer, or his representative and the Site Agent.

All prices for Variations and related correspondence from the Contractor shall be submitted directly to the Engineer's Port Elizabeth Office.

C3.5.1.6 Key personnel

A schedule of the Contractors key personnel and their contact particulars shall be submitted to the Engineer for approval in terms of within 14 days of the Commencement Date.

C3.5.1.7 Management meetings

The Engineer, Contractor's designated representative and other Agents/Consultants as required shall hold meetings related to the progress of the works, technical issues and

sub-contractor co-ordination matters at regular intervals not exceeding every 4 weeks, or at such other times as may be necessary. The representatives of the Contractor, Employer and Engineer, and their delegated authority will be confirmed at the Inaugural Site Meeting.

The Contractor shall attend all site meetings and ensure that all persons under his jurisdiction are notified timeously of all site meetings should their attendance be required. All persons attending site meetings are to have the necessary delegated authority in respect of aspects such as planning, change management, and health and safety.

C3.5.1.8 Daily records

The Contractor shall keep the site diary up to date which will be kept on site. A complete record of staff employed on the Contract is to be kept on site for use by the Engineer.

The site diary shall record the following site information:

- progress of the works
- contractor's and subcontractor's personnel on site
- delays, possible delays and inclement weather
- delivery of materials to site
- plant & equipment on site

The Contractor shall erect an effective rainfall gauge on the site of the works and record the daily rainfall figures in the site diary. The site diary shall be handed to the employer's representative for his signature no later than 10 days after rain that is considered to justify an extension of time occurs.

Extension of time due to abnormal rainfall shall be determined by as defined and described in the Contract Data.

C3.5.1.9 Bonds and guarantees

One original guarantee will be submitted by the Contractor which will be retained by the Employer.

C3.5.1.10 Payment certificates

The Contractor shall agree the monthly certificates with the Engineers Representative before the 20th of each month. Once agreed, the Contractor is to submit a signed payment statement to the Engineer for certification. After completion of the Payment Certificate by the Engineer, the Contractor will be requested to submit his invoice dated as per the Engineer's date of certification.

C3.5.1.11 Employers Requirement

The contractor shall provide a method statement to the Engineer before the commencement of any work, setting out the proposed procedure and the proposed maximum length of the stoppage required to complete the refurbishment of each pumpstation.

C3.5.1.12 Control Testing

The Contractor is required to carry out his own control testing. The Contractor shall make arrangements with a soils testing laboratory to undertake the following tests and to pass the test results to the Engineer. The costs of such tests shall be included in the rates tendered for the appropriate item in the Schedule of Quantities.

Any additional tests requested by the Contractor or any retests required, due to failure of the initial tests, will be charged to the Contractor at the rates ruling at the time.

C3.5.1.13 Protection of the Works against Flooding

The Contractor shall provide sumps, pumps, furrows, berms and/or coffer dams to divert water flow away from the construction activities; and other temporary works as may be necessary to minimise damage, inconvenience or interference, for 24 hours a day, 7 days a week throughout the period of Construction, to adequately protect the works from flooding and damage by stormwater.

The programme submitted by the Contractor must include an item and information regarding the dealing with water.

C3.5.1.14 Bonds and guarantees

The Guarantee will be kept by the Kouga Municipality for safekeeping for the duration of the contract. Originals will be returned to the guarantor on completion.

C3.5.1.15 Proof of compliance with the law

Refer to clause 4.3.1 of the Contract Data.

C3.6: HEALTH AND SAFETY

C3.6 HEALTH AND SAFETY: GENERAL REQUIREMENTS & PROCEDURES

C3.6.1 Health and safety requirements and procedures

- a) In terms of the provisions of Section 37(2) of the Occupational Health and Safety Amendment Act, 1993 (Act 85 of 1993), hereinafter referred to as the Act, the following arrangements and procedures shall apply between the Contractor and the Employer to ensure compliance by the Contractor with the provisions of the Act:
- (i) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act.
 - (ii) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with.
 - (iii) The Contractor accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from himself being obliged to comply with any of the aforesaid duties, obligations and prohibitions, with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations.
 - (iv) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to monitor that the Contractor has conformed to his undertakings as described in paragraphs (i) and (ii) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or any appropriate records or safety plans held by the Contractor.
 - (v) The Contractor shall be obliged to report forthwith to the Employer and 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 in terms of this Contract, and shall, on written demand, provide full details in writing, to the Employer and Engineer, of such investigation, complaint or criminal charge.
 - (vi) The Contractor shall furthermore, in compliance with Construction Regulations 2014 to the Act acquaint himself with the requirements of the Employer's health and safety specification as laid down in regulation 5(1)(b) of the Construction Regulation 2014, and prepare a suitably and sufficiently documented health and safety plan as contemplated in regulation 7(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 for approval, to the Employer or his agent, within 14 days of the Commencement Date and shall be implemented and maintained from the commencement of the Works.

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

- (vii) The Employer, or his assigned agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations 2014, to monitor that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the requirements of these Regulations shall entitle the Engineer, at the request of the Employer or his agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages incurred as a result of such suspension, until such time that the Employer or his agents are satisfied that the issues in which the Contractor has been in default have been rectified.
- (viii) The proposed type of work, materials to be used and potential hazards likely to be encountered on this Contract are detailed in the C3.3 : Construction, the Bill of Quantities, the Drawings, and in the Employers' health and safety specification (regulation 4(1) of the Construction Regulations 2014), which is attached as Appendix B.

Payment items are included in the Bill of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned regulations.

As per Clause 4(1)(a) of the Construction Regulations (2014) a Health and Safety Specification is included in this contract. The Contractor will take the requirements of this specification into account during the tendering and execution of the works.

Furthermore any reference to the "Machinery and Occupational Safety Act" in any specification shall be replaced with reference to the "Occupational Health and Safety Act, 1993".

C3.6.2 General Safety

The Contractor shall be the responsible party on site to ensure that the provisions of the Occupational Health and Safety Act, 1993 and the Construction Regulations, 2003 (Notice No R 1010, dated 18 July 2003) are strictly adhered to and administered for the duration of the Contract. The Kouga Municipality will not be held liable for safety on site

C3.6.3 Protection of the Public

The Contractor shall at all times ensure that his operations do not endanger any member of the public.

The Contractor shall take special precautions to prevent public access to any danger areas on the Works, e.g. by temporary barricades and/or fencing.

C3.6.4 Barricades and lighting

The Contractor shall ensure that all the necessary steps are taken to ensure the security, protection, and safety of the public, employees of the contractor and others.

C3.6.5 Measures against disease and epidemics

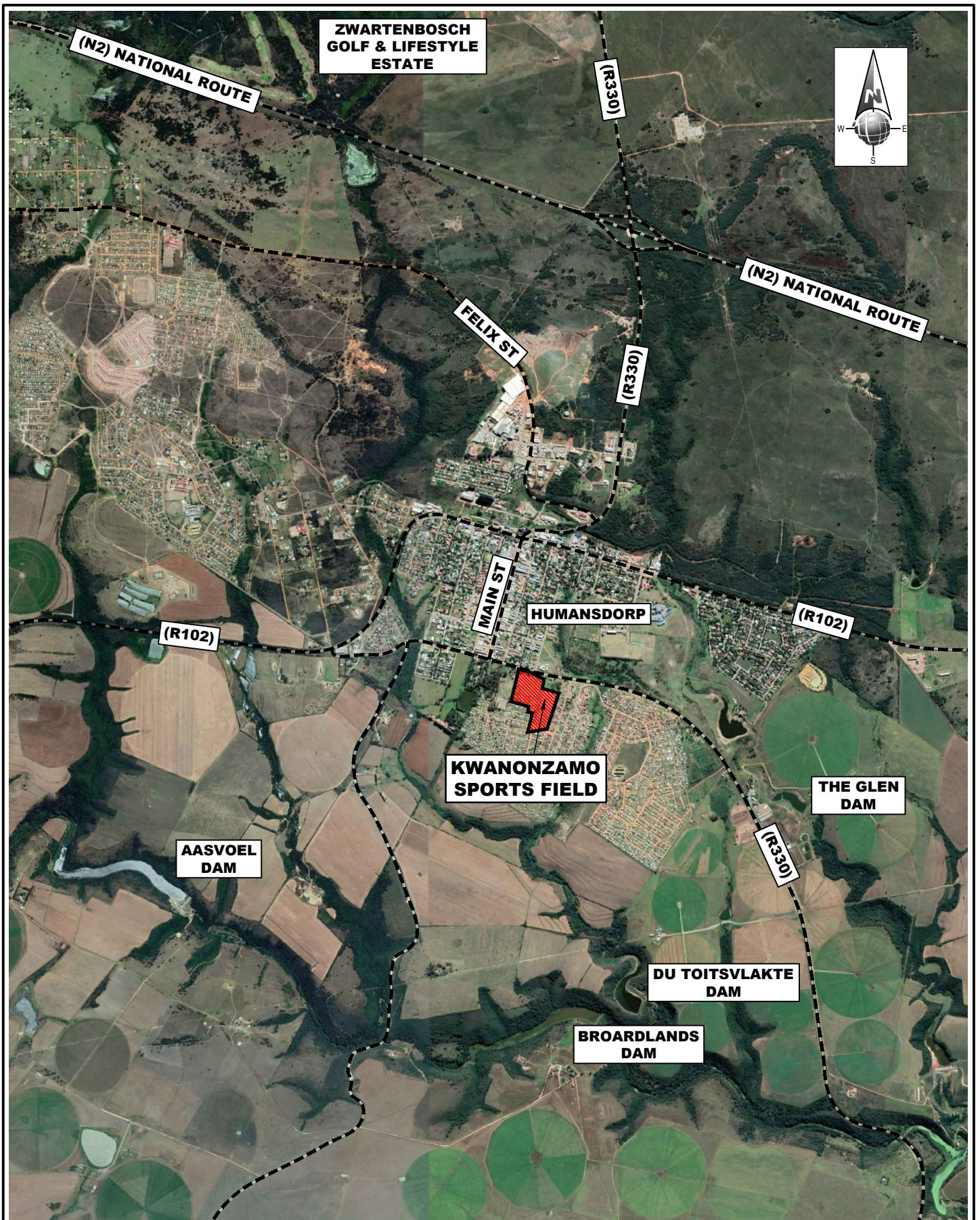
Medical surveillance shall be required for all workers. Anti tetanus toxoid vaccinations will be required.

C3.6.6 Aids awareness

The following are minimum requirements to be provided by the Contractor.

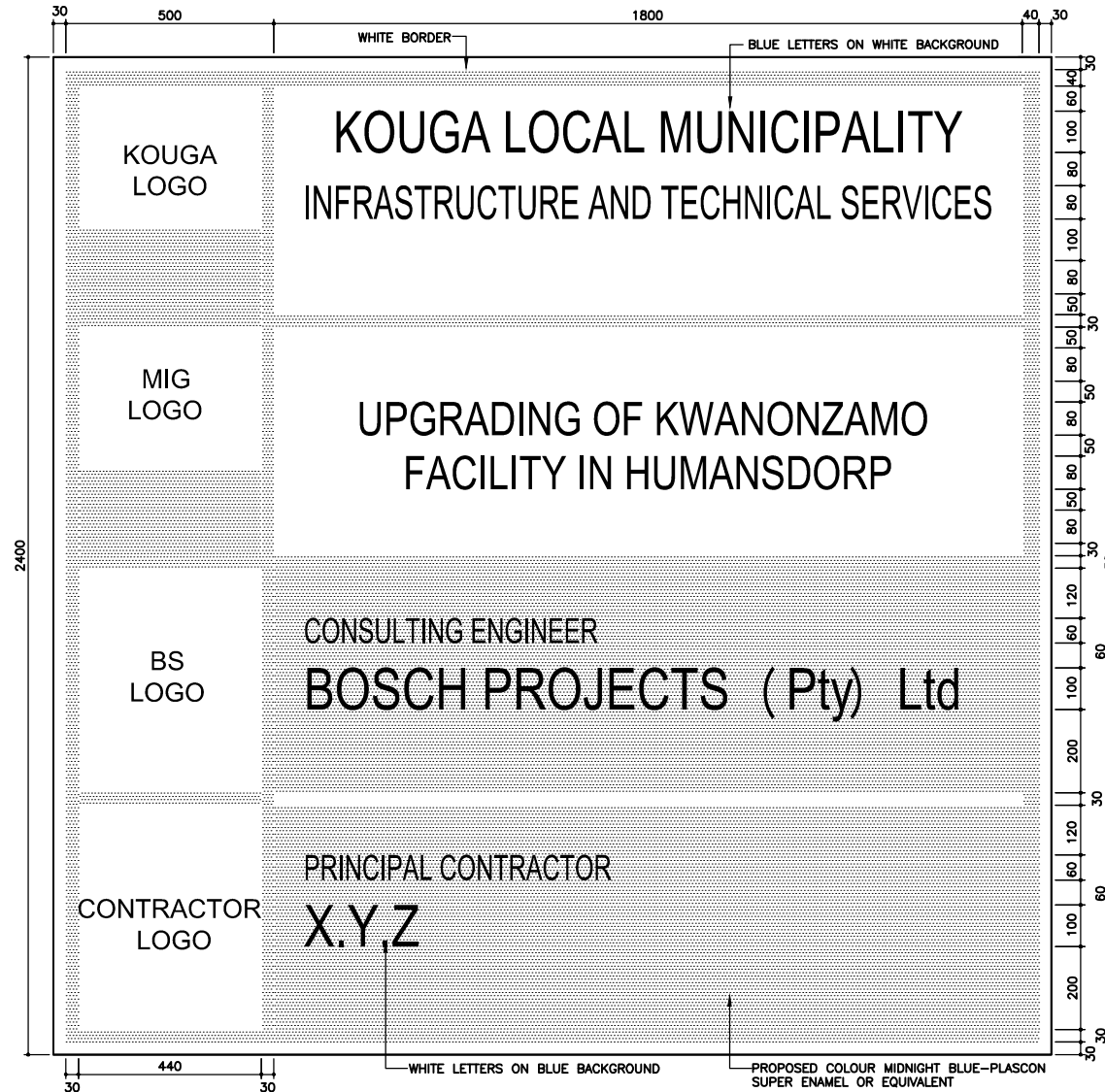
- Monthly talks on HIV and Aids.
- Company policy on HIV and Aids.
- Provide condoms.
- Voluntary counselling and testing (VCT's)

ANNEXURE A: LOCALITY PLAN



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ANNEXURE B: CONTRACT NAME BOARD
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	-				DESIGNED	LS	DRAWN	SM	APPROVED	SCALE	KOUGA LOCAL MUNICIPALITY
	-				CHECKED	GC	PROCESS	N/A		AS SHOWN	UPGRADING OF KWANONZAMO FACILITY
	-				CIVIL	LS	STRUCTURAL	N/A	PROJECT MANAGER	DATE	IN HUMANSDORP
	-				INSTRUMENT	N/A	ELECTRICAL	N/A		AUG 20	NAME BOARD
T1	-	ISSUED FOR TENDER PURPOSES ONLY	AUG 20		ENGINEER	N/A	ENGINEER	N/A			
1		INTERNAL REVIEW	AUG 20		ENGINEER	N/A	ENGINEER	N/A			
REV	BY	DESCRIPTION	DATE	APPRD	MECHANICAL	N/A	CO-ORDINATION	N/A	DIRECTOR		
					ENGINEER		ENGINEER				

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STATUTORY NOTE:
THE CLIENT IS RESPONSIBLE FOR ENSURING COMPLIANCE TO
ANY LOCAL HEALTH AND SAFETY LAWS AND REGULATIONS

THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY
MANAGEMENT SYSTEM TO ISO 9001:2008

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ISO 9001:2008
CERTIFIED

DRAWING NUMBER 8011/004/GTH/016 A4 REVISION

ANNEXURE C: SITE SPECIFIC HEALTH & SAFETY SPECIFICATION



safe working practice
OCCUPATIONAL HEALTH AND SAFETY GROUP

Project Health and Safety Specification

In terms of Construction Regulations 2014

Client

KOUGA LOCAL MUNICIPALITY

Description of Project Works

**UPGRADING OF KWANOMZAMO
SPORTS FACILITY**

Project Location

KWANOMZAMO, HUMANSDORP

Date

MARCH 2020

Project Health and Safety Specification developed by:

Safe Working Practice
Tel: 0860 111 540
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PROJECT HEALTH AND SAFETY SPECIFICATION

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1.0 SPECIFIC PROJECT INFORMATION

1. 1 INTRODUCTION AND DEFINITIONS

PLEASE NOTE THAT THE REQUIREMENTS OF THE NEW CONSTRUCTION REGULATIONS 2014 HAVE BEEN IN EFFECT SINCE 7TH AUGUST 2014. THE NEW REGULATIONS PLACE ADDITIONAL LEGAL DUTIES UPON PRINCIPAL CONTRACTORS AND CONTRACTORS. ALTHOUGH THIS HEALTH AND SAFETY SPECIFICATION INCLUDES MUCH OF THE CONTENT OF THESE NEW REQUIREMENTS, THE CONTRACTOR WILL BE DEEMED TO BE FAMILIAR WITH THE REQUIREMENTS OF THESE REGULATIONS, AND TO HAVE FACTORED IN ALL THE DUTIES PLACED UPON CONTRACTORS AND PRINCIPAL CONTRACTORS IN THE TENDER. A COPY OF THE REGULATIONS CAN BE VIEWED ON THE DEPARTMENT OF LABOUR'S WEBSITE.

