



ROADS AGENCY
LIMPOPO
TOGETHER FOR BETTER ROADS

Registration Number No: 2001/025832/30

CIDB Class Grading 7CE or 6CEPE or Higher

RAL/T1256B/2021: MAINTENANCE OF ROAD P98/2 (R522) FROM VIVO TO MAKHADO IN THE VHEMBE DISTRICT OF LIMPOPO PROVINCE.

PROCUREMENT DOCUMENT: BOOK 2 OF 2

FEBRUARY 2025

NAME OF TENDERER:

TENDER PRICE

CSD Number

ISSUED BY:

**The Acting Chief Executive Officer
Roads Agency Limpopo SOC Ltd
Private Bag X9554
Polokwane
0700**

Tel: (015) 284 4600



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THE CONTRACT

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C1.1 FORM OF OFFER AND ACCEPTANCE

Offer

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

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The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the tender 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 the 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 PRICE INCLUSIVE OF VALUE ADDED TAX IS
(CONTRACT PRICE)**

.....
.....

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 the conditions of contract identified in the contract data.

For the Tenderer:

Signature(s)

Name(s)

Capacity

Name and address of organization

.....

.....

Signature and Name of Witness:

Signature

Name

Date

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 Parts C1 to C4 above.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule, which must be 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 deviations (if any), contact the employer's agent (whose details are given in the contract data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data 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 copy of the fully signed original document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five days of the date of such receipt notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

For the Employer

Signature

Name

Capacity

Name and address of organization

.....

.....

.....

Signature and Name of Witness

Signature

Name

Capacity

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 the subject of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here,
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here,
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract,

1 Subject
Details

2 Subject
Details

By the duly authorised representatives signing this schedule of deviations, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the employer during this process of offer and acceptance.

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

For the Tenderer:		For the Employer
.....	Signature	
.....	Name	
.....	Capacity	
Name and address of organisation:		Name and address of organisation
.....		
.....		
.....		
.....	Witness Signature	
.....	Witness Name	
.....	Date	

Confirmation of Receipt

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

the (day)

of (month)

20..... (year)

at (place)

For the Contractor:

.....

Signature

.....

Name

.....

Capacity

Signature and name of witness:

.....

Signature

.....

Name

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C1.2 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT 85 of 1993 AND APPOINTMENT AS MINE MANAGER IN TERMS OF SECTION 3(1)(a) OF MINE HEALTH AND SAFETY ACT 29 of 1996.

This AGREEMENT made at on this day of in the year between THE ROADS AGENCY LIMPOPO SOC Ltd (hereinafter called “the Employer” on the one part, herein represented by in his capacity as And delegate of the Employer and (hereinafter called “the Principal Contractor”) of the other part, herein represented by in his capacity as

WHEREAS the Employer is desirous that certain works be constructed, as stated for in Contract No RAL/.....For (description of contract).....
..... in theDistrict of Limpopo Province and has accepted a tender by the Principal Contractor for the construction, completion and maintenance of such works and whereas the Employer and the Principal Contractor have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Principal Contractor with the provisions of the Occupational Health and Safety Act 1993(Act 85 of 1993 and the Construction Regulation, July 2003):

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Principal Contractor shall execute the work in accordance with the contract documents pertaining to this contract.
2. This Agreement shall hold good from its commencement date, which shall be the date of a written notice from the employer or engineer requiring him to commence the execution of the Works, to either:
 - a) the date of the final certificate issued in terms of clause 49 of the General Conditions of Contract for Construction Works 2015 (third Edition) as issued by the South African Institution of Civil Engineering (hereinafter referred to as “the GCC 2015”), as contained in the contract documents pertaining to this contract, or
 - b) the date of termination of the contract in terms of clause 9.1 9.2 or 9.3 of the GCC 2015.
3. The Principal Contractor declares himself to be conversant with the following:-
 - a) All requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as “The Act”, together with its amendments and with special reference to the following Sections of The Act.

- i. Section 8: General duties of employers to their employees.
 - ii. Section 9: General duties of employers and self-employed persons to persons other than employees
 - iii. Section 37: Acts or omissions by employees or mandatories and
 - iv. Sub-section 37(2) relating to the purpose and meaning of this Agreement.
 - v. Construction Regulations 2003, and other safety regulations, as applicable.
 - b) The procedures and safety rules of the employer as pertaining to the Principal Contractor and to his subcontractors.
4. The Principal Contractor is responsible for the compliance with the Act by his sub-contractors, whether or not selected and/or approved by the employer.
 5. The Principal Contractor warrants that all his and his sub-contractors' employees (permanent and temporary) are covered in terms of the Compensation for Occupational Injuries and Diseases Act 1993 which cover shall remain in force whilst any such employees are present on site. The Principal Contractor shall submit a written report to this effect at each Progress Site Meeting.
 6. The Principal Contractor undertakes to ensure that he and/or his sub-contractors and/or their respective employees will at all times comply with the following conditions:
 - a) The Principal Contractor shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Principal contractor shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Principal contractor obtains such approval and delegates any duty in terms of Section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
 - b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Principal Contractor to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - c) The Employer hereby obtains an interest in the issues of any formal enquiry conducted in terms of Section 32 of the Occupational Health and Safety Act into any incident involving the Principal Contractor and/or his employees and/or his sub-contractors.

Further to the abovementioned, where contracts involve quarries or borrow pits, the following shall be applicable:-

In terms of Section 3(1)(a) of the Mine Health and Safety Act of 1996, The Roads Agency Limpopo SOC. shall appoint a manager for its mine/s.

You are hereby appointed as the mine manager for , with effect from until further notice.

In terms of this appointment you are charged with the functions, duties and responsibilities imposed by the aforementioned Act and its regulations. Without derogating from the duties, functions and responsibilities imposed by this legislation, you are to:

- i) Control, manage and direct employees at the Mine (borrow pit or quarry).
- ii) Take all reasonable measures to ensure the health and safety of employees and proper discipline at the Mine.
- iii) Take all reasonable measures to ensure that the provisions of the Mine Health and Safety Act and its regulations (as may be amended from time to time) are implemented and adhered to at the Mine.
- iv) Ensure and maintain a healthy and safe mine environment for all persons.
- v) Ensure an adequate supply of health and safety equipment and facilities.
- vi) Staff the Mine, with due regard to health and safety.
- vii) Provide health and safety training as far as reasonably practicable to all employees.
- viii) Initiate, prepare and implement codes of practice, relating to health and safety.
- ix) Maintain an effective risk identification and management system.
- x) Ensure the effective maintenance of hazard identification and medical monitoring records.
- xi) Prepare and or review the Health and Safety Policy for the Mine.
- xii) Ensure that an annual medical report is compiled at the Mine, and forwarded to the owner or the appointed owner representative of the Mine.
- xiii) Ensure compliance with relevant environmental legislation.
- xiv) Assist with implementation and maintenance of the Road Agency Limpopo SHE Management Standards, the Contractor's Compliance Pack and operational procedures.
- xv) Enhance a culture of high performance in safety and health.

You are to appoint the prescribed persons to assist you in your duties and functions, and you are hereby authorised and obliged to take all reasonable measures to comply with legislative requirements. You are to ensure that an acting mine manager is appointed when you are to be absent, or on leave for a period longer than five (5) days.

Instructions and procedures are from time to time issued by the board of Road Agency Limpopo, and it will be your responsibility to ensure the implementation and adherence to these instructions and procedures at the Mine.

You are further responsible to ensure that relevant environmental legislative requirements are complied with, including the implementation of all internal procedures and systems to ensure compliance with such legislation.

It would be the responsibility of yourself to report any shortcomings, in relation to the implementation of applicable legislation which you are unable to rectify, immediately in writing to the appointed owner representative.

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

SIGNED FOR ON BEHALF OF THE EMPLOYER/SECTION 4.1 APPOINTEE

.....

WITNESS: 1..... 2.....

NAME

(IN CAPITALS) 1..... 2.....

DATE:

SIGNED FOR AND ON BEHALF OF THE PRINCIPAL CONTRACTOR/MINE MANAGER

.....

WITNESS: 1..... 2.....

NAME

(IN CAPITALS) 1..... 2.....

DATE:

Copy to: **The Chief Inspector - Department of Minerals and Energy**

C1.3 PERFORMANCE GUARANTEE

"Guarantor" means:
Physical address:
"Employer" means:
"Contractor" means:
"Engineer" means:
"Works" means:
"Site" means:
"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.
"Contract Sum" means: The accepted amount inclusive of tax of R
Amount in words:
"Guaranteed Sum" means: The maximum aggregate amount of R
Amount in words:
"Expiry Date" means:

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity.....

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

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C1.4 ABSTRACTS OF THE MINE HEALTH AND SAFETY ACT No. 29 OF 1996 AND AMENDMENT ACT No. 72 OF 1997

DEFINITIONS:

Section 102 of the Mine Health and Safety Act refers.

“mine” means, when –

- (a) “used as a noun-
 - (i) any borehole, or excavation, in any tailing or in the earth, including the portion of the earth that is under the sea or other water, made for the purpose of searching for or winning a mineral, whether is being worked or not, or
 - (ii) any other place where a mineral deposit is being exploited, including the mining area and all buildings, structures, machinery, mine dumps, access roads or objects situated on or in that area that are used or intended to be used in connection with searching, winning, exploiting or processing of a mineral, or for health and safety purposes. But, if two or more excavations, boreholes or places are being worked in conjunction with one another
 - (iii) a works; and
- b) used as a verb, the making of any excavation or borehole referred to in paragraph (a) (i), or the exploitation of any mineral deposit in any other manner, for the purpose of winning a mineral including prospecting in connection with the winning of a mineral.
 - a) whether that substance is in solid, liquid or gaseous form;
- b) that occurs naturally in or on the earth, in or under water or in tailings, and
 - c) that has been formed by or subjected to a geological process.

“processing” means the recovering, extracting, concentrating, refining, calcimining, classifying, crushing, milling, screening, washing, reduction, smelting or gasification or any mineral, and “process” has a similar meaning

“works” means any place, excluding a mine, where any person carries out-

- a) The transmitting and distributing to another consumer of any form of power from a mine, by the owner thereof, to the terminal point of bulk, to the power supply meter on any such other consumer’s premises, or
- b) Training at any central rescue station, or

- c) The making, repairing, re-opening or closing of any subterranean tunnel, or
- d) Any operations necessary in connection with any of the operational listed in this paragraph.

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C1.5 CONTRACT DATA

C1.5.1 Contract Specific Data

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

Section 1: Data provided by the Employer

Clause	Data
1.1.1.5	Clause 1.1.1.5 of the GCC is replaced by the following: The "Commencement date" shall be the date the Access to and Possession of the Site is handed over to the Contractor. Duplicate to C1.5.2
1.1.1.13	Defects liability period is 12 Months Period
1.1.1.14	The time for achieving Practical Completion Six (6) months, including one (1) month mobilisation period, special nonworking days and the South African annual builder's break.
1.1.1.15	The Employer is the Roads Agency Limpopo SOC Ltd (RAL) .
1.1.1.15	The Employer' Agent is To Be Appointed
1.1.1.16	The engineer representing the Employer's Agent is: N/A
1.1.1.26	The Pricing Strategy is Re-measurement Contract
1.2.1.2	The Employer's address for receipt of communication is: Telephone: (015) 284 4600 Facsimile: (015) 284 4704 e-mail: KgomeswanaE@ral.co.za Address: Private Bag X9554, Polokwane, 0700
1.2.1.3	The Employer's Agent's address for receipt of communication is: N/A Telephone: N/A Facsimile: N/A e-mail: N/A Address: N/A
1.3.2	The governing law is Republic of South Africa
1.3.3	The language of the Contract and for written communications is English

Clause	Data																		
3.1.3	The Employer's Agent shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract: <table> <tr> <th>Function</th><th>Clause(s)</th></tr> <tr> <td>Appointment of nominated Sub-contractors</td><td>4.4.4</td></tr> <tr> <td>Granting of an extension of time, and/or additional costs when ruling on claims associated with claims for extension of time and/or additional costs</td><td>10.1.5</td></tr> <tr> <td>Acceleration of the rate of progress and determination of the cost for payment of such acceleration</td><td>5.12.4</td></tr> <tr> <td>Variation Orders</td><td>6.3</td></tr> <tr> <td>Rulings on claims and disputes</td><td>10.1.5, 10.2.3 and 10.3.3</td></tr> <tr> <td>Suspension of the Works</td><td>2.2.3, 5.11.1 and 5.11.2</td></tr> <tr> <td>Final Payment Certificate</td><td>6.10.9</td></tr> <tr> <td>Issuing of notices to the Contractor</td><td>2.2.1 and 2.2.2</td></tr> </table>	Function	Clause(s)	Appointment of nominated Sub-contractors	4.4.4	Granting of an extension of time, and/or additional costs when ruling on claims associated with claims for extension of time and/or additional costs	10.1.5	Acceleration of the rate of progress and determination of the cost for payment of such acceleration	5.12.4	Variation Orders	6.3	Rulings on claims and disputes	10.1.5, 10.2.3 and 10.3.3	Suspension of the Works	2.2.3, 5.11.1 and 5.11.2	Final Payment Certificate	6.10.9	Issuing of notices to the Contractor	2.2.1 and 2.2.2
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Final Payment Certificate	6.10.9																		
Issuing of notices to the Contractor	2.2.1 and 2.2.2																		
4.3	The Health and Safety Plan shall be delivered and approved before the site hand-over/commencement date.																		
5.3.1	The documentation required before commencement with Works execution are: • Health and Safety File & 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)																		
5.3.2	The time to submit the documentation required before commencement with Works execution is fourteen (14) days.																		
5.5.1	The Works shall be completed within Six 6 months as envisaged by the employer, measured from commencement/site hand-over date to due completion date (including the year end break and non-working days).																		
5.6	The Works programme is to be delivered within fourteen (14) days of the Commencement Date taken as Date of Site Hand-over																		
5.8.1	The non-working days are Saturdays & Sundays. The special non-working days are all designated public holidays, the annual South African builder's break and all foreseeable statutory declared election days.																		
5.13.1	The penalty for failing to complete the Works is R10 000 per calendar day.																		

Clause	Data
5.14.5.2	The Defects Liability Period is twelve (12) calendar months after the date of the final certificate of completion.
5.16.3	The latent defect liability period is five (5) years after the date of the final approval certificate.
6.2.1.	The Guarantee is to contain the same wording as indicated in the document included as C1.3 under returnable documents
6.2.2.	The amount of the Guarantee is to be 10% of the Contract Price (including VAT).
6.2.3.	The Guarantee is to be delivered twenty one (21) days after the Letter of Acceptance. In the event of failure to submit the guarantee within the stipulated 21 days, the Agency reserves the right to cancel the contract and award the Bid to the tenderer who scored the second highest points.

Clause	Data																				
6.8.2	CPA will not be applicable for any projects with the contract period of less or equal to 6 months. CPA will only be applicable to the projects with a contract period of more than 6 months. The value of payment certificates is to be adjusted in accordance with the Contract Price Adjustment Schedule, where: The value of “x” is 0,150 The values of the co-efficient are: $(1-x)\left[\frac{aLt}{Lo}+\frac{bPt}{Po}+\frac{cMt}{Mo}+\frac{dFt}{Fo}-1\right]$ CPA factors are as follows: New Road Construction Rehabilitation Concrete Work <table><tr><td></td><td></td><td></td><td><i>(major structures only)</i></td></tr><tr><td>a =</td><td>0,20</td><td>0,20</td><td>0,15</td></tr><tr><td>b =</td><td>0,40</td><td>0,35</td><td>0,20</td></tr><tr><td>c =</td><td>0,25</td><td>0,35</td><td>0,55</td></tr><tr><td>d =</td><td>0,15</td><td>0,10</td><td>0,10</td></tr></table> “L” is the “Labour Index” and shall be the “Consumer Price Index” for the urban area nearest to the Site as specified by the Engineer in the Appendix to the Tender and as published in the Statistical News Release, P0141, Table A of Statistics South Africa. “P” is the “Plant Index” and shall be the “Civil Engineering Plant Index” as published in the Statistical News Release P0151.1, Table 4 of Statistics South Africa. “M” is the “Materials Index” and shall be the “Civil Engineering Materials Index” as published in the Statistical News Release P0151.1, Table 6 of Statistics South Africa. “F” is the “Fuel Index” and shall be the “Diesel at wholesale level – Coast/Witwatersrand Index” as published in the Statistical News Release P0142.1, Table 1 of Statistics South Africa. The suffix “o” denotes the basic indices applicable to the base month, which shall be the month prior to the month in which the closing date for the tender falls. The suffix “t” denotes the current indices applicable to the month in which the last day of the period falls to which the relevant payment certificate relates. If any index relevant to any particular certificate is not known at the time when the certificate is prepared, the Engineer shall estimate the value of such index. Any correction, which may be necessary when the correct indices become known, shall be made by the Engineer in subsequent payment certificates. The urban area nearest the site Makhado The base month is: The month prior to the month in which the contractor is appointed				<i>(major structures only)</i>	a =	0,20	0,20	0,15	b =	0,40	0,35	0,20	c =	0,25	0,35	0,55	d =	0,15	0,10	0,10
			<i>(major structures only)</i>																		
a =	0,20	0,20	0,15																		
b =	0,40	0,35	0,20																		
c =	0,25	0,35	0,55																		
d =	0,15	0,10	0,10																		
6.8.3	The following are special materials: Bitumen binder extracted from petroleum-based products and used on site, including																				

Clause	Data
	that used in asphalt, irrespective of whether it is produced and/or placed by the Contractor or an approved subcontractor. The rates and prices for the special materials shall be furnished by the contractor, which rates and prices ex refinery with the base date specified under 6.8.2 and shall exclude VAT but shall include all other obligatory taxes and levies on the basis specified in the contract price adjustment schedule (paragraph 4(i) and 4(ii)).
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is eighty percent (80%) .
6.10.3	Percentage retention is 5% of certified work, including VAT. The limit of retention money is 5% of the Contract Sum.
8.6.1.	The amount to be included in the sum insured to cover the value of the works:
8.6.1.1.2	The value of Plant and materials supplied by the Employer to be included in the insurance sum is Nil .
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is Nil .
8.6.1.2	The following additional and varied insurances are required: CAR & SASRIA.
8.6.1.3	The Limit of the liability insurance shall not be less than the Contract Sum.
9.2.1.3.2	Clause 9.2.1.3.2 is replaced by the following "Has failed to submit documentation or to commence the Works in terms of Clause 5.3, or has suspended the progress of the Works for fourteen (14) consecutive days after receiving from the Engineer written notice to proceed," duplicate to C1.5.2
10.5.1 & 2	Disputes shall be referred to ad-hoc adjudication.
10.5.3	The number of adjudication board members shall be 1 or 3.
10.7	Disputes are to be referred for final settlement to arbitration .

Section 2: Data provided by the Contractor

Clause													
1.1.1.9	The Contractor is												
1.2.1.2	The Contractor's address for receipt of communication is: Telephone: Facsimile:..... e-mail:..... Address:..... 												
5.5.1	The Works shall be completed within 06 months as proposed by the contractor.												
6.2.1	The Security to be provided by the Contractor shall be one of the following: <table border="1"> <thead> <tr> <th>Type of Security</th><th>Contractor to indicate applicable choice by Yes (Y) or No (N).</th></tr> </thead> <tbody> <tr> <td>Cash deposit of 10 % of the Contract Sum (Including VAT)</td><td>☐ Yes or ☐ No</td></tr> <tr> <td>Performance Guarantee of 10% of the Contract Sum (Including VAT)</td><td>☐ Yes or ☐ No</td></tr> <tr> <td>Retention of 5% of the value of the Works (Including VAT)</td><td>☐ Yes or ☐ No</td></tr> <tr> <td>Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works (Including VAT)</td><td>☐ Yes or ☐ No</td></tr> <tr> <td>Performance Guarantee of 5% of the Contract Sum (Including VAT) plus retention of 5% of the value of the Works (Including VAT)</td><td>☐ Yes or ☐ No</td></tr> </tbody> </table> NB: Guarantees submitted must be issued by either an insurance company duly registered in terms of the Short-Term Insurance Act, 1998 (Act 53 of 1998) or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma (as per section C1.3) shall be accepted.	Type of Security	Contractor to indicate applicable choice by Yes (Y) or No (N).	Cash deposit of 10 % of the Contract Sum (Including VAT)	☐ Yes or ☐ No	Performance Guarantee of 10% of the Contract Sum (Including VAT)	☐ Yes or ☐ No	Retention of 5% of the value of the Works (Including VAT)	☐ Yes or ☐ No	Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works (Including VAT)	☐ Yes or ☐ No	Performance Guarantee of 5% of the Contract Sum (Including VAT) plus retention of 5% of the value of the Works (Including VAT)	☐ Yes or ☐ No
Type of Security	Contractor to indicate applicable choice by Yes (Y) or No (N).												
Cash deposit of 10 % of the Contract Sum (Including VAT)	☐ Yes or ☐ No												
Performance Guarantee of 10% of the Contract Sum (Including VAT)	☐ Yes or ☐ No												
Retention of 5% of the value of the Works (Including VAT)	☐ Yes or ☐ No												
Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works (Including VAT)	☐ Yes or ☐ No												
Performance Guarantee of 5% of the Contract Sum (Including VAT) plus retention of 5% of the value of the Works (Including VAT)	☐ Yes or ☐ No												
6.8.3	The rate for special materials, exclusive of Value Added Tax is to be completed in Schedule T2.3 C.												

C1.5.2 Variations and Additions to the General Conditions of Contract

The following amendments of the General Conditions of Contract 2015 apply to this Contract. The headings in these Special Conditions of Contract shall not be deemed to be part thereof nor be taken into consideration in the interpretation or construction thereof or of the Contract.

4. CONTRACTOR'S GENERAL OBLIGATIONS

4.1 EXTENT OF OBLIGATIONS AND LIABILITY

Change the number of clauses 4.1.1 to 4.1.2 to read 4.1.2 and 4.1.3.

Add the following:

“4.1.1 Contractor deemed to have inspected the Site

The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself before submitting his tender (as far as practicable) as to

- (a) the form and nature of the Site and its surroundings, including subsurface conditions,
- (b) the hydrological and climatic conditions.
- (c) the extent and nature of work and materials necessary for the execution and completion of the Works,
- (d) the means of access to the Site and the Accommodation he may require

and, in general, shall be deemed to have obtained all information (as far as is practicable) as to risks, contingencies and all other circumstances which may influence or affect his tender.

No subsequent claims by the Contractor arising from his lack of knowledge of perceptible conditions on the site or its surroundings or of information available in connection therewith shall be entertained.”

4.1.2 Extent of Contractor' obligations

Add the following to this sub-clause:

The Contractor shall, save in so far as it is legally or physically impossible,

- (a) design (to the extent provided in the Contract), execute and complete the Works and remedy any defects therein in accordance with the provisions of the Contract, and
- (b) provide all superintendence, labour, materials, Construction Equipment, Temporary Works, including the design thereof, all requisite transport and all other things, whether of a temporary or permanent nature, required in and for such design, execution and completion of the Works and for the remedying of any defects, so far as the necessity for providing the same is specified in or reasonably to be inferred from the Contract.
- (c) After award of the Contract, the Contractor shall be obligated to ensure that at least the Construction Equipment stated on the prescribed form in the Tender Documents, or Construction Equipment equivalent thereto, are on the site when required.”

4.3 LEGAL PROVISIONS

Add the following sub-sub clauses:

4.3.1.1 Mine Health and Safety Act, number 29 of 1996

The Employer shall obtain the Mining Authorisation for all sites where mining activities, as defined in the Mine Health and Safety Act, number 29 of 1996 as amended, are to be conducted.

4.3.1.2 Mineral Resources Petroleum Development Act, number 28 of 2002

The Contractor shall assume responsibility for the Environmental Management Programme (EMPR) in respect of the sites and shall ensure that the sites are rehabilitated at the conclusion of the contract.”

4.4. SUBCONTRACTING

Add the following subclauses:

“4.4.8 Continuing obligation extending beyond date of completion of the work

In the event of a Selected Subcontractor having undertaken to the Contractor, in respect of work executed or goods or materials supplied by such Selected Subcontractor, any continuing obligation extending beyond the date of completion of the work or the end of the Defects Liability Period, and Latent Defect Liability Period as the case may be, the Contractor shall at any time after such date cede to the Employer, at the Employer’s request and cost, the benefit of such obligation for the unexpired duration thereof, whereupon the Employer shall have no further claim against the Contractor in respect of the said continuing obligation.

4.4.9 Convert the subcontract

If the contract shall have been cancelled in terms of clause 9.2, the Employer shall have the right, by written notice given to any Selected Subcontractor not later than 28 days after the said cancellation, to convert the subcontract concerned to a direct contract between the Employer and the Subcontractor.

Provided that:

- (a) the terms of the said direct contract shall mutatis mutandis be those of the subcontract concerned, and
- (b) the Employer shall have the said right, notwithstanding any breach of the subcontract by the Contractor, subject to his forthwith paying to the Subcontractor all amounts then owing to the Subcontractor by the Contractor and perform any obligation which the Contractor has failed to perform.”

4.9 CONSTRUCTION EQUIPMENT

Add the following: sub clauses:

“4.9.2 Preclude seizure of construction equipment

In order to preclude seizure by the owner of any constructional plant being held by the Contractor on a hire or hire-purchase agreement for the purposes of the contract, the Employer shall be entitled to pay any such owner the amount of any outstanding instalment or other sum owing under any hire or hire-purchase agreement and in the event of his doing so, any amount thus paid by him shall be a debt payable to the Employer by the Contractor and may be deducted by the Employer from any moneys owing or that may become owing to the Contractor in terms of the contract, or be recovered at law from the Contractor by the Employer.

4.9.3 Constructional plant brought to the site by the subcontractor

When entering into any subcontract agreement for the execution of any part of the works, the Contractor shall incorporate in such subcontract agreement, by reference or otherwise, the provisions of this clause in respect of construction equipment brought to the site by the subcontractor.”

5. TIME AND RELATED MATTERS

5.4 ACCESS TO THE SITE

Add the following subclause:

- 5.4.4** “If the site is insufficient for the needs and requirements of the work, the Contractor shall arrange with the owners or tenants for the additional land required and pay all rent and costs in connection therewith. The Contractor shall be responsible for all damage to such land and property, and he shall indemnify the Employer and hold him harmless in respect of all claims, demands proceedings, damages, costs, including attorneys and client costs, charges and expenses arising in respect thereof.”

5.14 COMPLETION

Delete the following:

“5.14.5.3 The retention shall be reduced to half in terms of Clause 6.10.5”

5.16 APPROVAL

5.16.1 Final Approval Certificate

Delete the last sentence of this clause and replace with:

The payment of the retention money or the release of the retention money guarantee shall only be permitted after the Employer’s Agent has issued the Final Approval Certificate.

6. PAYMENT AND RELATED MATTERS

6.6 PROVISIONAL SUMS AND PRIME COST SUMS

6.6.1.2.1 In the first line after the word "sums" insert "excluding VAT"

6.6.1.2.2 In the fourth line after the word "amount" insert "excluding VAT"

6.11 VARIATIONS EXCEEDING 15 PER CENT

6.11.1 Second paragraph:

Change "5%" to "20%".

Add the following subclause:

"6.11.2 Variations exceeding 20% per cent

Where the decrease or increase in the quantity of work has not resulted from a written variation order (or an additional agreement) in terms of clause 6.3 but from the fact that the quantities are less or more than those given in the bill of quantities, the tendered rates or sums shall still apply, except in the case of a sub-item (or an item not subdivided into sub-items) in the bill of quantities, which covers work the value of which during the tender stage exceeds 7,5% of the value of the tender sum, and where the quantity of such sub-item or item, upon completion of the contract, deviates by more than 20% from the quantity given in the bill of quantities so that the scale of activities or the method of construction consequently changes to such an extent that the tendered rate or sum no longer applies. In such case the Employer's Agent, should he deem it to be in the interest of the Employer or should the Contractor enter a claim, shall, considering the extent by which the deviation in respect of the quantity of the sub-item or item concerned exceeds 20%, determine a sum which will be equitable in the circumstances, and shall certify that such sum shall be deducted from or added to the sums owing to the Contractor."

6.12 REQUIREMENTS IN TERMS OF GOVERNMENT'S RECONSTRUCTION AND DEVELOPMENT PROGRAMME

Target values: In this project the minimum target values shall be as follows:

- Labour Maximisation (Wages) :5%
- SMME's :10%

It is a requirement that the Contractor plan for achieving these targets and that a planned programme for achieving each of the targets is submitted at the start of the project together with the clause 12 programme of construction.

Penalties:

The penalties for not reaching the required labour and SMME target values will be calculated at **200%** of the difference between the set target values and the actual target values achieved by the contractor at completion of the works. Penalties will be applied monthly, when the actual figures are less than **75%** of the planned monthly figures. No bonuses for achieving the set target values are applicable.

**RAL/T1256B/2021: MAINTENANCE OF ROAD P98/2 (R522) FROM VIVO TO
MAKHADO IN THE VHEMBE DISTRICT OF LIMPOPO PROVINCE**

PART C2: PRICING DATA

C2.1	PRICING INSTRUCTIONS	C.28
C2.2	BILL OF QUANTITIES	C.32
C2.3	SUMMARY OF BILL OF QUANTITIES	C.34
C2.4	CALCULATION OF TENDER SUM	C.36

RAL/T1256B/2021: MAINTENANCE OF ROAD P98/2 (R522) FROM VIVO TO MAKHADO IN THE VHEMBE DISTRICT OF LIMPOPO PROVINCE

C2.1 PRICING INSTRUCTIONS

- 1 For the purposes of this bill of quantities, the following words shall have the meanings hereby assigned to them:

Unit: The unit of measurement for each item of work as defined in the standard specifications or the project specifications.

Quantity: The number of units of work for each item.

Rate: The payment per unit of work for which the tenderer tenders to do the work.

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

Lump Sum: An amount tendered for an item, the extent of which is described in the bill of quantities, the specifications or elsewhere, but of which the quantity of work is not measured in units.

- 2 This bill of quantities forms part of the contract documents and must be read in conjunction with all the other documents comprising the contract documents.

- 3 The quantities set out in the bill of quantities are only approximate quantities. The quantities of work finally accepted and certified for payment, and not the quantities given in the bill of quantities, will be used to determine payments to the contractor.

The validity of the contract shall in no way be affected by differences between the quantities in the bill of quantities and the quantities finally certified for payment. Work is valued at the rates or lump sums tendered, subject only to the provisions of sub-clause 1209 (a) of the standard specifications.

- 4 Rates and lump sums shall include full compensation for overheads, profits, incidentals, tax (other than VAT), etc, and for the completed items of work as specified, all in accordance with sub-clause 1209 (b) of the standard specifications. Full compensation for completing and maintaining, during the defects liability period, all the work shown on the drawings and specified in the standard specifications and project specifications and for all the risks, obligations and responsibilities specified in the general conditions of contract, special conditions of contract, standard specifications and project specifications shall be considered as provided for collectively in the items of payment given in the bill of quantities, except in so far as the quantities given in the bill of quantities are only approximate.

- 5 The tenderer shall fill in a rate or a lump sum for each item where provision is made for it even where no quantities are given. Items against which no rate or lump sum has been entered in the tender will not be paid for when the work is executed, as payment for such work will be regarded as being covered by other rates or lump sums in the bill of quantities.

The tenderer shall fill in a rate against all items where the words “rate only” appear in the amount column. Although no work is foreseen under such item and no quantities are consequently given in the quantity column, the tendered rate shall apply should work under this item actually be required. Tenders should note the provisions of paragraph 12 of this preamble.

If the tender should group a number of items together and tender one lump sum for each group of items, this single tendered lump sum shall apply to that group of items and not to each individual item, or should he indicate that full compensation for any item has been included in the rate for another item, the rate for the item included in another item shall be deemed to be nil.

The tendered lump sums and rates shall be valid irrespective of any change in the quantities during the execution of the contract.

- 6 The works executed are measured for payment in accordance with the methods described in the contract documents under the various payment items, notwithstanding any custom to the contrary. Attention is directed to the provisions of clause 1220 of the standard specifications regarding the measurements of quantities for payment. Except where specified otherwise than in clause 1220, the nett measurement or mass of the finished work in place shall be taken for payment, and any volume or mass of work in excess of that prescribed, shall be excluded.
- 7 The amount of work or the quantities of material stated in the bill of quantities shall not be considered as restricting or extending the amount of work to be done or quantity of material to be supplied by the contractor.
- 8 The statement of quantities of material or the amount of work in the bill of quantities shall not be regarded as authorisation for the contractor to order material or to execute work. The contractor shall obtain the engineer's detailed instructions for all work before ordering any materials or executing work or making arrangements in this regard.
- 9 The short descriptions of the payment items in the bill of quantities are only given to identify the items and to provide specific details. Reference shall, inter alia, be made to the drawings, standard specifications, project specifications, general conditions of contract and special conditions of contract for more detailed information regarding the extent of work entailed under each item.
- 10 The provisions of clause 6.6 of the general conditions of contract shall apply to provisional sums and prime cost sums.
- 11 Subject to the conditions stated in paragraph 12 below, the rates and lump sums filled in by the tenderer in the bill of quantities shall be final and binding with regard to submitting the tender, and may not be adjusted should there be any mistakes in the

extensions thereof and in the total sums appearing in the tender. Should there be any discrepancies between the tender sum and the correctly extended and totalled bill of quantities, the rates will be regarded as being correct, and the employer shall have the right to make adjustments to the tender sum to reconcile the tender sum with the total of the bill of quantities. In such an event the contractor will be consulted but, failing agreement between the parties, the decision of the employer shall be final and binding. Adjustment of the tender sum will take place prior to the signing of the contract. In their own interest tenderers must make doubly sure of the correctness of their tendered rates, the extensions and the tender sum.

- 12 A tender may be rejected if the unit rates or lump sums for some of the items in the bill of quantities are, in the opinion of the employer, unreasonable or out of proportion, and if the tenderer fails, within a period of seven (7) days of having been notified in writing by the employer to adjust the unit rates or lump sums for such items, to make such adjustments.

- 13 The units of measurement indicated in the bill of quantities are metric units

The following abbreviations are used in the bill of quantities:

mm	=	millimetre
m	=	metre
km	=	kilometre
km-pass	=	kilometre-pass
m ²	=	square metre
m ² -pass	=	square metre pass
ha	=	hectare
m ³	=	cubic metre
m ³ km	=	cubic metre kilometre
l	=	litre
kl	=	kilolitre
kg	=	kilogram
t	=	ton (1000 kg)
No	=	number
mn	=	meganewton
mn-m	=	meganewton-metre
%	=	per cent
kW	=	kilowatt
Kn	=	kilonewton
PC sum	=	prime cost sum
Prov sum	=	provisional sum

- 14 All rates and sums of money quoted in the bill of quantities shall be in rands and whole cents. Fractions of a cent shall be discarded

- 15 The item numbers appearing in the bill of quantities refer to the corresponding item numbers in the standard specifications. Item numbers prefixed by the letter B refer to payment items described under part B of the project specifications, those with C to payment items described under part C, and so on for further parts of the project

specifications.

Item numbers in schedule B of the bill of quantities are, in addition, preceded by the number of each separate part of schedule B of the bill of quantities, e.g. payment item 62.02 described in the standard specifications (clause 6210), when used in part 3 of schedule B of the bill of quantities, would be numbered 3/62.02, and if this payment item had been amended in part B of the project specifications, the payment item would be indicated as 3/B62.02.

16. Labour intensive items are highlighted in the bills of quantities for the payment items relating to labour intensive works.