This Health and Safety Specification contains clauses that are generally applicable to construction activities, as well as imposing pro-active controls associated with activities that impact on Health and Safety as it relates to plant and machinery. Compliance to the requirements of the Occupational Health and Safety Act 1993 is in addition to the requirements of this Health and Safety Specification and is part of the Contractor's responsibility. The Client will monitor that the Contractors comply with the requirements of such legislation.

ALL REFERENCES TO CLIENT IN THIS HEALTH AND SAFETY SPECIFICATION ALSO REFER TO SAFETY AGENT, WHERE SO APPOINTED.

Definitions (as per the Construction Regulations 2014) applicable to this Health and Safety Specification:

"agent" means a competent person who acts as a representative for a Client;

"angle of repose" means the steepest angle of a surface at which a mass of loose or fragmented material will remain stationary in a pile on the surface, rather than sliding or crumbling away;

"bulk mixing plant" means machinery, appliances or other similar devices that are assembled in such a manner so as to be able to mix materials in bulk for the purposes of using the mixed product for construction work;

"client" means any person for whom construction work is being performed;

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

"construction manager" means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

"construction site" means a workplace where construction work is being performed;

"construction supervisor" means a competent person responsible for supervising construction activities on a construction site;

"construction vehicle" means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

"construction work" means any work in connection with -



- the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
- the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

"construction work permit" means a document issued in terms of regulation 3;

"contractor" means an employer who performs construction work;

Note:

a) Includes organisations and or self-employed person that contracts with a client, principal contractor, or a contractor to carry out construction work.

"demolition work" means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labour, machinery, or the use of explosives;

"design" in relation to any structure, includes drawings, calculations, design details and specifications;

"designer" means a competent person who-

- prepares a design;
- checks and approves a design;
- arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
- designs temporary work, including its components;
- an architect or engineer contributing to, or having overall responsibility for a design;
- a building services engineer designing details for fixed plant;
- a surveyor specifying articles or drawing up specifications;
- a contractor carrying out design work as part of a design and building project; or
- an interior designer, shop-fitter or landscape architect;

"excavation work" means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

"explosive actuated fastening device" means a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing;

"fall arrest equipment" means equipment used to arrest a person in a fall, including personal equipment, a body harness, lanyards, deceleration devices, lifelines or similar equipment;

"fall prevention equipment" means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanyards, lifelines or physical equipment such as guard-rails, screens, barricades, anchorages or similar equipment;

"fall protection plan" means a documented plan, which includes and provides for -

- all risks relating to working from a fall risk position, considering the nature of work undertaken;
- the procedures and methods to be applied in order to eliminate the risk of falling; and
- a rescue plan and procedures;

"fall risk" means any potential exposure to falling either from, off or into;

"health and safety file" means a file, or other record containing the information in writing required by these Regulations;

"health and safety plan" means a site, activity or project specific documented plan in accordance with the Client's health and safety specification;



"health and safety specification" means a site, activity or project specific document prepared by the Client pertaining to all health and safety requirements related to construction work;

"material hoist" means a hoist used to lower or raise material and equipment, excluding passengers;

"medical certificate of fitness" means a certificate contemplated in regulation 7(8);

"mobile plant" means any machinery, appliance or other similar device that is able to move independently, and is used for the purpose of performing construction work on a construction site;

"National Building Regulations" means the National Building Regulations made under the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and promulgated by Government Notice No. R. 2378 of 30 July 1990, as amended by Government Notices No's R. 432 of 8 March 1991, R. 919 of 30 July 1999 and R. 547 of 30 May 2008;

"person day" means one normal working shift of carrying out construction work by a person on a construction site;

"principal contractor" means an employer appointed by the Client to perform construction work;

"Professional Engineer or Professional Certificated Engineer" means a person holding registration as either a Professional Engineer or Professional Certificated Engineer in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000);

"Professional Technologist" means a person holding registration as a Professional Engineering Technologist in terms of the Engineering Profession Act, 2000;

"provincial director" means the provincial director as defined in regulation 1 of the General Administrative Regulations, 2003;

"scaffold" means a temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

"shoring" means a system used to support the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation;

"structure" means-

- any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, bulk mixing plant, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- any falsework, scaffold or other structure designed or used to provide support or means of access during construction work; or
- any fixed plant in respect of construction work which includes installation, commissioning, decommissioning or dismantling and where any construction work involves a risk of a person falling;

"suspended platform" means a working platform suspended from supports by means of one or more separate ropes from each support;

"temporary works" means any falsework, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during construction work;

"the Act" means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);



"tunnelling" means the construction of any tunnel beneath the natural surface of the earth for a purpose other than the searching for or winning of a mineral.

Reference should be made to the following documentation in conjunction with this Safety Specification (including existing surveys, drawings and reports):

Tender documents
Structural Engineers Drawings
Safety Specification
Architect Drawings
Environmental management plan

IMPORTANT NOTE:

This Health and Safety Specification has been prepared to comply with the requirements of the Construction Regulations 2014.

1.2 BACKGROUND TO THE HEALTH AND SAFETY SPECIFICATION

Historically, the Construction Industry has had a poor health and safety record. Due to the complex and potentially dangerous operations being undertaken, there is a high risk of incidents, accidents and injuries. In many instances poor adherence to the Act and Regulations has resulted in severe consequences for Health and Safety performance. The Client is determined that the highest Health and Safety standards will prevail throughout the Contract and that there will be full commitment from all parties involved.

To achieve this goal the Client has prepared this Health and Safety Specification. The Health and Safety Specification sets out guidelines and minimum levels of awareness and guidance for Health and Safety requirements for the project. Contractual responsibility for adhering to these requirements rests with the Contractors. All employees are encouraged to be pro-active in compliance.

The Client is committed to ensuring the highest Health and Safety standards for all work undertaken within the Contract.

Contractors as employers are fully responsible and accountable for compliance with all Health and Safety requirements.

IMPORTANT NOTE:

Compliance with the Occupational Health and Safety Act and Regulations shall not be limited to this Health and Safety Specification and definitions contained in this document.

Contractors shall be conversant with the requirements and effects of Health and Safety legislation upon their activities, in particular the Construction Regulations, 2014, and the Occupational Health and Safety Act, 1993, and to have made adequate resource in their tender submission to comply with all legislative requirements.

The Contractor's personnel will be responsible for the auditing of the implementation of the Health and Safety Specification and maintaining the document control and record systems associated with the Health and Safety Specification. The Client will conduct Health and Safety audits of the works too.

1.3 PURPOSE OF THE HEALTH AND SAFETY SPECIFICATION

The purpose of this site specific Health and Safety Specification is to comply with legal requirements and to provide health and safety information about specific project risks known by the Client, Designer and Safety



Agent to be applicable to this project. This document also provides minimum health and safety requirements, standards and expectations that the principal contractor and contractors must adhere to.

The Contractor must take into account all information in this specification and ensure that their tenders include adequate resource and competence to deal with the matters detailed herein so that all relevant contents are dealt with in a way which is in compliance with legislation and the ethical concerns for the safeguarding of employees, contractors and other persons affected by the construction activities.

The Health and Safety Specification will be implemented during construction of the works and any construction activity that the Client has control over.

This will also assist in ensuring that all the costs related to the compliance with Occupational Health Act 85 of 1993 and the Construction Regulations 2014, as well as this Health and Safety Specification, are taken into consideration at Tender stage.

No advice, approval of any document required by the Health and Safety Specification such as hazard identification and risk assessment action plans or any other form shall be construed as an acceptance by the Client of any obligation that absolves the Contractor from achieving the required level of performance and compliance with legal requirements.

Further, there is no acceptance of liability by the Client which may result from the Contractor failing to comply with the Health and Safety Specification unless the Client has issued an instruction to any requirement, i.e. the Contractor remains responsible for achieving the required performance levels.

1.4 IMPLEMENTATION OF THE HEALTH AND SAFETY SPECIFICATION

This Health and Safety Specification forms an integral part of the Contract, and Contractors shall make it an integral part of their Contracts with Contractors and Suppliers. Contractors employed by the Client are to ensure that the provisions of the Health and Safety Specification are applied both on the site and in respect of all off site activities relating to the project, in particular in transport activities and project dedicated off site fabrication works.

The Contractor shall enforce the provisions of the Health and Safety Specification amongst all Contractors and suppliers for the project.

The Contractor shall sign the acknowledgment on the last page of this safety specification that he/she has familiarized him/herself with the content of the Health and Safety Specification and shall comply with all obligations in respect thereof.

The successful Contractor will be required to compile a Health and Safety Plan based on the requirements of the Occupational Health Act 85 of 1993 and these Specifications, which will need to be approved by Client prior to commencement with construction work.

1.4.1 Client Duties

In terms of the Construction Regulations 2014 the Client (or their Agent, where appointed) has legal duties. Where an Agent (refer to "definitions" section of this document) is appointed in terms of this project, these Health and Safety duties assigned will also apply.

All references to "Client" will apply to their appointed "Safety Agent", where so appointed, in this Health and Safety Specification.

The Client must:

- Prepare a baseline risk assessment for the construction work
- Prepare a suitable, sufficiently documented and coherent site specific Health and Safety specification for the intended construction work, based on the baseline risk assessment
- Include the health and safety specification in the tender documents



- Ensure that potential principal contractors submitting tenders have made adequate provision for the cost of health and safety measures
- Ensure that the principal contractor to be appointed has the necessary competencies and resources to carry out the construction work safely
- Take reasonable steps to ensure co-operation between all contractors appointed by the Client to enable each of those contractors to comply with the regulations
- Ensure, before work commences, that every principal contractor is registered and in good standing with the compensation fund, or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993 (Act no 130 of 1993)
- Appoint each principal contractor in writing for the project, or part thereof
- Discuss and negotiate with the principal contractor the contents of the principal contractor's safety plan and thereafter finally approve that plan for implementation
- Ensure that a copy of the principal contractor's health and safety plan is implemented and maintained
- Ensure that periodic health and safety audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days
- Ensure that a copy of the health and safety audit report is provided to the principal contractor within 7 days after the audit
- Stop any contractor from executing a construction activity which poses a threat to the health and safety of persons which is not in accordance with the principal contractor's health and safety plan for site
- Where changes are brought about to the design or construction work, make sufficient health and safety information and appropriate resources available to the principal contractor to execute the work safely
- Ensure that the health and safety file is kept and maintained by the principal contractor.
- Where the Client requires additional work to be performed as a result of a design change or error in construction due to the actions of the Client, the Client must ensure that sufficient safety information and appropriate additional resources are available to execute the required work safely.
- Where more than one principal contractor is appointed, the Client must take reasonable steps to ensure co-operation between all principal contractors and contractors to ensure compliance with the Regulations
- Where the Client has appointed a Safety Agent for the project, their details for this project are contained in the Project Directory section of this health and safety specification.

1.4.2 Designer Duties

It must be noted that the Designer also has Health and Safety duties assigned in terms of the Construction Regulations. Where the contractor fulfils a design function in terms of this project (refer to "definitions" section of this document), these duties will also apply. Please refer to Regulation 6 of the Construction Regulations 2014.

Please note that the designer of temporary works must ensure that:

- all temporary works are adequately designed so that it will be capable of supporting all anticipated vertical and lateral loads that may be applied;
- the designs of temporary works are done with close reference to the structural design drawings issued by the contractor, and in the event of any uncertainty consult the contractor;
- all drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector; and
- the loads caused by the temporary works and any imposed loads are clearly indicated in the design.



1.5 PROJECT DIRECTORY		
Project Client	The Technical Director Infrastructure and Engineering Directorate 33 Da Gama Road Jeffreys Bay, 6330	Tel: 042 200 2200
Contact Person	Mr A Perils	e-mail: aperils@kouga.gov.za
Project Manager Consulting Engineer	Bosch Projects P O Box 27158 Greenacres Port Elizabeth, 6057	Tel: 041 363 0598
Contact Person	Mr L Streicher	e-mail: Streicherl@boschprojects.co.za
Construction Safety Agent	Safe Working Practice 8 Diaz office Park Beach Boulevard West Diaz Strand, 6506	Tel: 0860 111 540 Cell: 061 485 5807
Contact Person	Stiaan Burger	e-mail: stiaan@safepractice.co.za

OTHER PARTIES DIRECTORY	
Department of Labour for submission of Annexure 2: Notification of Construction Work	Tel: 044 701 3258 Cell: 076 091 8455 e-mail: siseko.gwavu@labour.gov.za
EASTERN CAPE: Siseko Gwavu	
Department of Labour - Humansdorp 2296 Main Rd, Humansdorp, Eastern Cape	Tel: 042 295 1660
Telecommunications Company: Telkom SA	Tel: 10213
Water & Electricity Company: Humansdorp 19 Du Plessis Street, Humansdorp, Eastern Cape	Tel: 042 200 2251
COVID-19 Hotlines National Coronavirus Hotline	Tel: 0800 029 999



1.6 PROJECT DETAILS

Description of Works

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

The KwaNomzamo Sports Facility is the only multi-purpose sports facility in the Kouga Region that can accommodate athletics, rugby, soccer, squash, tennis, netball, bowls, cricket and indoor sports as well as enough practice space in one facility and therefore needs to be upgraded to comply with the norms and standards of the Department of Sports, Arts and Culture (DSRAC). However, the facility is in dire need of upgrading / refurbishment and maintenance. The aim of this project is to upgrade the existing sports facilities to meet the standards of the DSRAC.

EXTENT OF THE WORKS

This Contract covers the following works, namely:

Secondary Match Field:

- Import topsoil and re-grass Secondary Match Field and surrounding berms
- Design and installation of Irrigation system and connections.
- Field Markings

Ablution Facilities:

- Build new ablution facilities at secondary fields.

Fencing and Access Gates:

- Repair perimeter wall around main sports field
- Install access gates
- Construct guard houses at entrances

Irrigation:

- Provide irrigation system and connection

Area Lighting:

- Replace/ Repair damaged electrical kiosks and cables.
- Minor maintenance on pylons and light fittings.

Anticipated Construction Duration

6 Months

Provisional Start Date

1 July 2020

Completion Date

Jan 2021

1.7 EXISTING ENVIRONMENT

Hazards particular to this project by virtue of location:

- Excavations/ Trenches
- Safe guard to members of public and surrounding environment
- Dust control on site
- Working at heights



Overhead, Above Ground and Underground Services crossing the site:

Before any work commences the exact positions of all services must be located and the services identified, marked and recorded on plan for inclusion in the as-built drawing. Items have been allowed in the Bill of Quantities for dealing with and protecting existing services where they are known.

The Contractor, shall however, ensure that prior to construction all the necessary Record Drawings and Way-leaves for all services have been obtained and verified on site by the relevant service providers in his presence. The Contractor must request in writing the relevant official to indicate the said services within 48 hours prior to the commencement of the work, after which the responsibility rests with the service department if the services are not indicated to the Contractor as requested.

The Contractor shall take whatever extra precautions are required to protect all existing services from damage during the period of the Contract. Any damage to existing services indicated by the relevant service providers or other damage as a result thereof, shall be for the Contractors account

KNOWN SERVICES

The positions of existing services, insofar as they are known, are shown on the drawings. Items have been allowed in the Schedule of Quantities for dealing with and protecting services.

TREATMENT OF EXISTING SERVICES

Before construction work commences, all existing services must be located and marked. The contractor is to take levels of all the exposed services and forward to the Employer's Agent before any work can commence. The Employer's Agent will then check levels against design and only then will the Employer's Agent allow the Contractor to continue with the works. The Contractor is to allow for the exposing of services and subsequent checks by the Employer's Agent in their programme. All existing services are to be located by hand-excavation. The Contractor shall take whatever precautions are required to protect these services from damage during the period of the Contract

USE OF DETECTION EQUIPMENT FOR THE LOCATION OF UNDERGROUND SERVICES

The Contractor shall take all the necessary steps to ascertain the location of existing services before commencing any section of the works and shall exercise the greatest care when working in the vicinity of such services. No more than three weeks and not less than one week before commencing his operations in any particular area, the Contractor shall obtain from the relevant authority the latest available drawings showing the location of services already installed.

The Contractor shall take all the necessary steps to protect any existing works against damage which may arise as a result of his operations on Site. The Contractor shall bear the cost of the repair of damage to any service, the possible existence of which could reasonably have been ascertained by him in good time.

Where the Contractor is responsible for the cost of repairs carried out by a Service Authority, the Contractor will be billed directly by the Service Authority concerned.

DAMAGE TO SERVICES

The Contractor shall so carry out all his operations as not to encroach on, or interfere with, trespass on, or damage adjoining lands, buildings, properties, road structures, pipelines, places and things, in the vicinity of the Works and so as not to interfere in any way at any time with the smooth and continuous operation of the existing facilities.

REINSTATEMENT OF SERVICES AND STRUCTURE DAMAGED DURING CONSTRUCTION

All repairs will be done to the standard of the service before the damage was incurred. Where owners of existing services may elect to repair damages themselves, the contractor will still remain liable for any claims that the owners of the service may make to compensate for the costs involved.