16.1 Those parts of the contract to be constructed using labour intensive methods have been marked in the bills of quantities with the letters LI in a separate column filled in against every item so designated. The works or part of the works so designated are to be constructed using labour intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The letters marked with LI are **not necessarily an exhaustive list** of all items which must be done by hand, and this clause does not override any of the requirements in the generic labour intensive specification in the Scope of Works.

16.2 Payment for items which are designated to be constructed using 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 work so constructed will not be certified for payment. If a contractor, through innovation on other activities, achieved the set LI requirement, but he did not perform all LI-marked activities through labour, he will not be penalized. However, if a contractor did not achieve the set LI target and constructed a LI-marked activity through other means, he **will not be paid** for that activity.

17. All cost for formal training to the targeted workforce (amongst others: allowances, wages, administration, transport, etc) shall be deemed to be included in the rates for Labour Intensive items.

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C2.2 BILL OF QUANTITIES

SCHEDULE A : ROADWORKS

1200	General requirements and provisions	C.xx
1300	Contractor's establishment and provisions	C.xx
1400	Housing, offices and laboratories for the engineer's personnel	C.xx
1500	Accommodation of traffic	C.xx
1700	Clearing and Grubbing	C.xx
1800	Daywork and hire of construction equipment	C.xx
2100	Drains	C.xx
2200	Prefabricated Culverts	C.xx
2300	Concrete Kerbing, Concrete Channelling, Chutes and Downpipes, and Concrete Linings for Open Drains	C.xx
3300	Mass Earthworks	C.xx
3400	Pavement Layers of Gravel Material	C.xx
3500	Stabilisation (BSM2)	C.xx
4100	Prime Coat.....	C.xx
4200	Asphalt Base and Surfacing.....	C.xx
4600	Bituminous Single Seal with Slurry (Cape Seal).....	C.xx
5100	Pitching, Stonework and Protection Against Erosion.....	C.xx
5200	Gabions	C.xx
5400	Guardrails	C.xx
5500	Fencing	C.xx
5600	Road Signs	C.xx
5700	Road Markings.....	C.xx
5800	Landscaping and Planting Plants.....	C.xx
5900	Finishing the Road and Road Reserve and Treating Old Roads	C.xx
7300	Concrete Block Paving.....	C.xx
8100	Testing Materials and Workmanship	C.xx

SCHEDULE B : STRUCTURES

Bridge xxx C.xx

Bridge xxx C.xx

SCHEDULE C : ENVIRONMENTAL MANAGEMENT PLAN AND OHS ACT

OBLIGATIONS C.xx

SCHEDULE D : PROVISION OF STRUCTURED TRAINING..... C.xx

SUMMARY OF BILL OF QUANTITIES C.xx

CALCULATION OF TENDER SUM C.xx

SECTION 1200

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1200	GENERAL REQUIREMENTS AND PROVISIONS				
B12.03	Provision for Relocation/Protection of Servises (a) Allow a provisional sum for existing services to be relocated and/or protected as ordered by the engineer (b) Handling cost and profit in respect of subitem B12.03(a)	Prov Sum %	1 R 24 000	R 24 000,00	R 24 000,00 -
B12.04	Provision for a Community Liaison Officer (a) Provisional Sum for the payment of the Community Liaison Officer (R50.38/hr = 50.38x8x22 = R8866.88 per month) (b) Provisional Sum for PSC (c) Handling costs and profit in respect of subitem B12.04(a) &(b)	Prov Sum Prov Sum %	1 1 R 73 201	R 53 201,28 R 20 000,00	R 53 201,28 R 20 000,00 -
B12.06	Supply and Install Contract Notice boards as instructed by the Engineer (as per drawing)	No.	2	R 8 000,00	R 16 000,00
	TOTAL CARRIED TO SUMMARY				R 113 201,28

RAL/T1256D/2025			3		SECTION 1400	
SCHEDULE A : GENERAL						
ITEM	DESCRIPTION	UNIT	QTY	RATE		AMOUNT
1400	<u>HOUSING AND OFFICES FOR THE ENGINEER'S SITE PERSONNEL</u>					
14,01	Office and laboratory accommodation:					
	(a) Offices (interior floor space only)	m²	20			-
	(e) Ablution units	m²	5			-
	(f) Stores	m²	5			-
14,02	Office furniture:					
	(a) Chairs	No	2			-
	(d) Desks, complete with drawers and locks	No	1			-
	(f) Conference tables	No	1			-
14,03	Office and laboratory fittings, installations and equipment					
	(a) Items measured by number:					
	(i) 220/250 volt power points	No	5			-
	(ii) 400/231 volt 3-phase power points					
	(iii) Double 80 watt fluorescent-light fittings complete with ballast and tubes	No	5			-
	(vi) Wash-hand basins complete with taps and drains	No	2			-
	(xi) Air-conditioning units with, 2,2 kWminimum capacity, mounted and with own power connection	No	2			-
B14,03	(xix) Rain gauge	No	1			-
	(xxi) Supply of Computer Equipement					
	(1) Computer	No	0			-
	(2) Printer	No	1			-
	(3) Supply of ink, paper and consumable	Month	6			-
	(b) Prime cost items and items paid for in a lump sum :					
	(i) The provision of telephone service, including cost of calls in connection with contract administration and telephone rental	Prov.sum	1	R 6 000,00	R	6 000,00
	(ii) Handling cost and profit in respect of sub item 14.03 (b) (i) above	%	R 6 000,00		R	-
	(vii) The provision off 400/231 volt 3-phase electrical power installation, including all wiring,switchboards, mains, connections, etc...	PC Sum	1		R	-
	(viii) The provision of gas installations, including gasstorage cylinders, tubing, reguators, gas burners and shut-off cocks	PC Sum	1		R	-
14,04	Car ports as specified at offices and laboratory buildings	No	4			-
TOTAL CARRIED TO SUMMARY					R	6 000,00

RAL/T1256D/2025					
4					
SECTION 1500					
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1500	<u>ACCOMMODATION OF TRAFFIC</u>				
15,01	Accommodating traffic and maintaining temporary deviations	km	10		R -
15,02	Earthworks for temporary deviations:				
(a)	Shaping of temporary deviations	km	10		R -
15,03	Temporary traffic control facilities :				
(a)	Flagmen	Man days	350		R -
(b)	Portable STOP & GO-RY signs	No	4		R -
(e)	Road signs, R- and TR series, (1200 mm dia)	No	16		R -
(f)	Road signs, TW series (1500 mm sides)	No	12		R -
(g)	Road signs, STW,-DTWG,TGS-, and TG series (excluding delineators and barricades)	No	8		R -
(h)	Delineators (DTG50J)				
(ii)	Mounted back to back (1200 mm x 150 mm)	No	300		R -
(j)	Traffic cones (750 mm high)	No	115		R -
(n)	Provision of high visibility safety jackets	No	4		R -
15,10	Accommodation of traffic where the road is constructed in half-widths	km	4		-
B15.11	Temporary traffic-control facilities				
(a)	Provision, first erection on site and final removal	No	1		Rate Only
(b)	Re-use on site of traffic-control	No	1		Rate Only
(c)	Manual operation of traffic-control signal systems	month	6		Rate Only
TOTAL CARRIED TO SUMMARY					R -

RAL/T1256D/2025		5		SECTION 1700	
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1700	<u>CLEARING AND GRUBBING</u>				
17,01	Clearing and grubbing within the road reserve	ha	2,0		R -
17,02	Removal and grubbing of large trees and tree stumps				
(a)	Grith exceeding 1m up to and including 2m	no	4		-
17,04	Clearing and grubbing at inlets and outlets of hydraulic structures and mitre drains	m²	100,00		R -
17,05	Cleaning out of hydraulic structures:				
(a)	Pipes with an internal diameter up to 750mm	m³	50		R -
TOTAL CARRIED TO SUMMARY				R -	

RAL/T1256D/2025					
SECTION 1800					
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1800	DAYWORKS				
B18.01	Labourers:				
	(i) Unskilled	hr	300		Rate Only
	(ii) Semi-skilled	hr	200		Rate Only
	(iii) Skilled	hr	100		Rate Only
B18.02	Foreman	hr	100		Rate Only
B18.03	Tipper trucks:				
	(i) 3 - 5 ton	hr	25		Rate Only
	(ii) 5,1 - 10 ton	hr	25		Rate Only
B18.04	Loader (0,5m³)	hr	25		Rate Only
B18.05	Grader (CAT 140G or similar)	hr	25		Rate Only
B18.06	LDV	hr	25		Rate Only
B18.07	Compaction Rollers:				
	(i) Vibrator roller	hr	25		Rate Only
	(ii) Tamping roller	hr	25		Rate Only
	(iii) Grid roller	hr	25		Rate Only
B18.08	Hand Controlled Compactors				
	(i) Pedestrian roller (Bomag BW90 or similar)	hr	30		Rate Only
	(ii) Vibratory plate	hr	30		Rate Only
	(iii) Rammers	hr	30		Rate Only
B18.09	Water truck (min 10 000 l)	hr	25		Rate Only
B18.10	Dozer (D7 or similar)	hr	10		Rate Only
TOTAL CARRIED TO SUMMARY				R	-

RAL/T1256D/2025

SECTION 2200

SCHEDULE B : ROADWORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2200	<u>PREFABRICATED CULVERTS</u>				
22,01	Excavation :				
(a)	Excavating soft material situated within the following depth ranges below the surface level :				
(i)	0m up to 1,5m	m ³	10		Rate Only
(ii)	Exceeding 1.5 m up to 3.0 m	m ³	10		Rate Only
22,12	Removing existing concrete				
(a)	Plain concrete	m ³	10		Rate Only
(b)	Reinforced concrete	m ³	5		Rate Only
TOTAL CARRIED FORWARD					
				R	-

RAL/T1256D/2025

SECTION 2200

SCHEDULE B : ROADWORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2200	<u>PREFABRICATED CULVERTS</u>				
22/61.03	Access and drainage:				
	(b) Drainage where no access has been provided (6 culverts)	L/sum	0		Rate Only
22/61.05	Fill within a restricted area (extra over items 22.02)	m ³	0		Rate Only
TOTAL CARRIED TO SUMMARY				R	-

RAL/T1256D/2025

SECTION 2300

SCHEDULE B : ROADWORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2300	<u>CONCRETE KERBING, CHANNELING, CHUTES, DOWNPIPES, AND LININGS FOR OPEN DRAINS</u>				
23,01	Concrete kerbing (class 25/19 concrete)				
(a)	Figure 8 kerbing	m	0		Rate only
(b)	Re-erection of existing kerbs (figure 8)	m	0		Rate only
23,02	Concrete kerbing-chanelling combination				
(a)	Type A in situ cast side drain, class 25/19 concrete (see drawing 965/D/14)	m	0		Rate only
(b)	150mm thick concrete drift, class 25/19 concrete (see drawing 965/I/10)	m³	0		Rate only
23,03	Concrete chutes				
(a)	Type E in situ cast concrete chute, class 25/19 concrete (see drawing 965/D/14)	m	0		Rate only
23,05	Inlet, outlet, transition and similar structures:				
(a)	Energy breaker, class 25/19 concrete (see drawing 965/STD/D/14)	No	0		Rate only
23,12	Steel reinforcing:				
(c)	Welded steel fabric	kg	0		Rate only
TOTAL CARRIED TO SUMMARY					R -

RAL/T1256D/2025		11			
SCHEDULE B : ROADWORKS				SECTION 3300	
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3300	<u>MASS EARTHWORKS</u>				
33,04	Cut to spoil, including free-haul up to 0.5km. Material obtained from:				
(a)	Soft excavation	m ³	0		Rate only
(c)	Hard excavation	m ³	0		Rate only
33,13	Finish-off cut and fill slopes, medians and interchange areas:				
(a)	Cut slopes	m ²	0		Rate only
33/16.02	Overhaul on material hauled in excess of 1.0km (ordinay overhaul)	m ³ -km	0		Rate only
TOTAL CARRIED TO SUMMARY				R	-

RAL/T1256D/2025

SCHEDULE B : ROADWORKS

SECTION 3400

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3400	<u>PAVEMENT LAYERS OF GRAVEL MATERIAL</u>				
B34.01	Pavement layers constructed from gravel obtained from commercial sources				
	(e) G4 Gravel base compacted to				
	(i) 98% mod AASHTO density (150mm thick)	m ³	3150		-
34.03	Pavement layers constructed from gravel obtained from existing pavement layers (from base repairs)				
	(l) Gravel shoulder wearing course compacted to				
	(i) 93% mod AASHTO density (150mm thick)	m ³	1800		-
B34.04	Insitu reconstruction of existing pavement layers as				
	(j) Gravel subbase compacted to 98% MOD AASHTO density using cemented material and existing layers to the following thicknesses:				
	(i) In Sections 100 mm deep	m ³	1000		-
					-
					-
					-
					-
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD			14		
RAL/T1256D/2025			SECTION 3800		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3800	<u>BREAKING UP EXISTING PAVEMENT LAYERS</u>				
38,01	Excavating and removing existing bituminous materials				
	(b) Material to be disposed off with average depth of excavation				
	(ii) Exceeding 30mm but not exceeding 60mm	m²	30		-
B38.02	Milling out existing bituminous material with an average milling depth:				
	(a) Not exceeding 30 mm	m³	5		-
	(b) Existing 30 mm but not exceeding 60 mm	m³	5		-
	(c) Exceeding 60 mm but not exceeding 150mm	m³	2100		-
38,04	Excavating and spoiling material from an existing pavement and/or the underlying fill:				
	(a) Non-cemented material	m³	0		Rate Only
	(b) Cemented material	m³	0		Rate Only
B38.14	Establishment of cold in-situ recycling / milling machine on site (size: W500 - 500w x 160dp)	No.	1		-
B38.15	Moving the milling machine on the site for a distance not exceeding 1.0 km (size: W500 - 500w x 160dp)	No.	3		-
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD			15		
RAL/T1256D/2025			SECTION 3900		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3900	<u>PATCHING AND REPAIRING EDGE BREAKS</u>				
39,01	Sawing asphalt or cemented pavement layers for patching				
	(a) Sawing asphalt to an average depth				
	(i) Not exceeding 50 mm	m²	3800		R -
	(ii) Exceeding 50 mm but not exceeding 100 mm	m²	240		R -
39,02	Excavation in existing pavements for patching in:				
	(a) Asphalt Layers	m³	113		R -
	(c) Base Granular Materials	m³	76		R -
39,03	Backfilling of excavations for patching with				
	(a) Chemically stabilized pavement material (G5 quality material with 1.5% cement stabilizing agent)	m³	0		R -
39,04	Compacting the floor of excavations for patching	m²	4040		R -
39,05	Cutting back the edges of the existing surfacing for the repairing of edge breaks	m	5000		R -
39/41.01	Prime coat on Patches and Base Repairs				
	(c) MC 30	l	12500		R -
39/42.02	Asphalt surfacing material (30mm thick using 60/70 Penetration grade bitumen)				
	(a) Continously graded (medium grade)	m²	4040		R -
TOTAL CARRIED TO SUMMARY					R -

ROADS AGENCY LIMPOPO SOC LTD			16		
RAL/T1256D/2025			SECTION 4200		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4200	ASPHALT BASE AND SURFACING				
B42.02	Aphalt surfacing, continuously graded hot-mix Asphalt (medium) using a 5% SASOBIT modified binder or a class A-E2 modified binder (SBS) with 60/70 pen bitumen as base bitumen				
	(a)(1) Continuously graded hot-mix Asphalt (medium) (i) 30mm thick	m ²	12306,3		R -
42.04	Tack coat of 30% stable-grade emulsion	litre	12687,23		R -
42.05	Binder variations: (a) Penetration-grade bitumens	t	1268,72		R -
42.06	Variations in active filler content:				
	(a) CEM II 32.5 cement	t	21,9		R -
	(b) Lime	t	2		R -
B42.07	Trial sections: Aphalt surfacing, continuously graded hot-mix Asphalt (medium) using a 5% SASOBIT modified class A-E2 modifeid binder (SBS) with 60/70 pen bitumen as base bitumen				
	(a)(1) Continuously graded hot-mix Asphalt (medium) (i) 30mm thick	m ²	0		Rate Only
B42.08	Cores in asphalt paving:				
	(a) 100 mm dia	No	15		R -
	(b) 150 mm dia	No	0		Rate Only
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD			17		
RAL/T1256D/2025			SECTION 4400		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4400	<u>SINGLE SEALS</u>				
44,01	Single seals using :				
(d)	13.2 mm aggregate (grade 1 aggregate) with Polymer modified bitumen manufactured from 80/100 pen. grade bitumen modified with 3% SBR latex by mass	m²	47120		-
44,02	Bituminious binder variations				
(g)	Bitumen rubber binder, S-R1	litre	4650		-
44,05	Precoating the aggregate at a rate of 12 l/m³	m³	995		-

ROADS AGENCY LIMPOPO SOC LTD			19		
RAL/T1256D/2025			SECTION 4800		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4800	<u>TREATMENT OF AN EXISTING SURFACE</u> <u>EXHIBITING CERTAIN DEFECTS</u>				
4800					
48,01	Treatment with diluted bituminous emulsion (fogspray)				
(b)	30% spray-grade emulsion @0,7 l/m2	l	Rate only		Rate only
48,03	Slurry seal				
(a)	Tack coat using 30% bitumen emulsion (stable grade emulsion @ 0.5 l/m²)	l	23560		-
(c)	Slurry applied by spreader box	m³	376,96		-
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD			20		
RAL/T1256D/2025			SECTION 5100		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5100	<u>PITCHING, STONEWORK AND PROTECTION AGAINST EROSION</u>				
51,03	Stone masonry walls :				
b)	Cement - motared stone walls	m³	0		Rates only
51,05	Concrete edge beams (class 25/19 concrete) 200 width x 300 depth	m	250		R -
51,07	Foundation trenches	m³	0		Rates only
TOTAL CARRIED TO SUMMARY					
				R	-

ROADS AGENCY LIMPOPO SOC LTD			21		
RAL/T1256D/2025			SECTION 5200		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5200	<u>GABIONS</u>				
52,01	Foundation trench excavation and backfilling :				
	(b) In all other classes of material	m³	0		Rate only
52,02	Surface preparaton for bedding the gabions	m²	0		Rate only
52,03	Gabions :				
	(a) Galvanised gabion boxes : Mesh size: 80mm x 80mm Wire diameter : 2.7mm Diaphragm spacing : 1m				
	(i) 2m x 1m x 1m	m³	0		Rate only
	(ii) 3m x 1m x 1m	m³	0		Rate only
	(iii) 4m x 1m x 1m	m³	0		Rate only
	(c) Galvanised gabion mattresses Mesh size: 80mm x 80mm Wire diameter : 2.7mm Diaphragm spacing : 1m				
	(i) 3m x 1m x 0.3m	m³	0		Rate only
52,04	Filter fabric : (Grade U24 or approved equivalent)	m²	0		Rate only
TOTAL CARRIED TO SUMMARY					R -

ROADS AGENCY LIMPOPO SOC LTD		22			
RAL/T1256D/2025		SECTION 5400			
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5400					
5400	<u>GUARDRAILS</u>				
54,01	Guardrails on timber posts				
(a)	Galvanised	m	100		-
54,04	End treatments				
(a)	End wings	No	1		-
(d)	End teatments in accordance with the drawings where single guardrail sections are use	No	2		-
54,05	Additional guardrail posts				
(a)	Timber	No	5		-
54,06	Reflective plates	No	5		-
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD		23			
RAL/T1256D/2025		SECTION 5600			
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5600					
5600	<u>ROAD SIGNS</u>				
56,01	Road sign boards with painted or coloured semi-matt background.Symbols, lettering and borders in semi-matt black or class 1 retroreflective material, where the sign board is constructed from :				
	(c) Prepainted galvanised steel plate (chromadek or similar equivalent)				
	(i) Road signs, R series (1200mm dia)	no	6		-
	(ii) Area exceeding 2 m² but not 10 m²	no	6		-
56,03	Road sign supports				
	(a)(i) Steel tubing (89mm diameter, 3.0mm thick)	t	4		-
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD			24		
RAL/T1256D/2025			SECTION 5700		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5700					
5700	<u>ROAD MARKINGS</u>				
57,02	Retro-reflective road marking paint				
	(a) White lines (broken or unbroken)				
	(i) 100 mm wide	km	8		R -
	(b) Yellow lines (broken or unbroken)				
	(i) 100 mm wide	km	16		R -
	(d) White lettering and symbols	m²	50		R -
	(e) Yellow lettering and symbols	m²	50		R -
57,06	Setting out and premarking the lines				
	(Excluding traffic island markings, lettering and symbols)	km	8		R -
B57.05	Roadstuds:				
	(a) Uni-directional:				
	(i) State Type Tendered (STIMSONITE)	No.	0		R -
	(b) Bi-directional:				
	(i) State Type Tendered (STIMSONITE)	No.	700		R -
TOTAL CARRIED TO SUMMARY				R -	

ROADS AGENCY LIMPOPO SOC LTD		25			
RAL/T1256D/2025		SECTION 6600			
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6600	<u>NO-FINES CONCRETE JOINTS, BEARINGS, PARAPETS AND DRAINAGE FOR STRUCTURES</u>				
66,05	Expantion Joints (Gunter Richter 083 395 7467)				
(a)	Thorma Joint (15mm maximum movement)	m	15		R -
(b)	Thorma Joint (30mm maximum movement)	m	15		R -
TOTAL CARRIED TO SUMMARY					
				R	-

ROADS AGENCY LIMPOPO SOC LTD			26		
RAL/T1256D/2025			SECTION 7300		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
7300	<u>CONCRETE BLOCK PAVING</u> <u>FOR ROADS</u>				
73,04	Construct Complete Speed Hump / Pedestrian crossing as per drawing 2/21/004/03/D013. Road markings and traffic sign included	No.	2		R -
TOTAL CARRIED TO SUMMARY				R	-

ROADS AGENCY LIMPOPO SOC LTD			27		
RAL/T1256D/2025			SECTION 8100		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8100	<u>TESTING MATERIALS AND</u>				
	<u>WORKMANSHIP</u>				
81,02	Other special tests requested by the Engineer				
(a)	Cost of testing	Prov Sum	1	R 200 000,00	R 200 000,00
(b)	Charge on prive cost sum	%	200 000		R -
TOTAL CARRIED TO SUMMARY				R	200 000,00

ROADS AGENCY LIMPOPO SOC LTD			28		
RAL/T1256D/2025			SECTION 8100		
SCHEDULE B : ROADWORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8200	<u>CONSULTANTS FEES</u>				
82,01	ENGINEER CONSULTANTS FEES	Prov Sum	1	R 1 500 000,00	R 1 500 000,00
82,02	SOCIAL CONSULTANTS FEES	Prov Sum	1	R 450 000,00	R 450 000,00
82,03	SAFETY CONSULTANTS FEES	Prov Sum	1	R 300 000,00	R 300 000,00
82,04	ENVIROMENTAL CONSULTANTS FEES	Prov Sum	1	R 300 000,00	R 300 000,00
82,05	HANDLING FEES	%	R2 550 000,00		R -
</					

ROADS AGENCY LIMPOPO SOC LTD

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RAL/T1256D/2025

SECTION 8100

SCHEDULE B : ROADWORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
D D1001	STRUCTURED TRAINING				
	Provision for accredited training				
	(a) Generic Skills	Prov Sum	1	R 100 000,00	R 100 000,00
	(b) Entrepreneurial Skills	Prov Sum	1	R 50 000,00	R 50 000,00
	(c) Technical Skills	Prov Sum	1	R 100 000,00	R 100 000,00
	(d) Handling cost and profit in respect of sub-item C001(a) and (b) above	%	R 250 000,00		R -
TOTAL CARRIED TO SUMMARY					R 250 000,00

SUMMARY OF SCHEDULES OF QUANTITIES		AMOUNT
SCHEDULE A : GENERAL		
SECTION 1200	GENERAL REQUIREMENTS AND PROVISIONS	R -
SECTION 1300	CONTRACTORS ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	R -
SECTION 1400	HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEERS' SITE PERSONNEL	R -
TOTAL SCHEDULE A : GENERAL		R -
SCHEDULE B : ROADWORKS		
SECTION 1500	ACCOMMODATION OF TRAFFIC	R -
SECTION 1700	CLEARING AND GRUBBING	R -
SECTION 1800	DAYWORKS	R -
SECTION 2100	DRAINS	R -
SECTION 2200	PREFABRICATED CULVERTS	R -
SECTION 2300	CONCRETE KERBING, CANNELLING, CHUTES AND DOWN PIPES	R -
SECTION 3300	MASS EARTHWORKS	R -
SECTION 3400	PAVEMENT LAYERS OF GRAVEL MATERIAL	R -
SECTION 3500	STABILIZATION	R -
SECTION 3800	BREAKING UP EXISTING PAVEMENT LAYERS	R -
SECTION 3900	PATCHING AND REPAIRING EDGE BREAKS	R -
SECTION 4200	ASPHALT BASE AND SURFACING	R -
SECTION 4400	SINGLE SEALS	R -
SECTION 4800	TREATMENT OF AN EXISTING SURFACE WITH DEFECTS	R -
SECTION 5100	PITCHING AND STONEMASONRY AND PROTECTION AGAINST EROSION	R -
SECTION 5200	GABIONS	R -
SECTION 5400	GUARDRAILS	R -
SECTION 5600	ROAD SIGNS	R -
SECTION 5700	ROAD MARKINGS	R -
SECTION 6600	NO-FINES CONCRETE JOINTS, BEARINGS, PARAPETS	R -
SECTION 7300	CONCRETE BLOCKS PAVING FOR ROADS	R -
SECTION 8100	TESTING MATERIALS AND WORKMANSHIP	R -
TOTAL SCHEDULE B :ROADWORKS		R -
SCHEDULE C :		
SECTION 8101	CONSULTANTS FEES	R -
TOTAL SCHEDULE C :		R -
SCHEDULE D		
SECTION D	STRUCTURED TRAINING	R -
TOTAL ALL SCHEDULES		
TOTAL FOR SCHEDULE A : GENERAL		R -
TOTAL FOR SCHEDULE B : ROADWORKS		R -
TOTAL FOR SCHEDULE C :CONSULTANTS FEES		R -
TOTAL FOR SCHEDULE D : PROVISION OF STRUCTURED TRAINING		R -
SUBTOTAL		R -
PLUS CPA		R -
Less 5% Retention		
SUB TOTAL		R -
15% V.A.T.		R -
TOTAL		R -

RAL/T1256B/2021: MAINTENANCE OF ROAD P98/2 (R522) FROM VIVO TO MAKHADO IN THE VHEMBE DISTRICT OF LIMPOPO PROVINCE

C2.3 SUMMARY OF BILL OF QUANTITIES

SCHEDULE A : ROADWORKS		
1200	General requirements and provisions	R
1300	Contractor's establishment on site and general obligations	R
1400	Housing, offices and laboratories for the engineer's site personnel	R
1500	Accommodation of traffic	R
1700	Clearing and grubbing	R
1800	Daywork and hire of construction equipment	
2100	Drains	
2200	Prefabricated Culverts	
2300	Concrete Kerbing, Concrete Channelling, Chutes and Downpipes, and Concrete Linings for Open Drains	
3300	Mass Earthworks	
3400	Pavement Layers of Gravel Material	
3500	Stabilisation (BSM2)	
4100	Prime Coat	
4200	Asphalt Base and Surfacing	
4600	Bituminous Single Seal with Slurry (Cape Seal)	
5100	Pitching, Stonework and Protection Against Erosion	
5200	Gabions	
5400	Guardrails	
5500	Fencing	
5600	Road Signs	
5700	Road Markings	

5800	Landscaping and Planting Plants	
5900	Finishing the Road and Road Reserve and Treating Old Roads	
7300	Concrete Block Paving	
8100	Testing Materials and Workmanship	
SUB – TOTALS: SCHEDULE A		R
TOTAL: SCHEDULE A R		
SCHEDULE B : STRUCTURES		
Part 1 : Bridge xxx		
6600	No-fines concrete, joints, bearings, bolt groups for electrification, parapets and drainage for structures	R
F12 100	Access for bridge rehabilitation	R
F12 200	Demolition and Removal of Structural Concrete	R
F12 300	Surface and Structural Repair of Concrete Members	R
F12 800	Replacement and Repair of Ancillary Bridge Elements	R
6900	Miscellaneous	R
	Total B2 : Bridge B2 km 43.28	R
TOTAL: SCHEDULE B		R
SCHEDULE C : ENVIRONMENTAL PLAN AND OHS ACT OBLIGATIONS		
	Environmental Management Plan	R
TOTAL SCHEDULE C		R
SCHEDULE D: PROVISION OF STRUCTURED TRAINING		
	Maintenance	R
TOTAL SCHEDULE D		R

C2.4 CALCULATION OF TENDER SUM

TOTAL SCHEDULE A : ROADWORKS	R.....
TOTAL SCHEDULE B : STRUCTURES	R.....
TOTAL SCHEDULE C : ENVIRONMENTAL PLAN	R.....
TOTAL SCHEDULE D : STRUCTURED TRAINING	R.....
TENDER (CONTRACT) SUM	R.....
1) CONTRACT PRICE ADJUSTMENT	R
2) CONTINGENCIES (This amount is under the sole control of the employer)	R.....
3) VARIATIONS ON SPECIAL MATERIALS	R.....
SUBTOTAL	R.....
ADD 15% VAT	R.....
TENDER (CONTRACT) PRICE CARRIED TO FORM OF OFFER OF ACCEPTANCE (Page C.3)	R.....

Note: Tender Sum is the value of the offered total of the prices exclusive of VAT, contingencies, CPA and special materials but including contractual variations.

(Schedule A (LI) + Schedule B (LI)) / (Schedule A (tot) + Schedule B (tot)) =%

PART C3: SCOPE OF WORK

C3.1	DESCRIPTION OF WORKS	ERROR! BOOKMARK NOT DEFINED.
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C3.1 DESCRIPTION OF WORKS

The Client, Roads Agency Limpopo (RAL), seeks to rehabilitate a section of road R522 / P98/2 measuring approximately 24.0km (from km 11 to km 35). The road is a single-carriageway with two lanes (approximately 3.5m wide), one in each direction, fully surfaced. The road primarily has gravel shoulders, while there are limited sections where the road has surfaced shoulders.

The section under Phase 3 starts at 11.0km, at the intersection with road D1515, and ends at km 35.00 after Sandriver Bridge. The project is being implemented in phases due to budgetary constraints.

C3.1.1 Employer's Objectives

The Employer's objective is to rehabilitate Road R522 also known as P98/2 from Vivo to Makhado. The road condition has seriously deteriorated and this has resulted in the road developed pot holes, pavement failure in some sections, poor road signs and markings, overgrown vegetation. The road has become unsafe for motorists and other road users. The client's objective is to rehabilitate the road to improve road safety. Other spin-offs from the project will be creation of jobs during construction, reduce road accidents by improving road safety, improve riding quality, reduce travelling time and ultimately stimulate economic growth.

C3.1.2 Overview and Location of Works

The road is in the Vhembe District of Limpopo Province, with Phase 3 scope starting from km 11 to km 35.00. The total road length for Phase 3 is 24.00 km. The road is classified as a District Distributor (R3) per the TRH 26. The project's start and end coordinates are as follows:

Coordinates for road section :

Point	Latitude	Longitude	Description
Phase 3 Start	-23.029591°	29.821766°	km 11.00 (at the intersection with D1515)
Phase 3 End	-23.041705°	29.602563°	km 35.00 (after Sandriver Bridge)

The client intends to rehabilitate the road along this stretch and the scope will involve the following

- Site establishment
- Clear and grubbing
- Repair of potholes and patchworks

- Grass cutting
- Base corrections
- Single Seal and Slurry
- Asphalt works
- Repair and clearing of drainage systems

The overall purpose of the works is to repair the road defects and improve road safety.

C3.1.3 Extent of Works

The scope for Phase 3 is summarized below:

- Cleaning and grubbing of the road reserve from km 11 to km 35 for about 2ha.
- Base repairs for various sections, for a total length of 1.5km, including overlay at the bridge for a length of 100m
- Single seal (51832 m²), for a total of 6.2km with shoulders and turning lanes
- Road markings for a total of 8.0km, including bi-directional centreline studs
- Patching of potholes for a total of 4040m²
- Repairing of road edge breaks for a total of 5000m
- Concrete edge beam (total of 250m)
- Application of texture slurry for a length of 6.2km and width of 7.6m
- Cleaning out of hydraulic structures, including grading of eroded open drains
- Sealing cracks at the sand river bridge (subject to savings and budget availability)

C3.1.4 Location of the Works

The road is in the Vhembe District of Limpopo Province, with Phase 3 scope starting from km 11 to km 35.00. The total road length for Phase 3 is 24.00 km. The road is classified as a District Distributor (R3) per the TRH 26. The project's start and end coordinates are as follows:

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Phase 3 End	-23.041705°	29.602563°	km 35.00 (after Sandriver Bridge)

C3.1.5 Temporary Works

Temporary works will include temporary deviations for traffic accommodation for sections that require base corrections. The deviations are within the road reserve and need to be made good at completion.

C3.1.6 General Information

It should be noted that construction works will be done on an open road with traffic and the contractor should ensure public safety is adhered to at all times. Scope adjustments might be made during construction to priorities public safety and this will be done in consultation with the Contractor and Client

C3.1.6.1 Drawings

The reduced drawings contained in Annexure C5.2 that form part of the tender document shall be used for tender purposes only. Further drawings are to be provided on an on-going basis by the engineer.

The contractor will be supplied with an unreduced 0,05 mm thick transparent polyester print of each of the drawings. These polyester prints are issued free of charge and the contractor shall make any additional prints he may require at his own cost.

Any information in the possession of the contractor, which the resident engineer requires to complete the as-built drawings, shall be supplied to the resident engineer before a certificate of completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the engineer. The engineer will supply all figured dimensions omitted from the drawings.

C3.1.6.2 Power, Water Supply and Other Services

The contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost of providing these services will be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

C3.1.6.3 Contractor's Camp Site and Security

The contractor shall make his own arrangements regarding the establishment of a camp site and housing for his construction personnel and all regulations stipulated by the local authority shall be adhered to.

It is anticipated that the contractor's choice of a camp site will be influenced by the availability of telephone and electrical connections as well as the supply of potable water.

Provision is made in these specifications for the erection of a security fence around the site offices. The contractor shall be responsible for the security of his personnel and constructional plant on and around the site of the works and for the security of his camp, and the employer will consider no claims in this regard.

C3.1.6.4 Additional Requirements for Construction Activities

C3.1.6.4.1 The contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

C3.1.6.4.2 The contractor shall submit proposals in connection with directional signs to the engineer for approval.

C3.1.6.5 Programme Requirements for Construction Activities

The contractor shall programme his activities to be suitable in terms of his resources to complete the contract inside the stipulated time period.

C3.1.6.6 Construction in Confined Areas

It may be necessary for the contractor to work in confined areas. In certain areas the width of the fill material and pavement layers may reduce to zero and the working space may be confined. The method of construction in these confined areas depends on the contractor's construction plant. However, the contractor must note that measurement and payment will be in accordance with the specified cross-sections and dimensions, irrespective of the method used to achieve these cross-sections and dimensions, and that the rates and amounts tendered will be deemed to include full compensation for any special equipment or construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for payment be considered on account of these difficulties.

C3.1.7 Labour Regulations

C3.1.7.1 Payment for the labour-intensive component of the works

Payment for works identified in clause 2.3 "the Extent of the Project" in the Project Specifications as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

C3.1.7.2 Applicable labour laws

Sectorial determination 2: Civil engineering sector

C3.2 ENGINEERING

C3.2.1 Design

(a) The **Contractor** is responsible for the review, redesign and implementation of the designs of the permanent Works as reflected in these Contract Documents.

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

(c) The **Contractor** shall supply all the as-built drawings.

C3.2.2 Contractor's Design

The contractor is to supply the design of designated parts of the permanent Works or temporary Works he shall supply full working drawings supported by a professional engineer.