PERMITS AND WAY LEAVES

The Contractor will be required to take cognisance and comply with the general wayleave requirements of the various service providers, where applicable, during the contract period. The Contractor is to liaise with the Employer's Agent to establish who they require to contact prior to commencement of the Works. The following Departments would need to be contacted,

1. KOUGA LOCAL Technical Directorate
2. Eskom
3. Any other service provider

Overhead: None known off.

Underground: Water, Electricity, Sewer, Stormwater

Ground level: Existing Buildings

Service Drawings available: Yes, see tender documents.

Wayleaves required: Although the Employer's Agent will provide wayleave drawings, the Contractor shall be responsible for liaising with the relevant service authorities and shall obtain his own wayleaves / approvals before commencing construction.

The Contractor will be required to take cognisance and comply with the general way-leave requirements of the various services providers, where applicable, during the construction of the pipeline. The Contractor is to liaise with the Employer's Agent to establish who they require to contact prior to commencement of the Works.

Permits required: Yes, must be applied for by the Principal Contractor.

Isolations required: Yes, A permit to dig and enter excavations must be issued for excavations deeper than 1.5m.

Existing structures and surrounding land use (with a significant impact on Health & Safety):

The works will take place with in a residential area and there is existing buildings, businesses and roads in the vicinity of the works.

Existing ground conditions and ground survey report:

Before commencement of the work, the Contractor is to liaise with the Employer's Agent to establish the exact status of all pegs and servitudes in the area. The position of all erf pegs found will be recorded on a marked up print of the area.

On completion of the Contract the pegs that have unavoidably disturbed will be replaced by the Employer. Pegs which have, in the opinion of the Employer's Agent, been disturbed due to the negligence of the Contractor, will be replaced at the Contractor's cost.

Benchmarks with levels and co-ordinates are available on site. Setting out will be done using co-ordinates supplied by the Employer's Agent.

Existing Traffic Systems

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 Roadworks in Urban Areas", as published by the Department of Transport.

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

At least 7 days advance notice must be given to residents/visitors that will be affected before excavations/work can commence near any particular road. Unless it is impossible to do so, roads must remain open for access to the community/visitors at all times unless written permission is granted by the Employer's Agent.



Condition: Two way tarred roads.

Restrictions to access: All visitors need to report at site office for induction prior to enter the working area.

Speed restrictions:

Normal speed restrictions will apply as per traffic regulations.

1.8 AVAILABLE DRAWINGS

Refer to tender documentation.

The Contractor shall mark up on drawings provided to him for this purpose the exact positions and details of all infrastructures, pipelines and the like constructed under this contract. The marked-up drawings shall be handed to the Employers Agent monthly as the work progress. The Certificate of Completion shall not be issued before the Employers Agent is in receipt of all marked up drawings and other as-built information

1.9 PROJECT HEALTH AND SAFETY REQUIREMENTS

Significant health and safety hazards identified by Designer and Safety Agent:

Members of public

Other construction hazards expected are as follows:

Bricklaying
Brush cutting
Chainsaw Use
Compacting and Filling
Compactor Operations
Concrete Pumping
Confined Spaces
Contaminated Land
COVID-19
Cutting Kerbs
Cutting Off Disc
Demolition
Electric Tools and Electrical Installations
Excavations
Fire
Flammable Liquids / Gas
Fragile Materials
Goods / Passenger Hoist Operation
Hand tools
Hazardous Substances
Hot Works
Kerb Laying
Lead
Lifting Operations
Manhole Rings and Pipes Storage
Manual Handling of General Items
Material / Passenger Hoist Operation
Members of Public
Mobile Crane
Night Work



Noise and Dust
Overhead Services (Working near)
Painting
Paving (Laying)
Piling
Plant/Vehicle and Equipment Operation
Plastering
Plumbing
Precast Slab / Unit Laying and Fixing
Road Construction
Road Marking
Road Working – in or next to (including Traffic Management)
Scaffold Erection / Dismantling
Shuttering Walls, Beams, Columns
Site Strip
Skipping of Concrete
Snakes
Steel Erection
Steel Fixing
Street Lighting
Temporary Work (include False Work, Scaffold and Shoring)
Troxler Use
Underground Services
Working at Height (excluding scaffold)
Working with Effluent

NOTE: Please refer to end of this Health and Safety Specification for the baseline risk assessment for these risks.

ACTIVITIES REQUIRING APPROVED METHOD STATEMENTS (FOR HEALTH AND SAFETY)

Site establishment

ACTIVITIES REQUIRING PERMITS (FOR HEALTH AND SAFETY PURPOSES)

Permit to Dig: Yes

Permit to Enter Excavations: Yes

Permit to Work with Electricity: Yes

Confined Space Permit: Yes

Hot Works Permit: Yes

Permit to Work under Power Lines: Yes

Temporary Works: Yes

CONTRACTOR SAFETY OFFICER PROVISION

Records of safety audits undertaken by the Contractor's Safety Officer must be kept on site in the safety file and non-conformances reported by the Safety Officer to the Contractor's management team. All non-conformances identified by the Safety Officer must be investigated and corrective action taken by the Contractor to prevent re-occurrence.



Please note that as from 7th August 2018 the safety officer must be professionally registered with the SACPCMP. Proof of registration with the SACPCMP must be provided.

If registered as a Candidate proof of mentorship and weekly visits by mentor must be available on site.

MEDICAL CERTIFICATE OF FITNESS

The contractor must ensure that their employees on site have a valid medical certificate of fitness, specific to the construction work being performed, issued by an occupational health practitioner in the form of an Annexure 3 template.

MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK

A principal contractor must, in writing, appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor. Proof of all-inclusive assessment of the Construction Manager's Competency in construction management and H & S competency must be available in the Safety File.

The Construction Manager and designated construction supervisor/s must, as a minimum, have training in Legal Liability, Construction Regulation 2014 and the OHS Act and Regulations.

TRAFFIC MANAGEMENT AND TRAFFIC SAFETY OFFICER PROVISION

The Traffic Management Plan must be approved by the Traffic Chief as per the National Road Traffic Act, No. 93 of 1996. The Traffic Safety Officer must have training as per Unit Standard 14561 or similar.

ENVIRONMENTAL CONDITIONS

Contractor must take into account adverse weather conditions on site activities and implement control measures to mitigate risk. This includes risk of exposure to excessive heat, cold, rain and wind. The open nature of the site works will not preclude any of the above.

ARRANGEMENTS FOR ACCESS, PARKING, DELIVERIES, ETC.

The KwaNomzamo Sports Facility is situated in the heart and centre of the town of Humansdorp, making the facility accessible to all community members with easy access from the R330 main route between Humansdorp and St Francis Bay.

Access to site by Construction Vehicles: Easy access from the R330 main route between Humansdorp and St Francis Bay.

Access to site by Construction Workers and Visitors:

Traffic and Site Access

No roads may be closed without prior permission. Other Services the Contractor shall ensure that the position of all existing services affected by the works have been verified before construction works commences. Where the contractor is responsible for damage for which repairs must be carried out by the Employer, the cost of these repairs will be recovered by means of a deduction from the Contractor's monthly Payment Certificate.

All service providers must sign a 37.2 Mandatory Agreement and must be inducted before they can be allowed on site.

ARRANGEMENTS FOR SITE CAMP, ABLUTIONS AND YARD

Location of Camp and Materials storage area:

The camp site and storage area will be indicated to tenderers at the site inspection for the contract.

The Contractor must provide adequate and secure storage, to the satisfaction of the Engineer, for all materials. All material must, in addition be stored or stacked in positions that shall not interfere with other work in progress in the area.



Site camp location and set up

One office complete with desk, chair and double door cabinet is required under lock and key. The Employer's Agent and contractor would share this office.

No of 2 Carports required.

Source of Water Supply

The Contractor may make application to the Municipality's Water Division for a water supply point and shall bear all the costs for the installation of such supply point. Water used by the Contractor from the Employer's mains will be charged for at the tariffs ruling at the time of use. A raw water supply point is available at the Howiesonspoor pump station.

The Contractor shall make himself thoroughly acquainted with the regulations relating to the use of water and shall take adequate measures to prevent the wastage of water. The Employer accepts no responsibility for the shortage of water due to any cause whatsoever, nor additional costs incurred by the Contractor as a result of such shortage.

The Contractor shall take note that no direct payment will be made for any costs incurred for the provision of a water supply point nor for the cost of water drawn. Payment for the aforementioned shall be deemed to be covered by the rates and prices tendered and paid for the various items of work included under the Contract.

Source of Power Supply

The Contractor is to make his own arrangements with the Electricity Department for a supply of electricity, if required, and shall pay establishment and consumption costs at the tariffs ruling at the time.

The Contractor shall confine his camp and storage of materials to the areas designated. On completion of the construction works the surface of the areas utilised shall be re-instated.

- | | | |
|---------------------------------------|---|--------------------------------------|
| • Restrictions / requirements: | } | |
| | } | |
| • Storage areas: | } | Contractor to advise in consultation |
| | } | with Engineer / Professional Team |
| | } | |
| • Security: | } | |

Ablutions and Welfare Arrangements

Contractor to supply ablutions and facilities in line with the Construction Regulations 2014, refer to section 2.31 of this health and safety specification regarding the below. Please note that toilets should be provided with built in facilities for hand washing:

- | | | |
|------------------------------|---|--|
| • Toilets: | } | |
| | } | |
| • Washing facilities: | } | |
| | } | |
| • Drinking Water: | } | Contractor to provide as per Regulations |
| | } | |
| • Shelter: | } | |
| | } | |
| • Showers: | } | |

Debris arising from clearing and grubbing or from the demolition of structures on site shall be removed by the Contractor and disposed of at a Municipal approved tip site.

Temporary Offices

Site meetings will be held in the Contractor's site office.

**Sanitary Facilities**

The Contractor shall supply chemical toilets for use by his workmen. The number of toilets shall be based on one toilet per fifteen personnel on site.

Under no circumstances will the Contractor's staff be allowed to use public toilet facilities.

Telephone Facilities

A site telephone will not be required by the Employer's Agent, but the time-related tendered rate for the Contractor's telephone shall include for local official calls by the Employer's Agent or his Representative.

OTHER FACILITIES AND SERVICES**SECURITY**

The provision of security for the Contractor's Site Establishment shall be his own responsibility and no claims for additional security measures taken during the currency of the contract will be considered.

Unless expressly allowed for in the contract sum, the Contractor shall in connection with the works, provide and maintain, at his own cost, all lights, guards, barriers, fencing and watching when and where necessary or as required by the Engineer or by any competent statutory or other authority for the protection of the works or for the safety and convenience of the public.

The minimum security requirement is for the Contractor to Employ Security Guards from an approved Security Company to give 24 hours security, 7 days a week.

REFUSE CONTAINER & DISPOSAL

Adequate containers for collection of refuse shall be provided by the Contractor. All containers shall have lids. Arrangements for refuse disposal shall be made with the relevant authority.

VEHICLES AND EQUIPMENT

The Contractor must make available survey equipment to the Employer's Agent's Representative as may be required from time to time throughout the contract. Details are included in the Scope of Works –

SITE USAGE

The Contractor shall also provide sumps, pumps, furrows, berms and/or coffer dams to divert water flow away from the construction activities; and other temporary works as may be necessary to minimise damage, inconvenience or interference, for 24 hours a day, 7 days a week throughout the period of Construction, to adequately protect the works from flooding and damage by stormwater.

PROTECTION OF SITE AGAINST UNAUTHORISED ACCESS BY PUBLIC

Excavation Fencing: Note that excavations accessible to public, or adjacent to public roads / thoroughfares, must have (1) barrier / fence of at least 1m in height, and (2) warning illuminants at night or when visibility is poor, or have other suitable precautionary measures if of both these are not practicable.

Provide barricading around open excavations where required by the Employer's Agent. The rate shall cover all costs to install and maintain safety barricading around excavations where required by the Employer's Agent

Where excavations pose a danger to the community/visitors/animals they are to be closed during the weekends and Public Holidays.

During the time period between pouring the trench fill into the trench, and the setting of this material, it is imperative that no person or animal be allowed to gain access to the trench. Suitable barricades shall be provided around the trench and a guard placed on duty at the trench until the material sets.

Should the trench fill not be set by nightfall, safety lamps shall be placed on the barricades.

- The responsibility for public safety lies with the Contractor.

General Fencing of Site: Note that construction sites in built up areas adjacent to public way must be fenced off and have controlled access points.



Warning Notices: In addition, the Contractor shall provide and erect two Identity Boards in accordance with Drawing PSA 3 of Standard Details July 2007". They shall be placed and moved, as directed by the Employer's Agent Representative.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

The Client requires the Contractor to ensure that employees (and others under his/her control) wear the following minimum PPE:

Overalls: Yes, as per task requirement.

Safety Harnesses: Yes, as per task requirement.

Hard Hats: Yes, as per task requirement.

Reflective Vests: Yes, must be visible all the time.

Goggles / gloves / ear defenders / respiratory protection: Yes, as per task requirement.

Safety Footwear: Yes

Specialist Equipment (e.g. for confined Spaces): Yes, as per task requirement

HAZARDOUS SUBSTANCES

The following materials and substances have, or may have, to be used in the works and are identified as potentially posing special health and / or safety hazards during the project. Appropriate measures will need to be specified for their control:

Silicone adhesives
Petrol
Diesel
Various Paints
Cement
Waterproofing agents

1.10 INTERFACE AND RESTRICTIONS BY CLIENT

Contractor must note that the following Client activities will continue during construction:
Normal day to day activities will take place.

The following Client safety rules and/or requirements are to be observed:

All workers are to receive induction prior to commencement of work on site.
Other safety rules and requirements to be advised at induction.
Please also refer to tender document.

APPLICABLE SABS 1200 STANDARDS FOR CONSTRUCTION WORKS

The Standardised Specifications listed below are applicable to the contract. It shall however be noted that reference is made in certain of the specifications to other standardised specifications which may or may not be included in the list below. Where such specifications are not included, they shall however be deemed to be included in the contract documents.

South African Bureau of Standards, Standardized Specifications for Civil Engineering Construction.



SABS/SANS 1200 series, specifically:

SANS 1200 A – 1986 General
SANS 1200 AB – 1986 Employer's Agents Office
SANS 1200 C – 1980 Site Clearance (As amended 1982)
SANS 1200 D – 1988 Earthworks (As amended 1990)
SANS 1200 DA – 1988 Earthworks (small works) (As amended 1990)
SANS 1200 DB – 1989 Earthworks (Pipe Trenches)
SANS 1200 DM – 1981 Earthworks (Road, Subgrade)
SANS 1200 GA – 1982 Concrete (Small Works)
SANS 1200 L – 1983 Medium Pressure Pipelines
SANS 1200 LB – 1983 Bedding (Pipes)
SANS 1200 LD – 1981 Sewers
SANS 1200 LE – 1981 Stormwater Drainage
SANS 1200 MK – 1996 Kerbing and channelling
SANS 1200 M – 1996 Roads (General)
SANS 1200 ME – 1981 Sub Base
SANS 1200 MM – 1981 Ancillary Roadworks

These have not been bound into the document but are available for inspection at the offices of the Consulting Engineers or can be obtained as follows:

- Standards South Africa, contactable at 012 428 6666

The Contractor shall have available for reference on site at all times a full set of the above specifications, together with any other to which they refer.

Project specific variations to these standardized specifications are included as Scope of Work: Part B. In the event of any discrepancy with a part or parts of the standard specifications, the bill of quantities or the drawings, the project specifications described in Scope of Work: Part B shall take precedence.

Applicable national and international standards

- The Standard Regulations for the Wiring of Premises as issued by the South African Bureau of Standards (SANS 10142-1);
- The Occupational Health Safety Act No. 85 of 1993;
- N.O.S.A. Safety Guidelines;
- The Local Fire Office Regulations;
- The Municipal by-laws and any special requirements of the local Supply Authorities of the area or district concerned;
- The applicable IEC Specifications or the BS Specifications where no SANS or IEC Specifications exist;
- The National Building Regulations;
- Post Office Regulations;
- Earthing design and installations, SANS 10199;
- The protection of structures against lightning, SANS 10313;
- Interior lighting (artificial) SANS 10114 Part 1;
- Emergency lighting SANS 10114 Part 2;

No claims for extras in respect of failure by the Contractor to comply with any of the above regulations shall be considered.

Where conflict exists between any of the above regulations and the specifications, the said conflict must be referred to the Engineer in writing for his ruling.

Restrictions on times, access or other restrictions by Client

Please refer to tender document.

Other restrictions may be advised at induction.



1.11 Project Close Out

The H&S files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project. The following list is an example of what should be included but is not exhaustive. The OHS Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are met. Documentation would include all records from the start of the project. All records to be in electronic format and submitted to the OHS agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

Health and Safety close out file requirements include:

- Client H&S Specification
- Principal Contractor's OHS Plan(s)
- Organograms
- Legal Appointments
- Notification to Department of Labour of commencement of work
- Letters of Good Standing for the Project
- Full files for all Contractors as well as their close out reports
- List of Contractors
- Letters of Approval of Contractors
- Mandatary Agreements
- Letters of Good Standing
- Appointments
- Incident Records
- Non-Conformance records
- Agent's Audits
- Method Statements
- Risk assessments
- Safe work procedures
- Medical surveillance certificates of fitness. Medical records are to be kept according to the OH&S Act as amended.
- All drawings for temporary structures (suspended beams/scaffolds etc.)
- Copies of test results, policies and procedures for environmental monitoring (silica, noise, dusts, etc.)
- Detailed material registers of all material used.