C3.2.3 Design procedures

All designs and modifications thereto shall be communicated in writing and the contractor and engineer shall maintain master lists to record and track all transactions.

C3.3 CONSTRUCTION

C3.3.1 STANDARD SPECIFICATIONS

- (a) The following specifications shall apply for the construction of the Works.
- (i) The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998).

The contractor may purchase copies of Volume (i) from the South African Institution of Civil Engineers.

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Howick Gardens / Private Bag X65 Fax : (011) 805-5971
Vorna Valley / Halfwayhouse Contact Person : Angeline Aylward
Becker Street / 1685
Midrand

- (b) SANS or BS Specifications and Codes of Practice

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

- (c) Various other specifications specified in the COLTO Standard Specifications or the Project Specifications.
- (d) Latest **Sabita Manual**, Manual 25 entitled "*Quality Management in the Handling and Transport of Bituminous Binders*".

C3.3.2 PROJECT SPECIFICATIONS RELATING TO STANDARD SPECIFICATIONS

C3.3.2.1 General Conditions of Contract Referred to in the Standard Specifications

The references to the General Conditions of Contract appearing in the COLTO Standard Specifications refer to the COLTO General Conditions of Contract which is superseded in this contract by the General Conditions of Contract for Construction Works 2010. The corresponding clause in the latter document pertaining to the reference in the COLTO Standard Specifications is listed in the table below.

Clause No. in the Standard Specifications	Clause No. in COLTO General Conditions	Equivalent Clause No. in General Conditions of Contract 2010
1202	15	5.6.1
1206	14	Deleted
1209	52	6.10.2
1210	54	51.1
1212(1)	49	6.10.1
1215	45	5.12.1
1217	35	8.2.1
1303	49	6.8
1303	53	6.11
1303	12	5.6
1303	45	5.12.1
1403	40(1)	6.4.1
1505	40	6.4
31.03	40	6.4
3204(b)	40	6.4
3303(b)	2	3
5803(c)	40	6.4
5805(d)	40	6.4
6103(c)	40	6.4
Item 83.03	22	5.15
ALL SECTIONS	48	6.6

C3.3.2.2 Amendments to the Standard Specifications

There are no amendments to the Standard Specifications as issued by the Committee of Land Transport Officials (COLTO).

C3.3.2.3 Project Specifications Relating to Standard Specifications

This part of the project specifications deals with matters relating to the standard specifications. Where reference is made in the standard specifications to the project specifications this part shall also contain the relevant information e.g. the requirements where a choice of materials or construction methods are provided for the standard specifications.

In certain clauses the 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 and amendments of the standard specifications required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or a new payment item, which does not form part of a clause or a payment item in the standard specifications and is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.

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

Clauses and pay items referring to emerging contractors are prefixed by E in the project specifications.

MATTERS RELATING TO THE STANDARD SPECIFICATIONS

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SECTION 1200 : GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following to the fifth paragraph:

“Provision is made in the bill of quantities for payment for searching and exposing of known or unknown services as well as the relocation and/or protection of existing services. Any moving of existing services which may be required within the proclaimed road reserve will be undertaken by the relevant service authorities or by a selected subcontractor if so ordered by the engineer.”

B1204 PROGRAMME OF WORK

(a) General requirements

Amend the word “network” in the fourth line of the first paragraph to read as “bar (Gantt) chart”.

Add the following after the third paragraph:

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

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

- The requirements regarding the accommodation of traffic and areas that may be occupied at any time for construction purposes (as indicated on the drawings and specified in Section 1500 of the specifications)
- Requirements regarding the training of labourers and Emerging Contractors (EC's).
- The requirements for work to be undertaken by labourers and work to be undertaken by EC's.

(b) Programme of work for rehabilitation work

Amend the word “network” in the fourth line of the second paragraph to read as “bar (Gantt) chart”.

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following to the third paragraph:

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

Add the following at the end of this clause:

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

B1206 THE SETTING-OUT OF THE WORK AND PROTECTION OF BEACONS

Add the following:

"The contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith."

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

The cost of replacing all beacons displaced or destroyed during the course of the Contract without the consent of the Engineer shall be borne by the Contractor."

B1209 PAYMENT

(b) Rates to be inclusive

Add the following:

"VAT shall be excluded from the rates and provided for as a lump sum in the Summary of Bill of Quantities".

(e) Materials on the site

Add the following:

"In addition, the engineer may at his sole discretion also allow payments under "Materials on Site" in respect of any construction materials if stored off-site providing that:

- (a) The site selected for this purpose is approved by the engineer
- (b) Such land is physically separated from any production plant or operation
- (c) Only materials for use under this contract is stockpiled on such land
- (d) The contractor has provided proof of an agreement with the owner of such land that the owner has no claim whatsoever on any materials stockpiled on such land
- (e) Materials obtained by the contractor for or on behalf of emerging subcontractors (SMME's) shall remain the responsibility of the contractor after payment has been made in respect of materials on site."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Add the following after the first paragraph of this clause:

"For the purposes of this contract, extension of time resulting from abnormal rainfall or other forms of inclement weather shall be determined according to the requirements of Method ii (critical-path method)."

Method (ii) (Critical path method)

Delete "(based on a five-day working week)" in the fifth and sixth lines of the second paragraph of the description of this method.

Delete the last sentence of the second paragraph of the description of this method and replace with the following:

“The value of “n” shall be taken as three (03) working days per calendar month.

If normal rainy or inclement weather, resulting in delays, occurs for less than three (03) working days in any calendar month, the difference between the three (03) working days and the actual number of working days on which normal rainy or inclement weather occurred, shall be ignored and not accumulated for the duration of the contract period for the purposes of determining an extension of time due to normal rainy weather, nor due to any other reason.

Items of work on the critical path of the programme of work which are subject to climatic limitations shall also be considered for extension of time if such items of work are delayed by e.g. cold weather, high winds or other inclement weather conditions.

In this regard, reference shall be made to weather limitations specified for the application of various bituminous products. However, for months during which seal-work cannot be undertaken in terms of the specifications, no extension of time shall be claimed for.

Rainfall records for 14.8

MONTH	AVERAGE RAINFALL (mm)	RAIN DAYS (per month)
JANUARY	99.4	10.5
FEBRUARY	91.8	10
MARCH	50.9	8.5
APRIL	24	5.9
MAY	11.2	3.1
JUNE	6.5	1.9
JULY	6.6	1.6
AUGUST	4.6	2.3
SEPTEMBER	12.2	3.3
OCTOBER	25.4	7.2
NOVEMBER	75.7	9.8
DECEMBER	100.7	10.6

B1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED WORK IS COMMENCED

Add the following subclause:

“(h) No concrete kerbing or concrete drains directly adjoining the bituminous surfacing shall be constructed prior to the completion of the bituminous surfacing.”

B1222 USE OF EXPLOSIVES

Add the following subclause:

“(h) Where blasting operations are undertaken in close proximity of temporary deviations, the contractor shall implement all such safeguarding measures as may be required and instructed by the engineer.”

B1224 THE HANDING-OVER OF THE ROAD RESERVE

Add the following:

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

B1229 SABS CEMENT SPECIFICATIONS

Replace the last paragraph of this clause with the following:

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

SABS ENV 197-1: Cement-composition, specifications and conformity criteria.

Part 1: Common cements.

Furthermore, where reference is made in this specification or the standard specifications to the different cement types, the following new names/types shall apply:

Typical new product nomenclature	
Cement type	Cement strength class
CEM I	32,5
CEM I	32,5R
CEM I	42,5
CEM I	42,5R
No provision made	No provision made
CEM II/A-S	32,5
CEM II/A-S	32,5R
CEM II/A-S	42,5
CEM II/A-V	32,5
CEM II/A-V	32,5R
CEM II/A-W	32,5
CEM II/A-W	32,5R
CEM II/A-V	42,5
CEM II/A-V	42,5R
CEM II/A-W	42,5
CEM II/A-W	42,5R
CEM III/A	32,5
CEM III/A	32,5R
CEM II/B-V	32,5
CEM II/B-W	32,5

Typical new product nomenclature		
Cement type		Cement strength class
	CEM II/B-S	32,5R
	CEM II/B-S	42,5
	CEM III/A	32,5R
	CEM III/A	42,5

CEM I 32,5, CEM II A-S 32,5, CEM II/A-V 32,5, or CEM III A may be used for the manufacture of reinforced concrete members.”

Add the following new clauses:

“B1230: IN-SERVICE AND STRUCTURED TRAINING

The contractor shall in addition to the structured (accredited) training as provided for in Part C of this document implement an in-service training programme, from the commencement of the contract, in which the various skills required for the execution and completion of the works are imparted to the labourers engaged thereon, in a programmed and progressive manner. Labourers shall be trained progressively throughout the duration of the contract, in the various stages of a particular type of work.

(a) Details of in-service and structured training

- (i) The in-service training programme shall be submitted with the initial works programme. The progress in relation to this programme will be recorded monthly and attached to the site meeting minutes and payment certificate.
- (ii) The contractor shall provide on site, sufficient skilled and competent trainers to train all labourers engaged on the contract, in the various skills required for the execution and completion of the works.
- (iii) All labourers shall be remunerated in respect of all time spent undergoing training.
- (iv) Every worker engaged on the contract shall on the termination of his participation on the contract, be entitled to receive from the contractor, a certificate of service in which the following information shall be recorded:
 - the name of the contractor
 - the name of the employee
 - the name of the project/contract
 - the nature of the work satisfactorily executed by the worker and the time spent thereon
 - the nature and extent of training provided to the worker
 - the dates of service.

The cost of the above obligations shall be deemed to be covered by the sums and rates tendered for items B13.01(a), (b) and (c) in the bill of quantities. The performance of the contractor in providing in-service training, shall be taken into consideration should the contractor fail to reach his CPG at the completion of the project.

(b) Lead time for training

The training of labour as specified shall, as far as possible, take place before commencement of each activity and the contractor shall take into account in his programme the lead-time he requires for such training. All training herein specified shall be deemed to be a construction activity and a non-negotiable condition of the contract”.

B1231 COMMUNITY LIAISON OFFICER (CLO)

The contractor or his appointed agent will appoint a Community Liaison Officer (CLO) after consultation with the local communities, the engineer and the employer. The contractor shall direct all his liaison efforts with the local communities through the appointed officer. The contractor shall, however, accept the appointed as part of his management personnel.

(a) Duties of the Community Liaison Officer

The Community Liaison Officer's duties will be:

- (i) To be available on site daily between the hours of 08H00 and 17H00 and at other times as the need arises. His normal working day will extend from 07H00 in the morning until 17H00 in the afternoon.
- (ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- (iii) To communicate daily with the contractor and the engineer to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.
- (iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a “labour desk”.
- (v) To attend all meetings in which the community and/or labour are present or are required to be represented.
- (vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor's requirements.
- (vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
- (viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- (ix) To keep a daily written record of his interviews and community liaison.
- (x) To attend monthly site meetings to report on labour and RDP matters.
- (xi) All such other duties as agreed upon between all parties concerned.
- (xii) To submit monthly returns regarding community liaison as illustrated in Part C5.1 of this document (form RDP 12(E)).

(b) Payment for the community liaison officer

A special pay item is incorporated in section 1200 of the bill of quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required. The remuneration of the CLO

shall be determined by the Employer in terms of the Sectorial determination 2: Civil Engineering Sector (Task grade 3).

(c) Period of employment of the community liaison officer

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

B1232 SUBCONTRACTORS

Over and above the stipulations of clause 4.4 of the General Conditions of Contract 2010, regarding subletting of part of the works, it is a condition of the contract that an approved subcontractor shall not sublet part of his work, covered in his appointment by the main contractor, to another subcontractor without the consent and approval of the engineer. Subletting shall in all cases be critically considered by the engineer.

In addition to the provisions of clause 4.4 of the general conditions of contract regarding subcontracting of the works, it is a requirement of this contract that an approved subcontractor shall not further subcontract work subcontracted to him by the main contractor, to another subcontractor without the consent and approval of the engineer. Subcontracting shall in all cases be critically considered by the engineer. The engineer reserves the right to limit the extent or the volume of work subcontracted by the contractor, should he deem it necessary in terms of progress or quality of workmanship.

B1233 WORKMEN'S COMPENSATION ACT

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

Add the following clause:

B1234 MINE HEALTH AND SAFETY ACT 1996, ACT 29 OF 1996

(a) Introduction

The main objective of this Act is to protect the health and safety of persons at mines. This specification is therefore aimed at promoting health and safety specifically at borrow pits. Borrow pits are classified as mines.

(b) General Provisions

The contractor shall be responsible for controlling his operations at every borrow pit where material is being excavated to ensure compliance with all the requirements of the Mine Health and Safety Act, 1996. The contractor shall also ensure that the works, shaping and finishing off of the borrow pit are done in accordance with the provisions as specified in section 3100 of the COLTO Standard Specifications and this Act. The contractor shall also comply to the requirements as set out in C3.4.3.2 Environmental Management Plan.

The minimum requirements for operations at borrow pits are:

- Borrow pits are worked in such a way that the health and safety of employees and

the public will not be endangered.

- A monthly report shall be submitted to the engineer on health and safety aspects at the borrow pits.
- The contractor shall appoint a manager to manage the borrow pits in accordance with the Mine Health and Safety Act.
- The contractor shall take the necessary steps to ensure that the work area of the borrow pits are safe at all times. This shall include items such as the provision of fencing and security guards.

(c) Duties of the Manager

The minimum duties of the manager supervising the activities at borrow pits shall be:

- Maintain a healthy and safe borrow pit environment.
- Identify hazards and related risks to which persons and employees are exposed.
- Establish a health and safety policy that
 - o Describes the organisation of work.
 - o Contains aspects concerning the protection of the employees and other persons' health and safety.
 - o Contains a risk analysis.
- Supply and erect the necessary safety and warning signs.

Add the following pay items and change the clause number.

B12.35 MEASUREMENT AND PAYMENT

Add the following items:

"ITEM	UNIT
B12.01 Excavation	
Excavating material within the following depth ranges below ground level for the exposing of/or searching for services	
(a) 0m to 2m	
(i) soft material cubic metre (m ³)	
(ii) hard material cubic metre (m ³)	
(b) Extra over item B12.01(a) for excavation by means of hand tools such as picks, crowbars and pneumatic tools or mechanical breakers in close vicinity of services where no machine excavation is permitted	
(i) soft material cubic metre (m ³)	
(ii) hard material cubic metre (m ³)	

Measurement and payment shall be as specified for item 22.01 in the standard specifications.

ITEM	UNIT
B12.02 Backfilling	
(a) Using the excavated material	cubic metre (m ³)
(b) Using imported selected material	cubic metre (m ³)

Measurement and payment shall be as specified for item 22.02 in the standard specifications.

ITEM	UNIT
B12.03 (a) Allow a provisional sum for existing services to be relocated and/or protected as ordered by the engineer	provisional sum
(b) Handling costs and profit in respect of subitem B12.03(a) above	percentage (%)

Measurement and payment shall be in accordance with the general conditions of contract.”

ITEM	UNIT
B12.04 Provision for a Community Liaison Officer	
a) Provisional sum for the payment of the Community Liaison Officer Provisional Sum	
b) Handling costs and profit in respect of sub-item B12.04(a)	Percentage (%)

Expenditure of the above item shall be made in accordance with the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under the sub-item B12.04 (a), which shall include full compensation for the handling costs of the contractor, and the profit in connection with providing the community liaison officer.”

ITEM	UNIT
B12.05 (a) Mine Health and Safety obligations	Month
(b) Special information signs	Prime Cost Sum (PC Sum)
(c) Provision of security guards	Prime Cost Sum (PC Sum)
(d) Handling cost and profit in respect of sub-item B12.05(b) and (c)	Percentage (%)

Payment of the rate per month for sub-item B12.05(a) shall include full compensation for all the contractors obligations relevant to the Mine Health and Safety Act.

The prime cost sums shall be paid in accordance with the provisions of the General Conditions of Contract. The tendered percentage is a percentage of the amount actually spent under the prime cost items, which shall include full compensation for the profit in connection with providing the specified service.

SECTION 1300 : CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

B1302 GENERAL REQUIREMENTS

(a) Camps, constructional plant and testing facilities

Add the following:

"The contractor shall, at each area where work is being undertaken, provide on a daily basis at least one (1) portable chemical latrine unit per fifteen (15) for use by construction workers employed on the project. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the satisfaction of the engineer. No separate payment shall be made for this requirement and shall be deemed to be included in the rates tendered for the contractor's time-related obligations."

B1303 PAYMENT

ITEM

UNIT

B13.01 The contractor's general obligations

(As specified)

Add the following after the fifth paragraph:

"The combined total tendered for sub-items (a), (b) and (c) shall not exceed 15% of the tender sum, excluding VAT.

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

B1402 OFFICES AND LABORATORIES

(a) General

Add the following:

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

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

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

(b) Offices

Add the following new sub-sub-clause:

"(xviii) The engineer's site supervisory staff shall be provided with cellular telephones by the contractor for site communication purposes. Provision is made in the bill of quantities for separate payment of the supply and operating costs of such cellular phones."

B1403 HOUSING

(c) Rented accommodation

Add the following:

"The engineer may arrange for the obtaining of rented accommodation for his supervisory personnel on site. Payment of such rent shall be made under the provisional sum in sub-item 14.07(a) and shall be expended on a monthly basis by the contractor as ordered by the engineer."

B1406 MEASUREMENT AND PAYMENT

Add the following sub-item:

ITEM		UNIT
B1403 (b) (ix)	1. Provision of cellular telephones	Number (No)
	2. Provisional sum for the costs of cellular calls and other charges	Provisional sum
	3. Handling cost and profit in respect of sub-item B14.03(b)(ix) 2	Percentage (%)

The unit of measurement for sub-sub-item B14.03 (b) (ix)1 shall be the number of cellular telephones supplied to the engineer's site supervisory staff. The tendered rate shall include full compensation for the purchasing of the cellular phones inclusive of any fixed contract costs with the service provider."

Measurement and payment in respect of the provisional sum item shall be made in accordance with the provisions of the general conditions of contract.

The tendered percentage is a percentage of the amount actually spent under sub-item B.14.03 (b)(ix) 2, which shall include full compensation for the handling costs of the contractor, and the profit in connection with the payment of the cost of calls and other charges relating to the use by the engineers site staff of the supplied cellular telephones."

ITEM	UNIT
B14.11 Provision and erection of security fencing (Including gate)	metre (m)

The unit of measurement shall be the metre of security fence supplied and erected as indicated on the drawings and/or ordered by the engineer. The tendered rate shall include full compensation for procuring and furnishing of all material, including one vehicle gate, labour and equipment required to erect the specified security fence and maintain it for the duration of the contract."

General: Method of payment

Add the following:

"The tendered rates under this section of the bill of quantities shall also include full compensation for the dismantling and removal from site of all offices, laboratories and other facilities provided for the engineer's supervisory staff at the completion of the contract."

SECTION 1500 : ACCOMMODATION OF TRAFFIC

B1502 GENERAL REQUIREMENTS

(e) Access to properties

Add the following:

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

(i) Traffic safety officer

Add the following after subclause (viii):

- “(ix) be responsible for contacting all the relevant authorities in the event of an accident on the site of the Works
- (vi) arrange for the removal of broken down vehicles that obstruct the normal traffic flow

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

No separate payment will be made for the traffic safety officer, his vehicle, personnel and equipment and the cost thereof shall be included in the Contractor’s cost for his establishment and general obligations (Section 1300).”

Add the following new subclauses:

“(j) Handing over the site

The total extent of the site between the limits of construction as described in this document and indicated on the drawings will be handed over to the contractor at the commencement of the contract period. The engineer however reserves the right to adjust this arrangement should progress or safe passage of traffic warrant such a change.

(k) Use of explosives in close proximity of temporary deviations

The contractor shall arrange all necessary traffic control and other requirements to safeguard the traffic on temporary deviations during blasting operations.

(l) Land taken up for deviations

Negotiations with landowners to obtain the land taken up by temporary deviations will be undertaken by the employer. A prime cost sum is allowed in the bill of quantities for payment of compensation to affected landowners. All other negotiations regarding temporary access to properties, land-use, fencing requirements etc. shall be dealt with by the contractor in conjunction with the engineer and be confirmed in writing and be kept on record by the contractor.

“(m) Maximum lengths of construction areas

A temporary deviation, where the proposed road follows the existing route shall be constructed along the length of existing road. Traffic shall generally be accommodated as follows:

On a two-way two lane gravel deviation (Class 1) constructed partially outside or adjacent to the existing road reserve boundaries of road.

- (i) On one-way single lane gravel deviation (Class 2) constructed inside the existing road reserve boundaries and on either side of road. In this instance special cognisance shall be taken to accommodate traffic to private properties.

A maximum length of one section of approximately 5,0km or two sections of 3,0km each of deviation (Class 1 or 2) shall be operational at a time and no relieve of this limitation shall be considered by the engineer except where the programme necessitates such at the construction of bridges.”

B1503 TEMPORARY TRAFFIC CONTROL FACILITIES

Add the following after the first paragraph:

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

(b) Road signs and barricades

Add the following:

“All the temporary road signs are to be mounted on posts as specified in section 5600 of the specifications. Provision shall be made for the supply and erection of the signs and the maintenance of the signs during the construction period. Provisions shall also be made for the removal of the temporary road signs on completion of the construction work when such signs are no longer required.

Temporary road signs and channelization devices shall be manufactured in accordance with the latest edition of the South African Road Traffic Signs Manual (June 1999) and placed as shown on the drawings and in Road Signs Note 13. Delineators shall be manufactured from a non-metal material and shall be mounted on a base section also manufactured of non-metal material. Single as well as back-to-back mounted delineators are required.

The obligation to arrange safe passage of traffic shall always be vested with the contractor regardless what is indicated on the drawings of the engineer.”

(c) Channelization devices and barricades

Add the following:

“Drums shall not be used as channelization devices.

TW 401 and TW 402 delineators shall comply with the following requirements:

- a) It shall be manufactured from a flexible material and shall comply with SABS 1555. The blade portion of the delineator shall be positively affixed to a base unit which in turn shall be stable on its own or be stabilized by means of sandbags when used on the road.
- ii) The blade shall be retro-reflectorised, with class 1 yellow sheeting on the side facing oncoming traffic..
- iii) It shall nominally be 1000mm high x 250mm wide and the bottom edge of the delineator shall not be more than 200mm above the road surface.
- iv) It shall be subject to the approval of the Engineer.

The maximum spacing between centres of delineators shall be as shown on the drawings or as directed by the Engineer.”

(e) Warning devices

Add the following:

“It is a requirement of this contract that all construction vehicles and plant used on the works will be equipped with rotating amber flashing lights and warning boards as specified in the standard specifications. Construction vehicles travelling outside the limits of construction areas shall however, not operate the warning lights.

The warning lights shall have a base diameter of at least 170mm and the amber bulb cover a height of a least 150mm high. It shall be a requirement that the contractor also provides the engineer’s site personnel with warning lights for their vehicles (a maximum of two lights are required) without any payment applicable.

B1514 TEMPORARY FENCING AND GATES

Replace the contents of this clause with the following:

“Where temporary fencing is ordered by the engineer, it shall be paid for under item 55.06 of the standard specifications. The temporary fencing shall be new fencing material, which shall subsequently be dismantled and removed and erected at an alternative position as directed by the engineer. When ordered by the engineer, temporary fences and gates shall be moved to new locations or either left in place or when no longer required be dismantled and removed from site if so directed. Allowance is made in the bill of quantities for moving existing fences and gates.”

Add the following clause:

B1517 RETRO-REFLECTIVE MATERIAL

“Retro-reflective material for temporary signs shall comply with the requirements of SABS 1519-1 for weathered material. Tests shall be carried out with a field retro-reflectometer and the testing procedure and classification are described in Clause B 8118. The value of the coefficient of Retro-Reflection shall be at least 60% of the values indicated in Table B 8118/1.”

B1518 MEASUREMENT AND PAYMENT

Renumber item 15.01 as B15.01 and add the following:

“The tendered rate shall also include for all measures necessary to safeguard traffic on temporary deviations during blasting operations as well as all temporary traffic-control facilities for temporary deviations.”

Delete all references to half width construction under payment item 15.01. Half width construction will be measured under payment item 15.10.

Renumber item 15.03 as B15.03 and add the following

“This sections provides only for additional traffic-control facilities as and when required on instruction by the Engineer and does not provide for facilities already included under payment item B15.01”

Add the following sub-item:

“ITEM	UNIT
B15.03 Temporary traffic control facilities	
(n) Provision of high visibility safety jackets and safety hats	number (No)

The unit of measurement shall be the number of safety jackets supplied to the supervisory staff.

The tendered rate shall include full compensation for providing and maintaining hats and the jackets equipped with high visibility retro-reflective and/or fluorescent panels in red, yellow and white for the duration of the contract”.

Add the following items:

"ITEM	UNIT
B15.14 Allow provisional sum for:	
(a) repair of damaged temporary road signs and delineators	provisional sum
(b) replacement of damaged temporary road signs and delineators	provisional sum

The provisional sums allowed under sub-items (a) and (b) shall be expended on a daywork basis in terms of the provisions of the general conditions of contract.

Payment shall only be made in respect of repair work or replacement of such temporary traffic-control facilities arising from damage or loss occasioned by the travelling public and which did not arise from negligence or non-compliance with the requirements of the specifications on the part of the contractor.

ITEM	UNIT
B15.15 Prime cost sum for:	
(a) Compensation to landowners for land taken up by deviations	prime cost (PC) sum
(b) Handling cost and profit in respect of sub-item B15.15(a) above	percentage (%)

The prime cost sum shall be expended in accordance with the provisions of the general conditions of contract. Payment to the landowner shall be made within fourteen (14) days after such order has been given by the engineer. The contractor shall provide detailed proof of payment before payment shall be certified to the contractor.

The tendered percentage in item B15.15(b) is an extra over percentage on the amount actually spent under sub-item B15.15(a) which shall include full compensation for the handling costs and profit of the contractor."

SECTION 1700 : CLEARING AND GRUBBING

B1702 DESCRIPTION OF WORK

a) Clearing

Add the following:

“Clearing shall include the removal of material to a thickness of up to 150mm in-situ material as ordered by the engineer. No payment shall be made for temporary stockpiling of topsoil material in the case where this material is applied as topsoil after completion of road side slopes.

Should the required depth exceed 150mm, the total volume of material removed shall either be classified as “temporary stockpiling of topsoil” or “unsuitable roadbed material” or “cut to spoil” whichever is applicable as allowed for in the standard specifications. In these cases no payment shall be made for clearing and grubbing.

Clearing as described shall in all cases be undertaken in such a manner that the topsoil is preserved and not contaminated with other debris or rubbish. Cross-sections for the determination of earthworks quantities shall be taken after clearing (topsoil or unsuitable roadbed material) and roadbed preparation if applicable.

Payment for gabion boxes and mattresses which have to be removed and the material sorted and stacked shall be made under section 5200”

B1703 EXECUTION OF WORK

(a) Areas to be cleared and grubbed

Add the following:

“Apart from normal clearing and grubbing, the fill embankments of the existing roads are also to be cleared and grubbed over the areas where the new horizontal alignment coincides with the alignment of the existing road, or where repairs are required to the fill embankments of the approaches of bridges. Provision is made for separate payment for clearing and grubbing of the existing fill embankments where conventional machinery might be suitable to undertake the work due to the steep side slopes of the embankments. An additional pay-item is allowed for in the bill of quantities for this type of clearing and grubbing which may have to be undertaken by hand or similar manner.”

B1704 MEASUREMENT AND PAYMENT

Change item 17.01 to read as follows:

ITEM	UNIT
B17.01 Clearing and grubbing of:	
a) Normal areas:	
i) Within the road reserve	hectare (ha)
ii) In borrow pits	hectare (ha)
b) Existing fill embankments with Slopes steeper than 1:4	hectare (ha)

Measurement and payment for sub-items (a) and (b) shall be as specified for item 17.01 of the standard specifications. Where distinction is made for clearing and grubbing existing fill embankments with slopes steeper than 1:4 (vertical : horizontal), payment shall be made under item B17.01."

SECTION 1800 : DAYWORK SCHEDULE

Note: This is a new section added to the Standard Specifications.

Add the following:

B1801 SCOPE

This section covers the listing of daywork items for use in determining payment for work which cannot be quantified in specific pay item "units" in the bill of quantities or work ordered by the engineer during the construction period which was not foreseen at tender stage for which no applicable rate exists in the schedule or for work of a special or different character warranting special payment as decided by the engineer.

B1802 ORDERING OF DAYWORK

No daywork shall be undertaken unless specific written authorisation is obtained from the engineer.

B1803 MEASUREMENT AND PAYMENT

The engineer may order the following daywork items:

ITEM	DESCRIPTION	UNIT
B18.01	Labourers:	
	(i) Unskilled	Hour (h)
	(ii) Semi-skilled	Hour (h)
	(iii) Skilled	Hour (h)
B18.02	Foreman	Hour (h)
B18.03	Tipper trucks:	
	(i) 3 – 5 ton	Hour (h)
	(ii) 5,1 – 10 ton	Hour (h)
B18.04	Loader (0,5m ³)	Hour (h)
B18.05	Grader (CAT 140G or similar)	Hour (h)
B18.06	LDV	Hour (h)
B18.07	Compaction Rollers:	
	(i) Vibrator roller	Hour(h)
	(ii) Tamping roller	Hour (h)
	(iii) Grid roller	Hour(h)
B18.08	Hand Controlled Compactors	
	(i) Pedestrian roller (Bomag BW90)	Hour(h)
	(ii) Vibratory plate	Hour(h)
	(iii) Rammers	Hour(h)
B18.09	Water truck (min 10000 l)	Hour(h)
B18.10	Dozer (D7 or similar)	Hour(h)

The unit of measurement shall be the actual number of hours worked by labourers or foremen

or an item of plant.

The tendered rates shall include full compensation for all cost items including overheads, head-office expenses and profits as described in subclause 6.5 of the general conditions of contract and shall be subject to contract price adjustment as provided for in the contract.

The mark-ups on daywork items in accordance with the Appendix to the Tender shall not be applicable on daywork items listed in the bill of quantities in terms of the above specifications. In the event of new daywork rates being requested for items not appearing in the bill of quantities, then the provisions of the general conditions of contract and the Appendix to the Tender shall apply.

Prior to the commencement of any work by the labourers described under item B18.01, the contractor must obtain written consent from the engineer regarding the classification and composition of all labourers in terms of “unskilled” and “skilled” labourers required for the work as ordered by the engineer.”

SECTION 1900 : MECHANICAL SAW CUTTING

Note: This is a new section added to the Standard Specifications.

Add the following section:

B1901 SCOPE

This section covers the saw cutting of various types of in-situ material with a mechanical saw cutting machine.

B1902 PLANT

Saw cutting machines shall be power driven saws suitable and capable to cut accurately to required depths and alignment in various materials as specified. Skilled operators shall be required for operating the sawing machines. Operators shall be equipped with suitable safety equipment (e.g. industrial goggles, suitable boots as well as clothing) for operating the sawing machines.

B1903 PREPARATION PRIOR TO SAW CUTTING

Before saw cutting may commence the cut line shall be accurately pre-marked to the specified dimensions in terms of the drawings or as instructed by the engineer.

B1904 CONSTRUCTION TOLERANCES

Mechanical saw cutting shall be undertaken within the following dimensional tolerances:

(a) Horizontally

The maximum deviation from the specified line shall not be more than 5mm.

(b) Vertically

The cut depth shall never be less than the specified depth but shall not exceed the specified depth by more than 25mm".

B1905 MEASUREMENT AND PAYMENT

ITEM	UNIT
B19.01 Establishment of suitable saw cutting machine on site	number (No.)

The unit of measurement shall be the number of saw cutting machines provided on the instruction of the engineer.

The tendered rate shall include full compensation for the provision of the saw cutting machine including transport to and from the site. No payment shall be made for providing substitute saw cutting machines for machines that have broken down. No payment shall be made for standing time of saw cutting machines and at least one saw cutting machine shall be available on the site when such a machine is required on site. Payment shall only be made once for the establishment of the saw cutting machine on site irrespective of any discontinuity in the application of the saw cutting machine on site.

ITEM	UNIT
B19.02 Saw cutting of in situ materials (type of material and depth of saw cut indicated)	metre (m)

The unit of measurement shall be the metre of material cut with the saw cutting machine for

each type of material and depth of saw cut. The tendered rate shall include full compensation for the saw cutting of the materials as directed as well as for all plant, labour, fuel and other incidentals necessary.”

SECTION 2100 : DRAINS

B2103 BANKS AND DYKES

Add the following:

“Mitre banks at culvert inlets should be considered at such a skew angle that it guides the water into the inlet with a minimum loss of velocity (energy).”

B2104 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

Delete the last sentence of the fifth paragraph and substitute it with the following:

“Perforation for 100mm pipes shall be spaced in two rows, one on each side of the vertical centre line of the pipe, and at one third of the circumference. The perforation for the 150mm pipes shall be spaced in four rows, two as described for 100mm pipes, and the other two rows at two thirds of the circumference.”

(ii) Synthetic-fibre filter fabric

Add the following:

“All filter fabric shall be a non-woven needle punched type material and must be approved by the engineer. Filter fabrics shall have a minimum co-efficient of permeability of 3×10^{-3} m per second.”

B2107 MEASUREMENT AND PAYMENT

Change item 21.09 to read as follows:

ITEM	UNIT
B21.09 Polyethylene sheeting, 0,25mm thick, or similar approved material, for lining subsoil draining systems	square metre (m ²)

Measurement and payment shall be as specified for item 21.09 in the standard specifications.”

Add the following new items:

“ITEM	UNIT
B21.20 Galvanised wire mesh 250 x 250mm, at the outlets of subsoil drainage systems. Mesh 10mm x 2,5mm wire diameter	Number (No)

The unit of measurement shall be the number of 250mm x 200mm pieces of wire mesh, with a 10mm x 10mm mesh and 2,5mm wire diameter built into the subsurface drain outlet structure as shown on the drawings.

The tendered rate shall include for procuring, furnishing and installing the material, cutting, waste and keeping the mesh in the pipe opening clean during installation.

ITEM	UNIT
B21.21 Subsoil drainage markers	Number (No)

Measurement and payment shall be as specified for item 22.24 in the standard specifications.”

2200 : PREFABRICATED CULVERTS

B2201 SCOPE

Add the following:

“All rectangular culverts with spans from 0,9m up to and including 2,4m shall be constructed with precast units.

The attention of the contractor is drawn to the fact that information given on the plans, longitudinal sections or drainage schedules may have to be altered to suit actual site conditions and, therefore, the contractor shall only construct these culverts after the engineer has verified the information on the drawings from detail surveys taken on site by the contractor as directed by the engineer.

Precast units shall be ordered by the contractor from actual measurements of length acquired on the site and not from lengths stated in the drainage schedule or from the bill of quantities.

No precast units shall be ordered until the engineer has satisfied himself that the proposed units have been manufactured to the required tolerances and loading standards. The engineer must be given the opportunity to load test units if he considers this necessary”.

B2203 MATERIALS

(f) Skewed Ends

Delete the second and third paragraphs and substitute with the following:

“Precast portal and rectangular culverts placed on a skew shall be supplied with cast in situ skewed ends as shown on the drawings. In situ skew ends are to be constructed simultaneously with the wingwalls and headwalls”.

B2204 CONSTRUCTION METHODS

Add the following:

“In all cases where soft founding materials is classified as suitable for culvert bedding construction, the in situ material shall be ripped, moistened and compacted to 90% or 93% modified AASHTO density. The depth of preparation and compaction of founding material shall be as indicated on the drawings or as specified by the engineer. Allowance for measurement and payment for this work is made in the bill of quantities under this section.”