1.12 SAFETY FILE RETURN TO CLIENT

The Safety File for the Project is to be handed over by the Principal Contractor to the Client upon Project Completion in a hard copy and electronic format.



2.0 FURTHER REQUIREMENTS

2.1 Duties of Principal Contractor / Contractor in terms of Construction Regulations 2014

A Principal Contractor must:

- provide and demonstrate to the Client a suitable, sufficiently documented and coherent site specific health and safety plan, based on the Client's documented health and safety specifications, *which* plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the principal contractor as work progresses;
- open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the Client, the Client's Safety Agent or a Contractor; and
- on appointing any other contractor, in order to ensure compliance with the provisions of the Act –
 - provide contractors who are tendering to perform construction work for the principal contractor, with the relevant sections of the health and safety specifications pertaining to the construction work which has to be performed;
 - ensure that potential contractors submitting tenders have made sufficient provision for health and safety measures during the construction process;
 - ensure that no contractor is appointed to perform construction work unless the principal contractor is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;
 - ensure prior to work commencing on the site that every contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act, 1993;
 - appoint each contractor in writing for the part of the project on the construction site
 - take reasonable steps to ensure that each contractor's health and safety plan is implemented and maintained on the construction site;
 - ensure that the periodic site audits and document verification are conducted at intervals mutually agreed upon between the principal contractor and any contractor, but at least once every 30 days;
 - stop any contractor from executing construction work which is not in accordance with the Client's health and safety specifications and the principal contractor's health and safety plan for the site or which poses a threat to the health and safety of persons;
- where changes are brought about to the design and construction, make available sufficient health and safety information and appropriate resources to the contractor to execute the work safely;
- discuss and negotiate with the contractor the contents of their health and safety plan and finally approve that plan for implementation;
- ensure that a copy of both the principal contractor and contractor's health and safety plan is available on request to an employee, an inspector, a contractor, the Client or the Client's Safety Agent;



- hand over a consolidated health and safety file to the Client upon completion of the construction work, to include a record of all drawings, designs, materials used and other similar information concerning the completed structure;
- in addition to the documentation required in the health and safety file include and make available a comprehensive and updated list of all the contractors on site accountable to the principal contractor, the agreements between the parties and the type of work being done;
- ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

A contractor must prior to performing any construction work-

- provide and demonstrate to the principal contractor a suitable and sufficiently documented health and safety plan, based on the relevant sections of the Client's health and safety specification and provided by the principal contractor, which plan must be applied from the date of commencement of and for the duration of the construction work and which must be reviewed and updated by the contractor as work progresses;
- open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, and which must be made available on request to an inspector, the Client, the Client's Safety Agent or the principal contractor;
- before appointing another contractor to perform construction work be reasonably satisfied that the contractor that he or she intends to appoint has the necessary competencies and resources to perform the construction work safely;
- co-operate with the principal contractor as far as is necessary to enable each of them to comply with the provisions of the Act;
- as far as is reasonably practicable, promptly provide the principal contractor with any information which might affect the health and safety of any person at work carrying out construction work on the site, any person who might be affected by the work of such a person at work, or which might justify a review of the health and safety plan.

Where a contractor appoints another contractor to perform construction work, the duties that apply to the principal contractor will apply to the contractor as if he or she were the principal contractor.

A principal contractor must take reasonable steps to ensure co-operation between all contractors appointed by the principal contractor to enable each of those contractors to comply with these Regulations.

No contractor may allow or permit any employee or person to enter any site, unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

A contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

A contractor must at all times keep on his or her construction site records of the health and safety induction training and such records must be made available on request to an inspector, the Client, the Client's Safety Agent or the Principal Contractor.



A contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3 (a template of which can be found in the Construction Regulations, 2014).

2.2 Management and Supervision of Construction Work

A principal contractor must, in writing, appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor. Proof of all-inclusive assessment of the Construction Manager's Competency in construction management and H & S competency must be available in the Safety File. The Construction Manager must, as a minimum, have a Construction Regulation course. No contractors may be left unsupervised on site by the principal contractor.

A principal contractor must upon having considered the size of the project, in writing appoint one or more assistant construction managers for different sections thereof: Provided that the designation of any such person does not relieve the construction manager of any personal accountability for failing in his or her management duties in terms of this regulation.

Where the construction manager has not appointed assistant construction managers, or, in the opinion of an inspector, a sufficient number of such assistant construction managers have not been appointed, that inspector must direct the construction manager in writing to appoint the number of assistant construction managers indicated by the inspector, and those assistant construction managers must be regarded as having been appointed.

No construction manager appointed in terms of the Regulations may manage any construction work on or in any construction site other than the site in respect of which he or she has been appointed.

A contractor must, after consultation with the Client and having considered the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction health and safety officer in writing to assist in the control of all health and safety related aspects on the site: Provided that, where the question arises as to whether a construction health and safety officer is necessary, the decision of an inspector is decisive.

No contractor may appoint a construction health and safety officer to assist in the control of health and safety related aspects on the site unless he or she is reasonably satisfied that the construction health and safety officer that he or she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor

A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site. Proof of all-inclusive assessment of the Construction Supervisor's competency in construction supervision and H&S competency must be available in the Safety File. The Construction Supervisor must, as a minimum, have a supervision course as per Unit Standard 262845 (Civil Engineering), 119080 (Building Construction) and 262884 (Civil Engineering).

A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor, and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties.

Where the contractor has not appointed such an employee, or, in the opinion of an inspector, a sufficient number of such employees have not been appointed, that inspector must instruct the employer to appoint the number of employees indicated by the inspector.



No construction supervisor appointed may supervise any construction work on or in any construction site other than the site in respect of which he or she has been appointed: Provided that if a sufficient number of competent employees have been appropriately designated on all the relevant construction sites, the appointed construction supervisor may supervise more than one site.

2.3 Notification of Intention to Commence Construction Work

The Contractor shall notify the Provincial Director of the Department of Labour of the intention to commence construction work at least 7 days prior to the works commencing if the intended construction work will:

- Include excavation work
- Include work at height where there is a risk of falling
- Include the demolition of a structure, or
- Include the use of explosives to perform construction work.

If the construction work involves construction of a single storey dwelling for a Client, and such Client will be residing in such dwelling upon completion, the contractor must also notify the Provincial Director of the Department of Labour at least 7 days before the works commence.

This must be done on a form similar to an Annexure 2 (template of which can be found in the Construction Regulations, 2014). A copy of the notification letter to the Provincial Director shall be forwarded to the Client for record purposes.

2.4 Construction Work Permit

A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work on projects that will –

1. exceed 365 days and will involve more than 3600 person days of construction work; or
2. the tender value limit is grade 7, 8 or 9 of the Construction Industry Development Board (CIDB) grading.
 - Grade 7 = R60 000 000
 - Grade 8 = R 200 000 000
 - Grade 9 = No limit

A client may appoint a Construction Health and Safety Agent or Construction Health and Safety Manager to apply for this permit from the Provincial Director and construction work may not commence until the permit has been issued by the Provincial Director.

A copy of this permit will be required to be kept in the principal contractor's safety file, and the site specific number issued by the Provincial Director must be displayed at the site entrance.

A client may appoint a Construction Health and Safety Agent, or Construction Health and Safety Manager based on the scope and risk profile of construction work to represent him/her on matters of health and safety. Provided that, where the question arises as to whether a Construction Health Safety Agent or a Construction Health and Safety Manager is necessary, the decision of an inspector is decisive.

The following minimum documentation will be required during the permit application process:

1. Principal Contractor's Health and Safety Plan CR 5(1)(m)
2. Baseline Risk Assessment CR 5(1)(a)
3. Appointed Principal Contractor's Letter for Good Standing as per CR 5(1)(j)
4. Issue Register signed by Designer CR 5 (1)(c)
Issue Register signed by Principal Contractor
5. Declaration signed by Designer CR 5(1)(d) and CV



6. Principal Contractor made adequate provision for the cost of health and safety measures (Bill of Quantities) CR 5(1)(g)
7. Proof of Principal Contractor's competency and resources to carry out the construction work safely CR 5(1)(h)
Appointment Letter for Construction Manager, CV, Certificates and List of projects
Appointment Letter of Safety Officer & Safety Officer's Registration for SACPCMP
8. Principal Contractor's Appointment Letter CR 5(1)(k), Company Profile and CIDB grading

After approval of the Construction Work Permit any changes made to the appointed persons on the annexure 1 must be submitted to Department of Labour for approval before the appointed persons are allowed to commence with their tasks.

2.5 Assignment of Contractor's Responsible Persons to Manage Health and Safety on Site

The Contractor shall submit management and supervisory appointments as well as any relevant appointments in writing (as stipulated by the Construction Regulations 2014 and the Occupational Safety and Health Act 1993), prior to commencement of work (refer to **Annexure B** at the end of this Health and Safety Specification).

2.6 Competency for Contractor's Responsible Persons

The Contractor's responsible persons shall be competent in health and safety and be familiar with the Occupational Health and Safety Act 1993, and applicable regulations. Valid proof of pertinent health and safety courses attended by such persons will be required to be presented to the Client.

2.7 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDA)

The successful Contractor shall submit to the Client a valid letter of good standing with the Compensation Insurer prior to appointment.

2.8 Occupational Health and Safety Policy

The Contractor shall submit their Health and Safety Policy, prior to construction commencement, signed by the Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented within the company operations. The Policy must be communicated to all employees and proof thereof must be available in the Safety File.

2.9 Health and Safety Organogram

The Contractor shall submit an organogram, prior to construction commencement, outlining the Health and Safety Site Team that will be assigned to the project, if successful with the tender. In cases where appointments have not been made, the organogram shall reflect the position. The organogram shall be updated, when there is a change in the site team.

2.10 Risk Assessments

Baseline Risk Assessment

The Client shall cause a baseline risk assessment to be conducted by a competent person before the design process and tender process commence, and the assessed risks shall form part of the health and safety specifications.

The Contractor must, before commencement of any construction work, and during construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site and must include:



- The identification of the risks and hazards to which persons may be exposed to;
- An analysis and evaluation of the risks and hazards identified; based on a documented method
- A documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards that have been identified;
- A monitoring plan; and
- A review plan

The Contractor must ensure that, as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated and addressed in a risk assessment.

The Contractor must ensure that all employees under his control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and/or control measures **before any work commences** and thereafter **at the times determined in the risk assessment monitoring and review plan of the relevant site**.

The Principal Contractor must ensure that all contractors are informed regarding any hazard that is stipulated in the risk assessment **before any work commences** and thereafter **at the times determined in the risk assessment monitoring and review plan of the relevant site**.

The Contractor must consult with the health and safety committee or with a representative trade union or representative group of employees if no health and safety committee exists, on the monitoring and review of the risk assessments for the site.

The Contractor must ensure that copies of risk assessment for this site are available on site for inspection purposes by interested parties (inspector, the Client, Client's Safety Agent, any contractor, any employee, a representative trade union, a health and safety representative or safety committee member).

A Contractor must review the relevant risk assessment where changes are effected to the design and/or construction that result in a change to the risk profile, or when an incident has occurred.

Preventative measures must first address the elimination of the hazard or risk. Should PPE be required to reduce risk, the equipment or clothing to be used must be SABS approved.

In general, the Contractor must ensure that the Risk Assessment involves identifying the hazards present in a work activity on site. This is followed by an evaluation of the extent of the risk involved taking into account those precautions already being taken.

The following general principle should be followed when conducting a risk assessment:

- All relevant risks and/or hazards should be systematically addressed;
- The risk assessment should address what actually happens in the workplace during the work activity;
- All employees and those who may be affected must be considered, including maintenance staff, security guards, visitors and Contractors;
- The risk assessment should highlight those groups and individuals who may be required to work alone or who have disabilities;
- The risk assessment process should take into account the existing safety measures and controls.
- The level of detail on a risk assessment should be appropriate to the level of risk.

2.11 Health and Safety Representative(s)

The Contractor shall ensure that Health and Safety Representative(s) is/are elected and trained to carry out his / her functions. The Safety Representative(s) must be democratically nominated, elected and appointed in writing. The Health and Safety Representative(s) shall carry out regular inspections, keep records and report to the supervisor to take appropriate action. The Safety Representative(s) shall attend Health and



Safety Committee Meetings. The Health and Safety Representative shall be part of the team that will investigate incidents, accidents and non-conformances. The Safety Representative(s) must be (a) full time employee(s) who is/are acquainted with conditions and activities at that workplace or section thereof. The Safety Representatives must have Safety Representative training and must be capable of performing their duties.

2.12 Health and Safety Committee

Where two or more health and safety representatives have been appointed on site, the Contractor shall ensure that monthly health and safety meetings are held with such representatives and minutes are kept on record. Meetings must be organized and chaired by the Contractor's Health and Safety Committee Chairperson. Minutes of these meetings must be available for the employees of the contractor to refer to.

2.13 Medical Certificate of Fitness

The contractor must ensure that their employees on site have a valid medical certificate of fitness, specific to the construction work being performed, issued by an occupational health practitioner in the form of an Annexure 3 template (refer to the Construction Regulations 2014 on the Department of Labour website for a sample of this form).

2.14 Health and Safety Training

The Contractor shall quarterly conduct a training needs analysis to ascertain what health and safety training is required. A plan of action should be devised and forwarded to the Client for records. Once the identified people have attended the training, the Contractor must provide the Client with copies of certificates obtained.

2.14.1 Induction

No Contractor may allow or permit any employee or person to enter site unless they have undergone health and safety induction training pertaining to the hazards prevalent on site at the time of entry. This includes visitors to site. The Contractor must ensure that visitors to site have the necessary protective equipment (PPE). A copy of attendance registers of all employees who attend inductions shall be kept.

2.14.2 Awareness

The Contractor shall conduct periodic toolbox talks on site, weekly or before any hazardous work takes place. The talks shall cover the relevant activity and an attendance register must be signed by all attendees. This record of who attended and the content of the topic will be kept on the site health and safety file as evidence of training.

2.15 Competency

After the Contractor has identified the training to be conducted as part of the competency requirement, and based on Risk Assessment, he shall send the relevant persons on appropriate courses and keep certificates of training for reference. Familiarity with the Health and Safety Act and Regulations is an integral part of the definition of competence. All training must be conducted by an accredited training provider and the certificates must display the applicable unit standards and the expiry dates thereof.

2.16 General Record Keeping

The Contractor shall keep and maintain Health and Safety records to demonstrate compliance with the Health and Safety Specification and the Occupational Health and Safety Act. The contractor shall ensure that all records of incidents, spot fines, training, etc. are kept on site. All documents shall be available for inspection by the Client, or the Department of Labour's Inspectors.



2.17 General Inspection, Monitoring and Reporting

The Contractor shall carry out inspections as required by this Health and Safety Specification, as well as by health and safety legislation.

2.18 Emergency Procedures

The Contractor shall submit a detailed Emergency Procedure for approval by the Client prior to commencement on site. The procedure shall detail the response plan including the following:

- List of key personnel;
- Details of emergency services;
- Actions or steps to be taken in the event of the emergency; and
- Information on hazardous materials / situations, including each material's hazardous potential impact or risk on the environment or human and measures to be taken in the event of an accident.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, dangers as a result of riot / service delivery protests / intimidation, etc. The Contractor shall advise the Client in writing of any on-site emergencies, together with a record of action taken, within 24 hours of the emergency occurring. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc.) must be maintained and available to site personnel.

2.19 First Aid Box and First Aid Equipment

The Contractor shall provide first aid box/es and appoint, in writing, First Aider(s) for this project in line with the results of the Contractor's risk assessment for the project, this health and safety specification as well as the provisions of the General Safety Regulations. The appointed First Aider(s) are to be sent for accredited first aid training before starting on site. Valid certificates are to be kept on site.

First Aid box/es must be adequately stocked at all time, accessible and be controlled by a qualified First Aider. If required by the Client, the Contractor shall have a stretcher on site to be used in case of a serious incident.

2.20 Accident / Incident Reporting and Investigation

The Contractor shall, in addition to the prescribed requirements of the Occupational Health and Safety Act and General Safety Regulations, investigate, record and report all Section 24 reportable incidents to the Client within 24 hours of the incident occurring. Incident investigations shall be conducted by the Contractor's appointed Accident Investigator – this Investigator must be a competent person or persons who have sufficient knowledge to carry out an investigation.

In the event of a fatality or a permanent disabling injury the Contractor must submit proof of reporting of incident to Department of Labour as well as proof of preventative measures to the Client. The Client reserves the right to conduct investigations into any incidents that they deem fit and the Contractor is required to provide full co-operation in this regard.

2.21 Hazards and Potential Situations

The Contractor shall immediately notify other Contractors of any hazardous or potentially hazardous situations, which may arise during performance of the activities.