(c) Excavation by hand

Where circumstances prevent the use of mechanical excavators and material can be removed only by hand tools, the engineer shall authorise the supplementary payment to the contractor for such work at the tendered rates for excavation by hand should he be satisfied that the contractor had been unable to prevent the necessity for excavation by hand by proper planning and precautionary measures. The supplementary rate for excavation by hand shall not apply to minor finishing or clearing jobs in excavations which are otherwise being done by mass excavation plant.

Payment for hand excavation shall be an "extra over" payment to normal excavation as allowed for in item 22.01.”

B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

Add the following subclauses:

"(c) Excavation by hand

Where circumstances prevent the use of mechanical excavators and material can be removed only by hand tools, the engineer shall authorise the supplementary payment to the contractor for such work at the tendered rates for excavation by hand should he be satisfied that the contractor had been unable to prevent the necessity for excavation by hand by proper planning and precautionary measures. The supplementary rate for excavation by hand shall not apply to minor finishing or clearing jobs in excavations which are otherwise being done by mass excavation plant.

Payment for hand excavation shall be an "extra over" payment to normal excavation as allowed for in item 22.01.

(d) Drainage of excavations

The contractor shall apply suitable, effective drainage and dewatering methods for preventing the ingress of water into the excavation and to keep them dry.

Drainage measures, with the exception of pumping, shall be maintained until the backfilling has been completed. Between various construction stages, pumping may be interrupted in consultation with the engineer.

Any draining or pumping of water shall be done in a manner as will preclude the concrete or materials or any part thereof from being carried away.

Allowance for measurement and payment for dewatering and keeping dry of culvert excavations is made in the schedule in this section".

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

B2210(b)(i) Cast in situ invert slabs

Replace with the following:

"In accordance with the drawings, transverse construction joints are required in cast in situ concrete invert slabs for portal culverts. In addition, longitudinal construction joints as shown on the drawings between the invert slabs of each of the barrels of multiple culverts are required. Allowance for measurement and payment for a Class F1 surface finish and soft board in these joints is made in the bill of quantities. No payment shall be made for formwork on the outside edges of invert slabs (closest to excavated face).

All culverts (precast as well as in situ) shall be constructed with an in situ reinforced concrete floor laid on a 75mm concrete screed".

Delete subclause B.2210(b)(ii) : "Prefabricated floor slabs."

B2211 BACKFILLING OF PREFABRICATED CULVERTS

Change the last sentence in the fourth paragraph to read "90% or 93% as shown on the drawings or as directed by the engineer."

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

(b) Concrete work

Add the following:

"The type of surface finish for in situ concrete in the culverts shall be as indicated on the drawings. Generally all exposed faces shall be of Class F2 formwork and faces covered by

backfill shall be Class F1. The top of parapet walls and wingwalls shall be finished to a Class U2 surface finish."

(h) Prefabricated inlet and outlet structures

Add the following:

"The use of precast concrete inlets and outlets as described in clause 2212(h), shall not be allowed under any circumstances. Cast in situ concrete wingwall type inlets and outlets shall be constructed as indicated on the drawings and shall be in accordance with section 6000 of the Standard Specifications. Allowance for measurement and payment for wingwall type inlets and outlets is made in the schedule in this section."

B2218 MEASUREMENTS AND PAYMENT

Add the following:

"ITEM	UNIT
B22.01 (c) Extra over subitem B22.01(a) for excavation by hand using hand tool	cubic metre (m ³)

Measurement shall be as specified for pay item 22.01 of the standard specifications.

The tendered rate shall include full compensation for carrying out the excavations by hand where circumstances prevent the use of mechanical excavators.

ITEM	UNIT
B22.07 (f) Formwork for joints in cast in situ concrete invert slabs	
(i) Transverse construction joints (type indicated)	square metre (m ²)
(ii) Longitudinal joints (as per drawing)	metre (m)

Measurement and payment shall be as specified in item 22.07 of the standard specifications with the exception that formwork for construction joints in cast in situ invert slabs in trench conditions as indicated on the drawings, shall be measured and paid for in accordance with section 6200 of the standard specifications. No payment shall be made for formwork to the outside edges of invert slabs (closest to excavated face)."

Add the following to pay item 22.08:

"In addition to the requirements for measuring concrete backfill to rectangular culverts as specified for item 22.08, the following shall apply:

Concrete backfill shall be measured to the actual dimensions of the precast units, i.e. actual volumes between ribs and haunches shall be taken into account. For the purpose of calculating concrete backfill quantities, the horizontal dimensions of the concrete backfill on the outside of the culvert(s) (closest to excavated face), shall be taken as 100mm maximum irrespective of what type or make of precast portal is used or the actual width of the excavation.

The width of the concrete backfill between portals in the case of multiple culverts, shall be taken as 80mm for precast units with a leg height of 1500mm and 100mm for precast units with a leg height exceeding 1500mm. The vertical dimensions, in both cases, shall be equal to the height of the portal".

Add the following new items:

"ITEM	UNIT
B22.29 Tie bars for joining in situ concrete invert slabs to inlet and outlet structures, as indicated on the drawings (Type, diameter and length indicated)	Number (No.)

The unit of measurement shall be the number of tie bars installed as specified and indicated on the drawings.

The tendered rate shall include full compensation for supply and installation of the tie bars.

ITEM	UNIT
B22.30 a) Preparation and compaction of in-situ bedding material to 90% of Mod. AASHTO density (depth indicated)	cubic metre (m ³)
b) Extra over sub-item B22:30(a) for compaction to 93% of Mod. AASHTO density (depth indicate)	cubic metre (m ³)

The unit of measurement shall be the cubic metre of material ripped and compacted as specified.

The tendered rate shall include full compensation for the ripping of the in-situ material to the specified width and depth, wetting of the material to such an extent that the specified density can be achieved.

ITEM	UNIT
B22.31	Dewatering and keeping dry of culvert excavations

The unit of measurement shall be the number of culverts constructed. The tendered rate shall be full compensation for dewatering and keeping dry of the culvert excavations until the backfill is completed.

Payment shall be as follows:

- (i) 80% of the payment shall be made after the barrel of the culvert has been constructed and backfilled.
- (ii) Remaining 20% of the payment shall be made after the wingwalls have been constructed and backfilled.

ITEM	UNIT
B22.32	Cutting of concrete pipes
a)	Diameter indicated
	Number (No.)

The unit of measurement shall be the number of pipes that have been cut. The tendered rate shall be full compensation for the cutting, by means of mechanical saw (angle grinder) and finishing off of the pipes for the specific angle of skew at which the pipes must be laid.

Cutting of pipes shall only be paid for if the headwall of the wingwalls are at such a skew angle in respect to the centre line of the pipes that cutting is required and where non-standard lengths are required. The maximum skew angle at which pipes are allowed to be cut shall be 30 degrees and the minimum length of pipe, measured along the shortest side, shall be 1,5m.”

Classification of soft/hard materials as well as all quantities shall be agreed upon and finalised as the work progresses.

SECTION 2300 : CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES AND CONCRETE LININGS FOR OPEN DRAINS

B2301 SCOPE

Add the following:

“The position and length of the following types of concrete kerbs and channels are indicated on the geometric layout plans, typical drawings and on the drainage plans.

Type A	:	In situ concrete channel, 0,8m wide on fills
Type B	:	Precast concrete kerbing, semi-mountable (SABS 927-1969)
Type C	:	In situ concrete kerbing at intersections
Edge beam	:	In situ concrete kerbing at farm access and bus stops
Type E, F1 & F2	:	In situ concrete “V”-shaped channels in side drains and open drains.”

B2302 MATERIAL

Add the following new subclauses:

(e) Metal pipes

“Metal pipes down side slopes shall comply with the requirements of clause 2203 of the standard specifications.”

B2304 CONSTRUCTION

(d) Slip form kerbing

Add the following:

“Slip-form kerbing shall under no circumstances be allowed.”

(e) Cast in situ kerbs and channels

Add the following:

“Forming and templates used to form joints between alternate sections shall be of steel plate of which the thickness shall not be less than 5mm.”

Add the following new subclauses:

(i) Construction sequence

Replace paragraphs (i), (ii) and (iii) with the following:

“In all cases where kerbing and/or channelling adjoin the bituminous surface of the road, the kerbing and/or channelling may only be constructed after the bituminous surface has been completed.

Before commencing with the kerbing and/or channelling, the surfacing and the base, shall be accurately cut to line with a mechanical saw to a minimum depth of 75mm. After excavation the concrete shall then be cast against the cut surface without formwork. All material outside the cut line must be carefully removed to the required thickness of concrete without damaging the edge before commencing with the casting of the concrete. No payment shall be made for repair work as instructed by the engineer to damage caused by the cutting/excavating process of surfacing and base layers. Any concrete spilt onto the surfacing shall immediately be

removed and cleaned. Where so required by the engineer, the contractor shall, without any additional compensation, paint emulsion over the stained surface.

Add the following subclause:

(k) Formwork and finish

“Formwork and finish of concrete kerbs shall comply with the requirements of section 6200. All visible edges on the sides or at joints of cast in situ concrete kerbs or channels shall be rounded with a rounding tool.”

SECTION 3100 : BORROW MATERIALS

B3102 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

Add the following to sub-clause 3102(a):

“Arrangements regarding to access to borrow pits and the alignment of haul roads shall be made between the contractor and the owners of the land on which borrow pits are situated. The engineer’s representative on site shall be present at all such negotiations, which shall be confirmed in writing by the contractor. All costs involved with such negotiations as well as the requirements contained in clause 3102 and clause 1225 of the specifications shall be borne entirely by the contractor.”

B3103 OBTAINING BORROW MATERIALS

(a) General

Add the following:

“The expropriation and compensation for land from which borrow materials is obtained shall be negotiated and paid for by the employer.”

(b) Use of borrow materials

Add the following to the second paragraph of this subclause:

“Compensation to owners (only on private land) and arrangements with owners for taking material from alternative borrow pits proposed by the contractor shall be the contractor’s responsibility and entirely at his own expenses.”

B3104 OPENING AND WORKING BORROW PITS AND HAUL ROADS

(c) Excess overburden

Add the following:

“All excess overburden removed at borrow pits shall be replaced over the entire area of the borrow pit after initial shaping has been undertaken in an even layer. Payment for this requirement shall be deemed to be included in pay item 31.01

(f) Protecting borrow pits

Add the following:

"It is a requirement of the contract that each borrow pit or pits shall be provided with fencing around the perimeters, including a access gate, of the borrow areas, including the supply of danger warning signage fixed to the fencing, visible at all sides approaching the borrow pit area. The fencing shall be erected prior to entering the land for borrowing purposes and shall on final finishing of the borrow areas as specified by the employer, be dismantled and removed or left in-place as instructed by the employer. Payment for fencing around borrow pits shall be made in accordance with the stipulations of section 5500 in these specifications."

In addition to fencing, Security Guards shall be supply on a 24 hour, 7 days a week basis, with full time communication to the Site Manager or site camp for the duration of the contract and activities at the borrow pits.”

Add the following new subclause:

“(h) Haul roads

Haul roads to designated borrow pits along the road shall be constructed along alignments as instructed by the engineer and shall be maintained at the contractor's own cost to the satisfaction of the engineer."

B3105 FINISHING-OFF BORROW AREAS AND HAUL ROADS

Add the following to this clause:

"Should the employer, engineer or any other authority approved by the engineer, require a higher standard of shaping and finishing off of borrow pits than specified in the standard specifications, measurement and payment for such extra work shall be made using daywork items as scheduled under this section."

B3108 MEASUREMENT AND PAYMENT

Change item 31.01 to read as follows:

"ITEM	UNIT
B31.01 Excess overburden :	
(a) Depth up to and including 0,5m	cubic meter (m ³)
(b) Depth exceeding 0,5m and up to 1,0m	cubic meter (m ³)

Measurement and payment shall be as specified for item 31.01 of the standard specifications with the abovementioned depth ranges applicable."

Add the following new item:

"ITEM	UNIT
B31.04 Compensation to landowners:	
(a) Prime cost sum for compensation to landowners	prime cost (PC) sum
(b) Handling cost and profit in respect of sub-item B31.04(a) above	percentage (%)

Measurement and payment shall be in accordance with the provisions of clause 6.6 of the general conditions of contract. Payment to the landowner shall be made within fourteen (14) days after such order has been given by the engineer. The contractor shall provide detailed proof of payment before payment shall be certified to the contractor.

The tendered percentage is an extra over percentage on the amount actually spent under sub-item B31.04(a) which shall include full compensation for the handling costs and profit of the contractor."

SECTION 3200 : SELECTION, STOCKPILING AND BREAKING-DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING THE GRAVEL LAYERS

B3204 BREAKING-DOWN THE MATERIAL

(a) Initial breaking-down of the material in cuttings, borrow pits and existing pavement layers

Add the following to the table in the second paragraph of this subclause:

"Pioneer layers - 500mm maximum dimension

Not more than 20% of pioneer layer material shall pass through the 2,0mm sieve."

(b) Further breaking-down of pavement material

Add the following:

"Material used for the construction of selected, and wearing course layers shall be broken down by means of normal grid-rolling or additional normal grid-rolling to such an extent that the compacted pavement layer shall contain material of which 95% of the aggregate size shall not exceed 65mm. All oversize material, after breaking-down, shall be removed".

B3209 PLACING AND COMPACTING THE MATERIALS IN LAYER THICKNESSES IN EXCESS OF 200mm AFTER COMPACTION

Add the following new subclause:

(d) Pioneer layer

"The maximum size rock used in pioneer layers shall be 500mm and the layer thickness before compaction shall not be more than one-and-a-half times the maximum actual size of the rock. Not more than 20% of pioneer layer material shall pass through the 2,0mm sieve. Pioneer layer processing and compaction shall be as specified in subclause 3307(c) of the standard specifications".

SECTION 3300 : MASS EARTHWORKS

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

Add the following to the third paragraph:

"For the purpose of this contract, excavation and removal of in-situ clayey material over areas where the road is in a fill condition, shall be classified as removal of unsuitable material, irrespective of the stability or moisture condition of the in-situ material".

(c) Preparing and compacting the roadbed

Delete the last sentence of the first paragraph "If necessary, roadbed.....depth of compaction" and replace as follows:

"Where demarcated by the engineer, prior to the roadbed being scarified, the excess in situ material forming part of the present roadway, and within the limits of the roadbed, and in close proximity of the layer works, but falling within the limits of the layerworks, shall be bladed to controlled level in order to achieve the required level and necessary depth of compaction."

B3307 FILLS

(c) Constructing a pioneer layer

Add the following to the first paragraph:

"For the purpose of this contract, pioneer layers shall be completed by means of eight-pass roller compaction using vibratory rollers as specified in subclause 3304(b) of the standard specifications."

(d) Benching

Add the following:

"Benching of fill and pavement layer material is required to be undertaken into the existing fill embankments and pavement layers. No additional payment shall be made over and above the normal pay items applicable to earthworks and pavement layers where benching is required for widening of the existing road formation. Benching shall be undertaken as shown on the drawings.

It is a requirement that benching shall always be started at the bottom of the existing fill progressing to the top of the formation. The dimensions and details of benching are shown on the drawings."

B3308 FINISHING THE SLOPES

(d) General

Add the following:

“Where existing cut and fill slopes are excessively eroded or where slippages occurred in slopes, the slopes are to be reinstated by means of backfilling with suitable gravel material. All loose material and vegetation shall first be removed from the eroded cut and fill slopes before backfilling may commence from the bottom of the cut or fill. The backfill material shall be benched into the existing slopes and compacted to 90% of modified AASHTO density, using suitable small compaction equipment e.g. Bomag walk-behind rollers or hand-held compaction tools. Benching shall be executed to the dimensions shown on the drawings. Upon completion of the backfilling operation the cut and fill slopes shall be neatly finished as specified.”

B3312 MEASUREMENT AND PAYMENT

Add the following sub-item to item 33.10:

“ITEM	UNIT
B33.10 (e) Extra over sub-items 33.10(a), (b) and (d) for blading to controlled levels (existing road)	cubic metre (m ³)

The unit of measurement in respect of the material bladed as specified in subclauses 33.05 (c) shall be the cubic metre of material bladed, measured in the original position before blading, in accordance with the method of average end areas.

The tendered rate shall include full compensation for blading of such material to level.

Only material bladed on the instruction of the engineer for exposing the underlying roadbed material for treatment will be measured and paid for as described above.”

SECTION 3400 : PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

(a) General

Add the following:

"Material requirements for gravel pavement layers are in accordance with TRH4 and shall be indicated on the drawings."

B3405 CONSTRUCTION TOLERANCES

(e) Cross-section

Delete the second paragraph and replace with the following:

"The normal crossfall of the road wearing course where the road is in a straight horizontal alignment, is specified as 3% as shown on the drawings.

At any cross-section the measured crossfall between any two points shall at least be 2,8% and not more than 3,5%. At any cross-section the actual level at any point shall not be higher than 10mm above the computed level from the cross-section as specified and the actual level, if lower than the computed level, shall not be lower by more than that derived from the specifications for longitudinal grade and crossfall deviations."

(f) Surface regularity

Add the following:

"Where transverse construction joints in base layers are made between newly and previously constructed sections, the contractor shall exercise level control at such joints by installing level poles at 5m intervals on either side of the joint of the layer covering at least a 30m length into the newly constructed section."

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following:

"Test results and measurements shall be assessed by the engineer according to the provisions of Section 8300 of the standard specifications".

SECTION 5200 : GABIONS

B5201 SCOPE

Add the following paragraph

“This section also covers the removal, dismantling and stacking of existing gabion work, and the reuse of these materials where authorised by the engineer.”

B5203 CONSTRUCTION OF GABION CAGES

(a) General

Add the following new sub-clause:

“(iii) Reno mattresses or similar may be used as alternative to gabion boxes. These Reno mattresses are to be manufactured of 80mm x 100mm mesh (2,5mm diameter wires, diaphragm spacing 0,6m).