2.22 Occupational Health and Safety Signage

The Contractor shall ascertain and provide adequate on site health and safety signage. This signage shall include, but shall not be limited to, Hard Hat / Helmet Area; Safety Shoes to be worn on site; Dust Masks to be worn in areas where there might be exposure to excessive dust; Ear Plugs / Muffs to be worn where there



might be noise exposure over 85 dB; Gloves; Safety Goggles; Safety Harness, Workers in Excavation, traffic management, etc. The Contractor shall be responsible to maintain the quality and replacement of signage. Signage must comply with the requirements of SANS.

2.23 Management of Contractors by Principal Contractor

The Principal Contractor shall ensure that all contractors under his control are complying with the respective Health and Safety Plans, as well as Health and Safety Legislation.

2.24 Stacking of Materials

In addition to the provisions for the stacking of articles in the General Safety Regulations, 2003, the contractor must ensure that –

- a competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site;
- adequate storage areas are provided;
- there are demarcated storage areas; and
- storage areas are kept neat and under control.

2.25 Housekeeping and General Safeguarding on Construction Sites

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, promulgated by Government Notice No. R. 2281 of 16 October 1987, ensure that suitable housekeeping is continuously implemented on each construction site, including-

- the proper storage of materials and equipment;
- the removal of scrap, waste and debris at appropriate intervals;
- ensuring that materials required for use, are not placed on the site so as to obstruct means of access to and egress from workplaces and passageways;
- ensuring that materials which are no longer required for use, do not accumulate on and are removed from the site at appropriate intervals;
- ensuring that waste and debris are not disposed of from a high place with a chute, unless the chute complies with the requirements set out in the regulations;
- ensuring that construction sites in built-up areas adjacent to a public way are suitably and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorized persons; and
- ensuring that a catch platform or net is erected above an entrance or passageway or above a place where persons work or pass under or fencing off the danger area if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe in the case of danger or possibility of persons being struck by falling objects.

2.26 Construction Vehicles and Mobile Plant

A contractor must ensure that all construction vehicles and mobile plant-

- are of an acceptable design and construction;
- are maintained in a good working order;
- are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
- are operated by a person who-
 - has received appropriate training, is certified competent and in possession of proof of competency and is authorised in writing to operate those construction vehicles and mobile plant;
 - has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3.
- have safe and suitable means of access and egress;
- are properly organized and controlled in any work situation by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant,



in order to ensure their continued safe operation;

- are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guard-rails and crash barriers;
- are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
- are equipped with an acoustic warning device which can be activated by the operator;
- are equipped with an automatic acoustic reversing alarm; and
- are inspected by the authorised operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

A contractor must ensure that-

- no person rides or is required or permitted to ride on a construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
- every construction site is organized in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
- the traffic routes are suitable for the persons, construction vehicles or mobile plant using them, are sufficient in number, in suitable positions and of sufficient size;
- every traffic route is, where necessary, indicated by suitable signs;
- all construction vehicles and mobile plant left unattended at night, adjacent to a public road in normal use or adjacent to construction areas where work is in progress, have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
- all construction vehicles or mobile plant when not in use, have buckets, booms or similar appendages, fully lowered or blocked, controls in a neutral position, motors stopped, wheels chocked, brakes set, and ignition secured;
- whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
- tools, material and equipment are secured and separated by means of a physical barrier in order to prevent movement when transported in the same compartment with employees;
- vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
- all construction vehicles or mobile plant travelling, working or operating on public roads comply with the requirements of the National Road Traffic Act, 1996.
- that all plant and vehicles are fitted with amber rotating beacons and reverse alarms.

2.27 Electrical Installations and Machinery on Construction Sites

A contractor must, in addition to compliance with the Electrical Installation Regulations and the Electrical Machinery Regulations, ensure that –

- before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;
- all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;
- the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;
- all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site; and
- all electrical machinery is inspected by the authorized operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.



2.28 Use and Temporary Storage of Flammable Liquids on Construction Sites

A contractor must, in addition to compliance with the provisions for the use and storage of flammable liquids in the General Safety Regulations, 2003, ensure that –

- where flammable liquids are being used, applied or stored at the workplace concerned, it is done in a manner that does not cause a fire or explosion hazard, and that the workplace is effectively ventilated;
- no person smokes in any place in which flammable liquid is used or stored, and the contractor must affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;
- an adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs;
- only the quantity of flammable liquid needed for work on one day is taken out of the store for use;
- all containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, are removed from the construction site and safely disposed of;
- where flammable liquids are decanted, the metal containers are bonded and earthed; and
- no flammable material, including cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids

2.29 Water environments

A contractor must ensure that where construction work is done over or in close proximity to water, provision is made for –

- preventing persons from falling into water; and
- the rescuing of persons in danger of drowning.

A contractor must ensure that where a person is exposed to the risk of drowning by falling into the water, the person is provided with and wears a lifejacket.

2.30 Fire precautions on Construction Sites

A contractor must, in addition to compliance with the Environmental Regulations for Workplaces, 1987, ensure that –

- all appropriate measures are taken to avoid the risk of fire;
- sufficient and suitable storage is provided for flammable liquids, solids and gases;
- smoking is prohibited and notices in this regard are prominently displayed in all places containing readily combustible or flammable materials;
- in confined spaces and other places in which flammable gases, vapours or dust can cause danger-
 - only suitably protected electrical installations and equipment, including portable lights, are used;
 - there are no flames or similar means of ignition;
 - there are conspicuous notices prohibiting smoking;
 - oily rags, waste and other substances liable to ignite are without delay removed to a safe place; and
 - adequate ventilation is provided;
- combustible materials do not accumulate on the construction site;
- welding, flame cutting, and other hot work are done only after appropriate precautions have been taken to reduce the risk of fire;
- suitable and sufficient fire-extinguishing equipment is placed at strategic locations or as may be recommended by the Fire Chief or local authority concerned, and that such equipment is maintained in a good working order;
- the fire equipment contemplated above is inspected by a competent person, who has been appointed in writing for that purpose, in the manner indicated by the manufacturer thereof;
- a sufficient number of workers are trained in the use of fire-extinguishing equipment;
- where appropriate, suitable visual signs are provided to clearly indicate the escape routes in the case of a fire;



- the means of escape is kept clear at all times;
- there is an effective evacuation plan providing for all -
 - persons to be evacuated speedily without panic;
 - persons to be accounted for; and
 - plant and processes to be shut down; and
- a siren is installed and sounded in the event of a fire.

2.31 Construction Employees' Facilities

A contractor must, in terms of the Construction Regulations 2014, provide:

- Shower facilities after consultation with the employees or employees' representatives, or at least one shower facility for every 15 persons;
- at least one sanitary facility for each sex and for every 30 workers;
- changing facilities for each sex;
- and sheltered eating area.

A contractor must provide reasonable and suitable living accommodation for the workers at construction sites who are far removed from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

2.32 Fall protection

The Contractor must:

- designate a competent person to be responsible for the preparation of a fall protection plan
- ensure that the fall protection plan contemplated above is implemented, amended where and when necessary and maintained as required; and
- take steps to ensure continued adherence to the fall protection plan.

A fall protection plan contemplated above must include-

- a risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location;
- the processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof;
- a programme for the training of employees working from a fall risk position and the records thereof;
- the procedure addressing the inspection, testing and maintenance of all fall protection equipment; and
- a rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure that the rescue procedure is implemented immediately following the incident.

A contractor must ensure that a construction manager appointed under regulation 8(1) is in possession of the most recently updated version of the fall protection plan.

A contractor must ensure that all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;

Also that no person is required to work in a fall risk position, unless such work is performed safely as contemplated in above and fall prevention and fall arrest equipment are approved as suitable and of sufficient strength for the purpose for which they are being used, having regard to the work being carried out and the load, including any person, they are intended to bear; and securely attached to a structure or plant, and the structure of plant and the means of attachment thereto are suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and person who could fall, and fall arrest equipment is used only where it is not reasonably practicable to use fall prevention equipment.



2.33 Temporary works

A contractor must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

A contractor must ensure that all temporary works operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose.

A contractor must ensure that-

- all temporary works structures are adequately erected, supported, braced and maintained by a competent person so that they are capable of supporting all anticipated vertical and lateral loads that may be applied to them, and that no loads are imposed onto the structure that the structure is not designed to withstand;
- all temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted;
- detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the Client, the Client's Safety Agent or any employee;
- all persons required to erect, move or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely;
- all equipment used in temporary works structure are carefully examined and checked for suitability by a competent person, before being used;
- all temporary works structures are inspected by a competent person immediately before, during and after the placement of concrete, after inclement weather or any other imposed load and at least on a daily basis until the temporary works structure has been removed and the results have been recorded in a register and made available on site;
- no person may cast concrete, until authorization in writing has been given by the competent person contemplated above;
- if, after erection, any temporary works structure is found to be damaged or weakened to such a degree that its integrity is affected, it is safely removed or reinforced immediately;
- adequate precautionary measures are taken in order to-
 - secure any deck panels against displacement; and
 - prevent any person from slipping on temporary works due to the application of release agents;
- as far as is reasonably practicable, the health of any person is not affected through the use of solvents or oils or any other similar substances;
- upon casting concrete, the temporary works structure is left in place until the concrete has acquired sufficient strength to safely support its own weight and any imposed load, and is not removed until authorization in writing has been given by the competent person
- the foundation conditions are suitable to withstand the loads caused by the temporary works structure and any imposed load in accordance with the temporary works design.
- provision is made for safe access by means of secured ladders or staircases for all work to be carried out above the foundation bearing level;
- a temporary works drawing, or any other relevant document includes construction sequences and methods statements;
- the temporary works designer has been issued with the latest revision of any relevant structural design drawing;
- a temporary works design and drawing is used only for its intended purpose and for a specific portion of a construction site; and
- the temporary works drawings are approved by the temporary works designer before the erection of any temporary works.

No contractor may use a temporary works design and drawing for any work other than its intended purpose.



2.34 Excavation

A contractor must-

- ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing for that purpose; and
- evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.

A contractor who performs excavation work-

- must take reasonable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation;
- may not require or permit any person to work in an excavation which has not been adequately shored or braced: Provided that shoring and bracing may not be necessary where-
 - the sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or
 - such an excavation is in stable material: Provided that-
 - permission has been given in writing by the appointed competent person contemplated above upon evaluation by him or her of the site conditions; and
 - where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations is decisive and such a decision must be noted in writing and signed by both the competent person and the professional engineer or technologist, as the case may be;
- must take steps to ensure that the shoring or bracing contemplated above is designed and constructed in a manner that renders it strong enough to support the sides of the excavation in question;
- must ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it may cause its collapse and consequently endangers the safety of any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;
- must ensure that where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, steps are taken to ensure the stability of such building, structure or road and the safety of persons;
- must cause convenient and safe means of access to be provided to every excavation in which persons are required to work, and such access may not be further than six metres from the point where any worker within the excavation is working;
- must ascertain, as far as is reasonably practicable, the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of excavation work that may affect any such service, take the steps that are necessary to render the circumstances safe for all persons involved;
- must ensure that every excavation, including all bracing and shoring, is inspected-
 - daily, prior to the commencement of each shift;
 - after every blasting operation;
 - after an unexpected fall of ground;
 - after damage to supports; and
 - after rain,by the competent person, in order to ensure the safety of the excavation and of persons, and those results must be recorded in a register kept on site and made available on request to an inspector, the Client, the Client's Safety Agent, any other contractor or any employee;
- must cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be –
 - adequately protected by a barrier or fence of at least one metre in height and as close to the excavation as is practicable; and



- provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor, or have resort to any other suitable and sufficient precautionary measure where this is not practicable;
- must ensure that all precautionary measures stipulated for confined spaces as determined in the General Safety Regulations, 2003, are complied with by any person entering any excavation;
- must, where the excavation work involves the use of explosives, appoint a competent person in the use of explosives for excavation, and must ensure that a method statement is developed by that person in accordance with the applicable explosives legislation; and
- must cause warning signs to be positioned next to an excavation within which or where persons are working or carrying out inspections or tests.

2.35 Demolition Work

A contractor must appoint a competent person in writing to supervise and control all demolition work on site.

A contractor must ensure that before any demolition work is carried out, and in order to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed by that person.

During a demolition, the competent person contemplated in above must check the structural integrity of the structure at intervals determined in the method statement contemplated in above, in order to avoid any premature collapses.

A contractor who performs demolition work must with regard to a structure being demolished, take steps to ensure that-

- no floor, roof or other part of the structure is overloaded with debris or material in a manner which would render it unsafe;
- all reasonably practicable precautions are taken to avoid the danger of the structure collapsing when any part of the framing of a framed or partly framed building is removed, or when reinforced concrete is cut; and
- precautions are taken in the form of adequate shoring or other means that may be necessary to prevent the accidental collapse of any part of the structure or adjoining structure;
- ensure that no person works under overhanging material or a structure which has not been adequately supported, shored or braced;
- ensure that any support, shoring or bracing contemplated above, is designed and constructed so that it is strong enough to support the overhanging material;
- where the stability of an adjoining building, structure or road is likely to be affected by demolition work on a structure, take steps to ensure the stability of such structure or road and the safety of persons;
- ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and must before the commencement of demolition work that may affect any such service, take the steps that are necessary to render circumstances safe for all persons involved;
- cause every stairwell used and every floor where work is being performed in a building being demolished, to be adequately illuminated by either natural or artificial means;
- cause convenient and safe means of access to be provided to every part of the demolition site in which persons are required to work; and
- erect a catch platform or net above an entrance or passageway or above a place where persons work or pass under or fence off the danger areas if work is being performed above such entrance, passageway, or place so as to ensure that all persons are kept safe where there is a danger or possibility of persons being struck by falling objects.

A contractor must ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.



No person may dispose of waste and debris from a high place by a chute unless the chute-

- is adequately constructed and rigidly fastened;
- if inclined at an angle of more than 45 degrees to the horizontal, is enclosed on its four sides;
- if of the open type, is inclined at an angle of less than 45 degrees to the horizontal;
- where necessary, is fitted with a gate at the bottom end to control the flow of material; and discharges into a container or an enclosed area surrounded by barriers.

A contractor must ensure that every chute used to dispose of rubble is designed in such a manner that rubble does not free-fall and that the chute is strong enough to withstand the force of the debris travelling along the chute.

A contractor must ensure that no equipment is used on floors or working surfaces, unless such floors or surfaces are of sufficient strength to support the imposed loads.

Where a risk assessment indicates the presence of asbestos, a contractor must ensure that all asbestos related work is conducted in accordance with the Asbestos Regulations 2001.

Where a risk assessment indicates the presence of lead, a contractor must ensure that all lead related work is conducted in accordance with the Lead Regulations, 2001.

Where the demolition work involves the use of explosives, a method statement must be developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for demolition work and all persons involved in the demolition works must adhere to demolition procedures issued by the appointed person.

A contractor must ensure that all waste and debris are as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.

2.36 Scaffolding

A contractor must appoint a competent person in writing who must ensure that all scaffolding work operations are carried out under his or her supervision and that all scaffold erectors, team leaders and inspectors are competent to carry out their work.

A contractor using access scaffolding must ensure that such scaffolding, when in use, complies with the safety standards incorporated for this purpose into these Regulations under section 44 of the Act and SANS 10085. Scaffold must be fully boarded and access to the scaffold should be from the inside ONLY, signage must be displayed to indicate if the scaffold is safe or unsafe to use. Scaffold higher than 60 metres must be designed by an engineer.

2.37 Hazardous Chemical Substances (HCS)

In addition to the requirements in the HCS Regulations, the principal contractor must provide proof in the Health and Safety Plan that:

- Material Safety Data Sheets (MSDS's) of the relevant materials / hazardous chemical substances are available prior to use by the contractor. All MSDS's shall be available for inspection by the agent at all times.
- Risk assessments are done at least once every 6 months.
- Exposure monitoring is done according to OESSM and by an Approved Inspection Authority (AIA) and that the medical surveillance programme is based on the outcomes of the exposure monitoring.
- How the relevant HCS's are being/going to be controlled by referring to:
 - Limiting the amount of HCS
 - Limiting the number of employees
 - Limiting the period of exposure



- Substituting the HCS
- Using engineering controls
- Using appropriate written work procedures
- The correct PPE is being used.
- HCS are stored and transported according to SABS 072 and 0228.
- Training with regards to these regulations was given.

The Health and Safety plan should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

The First Aider must be made aware of the MSDS and trained in how to treat HCS incidents appropriately.

2.38 Noise Induced Hearing Loss

Where noise is identified as a hazard the requirements of the NIHL regulations must be complied with and the following must be included / referred to in the Health and Safety Plan:

- Proof of training with regards to these regulations.
- Risk assessment done within 1 month of commencement of work.
- That monitoring carried out by an AIA and done according to SABS 083.
- Medical surveillance programme established and maintained for the necessary employees.
- Control of noise by referring to:
- Engineering methods considered
- Admin control (number of employees exposed) considered
- Personal protective equipment considered/decided on
- Describe how records are going to be kept for 40 years.

2.39 Personal Protective Equipment (PPE)

The Contractor shall carry out PPE or clothing needs analysis in accordance with his risk assessment, to determine the necessary PPE or clothing to be used during construction. The Contractor shall make provision to keep adequate quantities of appropriate, SABS approved PPE or clothing on site at all times.

The Contractor must ensure that personnel are trained in the correct use of PPE to be used.

The Contractor must ensure that lost, stolen, worn out or damaged PPE is replaced as required and receipt signed for by employees on site.

2.40 Pressure Vessels (Including Gas Bottles)

The Contractor shall comply with Pressure Vessel Regulations, including:

- Providing competency and awareness training to the operators;
- Providing PPE or clothing;
- Providing and maintain appropriate signage in areas where pressure vessels are used, as applicable;
- Inspect equipment regularly and keep records of inspections;
- Providing appropriate firefighting equipment (Fire Extinguishers).



2.41 Fire Extinguishers and Fire Fighting Equipment

The Contractor shall provide adequate, regularly serviced fire extinguishers located at strategic points on site. The Contractor shall keep spare serviced portable fire extinguishers. The Contractor shall have adequate persons trained or competent to use the Fire Fighting Equipment.

Safety signage shall be posted up in all areas where fire extinguishers are located.

2.42 Lifting Machinery and Tackle

The Contractor shall ensure that lifting machinery and tackle is inspected before use and on a monthly basis. The Contractor shall have lifting machinery and tackle inspector who will inspect the equipment at intervals required by the Driven Machinery Regulations, taking into account that:

- All lifting machinery and tackle have a safe working load clearly indicated;
- Regular inspection and servicing is carried out;
- Records are kept of inspections and of service certificates;
- Thorough examinations are carried out by competent personnel at the frequencies required by legislation
- There is proper supervision in terms of guiding the loads which includes a trained banks man to direct and check lifting tackle if it is safe for use.

2.43 Ladders and Ladder work

The Contractor shall ensure that all ladders are numbered and inspected regularly keeping record of inspections. It should be noted that Aluminium ladders are preferred to wooden ladders.

2.44 General Machinery

The Contractor shall comply with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing and training those that use machinery and enforce compliance.

2.45 Portable Electrical Tools

The Contractor shall ensure that use and storage of all explosive actuating fastening devices and portable electrical tools are in compliance with relevant legislation.

The Contractor shall consider that:

- A competent person undertakes routine inspections;
- Only authorised persons use the tools;
- There are safe working procedures applied;
- Awareness training is carried out and compliance is enforced at all times; and
- PPE and clothing is provided and maintained.

2.46 High Voltage Electrical Equipment

The Contractor shall ensure that, where the work is under, on or near high-voltage electrical equipment the Electrical Installation Regulations, together with safety instructions (Regulations of the Owner of the Equipment) are complied with. Such equipment includes:

- Eskom and the Local Authority equipment
- The Contractor's own power supply; and
- Electrical equipment being installed but not yet taken over from a Contractor by The Client.



2.47 Public Health and Safety

The Contractor shall ensure that each person working on or visiting a site, and the surrounding community, shall be made aware of the dangers likely to arise from onsite activities and the precautions to be observed to avoid or minimize those dangers. Appropriate health and safety signage shall be posted at all times.

2.48 Environmental Conditions and Flora and Fauna

The Contractor must be mindful of adverse weather conditions upon the health and safety of the workforce. This includes inclement weather, strong wind, heat stress, extreme cold, etc. The Contractor's risk assessment process must take into account the risks associated with such weather conditions. The same is true when working in an environment where there is a risk to employees' health and safety from presence of poisonous flora, or wildlife (including bees, snakes, etc). The Contractor's risk assessment process must take these risks into account.

2.49 Occupational Health

Exposure of workers to occupational health hazards and risks are very common in any work environment, especially in construction. Occupational health hazards and risks exposure is a major problem and all Contractors are to ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards and risks.

The occupational hazards and risks may enter the body in three ways:

- Inhalation through breathing e.g. cement dust;
- Ingestion through swallowing maybe through food intake;
- Absorption through the skin (pores) e.g. painting or use of thinners.

The contractor is required to ensure that all his personnel are medically fit prior to being allowed onto the work site.

All Contractors should ensure that Occupational Hygiene surveys are conducted as per the Occupational Health and Safety Act to ensure employees are not exposed to hazards. Risk Assessments should identify areas where surveys are to be conducted.

2.50 Material Hoists

A contractor must ensure that every material hoist and its tower have been constructed in accordance with the generally accepted technical standards and are strong enough and free from defects.

A contractor must ensure that the tower of every material hoist is -

- erected on firm foundations and secured to the structure or braced by steel wire guy ropes, and extends to a distance above the highest landing to allow a clear and unobstructed space of at least 900 mm for over travel;
- enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 mm from the ground or floor level; and
- provided with a door or gate at least 2100mm in height at each landing, and that door or gate must be kept closed except when the platform is at rest at such a landing.

A contractor must cause -

- the platform of every material hoist to be designed in a manner that it safely contains the loads being conveyed and that the combined mass of the platform and the load does not exceed the



- designed lifting capacity of the hoist;
- the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and
- every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when power is not being supplied to the hoisting machinery.

No contractor may require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person may so convey trucks, barrows or material unless those articles are secured or contained in a manner that displacement thereof cannot take place during movement.

A contractor must cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.

A contractor of a material hoist may not require or permit any person to operate a hoist, unless the person is competent in the operation of that hoist.

No contractor may require or permit any person to ride on a material hoist.

A contractor must ensure that every material hoist-

- is inspected on daily basis by a competent person appointed in writing by the contractor and such competent person must have the experience pertaining to the erection and maintenance of material hoists or similar machinery;
- inspection contemplated above, includes the determination of the serviceability of the entire material hoist, including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices;
- inspection results are entered and signed in a record book by a competent person, which book must be kept on the premises for that purpose;
- is properly maintained and the maintenance records in this regard are kept on site.

2.51 Confined Spaces

Confined space work must be closely monitored by a competent person appointed by the contractor, to include, but not restricted to, ensuring that the confined space is sufficiently ventilated prior to entry. Oxygen levels to be tested in confined space to ensure that it is safe for entry. Permit system to be in place to declare confined space safe for entry. PPE must be worn (such as proper masks) if air supply is insufficient or not of sufficient quality.

Sufficient training must take place in use of all confined space monitoring and access equipment prior to any works commencing in such confined space. It is strongly recommended that a tripod and winch system be in place to afford easy access and egress and for emergency evacuation from the confined space (manholes and chambers). Please also refer to GSR5 on safety requirements for Work in Confined Spaces.

2.52 Alcohol and drugs (GSR 2)

1. A contractor shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at a site.
2. No employee shall be under the influence of or have in his or her possession or partake of or offer any other person intoxicating liquor or drugs.
3. An employer or a user, as the case may be, shall, in the case where a person is taking medicines, only allow such person to perform duties at the site if the side effects of such medicine do not constitute a threat to the health or safety of the person concerned or other persons at such site.



2.53 COVID – 19

Information from ICAS regarding the COVID-19

Coronaviruses are a large family of viruses which may cause illness in animals or humans. In humans, several Coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered Coronavirus causes Coronavirus disease COVID-19.

The most common symptoms of COVID-19 are:

- Fever
- Cough
- Sore throat
- Headaches
- Shortness of breath
- Kidney failure
- Mortality only in severe cases

Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhoea. These symptoms are usually mild and begin gradually. Some people become infected but do not develop any symptoms and do not feel unwell.

Most people (about 80 percent) recover from the disease without needing special treatment. Around one out of every six people who gets COVID-19 becomes seriously ill and develops difficulty breathing. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness. About 4 percent of people (as of March 2020) with the disease have died. People with fever, cough and difficulty breathing should seek medical attention as soon as possible.

COVID-19 can spread from person to person through small droplets from the nose or mouth which are spread when a person with COVID-19 coughs or exhales. These droplets land on objects and surfaces around the person.

All areas frequently used by employees or visitors must be cleaned before and after use where possible. The following cleaning products can be used for cleaning:

- Hypochlorite (e.g. Household Bleach)
- Alcohol (60%)
- Hydrogen Peroxide
- Phenolic Compounds
- Quaternary Ammonium Compounds

The effectiveness of the cleaning product is dependent on:

- The concentration or ratio used
- Ingredients
- Volume used
- Contact time with the surface

As per the **Department of Co-Operative Governance and Traditional Affairs'** Gazette issued in terms of **Section 27(2) of the Disaster Management Act of 2002** on 17 March 2020 the following must be implemented:



Prevention and prohibition of gatherings:

3. (1) In order to contain the spread of COVID-19, a gathering is prohibited.
- (2) An enforcement officer must, where a gathering takes place—
 - (a) order the persons at the gathering to disperse immediately; and
 - (b) if they refuse to disperse, take appropriate action, which may, subject to the Criminal Procedure Act, include arrest and detention.
- (3) The assembly of more than 50 persons at premises where liquor is sold and consumed is prohibited.

Refusal of medical examination, prophylaxis, treatment, isolation and quarantine:

4. (1) No person who has been clinically, or by a laboratory, confirmed as having COVID-19, or who is suspected of having contracted COVID-19, or who has been in contact with a person who is a carrier of COVID-19, may refuse consent to an enforcement officer for—
 - (a) submission of that person to a medical examination, including but not limited to the taking of any bodily sample by a person authorised in law to do so;
 - (b) admission of that person to a health establishment or a quarantine or isolation site; or
 - (c) submission of that person to mandatory prophylaxis, treatment, isolation or quarantine or isolation in order to prevent transmission:
Provided that if a person does not comply with the instruction or order of the enforcement officer, that person must be placed in isolation or quarantine for a period of 48 hours, as the case may be, pending a warrant being issued by a magistrate, on application by an enforcement officer for the medical examination contemplated in paragraph (a).
- (2) A warrant contemplated in subregulation (1) may be issued by a magistrate, if it appears from information on oath or affirmation by an enforcement officer -
 - (a) that a person is confirmed as having been infected with COVID-19;
 - (b) who is on reasonable grounds suspected of having contracted COVID-19, or who has been in contact with, or on reasonable grounds suspected to have been in contact with a person who is a carrier or infected with COVID-19.
- (3) The warrant may impose restrictions on the powers of the enforcement officer as the magistrate may deem fit.
- (4) A warrant issued in terms of this regulation remains in force until -
 - (a) it is executed;
 - (b) it is cancelled by the person who issued it or, if such person is not available, by any person with like authority;
 - (c) the expiry of ninety days from the date of its issue; or
 - (d) the purpose for the issuing of the warrant has lapsed, whichever occurs first.
- (5) No person is entitled to compensation for any loss or damage arising out of any bona fide action or omission by an enforcement officer under this regulation.

Offences and penalties:

11. (1) For purposes of regulation 3, any person who -
 - (a) convenes a gathering;
 - (b) permits more than 50 persons at premises where liquor is sold and consumed; or



- (c) hinders, interferes with, or obstructs an enforcement officer in the exercise of his or her powers, or the performance of his or her duties in terms of these Regulations, is guilty of an offence and, on conviction, liable to a fine or to imprisonment for a period not exceeding six months or to both such fine and imprisonment.
- (2) A person is guilty of an offence if that person fails to comply with or contravenes the provisions of regulations 6 and 9 of these Regulations.
- (3) A person convicted of an offence mentioned in subregulation (2) liable on conviction to a fine or to imprisonment not exceeding six months or to both a fine and imprisonment.
- (4) Any person who intentionally misrepresents that he, she or any other person is infected with COVID-19 is guilty of an offence and on conviction liable to a fine or to imprisonment for a period not exceeding six months or to both such fine and imprisonment.
- (5) Any person who publishes any statement, through any medium, including social media, with the intention to deceive any other person about -
- (a) COVID-19;
 - (b) COVID-19 infection status of any person; or
 - (c) any measure taken by the Government to address COVID-19, commits an offence and is liable on conviction to a fine or imprisonment for a period not exceeding six months, or both such fine and imprisonment.
- (6) Any person who intentionally exposes another person to COVID-19 may be prosecuted for an offence, including assault, attempted murder or murder.

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Both the Client and the Contractor have a duty in terms of health and safety legislation to do all that is reasonably practicable to make members of the public and others being affected by the construction processes aware of possible risks and put preventative measures in place to mitigate the risks. The public and/or visitors shall go through a brief health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks.



OTHER HEALTH AND SAFETY SPECIFICATION REQUIREMENTS

The contractor must be aware of the following additional requirements:

What	When	Output
Awareness training (Toolbox Talks)	At least weekly and before hazardous work is carried out	Attendance Register
Health and Safety Committee Meetings	Monthly	Minutes signed by the employer (Contractor) covering: a) Health and Safety Representative Checklist
Health and Safety Reports	Monthly	Report covering: a) Incidents/Accidents and Investigations b) Non-conformance c) Health and Safety Training d) HIRA Updates e) Internal and External Audits
General Inspections	As per Health and Safety Specification and OHSA	Report on Health and Safety Specification and OHSA compliance: a) Scaffolding b) Lifting Machinery c) Excavation
General Inspections	Monthly	Covering: a) Firefighting Equipment b) Portable Electrical Equipment c) Ladders
Record keeping	Ongoing	Covering: a) General complaints b) Fines c) General incidents d) MSDS e) Surveillance Medicals f) Inspection Register g) Dept of Labour Notices
Permits	Before commencement with certain activities	As stipulated by the Health and Safety Specification and the OHSA / Construction Regulations

Key:

OHSA – Occupational Health and Safety Act, 1993



ANNEXURE A

The Contractor shall submit the info below in an Annexure 2 prior to construction commencement.

Item No.	Health and Safety Specification Requirement	OHSa Requirement	Submission date
1.	Notification of Intention to Commence Construction	Construction Regulations 2014	At least 7 days before commencement on site
2.	Construction Work Permit	Construction Regulations 2014 (only with certain size and duration projects)	At least 30 days prior to project commencement
3.	Assignment of Responsible Person to Manage Building Work via Health and Safety Organogram	Construction Regulations 2014	Before commencement on site
4.	Competency for Health and Safety Positions	Client / Safety Agent requirement	Before commencement on site
5.	Compensation of Occupational Injuries and Diseases Act (COIDA) 130 of 1993	COIDA Requirement	Before commencement on site
6.	Occupational Health and Safety Policy	Client / Safety Agent requirement	Before commencement on site
7.	Risk Assessment, Safety Plan and Fall Protection Plan, Demolition Method Statement	Client / Safety Agent requirement	Before construction work commences



ANNEXURE B - The contractor shall make the following appointments, as required:
Chief Executive Officer (OSH Act 16(1))
Contract Director/Manager (OSH Act 16(2))
Construction Manager (CR 8(1))
Construction Supervisor (CR 8(7))
Assistant Construction Supervisor (CR 8(8))
Construction Safety Officer (CR 8(5))
Traffic Safety Officer
Safety Representative (where > 20 employees on site)
Temporary work Designer (CR 12(1))
Temporary work Supervisor (CR12(2))
Construction risk assessor (CR 9(1))
Excavation Supervisor (CR13(1)(a))
Demolition Supervisor (CR14(1))
Scaffold Supervisor (CR16(1))
Suspended Platform Supervisor (CR17(1))
Material Hoist Inspector (CR19(8)(a))
Material Hoist Operator (CR19(6))
Bulk Mixing Plant Supervisor (CR20(1))
Bulk Mixing Plant Operator (CR20(2))
Controller of Explosive Actuated Fastening Devices Nails, Cartridges or Studs Issue and Collection (CR21(2)(g)(1))
Construction Vehicle and Mobile Plant Operator (CR23(1)(d)(i))
Controller of Temporary Electrical Installations (CR24(c))
Stacking Supervisor (CR28(a))
Fire Extinguishing Equipment Inspector (CR29(h))
Fall Protection Plan Developer (CR 10(1)(a))
Incident Investigator (OSH Act 9(2))
Competent Person – Confined Spaces (GAR 5(1))

ANNEXURE D: BASELINE RISK ASSESSMENT



BASELINE RISK ASSESSMENT FOR THE UPGRADING OF THE KWANOMZAMO SPORTS FACILITY IN HUMANSDORP - PHASE 1

Irrespective of the risk presented on site, it will be ensured that sufficient supervision is in place on site, that personnel are trained in accordance with legislation, including the requirement for site specific inductions on site to inform personnel on site of the risks and hazards applicable to the site. Site supervision is responsible for ensuring that the control measures required below are implemented on site.

	HAZARD	RISK	MINIMUM CONTROL MEASURES
1.	Bricklaying	Caustic contamination with mortar Contact with sharp bladed tools	- Use only trained personnel - Safe means of access to be provided - Safe/Suitable working platform required where working at height - PPE for mortar to include gloves where practicable and goggles/ masks where there is a risk of contamination
2.	Brush cutting	Injury from contact with blade/nylon Fire (where petrol used) Electrocution (where electrical tool used)	- Person using brush cutter must be trained and competent - Use personal protective equipment (PPE) such as goggles, safety boots, ear protection, gloves, hard hat - Brush cutter must be in good condition and maintained - Adequate supervision on site at all times. - No smoking when refuelling, fire extinguisher to be on hand (where petrol used as fuel source)
3.	Chainsaw Use	Falling tree or branches causing injury to persons Incorrect use of chainsaw causing injury	- Person using chainsaw must be trained and competent - Use personal protective equipment (PPE) such as goggles, safety boots, ear protection, gloves, hard hat, chainsaw trousers and jacket - Chainsaw must be in good condition including guards. - Clear area below area of chainsaw use and where tree felling. - When using chainsaw at height practice safety procedures.
4.	Compacting and Filling	Contact with tipping materials Contact with moving plant Vehicles/personnel falling into excavations Contact with underground services	- Trained banksman to control vehicles movement - Only trained personnel use plant - Personal Protective Equipment to be worn - Personnel to stand clear as materials are being tipped - Use stop blocks and signs to warn vehicles of excavations, where applicable - Stand clear of plant whilst materials are being compacted - Establish position of underground services and protect services from damage
5.	Compactor Operations	Crushing of feet	- Only trained and competent personnel to use the machine - Ensure operative wears steel toe cap shoes or boots at all times
6.	Concrete Pumping	Sprains and strains Hit by pump Concrete burns Collapse/bursting of structure	- Personnel to be in clear vision of pump operator - Trained pump operator - Personnel working with the concrete to wear the appropriate personal protective equipment to protect against cement burns - Design of structure being loaded to be approved by competent designer and inspected before, during and after loading - Pump to be well maintained
7.	Confined Spaces	Suffocation Fumes	- Ensure that confined space is sufficiently ventilated - Wear personal protective equipment such as proper masks if air supply insufficient or not of sufficient quality - Test oxygen levels in confined space to ensure that is safe for entry - Ensure that emergency procedures in place



	HAZARD	RISK	MINIMUM CONTROL MEASURES
8.	COVID-19	Contracting COVID-19, person to person transmission	- Do not share crockery/cutlery/towels/bedding or anything that can facilitate the spread of the virus. - Surgical masks have not been proven to definitively protect against every contagion. However, masks prevent a person from unconsciously touching their eyes, nose and mouth, so they may offer a measure of protection. Surgical masks are for single use only, not to be worn two days in a row. - Avoid touching your eyes, nose and mouth. - Cough or sneeze into a tissue and dispose thereof safely. - Wash your hands frequently with soap and water for no less than 20 seconds. If you have none available use a hand sanitizer with at least 60% alcohol. - Apply social distancing principles, stay at least 1m away from people/employees were possible. - Avoid crowds and gatherings. - Clean frequently touched objects/surfaces. - The following cleaning products can be used: - Hypochlorite (e.g. Household Bleach) - Alcohol (60%) - Hydrogen Peroxide - Phenolic Compounds - Quaternary Ammonium Compounds
9.	Cutting Kerbs	Saw slipping, Blade disintegrating, Noise and dust	- Only trained operators to use saw and change blades. - Personal Protective Equipment must be worn. Gloves, goggles, dust mask and hearing protection. - People to be kept away from the work area. - Work to cease if people have to pass. - Sparks, etc. to be directed away from people and any flammable material.
10.	Cutting Off Disc	Noise Cuts from machine Fire (particularly at refuelling) Flying debris Blade shattering Contamination by fume created or exhaust fume	- Use competent personnel. - Hot works control- fire extinguisher, fire watchman. (Permit may be required) - PPE to include gloves, eye protection, hearing protection - Solid working position. - Clear working area - Correct grade of blade must be used. - Good ventilation to be provided (forced if necessary). - Changing of wheels to be by competent persons only - Cut off discs must not be used for grinding (grinding disc thicker) - Bystanders to wear hearing protection, as applicable
11.	Demolition	Falling materials Premature collapse of structure	- Ensure there is a current method statement in place - Ensure all emergency procedures are in place and all details are displayed - Ensure that structural demolition has been approved by the designer and site management - Personnel must be competent - Ensure at all times there is a safe means of access and egress - All personnel must wear suitable and sufficient Personal Protective Equipment, including head, eye and skin protection
12.	Electrical Commissioning	Electric shock	- Personnel to comply with permits to work issued by Client - Personal protective equipment to be worn by employees to prevent electric shock - First aid treatment to be readily available - Only competent and trained persons may decommission or commission electrical equipment



	HAZARD	RISK	MINIMUM CONTROL MEASURES
13.	Electric Tools and Electrical Installations	Electric shock Fire	• Electric tools and installations to be in good condition • Inspect electric tools before use • Do not use electric tools in wet/damp conditions • Use personal protective equipment such as insulated gloves • Electrical installations register to be maintained, inspected by competent person
14.	Excavations (Working in and around)	Toxic fumes Collapse of trench walls/trapping Falling into excavation Collapse of adjacent structures	• Deep excavations / monitor air for toxic fumes • Prevent collapse by battering back sides to a safe angle or install temporary support • Protect vehicles from falling into excavations – provide barriers, signage, etc. as necessary • Beware of undermining of other structures (e.g. buildings, scaffolds) • Record excavation inspections by competent person on daily basis • Provide suitable means of access/egress in case of emergency. • Excavations formed by explosives must be accompanied by method statement approved by Client
15.	Fire	Injuries to workers, pedestrians, residents, road users, damage to property through fire	• No littering on site which could become fire hazard, maintain site in clean condition. • No fires to be lit on site. Have a working fire extinguisher at hand at all times. • No smoking or naked flame near flammable substances or in unauthorised areas • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices
16.	Flammable Liquids and Gases (Use of)	Fire Explosion	• No littering on site which could become fire hazard, maintain site in clean condition. • Have a working fire extinguisher at hand at all times. • No smoking or naked flame near flammable substances or in unauthorised areas • Ensure proper storage/use of Petrol/diesel/flammable substances – post warning notices • Equipment must be in good condition, maintained • Personnel using substances must be trained in safe use and risks
17.	Fragile Materials	Persons or items falling through fragile materials	• All fragile materials to be identified and protected prior to work commencing. • Protection to include either covering the fragile materials or excluding activity. • Any coverings to be secured in place • The location of the fragile materials to be indicated by signage
18.	Hand tools	Injuries caused by use of hand tool Impact with the tool Falls due to access problems Contamination with substance being worked	• Ensure: • Tool is correct for job • Tool is in good order and suitably sharp • Personnel must be competent/instructed in tool usage and tool safely • Lighting is sufficient • Access is safe, working platform is secure, leading edge is guarded • Operative is wearing all necessary PPE
19.	Hazardous Substances	Injuries to workers through use of hazardous substances, e.g. injuries to eyes, skin, etc.	• Use substances in accordance with data sheet, particularly reference protective clothing required (example: gloves, goggles, etc.) • Know what First Aid measures are • Have welfare facilities available for washing of hands, etc.



	HAZARD	RISK	MINIMUM CONTROL MEASURES
20.	Hot Works	Burns to eyes or other parts of the body	- Personal Protective Equipment to include eye, skin and hearing protection - Respirator may be required where cutting galvanized steel or anywhere else toxic fumes and gases arise. Dust can also be a problem and forced ventilation may be required.
21.	Kerb Laying	Nips at joints Crushing by kerbs Caustic burns	- Impervious gloves and barrier cream to be used to protect hands. - Personnel should be aware of safe manual handling techniques when handling kerbs.
22.	Lifting Operations	Falling material Crushing by materials Hand injuries to the slinger Toppling crane	- Check test certificate - Check examination certificate - Check inspection have been carried out - Check certificates for lifting equipment (chains, slings, shackles, etc.) - Ensure lifting gear is rated to carry load (SWL) - Ensure materials being lifted are properly packaged and slung. - Be aware that there should be a minimum clearance of 600mm between any slewing parts of a crane and any fixed installation to prevent being trapped. - Access to the work area during lifting operations is to be restricted to those involved with and trained in the work in hand. Do not allow members of the public to gain access to the area. - Only trained banksmen to be used. - The crane driver and the banksman are to ensure that the signals given are clearly understood.
23.	Manhole Rings and Pipes Storage	Rolling of rings Collapse of pipes Crushing of persons Stock pile collapse	- Manhole rings must be stored flat to prevent them being rolled. - Banks of pipe stock piles are not to be broken until they are ready for use. - Personnel must stand to the side when breaking bands so as not to be hit by falling pipes. - Pipes must be wedged to prevent rolling
24.	Manual Handling of General Items	Muscular skeletal injuries if the load is too heavy or awkward Operative falling/ tripping Contamination from the substance being carried Fall of material being carried	- Personnel should be aware of safe manual handling techniques - Personnel to wear Personal Protective Equipment when carrying items, e.g. safety footwear and gloves. - Ensure good housekeeping against tripping/fall hazards. - Operative to get assistance if load too heavy- team lift if necessary. - Utilise mechanical lifting and carrying aids where possible. - Personnel to ensure access equipment, ladders will take weight of operative and load being carried. - Personnel to ensure item being carried is properly bonded or is not liable to break apart whilst being manually handled.
25.	Material Hoist	Mechanical failure Overloading Hoist gateway being left open at landings	- Safe working limit to be indicated on hoist. - Hoist operator to be trained/ competent. - Regular maintenance and inspection of hoist by competent person - Records of maintenance and inspection to be maintained. - Hoist gate should be fitted with mechanical and electrical interlocking devices.
26.	Members of Public – Protection of	Injury to member of public and road users from site works	- Barriers and signage to be in place - Workers must warn away any members of public from the works



	HAZARD	RISK	MINIMUM CONTROL MEASURES
	Members of Public – Protection of (continued)		- Footpaths and bridges which are open to public must be closed off if in area of works or otherwise made safe so that no injury occurs to members of public - Traffic turning into site – traffic management and signage as required. - Signage to be on road at site entrance warning motorists that construction traffic turning into/out of site access. Keep roads free of mud where possible - Refer to plant risk assessment for details on plant safety precautions - NOTE: SIGNAGE TO BE POSTED ON SITE TO WARN OF CONSTRUCTION TRAFFIC MOVEMENTS. SAFE MEANS OF ACCESS FOR BOTH CONSTRUCTION TRAFFIC TO SITE AND PRIVATE HOMEOWNERS MUST BE AGREED.
27.	Noise and Dust	Breathing in dust can cause long term health problems, noise can damage hearing	- Wear respiratory and hearing protection - Dampen down and minimise dust where possible.
28.	Overhead Services (Working near)	Contact with live services causing injury to personnel Damage caused to services	- Maintain safe clearance levels - Establish presence of any services via proper walk through survey of site and/or means of service drawings - Wear personal protective clothing - Ensure height of plant/vehicles does not compromise or exceed clearance levels for overhead services - Obtain information on clearance levels from service provider
29.	Painting	Contact with paint	- Refer to safety data sheet for usage instructions, hazards and precautions required. - When working at height, refer to risk assessment addressing this hazard below.
30.	Paving (Laying)	Impact injuries from tile / mallet Caustic burns Sore knees Cuts from cutter	- Impervious gloves to be worn/ barrier cream to be used - Kneelers or similar to be available - Personal protective equipment to be worn – for example if saw used to cut pavers
31.	Piling	Falls Struck by machines Exposure to noise	- Personnel to be trained and competent, piling rig to be in safe condition and inspected on daily basis on register by competent person - Empty piling holes not to be left unguarded - Only approach piling plant on signal from operator - Personnel to wear personal protective equipment such as ear plugs
32.	Plant or Vehicles and Equipment Operation	Workers injured by passing traffic Road users and pedestrians at risk from plant operation Noise	- Implement traffic protection measures - Trained and competent operators must be used - Check plant and vehicles on daily basis before use and record inspections. Maintain vehicles in safe condition. - Medical certificates of fitness required for construction plant. - Crossing of road by construction vehicles or machines must be limited to the practical minimum - Plant and vehicles must be fitted with amber rotating beacons and reverse alarms. - Wear appropriate protective clothing/equipment, e.g. goggles, gloves, ear defenders, etc. as appropriate.
33.	Plastering	Falling materials Fall from height Contact with materials	- Ensure standard safety procedures are followed - Ensure there is a safe working area - Ensure safe access and egress - Ensure competent personnel are used



	HAZARD	RISK	MINIMUM CONTROL MEASURES
34.	Plumbing	Falling material Falling from height Fire Burns Exposure to lead fumes	• Ensure standard safety procedures are followed at all times • Only use trained and competent personnel • Ensure there is a safe working area at all times • Ensure materials are stored neatly • Ensure there is safe access and egress at all times • Ensure all personnel wear suitable and sufficient personal protective equipment • Consider a hot works permit system prior to commencing any hot works • Make sure emergency procedures are in place and ensure all personnel are aware of where to go in case of a fire
35.	Precast Slab / Unit Laying and Fixing	Falls Falling materials Manual Handling	• Emergency procedures in place and personnel explained details • Use competent personnel • Ensure suitable and sufficient access and egress is provided • Safe place of work must be provided • Ensure all personnel wear correct personal protective equipment • Exclusion zone may be required for protection against risk of falling objects
36.	Road Construction	Risk of being struck by vehicles	• Ensure traffic management measures in place • No construction activities to commence until adequate provision made to accommodate traffic in accordance with the South African Traffic Signs Manual. • Wear reflective waistcoats when working on or near the road or road shoulder as well as any other required personal protective clothing. • Crossing of road by personnel must be limited to the practical minimum • Use of fencing or other barriers as appropriate
37.	Road Marking	Contact with moving vehicles Fire	• Ensure suitable and sufficient road signs are erected, as applicable • Possible road or lane closure may be required – traffic management may be required • Fire Extinguisher to be situated in a suitable area, use dry powder or foam
38.	Road Working – working in or next to road	Injury to workers caused by passing traffic Injury to road users and pedestrians by works	• Flagmen to be used where interface with construction plant with passers-by or where hazard posed by delivery vehicles turning into/out of site. • Traffic management plan to be approved by Municipality and, if necessary, traffic department • No construction activities to commence until adequate provision made to accommodate traffic in accordance with the South African Traffic Signs Manual. • Use safety signage to warn traffic and pedestrians of construction works • Where existing walk ways/pavements affected by works, must direct pedestrian traffic away to safe walking area. • Wear reflective waistcoats when working on or near the road or road shoulder as well as any other required personal protective clothing. • Crossing of road by personnel must be limited to the practical minimum • Use of fencing or other barriers as appropriate
39.	Scaffold Erection/ Dismantling	Personnel falling from a height Items of scaffold falling onto personnel Scaffold collapsing onto those below	• Ensure • scaffold is designed to take the imposed loads • scaffolding is constructed properly • scaffold is not overloaded • scaffolders are fully trained



	HAZARD	RISK	MINIMUM CONTROL MEASURES
	Scaffold Erection/ Dismantling (continued)		- scaffolding is regularly checked by competent person and record of inspection retained. Written inspections to be recorded on weekly basis - scaffolders must adhere to the safe systems of work. - all fall arrest equipment to be checked and certified in good working order - that ALL understand the safe system of work
40.	Shuttering Walls, Beams, Columns	Falling from height Falling materials from height Cuts and abrasions from splinters and nails	- Ensure all personnel wear the appropriate Personal Protective Equipment - Ensure at all times there is a safe working platform - Use only trained and competent personnel - If electrical tools are being used ensure they have been tested and safe to use - Ensure timber is de-nailed after use - Ensure safety standards are followed at all times - Ensure there is a safe means of access and egress at all times
41.	Site Strip	Overturning Vehicles	- Follow standard safety procedures - Only use trained and competent personnel - Ensure there is a suitable and safe means of access and egress - Ensure banksman used when required - Ensure all personnel wear suitable reflector vests as required
42.	Snakes	Snake bite	- Qualified first aider required for site who can treat snakebite - Snake bite kit to be on hand - Check area before working - Find out nearest hospital and get emergency telephone numbers.
43.	Steel Erection	Falls from height Falling components Contact injuries from falling lifting equipment	- Adhere to all general precautions for working at height (See risk assessment below) - Barrier off / exclude area below work - All lifting appliances to be examined and inspected - Inspection register in place and up to date - All personnel to be trained and competent and wear clipped on safety harnessed when working at height - Ensure that lifting equipment (slings, chains, shackles) test certificates are current and on site. - Competent persons only to connect loads and direct plant
44.	Steel Fixing	Back injuries caused by manual handling Eye injuries from tie wire Trips / falls Falling form height	- PPE must include safety boots and goggles - Manual handling training may be required - Care to be taken when working near overhead lines - Use only trained personnel - Provide safe means of access - Maintain and regularly inspect all lifting appliances and equipment - Cap starter bars to prevent injuries where feasible - Construct scaffold walk ways to cross reinforcing mesh, as required
45.	Street Lighting	Contact with vehicles Electrical Shock Collapse of columns	- Ensure competent personnel are used - Area to be kept clear – keep unauthorised persons away - Plant and lifting equipment to be maintained as per risk assessments above - Electrical connections to be done by qualified personnel only



	HAZARD	RISK	MINIMUM CONTROL MEASURES
46.	Temporary Works – shoring, scaffold, falsework, formwork	Collapse of form work	- Wear personal protective equipment such as gloves and goggles - Formwork must be built by trained person and also be inspected by competent person and results entered into register on site
47.	Troxler – use of	Radiation exposure Transportation and storage of nuclear equipment Working in road	Ensure - Training of Troxler gauge operators in basic radiation safety and correct operating procedure to satisfactory level of competence - An enclosed vehicle must be used for transport of the gauge - After use and before storing the gauge, a visual check to be carried out to confirm shutter is properly closed - Warning signage to be displayed at entrance to store indicating presence of radioactive material - Wear reflective vests when working in or near the road or road shoulder as well as any other required personal protective clothing.
48.	Underground Services	Striking of buried services	- Make all necessary enquiries to establish what services are in the area. Consult drawings and advice from service provider (e.g. Municipality or ESKOM) when planning work. - Assume all service to be live (Unless confirmation is received to confirm that services are isolated or otherwise made safe). Do not work near live services without authorisation from site management. - Comply with the requirements of the safe system of work for underground services. - Where available, locate services with a locator - Hand dig around services
49.	Working at Height	Personnel falling from height Falling debris Those beneath being injured	- All access equipment is properly constructed (inspections record must be maintained) - Only trained personnel construct, dismantle or control the access equipment - All access equipment must have full toe boards and guardrails - comply with SANS 10085 on erection, use and dismantling of scaffolding - No access equipment may be loaded above the level of the guardrail - No access equipment to be loaded above its safe working load - Where work involves leaning out on an open leading edge, then all personnel are to be fitted with full body harness. The harness must be connected at all times - All fall arrest equipment to be correctly maintained - Ensure if ladders are being used for access, they are either footed or tied. Also, the ladder must be set at the correct level of 1 in 4 or approximately 75°
50.	Working with Effluent	Contact with effluent causing sickness or disease	- ensure good hygiene facilities - personnel to be competent in work activity - personnel to wear appropriate personal protective equipment such as goggles, overall, gloves and goggles



ISSUE REGISTER

Date of Original Safety Specification Compilation	Compiled By	Issue Date	Revision Date
24 March 2020	Jan van Rensburg	26 March 2020	

Acknowledgement:

I, _____ representing
_____(Contractor), have satisfied
myself with the content of this Health and Safety Specification and shall ensure that our employees
and contractors on site comply with the requirements of this document, our safety documentation and
health and safety legislation.

Signature of Contractor

Date

Comments:

ANNEXURE E: EXPANDED PUBLIC WORKS PROGRAMME (EPWP) REPORTING TEMPLATE

Kouga Municipality: Monthly Labour Payment Schedule:

Project Name:

Contract Number:

Name of the Consultant:

Reporting Month:

Name of the Contractor:

Ward:

No	Name and Surname	ID No	Date Employed	Male/Female (M/F)	Y > 35 years Youth/Adult (Y/A)	Yes/No Disability Status (Y/N)	a Task/ Daily Rate(Rands)	b Total Days worked	a x b Total Amount Paid In Rands	Tel/Cell No.	Signature
1											
2											
3											
4											
5											
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25											

CONFIRMATION

Totals

	Contractor	CLO	Project Manager
NAME AND SURNAME			
SIGNATURE			
DATE			



ANNEXURE F: ENVIRONMENTAL MANAGEMENT SPECIFICATION

ENVIRONMENTAL MANAGEMENT PLAN (APPENDIX F)

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1. Introduction

1.1 Scope of EMP

This EMP establishes the environmental standards to be adhered to by all persons contracted during the construction phases of the project. It also serves as the general code of conduct for any contractor carrying out any work on the project.

2 Environmental Procedures

2.1 Roles and responsibilities

The general roles and responsibilities of various parties are outlined below.

The Developer: Kouga Local Municipality

The Kouga Local Municipality, as the developer of the project shall ultimately be responsible for the implementation of the EMP. The Kouga Local Municipality shall appoint a representative, the Responsible Person ("RP"), who shall:

- Ensure that the Contractor is duly informed of the EMP and associated responsibilities and implications of this EMP
- Monitor the Contractor's activities with regard to the requirements outlined in the EMP
- For the purpose of this project the "RP" can assume the responsibilities of the Environmental Control Officer (ECO,
- Act as a point of contact for local residents and community members,
- Ensure that the contractor remedy problems timeously and to the satisfaction of the authorities and
- Notify the authorities should problems arise which cannot be remedied effectively, or of any change in the developer or changes in project specification that could impact negatively on the environment.

The Contractor

The contractor will be responsible for:

- Ensuring all activities on the site are undertaken in accordance with the EMP
- Informing all employees and sub-contractors of their roles and responsibilities in terms of the EMP and
- Ensuring that all employees and sub-contractors comply with this EMP.

The Contractor has a duty to demonstrate respect and care for the environment in which they are operating. They will be responsible for the cost of rehabilitation, to the satisfaction of the ECO/ RP, of any environmental damage that may result from non-compliance with the EMP, environmental regulations and relevant legislation.

The Environmental Control Officer ("ECO")

The Environmental Control Officer ("ECO") shall for the purpose of this project be the same person as the "Responsible Person" as outlined above and shall have the following responsibilities:

- Receiving and reviewing the compliance certificates for submission to the DEDEA upon project completion.

- Undertaking the pre-construction inspection, which may result in recommendations for additional clean-up and rehabilitation measures and
- Undertaking a post-construction Final Audit Report to audit compliance to the conditions of the Record of Decision of DEDEA.
- Make the necessary amendments to the EMP during the construction project as and when required. Such changes should be clearly communicated to the appointed Contractor and DEDEA.

The Final Audit Report will be submitted to the KLM and The Contractor for comment prior to submission to DEDEA. Comments from the parties will be included in the audit report submitted to DEDEA.

2.2 EMP Procedure

The EMP implementation procedure is outlined below.

- The ECO shall undertake an initial site visit in conjunction with the appointed Contractor
- The contractor shall train his employees regarding the importance of the EMP
- The RP will undertake two-weekly site inspections to ensure that the EMP is being implemented and
- The ECO will undertake a final audit of the site on completion of the project and submit a Final Audit Report to DEDEA as per the conditions of the approval for the project.

2.3 Community Liaison, Environmental Training and Monitoring

Community Liaison

- A community liaison officer will be appointed,
- The CLO must be involved in all aspects of the construction planning and construction implementation,
- An information board with contact details of the CLO shall be erected at a central location,
- Contact details of the CLO shall be provided to DEDEA, and
- A community complaints record shall be maintained detailing complaints and issues raised by the community members and the manner in which problems were resolved.

Environmental Training

- It is incumbent upon the contractor to convey the sentiments of the EMP to all personnel involved in the operations and the specific provisions of the EMP.

Monitoring

The monitoring programme to be implemented by the ECO is outlined below.

- Photographic monitoring of the construction shall be undertaken from logged (coordinate) points. The monitoring points shall be positioned along the access roads as well as at construction locations;
- Photographic monitoring shall be undertaken as follows:
 - Initial baseline photographs shall be taken prior to the commencement of construction;
 - Photographs should be taken before construction commences, during construction and after construction has been completed.

3 Environmental Specifications

Note: Where the responsibility for a specific provision is the sole responsibility of a single party, e.g. ECO, this is indicated. Otherwise it should be assumed that provisions outlined below are the responsibility of all parties.

3.1 Construction Site

Construction during summer months is to be restricted to normal working hours being 07:00 to 18:00 on weekdays and 07:00 to 13:00 on Saturdays. No construction is to take place on Sundays and public holidays. Construction during winter months will generally be dictated by daylight hours, which would be of a similar nature to those during summer months.

Deviation from the above normal working hours may be implemented upon agreement with all parties concerned and written communication outlining working hour variations with the DEDEA.

Contractor's Camp (Site Office)

- The Contractor's camp, office and storage facilities shall be located at positions that are acceptable to the RP
- The camp must be fenced as agreed by the RP
- The camp should be established away from the drainage channel to ensure that equipment is protected from flood events

Access

- No staff shall overnight on site with the exception of security staff
- No indiscriminate driving shall occur around access roads and construction areas or areas outside the boundary of the site
- The safety of other road users must be ensured at all times.
- The Contractor shall prevent public access to the construction site.
- Only site vehicles will be permitted within the demarcated construction site, as required to complete their specific tasks.
- Private vehicles shall be parked in a clearly marked area away from construction activities where they are stored at their own risk

Ablution Facilities

- Excretion and urination are prohibited other than at designated facilities
- The RP shall designate an area on the site for the erection for portable chemical toilets
- Toilets are to be provided for workers at a ratio of at least 1 toilet per 20 workers or as per specifications of the supplier
- The toilets shall be of neat construction and shall be provided with doors and locks and shall be secured to prevent them blowing over
- The Contractor shall supply adequate toilet paper at all toilets.
- Toilets shall be maintained and properly equipped and shall be serviced regularly by a reputable contractor and the contents shall be removed to a licensed disposal facility
- The Contractor shall ensure all the toilets are emptied before builder' or other holidays and that waste be stored and disposed of at an appropriate place or site
- The Contractor shall ensure that no spillage occurs where chemical toilets are cleaned and emptied

- Chemical toilets should be positioned so that the river channel is protected from spillage and accidents. The chemical toilets should also be positioned to ensure that they are not washed away during flood events.
- Service certificates must be filed to include in the Final Audit Report.

Eating/Break Areas

- The RP shall designate an area for staff and labourers to eat during breaks
- The RP shall designate an area for staff where food preparation must take place – if needed
- No cooking of food shall be permitted on site except in the designated area and
- Sufficient weather and vermin proof portable bins shall be provided.
- The Contractor shall provide water for drinking purposes and construction purposes until such time as it is available from the local municipal supply.

Labour

- Environmental education must be provided to all construction personnel before start of work

3.2 *Materials handling*

Delivery

- Sub-contractors and delivery drivers e.g. of concrete, sand etc. shall be informed of procedures and restrictions in terms of the EMP
- All loads shall be secured to prevent spillage during transport and
- The Contractors shall be responsible for clean up resulting from failure of sub-contractors to properly secure materials.
- Materials should not be dumped into the river channel.

Fuel Storage and Dispensing

- The contractor shall take all reasonable steps to prevent the pollution of soil and/or groundwater by fuels and oils as a result of his activities
- Generators and temporary fuel supply needed shall be placed on trays which rest on sand in order to minimise any petrochemical spillage and
- A concrete surface will be provided at the dispensing pump to prevent spills from getting into direct contact with the soil.
- No fuel storage or dispensing should take place along the river bank as the river channel must be protected from fuel spillage at all cost.

3.3 *Waste Management*

- No waste is to be buried on the site
- The contractor will be responsible for removing of pollutants from the site if their presence is the result of his employees, sub-contractors or activities.
- Refuse bins shall be of such a design that the refuse cannot be blown out and that animals are not attracted to the waste and spread it around.
- Refuse bins shall be water tight, wind-proof and scavenger-proof and shall be appropriately placed throughout the site.

- The Contractor shall provide labourers to clean up the construction site on a daily basis.
- Refuse bins should be positioned away from the river channel to ensure that this sensitive environment is protected from litter and uncontrolled waste spillage.

General Waste

- Sufficient weather and vermin proof portable bins shall be provided for the disposal of solid waste
- Bins shall be emptied regularly and the contents disposed of at a registered waste disposal facility.
- Proof of disposal shall be kept for auditing purposes
- Waste may not be burned on site.

Hazardous Waste

- Generators and fuel supply needed shall be placed on trays that rest on sand in order to minimise any petrochemical spillage. Contaminated sand and material shall be disposed of at a suitable registered waste disposal site
- Hazardous waste (e.g. used oils) shall be separated from general wastes, stored separately in appropriate containers and disposed of at a licensed hazardous waste disposal facility or certified recycling facility and
- Certificates of hazardous waste disposal shall be kept for auditing purposes.

Construction Waste

- Excess excavated material shall not be allowed to accumulate on site and
- All construction waste shall be disposed off at a registered waste disposal site.

3.4 Maintenance

- No routine maintenance of earth moving equipment and vehicles shall occur on site.

3.5 Fire Control

- No fires are permitted on site except in designated areas determined by the RP
- The contractor must supply proper fire places where fires can be made
- Smoking shall not be permitted in those areas that pose a fire hazard. Such areas include areas where vegetation is such that a fire may spread rapidly e.g. vegetation stockpiles and open veld
- A fire officer shall be appointed by the Contractor who shall be responsible for co-ordinating rapid, appropriate responses in the event of a fire and
- Sufficient fire-fighting equipment shall be maintained on site at all times.
- The Contractor shall ensure that all the necessary emergency telephone numbers are posted at conspicuous and relevant locations in the event of an emergency
- The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it.

3.6 Vegetation

- All suitable indigenous vegetation, as identified by the ECO, shall be preserved and used in rehabilitation
- All exotic plant material will be removed and all construction areas will be cleared of alien vegetation and

- Disturbed soils around the construction sites should be sufficiently compacted and rehabilitated.

3.7 Wildlife

- No wildlife may be removed from the site or surrounding areas unless approved by the RP in conjunction with the appropriate permits obtainable from DEDEA and
- No hunting, killing, capturing or snaring of wildlife will occur on the site or the surroundings, the contractor shall assume responsibility in this regard for all his employees and sub-contractors.

3.8 Soils

- All topsoil removed will be stockpiled in demarcated areas (clearly marked) and shall be watered when necessary (depending on the length of time between removal and replacement of topsoil) in order to prevent drying and wind erosion
- Topsoil shall be placed such that it will not be washed away by storm water or rainfall or blown away by wind and
- Topsoil shall be replaced immediately after construction has been completed and should be anchored using indigenous grass and small shrubs.

3.9 Noise

- Noise levels shall be limited to less than 70 dB at the boundary of the site
- Construction shall only occur between the hours of 7:00 am and 6:00 pm, from Monday to Friday and 7:00 am and 13:00 pm on Saturdays
- The use of radios, television sets and other such equipment by workers shall be controlled and noise levels kept to a level that does not disturb the neighbouring residents and
- A complaints record will be kept to record any complaints lodged due to noise disturbance.

3.10 Construction activities

Excavation activities

- Excavation activities and clearing shall be restricted to areas of construction
- Excavated material shall be dumped in stockpiles in an area designated by the RP
- Disturbed soils around construction areas should be sufficiently compacted and planted with removed indigenous plant material to reduce the erosion potential and
- Excess excavated material shall not be allowed to accumulate on any site related to the development.

Concrete and Cement Batching

- The ECO shall designate an area where concrete batching is to take place
- Concrete and cement batching shall not be permitted outside this designated area, which must be clearly marked
- Cement mixers shall be placed on trays and no cement mixing will take place on the soil surface or easily penetrable layers (e.g. plastic) and
- Cement bags must be disposed of as waste to a licensed waste disposal facility.

Fuel and Chemical Management

- The Contractor shall ensure that fuels and chemicals (e.g. fuel, grease, oil, brake fluid, hydraulic fluid etc) are stored and handled so as to minimise the risk of spillage and that appropriate steps are taken to prevent the pollution in the event of a spill.
- All fuel, oil, chemicals etc. shall be confined to a specific and secured area within the construction site, in a way that does not pose a danger of pollution.
- These materials must be stored in a bunded area with adequate containment (at least 1,5 times the volume of fuel) for potential spills or leaks.
- The fuel dispenser shall be hung within the bunded area while not in use. Gas and fuel shall be stored in the same storage area.
- The Contractor shall stand any equipment that may leak and does not have to be transported regularly on watertight drip trays to catch pollutants. The drip trays shall be of a size that the equipment can be placed inside it.
- Drip trays shall be cleaned regularly and shall not be allowed to overflow.
- The Contractor shall ensure that rainwater does not run off areas containing cement, oil, diesel etc. and thus result in a pollution threat.

Dust

- The Contractor shall implement appropriate measures to minimise the generation of dust or wind blown sand as a result of his works, operations and activities to the satisfaction of the ECO
- Particular attention shall be paid to preventing dust generation during earth moving and stockpiling activities
- Removal of vegetation shall occur immediately prior to construction commencing
- Suitable measures shall be taken to control dust arising from stockpiles, bare surfaces and transportation of material
- Potential dust control measures include covering of stockpiles, dampening of surfaces on windy days (water sprays) and the use of straw shall be implemented and
- Vehicle speeds are to be limited to 40 km/hr
- The Contractor shall ensure that no materials escape from the transport vehicles by providing adequate covering to confine the material during transport.

Safety

This EMP is not a health and safety plan and it is the contractor's responsibility to implement a health and safety plan to the satisfaction of the authorities.

- Pedestrian access to all construction sites shall be restricted and
- The proper health and safety regulations will be applied to all subcontractors and staff

3.11 Rehabilitation

The aim of rehabilitation should be to replace constructed and exposed areas with topsoil and indigenous vegetation where practical. Stabilising seed mixtures of indigenous grasses should be used as quickly as possible to stabilize exposed areas and road verges. The river channel environment should remain clear of terrestrial vegetation and running water should be able to flow unobstructed within the channel environment.

3.12 Penalties

- Penalties can be instituted for non-compliance.
- Any damage caused to the environment during the construction process shall be made good to the satisfaction of the DEDEA.

- The penalty is over and above the cost of rectifying the problem and / or damage.
- Penalties will be enforced under the National Environmental Management Act (NEMA), which allows for prosecutions by both the State and private individuals.
- In the event of any dispute as to what constitutes environmental damage, the DEDEA's opinion will prevail.

4 Post Construction Environmental Audit

A post-construction Environmental Audit Report shall be submitted to the DEDEA upon completion and rehabilitation of the construction site. Information referred to in the EMP shall be appended to the Environmental Audit Report including the following:

- Amendments to the EMP as compiled by the ECO/ RP during the construction process
- The quarterly compliance certificates compiled by the ECO/RP
- Community complaints record kept during the construction process
- Photographic record compiled by the ECO/RP
- Service certificates for ablution facilities
- Certificate of hazardous waste disposal
- Record of all environmental concerns such as fuel spillage, fires etc.

ANNEXURE G: DRAWINGS

Separate Volume