B5204 CONSTRUCTING GABIONS

(c) Assembly

Delete and substitute with:

(c) Assembly, erection and stretching

(i) Assembly

“Prior to assembly, the gabion material shall be opened out flat on the ground and stretched to remove any kinks and bends. The gabion boxes shall then be assembled individually by raising the sides, ends and diaphragms ensuring that all creases are in the correct position and that the tops of all four sides are even. The four corners of the gabion boxes shall be laced first followed by the edges of internal diaphragms to the sides. In all cases lacing shall commence at the top of the box by twisting the end of the lacing wire around the selvages. It shall then be passed round two edges being joined, through each mesh in turn and securely tied off at the bottom. The ends of all lacing wire shall be turned to the inside of the box on completion of each lacing operation.

(ii) Erection

Only assembled boxes, or groups of boxes, shall be positioned in the structure. The side, or end, from which work is to proceed, shall be secured to either completed work or by rods or stakes driven into the ground at the corners. These must be secured and reach at least to the top of the gabion box. Further gabions shall then be positioned in the structure as required, each being securely laced to the preceding one at all corners and diaphragm points.

(iii) Stretching

On completion of erection of a suitable length of gabion, the gabion boxes shall be stretched using a wire strainer or winch of at least one ton capacity firmly secured to the free end of the assembled gabion boxes.

Whilst under tension the gabion boxes shall be securely laced along edges (top, bottom and sides) and at diaphragm points, to all adjacent boxes and shall thereafter be filled.”

(d) Rock filling

Add the following new sub-sub-clause:

(iii) General

"Filling shall be carried out only whilst gabion boxes are under tension. Filling material shall consist of rock of size not less than 120mm and not greater than 250mm so placed to produce a neat face and line with a minimum of voids.

Internal horizontal bracing wire shall be provided at 500mm vertical centres or such spacing to ensure a ratio of four to every 1m³ of filling. These bracing wires shall be wrapped around two mesh wires and extended from front to back so positioned to ensure a neat face and line free of excessive bulges and depressions. Gabion boxes shall be filled in stages and horizontal bracing wires inserted as filling is brought up.

Similar bracing wires used vertically shall be provided in 0,5mm deep gabions at 330mm horizontal centres where water falls directly onto gabions or where a neat face is required.

Tension on the gabion boxes shall be released only when sufficiently full to prevent the mesh from slackening.

Gabion boxes shall be overfilled by 20 to 50mm above their tops to allow subsequent settlement of the filling."

Add the following new sub-clauses:

(e) Final wiring

"Closing and wiring down of lids shall proceed as soon as possible after filling operations and certainly in the likelihood of storms or floods during construction. The wiring down shall consist of wrapping around wire at such intervals as required or specified.

Lids shall be stretched tight over the filling with bars and wired down securely through each mesh along all edges, ends and diaphragms. The ends of all tying and bracing wires shall be turned into the gabion box on completion of all lacing operations.

Tightness of mesh, well packed filling and secure lacing is essential in all structures."

(f) Removal, dismantling and stacking of gabions

"Existing gabions, either damaged or not, that require to be removed or moved to a new location shall be dismantled. Material not required for re-assembly or unsuitable for re-use shall be neatly stacked at approved locations in accordance with the engineer's instructions. Payment will be made only for gabions removed in accordance with the written instruction of the engineer.

Where gabions require moving, or as declared suitable by the engineer are re-usable, the contractor shall re-use all the material, plus supply such new materials as may be required to re-assemble the gabion again to the standard specification for new gabions."

B5205 MEASUREMENT AND PAYMENT

Add the following new items:

"ITEM

UNIT

B52.05 Removal and dismantling of existing damaged gabions Cubic metre (m³)

The unit of measurement for the removal and dismantling of existing damaged gabions shall be the cubic metre of each type of gabion removed and dismantled on the instruction of the engineer.

The tendered rate shall include full compensation for removing and dismantling gabions, and

stacking all the materials. The tendered rate shall further include for the disposal of unsuitable material.

ITEM	UNIT
B52.06 Gabions constructed from re-usable materials	
a) Galvanised gabion boxes:	
(i) 4m x 1m x 1m	Cubic metre (m ³)
(ii) 3m x 1m x 1m	Cubic metre (m ³)
(iii) 2m x 1m x 1m	Cubic metre (m ³)
b) Galvanised gabion mattresses	
(i) 0.3m Deep	Cubic metre (m ³)

The unit of measurement for re-assembling gabions from re-usable materials shall be the cubic metre of rock filled cages for each type of gabion that is re-usable and approved by the engineer, as specified in the standard specification.

The tendered rate shall include full compensation for using the existing wire cages and rock fill, and for supplying new binding and connecting wires, the assembling and filling of the cages, and any other work for the re-construction of the gabions to conform to the specifications.”

SECTION 5600 : ROAD SIGNS

B5601 SCOPE

"This section also covers the supply and erection of permanent danger plates at culverts and bridges at the locations indicated on the drawings or as directed by the engineer."

B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS

(a) Road signboards

Add the following:

"The contractor shall make every effort to ensure that signboards are correct in all respect and before dispatching the boards from the manufacturer's factory shall provide the Engineer with a 100mm x 150mm colour photograph of each sign face for approval of the correctness of the legend. Such approval will not imply final acceptance of the board. If the Contractor is in any doubt as to the correctness of the sign detail, the sign designer shall be contacted for verification."

(a) (ii) Steel profile road signboards

Add the following:

"Where the letter or legends cross the horizontal joints of the sign panels, the letter shall be cut on the joint and both ends folded around the radius.

Retro-reflective material to adjoining Chromadek panels on a sign shall be practical visual match of the specified colour."

B5604 ROAD SIGN FACES AND PAINTING

Add the following new subclause:

"(e) Application of retro-reflective material

All sign faces shall be faced with class 1 grade retro-reflective material. Painted front sign faces shall not be used.

Where applied to Chromadek sections, retro-reflective material shall be applied as specified for aluminium section in Clause 5603(d) of the Standard Specification, and of Clause B5603(a)(ii) of this project Specification. All sign lettering and symbols are to be class 1 retro-reflective material with the exception of direction signs which is to be Class III retro-reflective material.

For W405, W406, R1 and W409 signs, the sign faces shall be Class III retro-reflective material and the lettering and symbols shall be Class III retro-reflective material."

B5605 STORAGE AND HANDLING

Add the following:

"The following shall not be allowed on the sign face:

Drilling of holes, except for the fastening of overlays

Application of any form of adhesive

Cleaning with any chemicals that are not specifically approved by the manufacturer of the retro-reflective material

Covering the sign face with an impermeable material that does not allow free circulation of air."

B5606 ERECTING ROAD SIGNS

(c) Erection

Add the following:

“After erection the signboard shall be thoroughly cleaned with a cleaning agent approved by the retro-reflective material’s manufacturer.

All vegetation obstructing the new or replaced sign board shall be removed and disposed of as instructed by the Engineer.”

B5608 DISMANTLING, STORING AND RE-ERECTING EXISTING ROAD SIGNS

Add the following:

“Existing overhead and ground mounted road signs that are being replaced by new signs shall be dismantled and disposed of by the Contractor. Where possible the dismantling of the signs shall not be before the replacement sign is erected and displayed. Where dismantling of the sign is required before erection of the replacement sign, the dismantling shall not take place until immediately before work is to commence on the replacement, and the replacement shall be completed and the new sign displayed as soon as possible thereafter (within 72 hours).

Dismantling shall include sign panels and ground mounted sign supports.

Ground mounted sign supports shall be cut off just below ground level. Material excavated for removal of buried poles shall be replaced, and any depression made good using excess material from excavation for new signs.

Pay items are provided in the Bill of Quantities. Payment will differentiate between different types of sign panels.”

B5609 MEASUREMENT AND PAYMENT

ITEM	UNIT
B56.01 Road sign boards with painted or coloured semi-matt background. Symbols, lettering, and borders in diamond grade retro-reflective material, where the sign board is constructed from:	
Amend the last two lines of the second paragraph to read:	
“completion, delivery, installation of the road sign board complete as specified, and the removal and disposal of all vegetation obstructing the motorists’ view of the new or replaced sign board.	

Add the following pay items:

“ITEM	UNIT
B56.10 Danger plates at culverts/structures	
(a) Type A at stormwater culverts (size indicated)	number (No.)
(b) Type B at bridges (size indicated)	number (No.)

The unit of measurement shall be the number of danger plates provided and erected in accordance with the drawings.

The tendered rate shall include full compensation for all labour and material, painting, posts, excavation, backfilling with soil etc., as may be necessary for completing the work in accordance with the details shown on the drawings.”

“ITEM	UNIT
B56.11 Replace marker boards on existing kilometre posts	number (No)

The unit of measurement shall be the number of reference marker boards provided and attached to existing kilometer posts in accordance with the drawings.

The tendered rate shall include full compensation for the manufacturing and supplying of the completed marker boards, for attaching the marker board to existing posts along the route and for all materials equipment, labour, nuts and bolts necessary for attaching the marker board as specified.”

The tendered rate shall include full compensation for all the labour and material, painting, retro-reflective material, posts, excavation, backfilling, etc. as may be necessary for completing the work in accordance with the details shown on the drawings.”

SECTION 5700 : ROAD MARKINGS

B5706 SETTING OUT THE ROAD MARKINGS

Add the following:

“Where road markings are to be replaced after milling/overlay seal, it is essential that all existing barrier lines and other road marking lines be accurately referenced before commencement of milling or other operations which will obliterate the existing road markings. The position of barrier lines shall be re-assessed on site by the Engineer before the Contractor commences with the road marking.”

B5707 APPLYING THE PAINT

Add the following:

“The Contractor’s establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be onsite or is required to move within the site.”

B5711 GENERAL

Insert the following into the last sentence of the last paragraph between “black paint” and “or chemical paint remover”:

“, bituminous emulsion, slurry”

Add the following to the last paragraph:

“Where black paint is used, it shall be matt.”

Add the following new clause:

“B5715 REMOVAL OF EXISTING ROAD STUDS

The existing road studs shall be removed from the road surface prior to milling.”

B5714 MEASUREMENT AND PAYMENT

ITEM	UNIT
B57.06 Setting out and pre-marking the lines (excluding traffic island markings, lettering and symbols)	

Add the following:

“Referencing of existing barrier lines and other road marking lines prior to milling and other operations, shall be included in the tendered rate for setting out and pre-marking.”

ITEM**UNIT****B57.05 Roadstuds**

Add the following after the first sentence of the second paragraph:

“No additional payment will be made should temporary or permanent road studs be replaced if lost or broken during the construction period or the maintenance period.”

SECTION 5800 : LANDSCAPING AND PLANTING GRASS

B5802 MATERIALS

(c) Grass seeds

Add the following:

"The seed mixture to be used for borrow pit areas shall be:

Eragrostis Curvula "Selected"	:	3kg/ha
Eragrostis Tef	:	2kg/ha
Chloris Gayana	:	9kg/ha
Cynodon Dactylon	:	5kg/ha
Pioneer seed	:	<u>10kg/ha</u>
		<u>29kg/ha</u>

The seed mixture to be used on cut and fill slopes shall be:

Eragrostis Curvula "Selected"	:	3kg/ha
Eragrostis Tef	:	2kg/ha
Cynodon Dactylon	:	7kg/ha
Chloris Gayana	:	5kg/ha
Cenchrus Ciliaris	:	5kg/ha
Digitaria Eriantha	:	4kg/ha
Pioneer seed	:	<u>10kg/ha</u>
		<u>36kg/ha</u>

The 10kg of pioneer seed specified shall consist of the following mixture of seeds:

Aristida Adscensionis	:	2kg/ha
Chloris Virgata	:	2kg/ha
Eleusine Coracana Subsp. Africana	:	2kg/ha
Melinis Repens Subsp. Repens	:	2kg/ha
Urochloa Panicoides	:	2kg/ha

The contractor shall make his own arrangements to obtain the specified seed mixtures. Should specific species not be available, alternative seeds may be proposed by the contractor for consideration by the engineer at tender stage.”

SECTION 5900 : FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B5902 FINISHING THE ROAD AND ROAD RESERVE

Add the following to the first paragraph:

“The contractor shall pay special attention to the collection and removal of all waste materials originating from the construction activities. All materials trimmed or excavated from the road shall be collected and removed from the road reserve to the satisfaction of the engineer.

This requirement shall be deemed to be incorporated in the tendered rates for item 59.01 of the bill of quantities or such other items as the contractor may decide upon.

The engineer may order additional finishing of the road reserve which will entail the collection and disposal of loose rocks etc. Payment for this work will be made under daywork items included in section 5900 of the bill of quantities as described in section 1800 of these project specifications.”

SECTION 6100 : FOUNDATIONS FOR STRUCTURES

B6106 FOUNDING

Add the following paragraph :

"Where founding takes place in soils or at "founding level" before the placing of foundation fill the in-situ material in the bottom of the excavation shall be compacted to a density of 90% or 93% of modified AASHTO density as directed by the engineer. The depth of preparation and compaction of founding material shall be specified by the engineer. Allowance for measurement and payment for this work is made in the bill of quantities under this section."

B6108 BACKFILL AND FILL NEAR STRUCTURES

(a) General

Add the following:

- (iv) "During backfilling within 1,0m of any concrete structure, or as directed by the Engineer, only hand operated mechanical compaction equipment shall be used to achieve the required density."

B6109 FOUNDATION FILL

Add the following after the 3rd paragraph:

"Granular foundation fill shall be constructed from selected subgrade material.

Add the following after the 6th paragraph:

Concrete screeds shall extend 200mm beyond the horizontal dimensions of all footings to facilitate the placing of formwork, unless otherwise directed by the engineer.

In the case of structures where excessive ground water is encountered, the screed shall extend over the full plan area of the base of the excavation. Payment shall be made for the quantity of concrete calculated as the product of the specified thickness of the screed and the actual area of screed specified by the engineer up to a maximum area of the product of the neat footing length plus 750mm and the neat footing width plus 750mm."

B6115 MEASUREMENT AND PAYMENT

Add the following new items:

"ITEM	UNIT
B61.51 (a) Preparation and compaction of in situ founding material to 90% Mod. AASHTO density (depth indicated) cubic metre (m ³)	
(b) Extra over item B61.51(a) for compaction to 93% of Mod. AASHTO density (depth indicated) cubic metre (m ³)	

The unit of measurement shall be the cubic metre of founding material prepared and compacted to the density as specified in accordance with Clause B6106 of these project specifications.

The tendered rates shall include full compensation for shaping, scarifying, mixing of in-situ and imported material if required, and preparing and compacting the material as specified."

6400 : CONCRETE FOR STRUCTURES

B6402 MATERIALS

(a) Cement

Replace this sub-section with the following:

"Refer to section 1142 for specification of cement."

CEM I 32,5, CEM II A-S 32,5, CEM II/A-V 32,5, or CEM III A may be used for the manufacture of reinforced concrete members.

B6404 CONCRETE QUALITY

(b) Strength concrete

Add the following paragraph:

"The cement content for any class of structural concrete or mass concrete used in structures shall not be less than 300kg/m³ of concrete.

The contractor must provide the engineer with complete mix designs and materials for strength concrete at least six (6) weeks before the first concrete is cast on the project".

B6405 MEASURING THE MATERIALS

(c) Aggregates

Add the following:

"All concrete for structures shall be manufactured by mechanical mass batching unless authorised otherwise by the engineer for minor concrete structures or for labour-intensive methods."

B6407 PLACING AND COMPACTING

(a) General

Add the following after the third paragraph:

"Concrete shall only be placed up to 20:00 at the latest. Under exceptional circumstances the Engineer may allow night work on condition that proper lighting arrangements can be made and a new and rested shift for night work is provided and ambient temperatures are such as to not adversely affect the setting of the concrete."

B6408 CONSTRUCTION JOINTS

(a) General

Add the following:

"No construction joints other than those indicated on the drawings will be permitted without the written approval of the engineer".

B6409 CURING AND PROTECTING

Add the following:

The surface area of bridge and culvert floor slabs and decks shall be cured as follows:

- (i) The area of freshly cast and finished concrete surface shall be immediately covered as specified in clause 6409(e).
- (ii) After the concrete has set sufficiently the entire area shall be treated with an approved curing compound as specified in clause 6409(f)."

B6414 QUALITY OF MATERIALS AND WORKMANSHIP

(a) Criteria for compliance with the requirements

Add the following:

"Quality control shall be carried out by the engineer as specified in Section 8200 : Quality Control (Scheme 1)."

Add the following new paragraph:

(d) Concrete cores - strength requirements

"Cores will only be drilled if authorised by the engineer. This will only be considered if the contractor's own cubes, when crushed by the engineer, attained the required 28-day cube strength."

B6416 MEASUREMENT AND PAYMENT

ITEM

UNIT

B64.01 Cast in situ concrete:

cubic metre (m³)

Add the following after the first paragraph:

"Where foundation slabs are set directly against the face of excavations, the volume of concrete measured for payment shall include the total volumes of concrete placed, allowing for up to a maximum over the neat footing dimensions of 200mm where in the opinion of the engineer accurate excavation to neat lines and levels indicated on the drawings is not possible. (No formwork to the footing shall be measured when the concrete is cast against the face of the excavations)."

C3.3.3 PROJECT SPECIFICATIONS : ADDITIONAL SPECIFICATIONS

CONTENTS

- C3.3.3.1 REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT REGULATIONS
- C3.3.3.2 ENVIRONMENTAL MANAGEMENT PLAN
- C3.3.3.3 PROVISION OF STRUCTURED TRAINING
- C3.3.3.4 PROVISION OF THE TEMPORARY WORKFORCE

C3.3.3.1 OCCUPATIONAL HEALTH AND SAFETY ACT 1993 : HEALTH AND SAFETY SPECIFICATION

CONTENTS

C3.3.3.1.1 INTRODUCTION

C3.3.3.1.2 SCOPE

C3.3.3.1.3 GENERAL OCCUPATIONAL HEALTH AND SAFETY PROVISIONS

C3.3.3.1.4 OPERATIONAL CONTROL

ANNEXURE 1: MEASURING INJURY EXPERIENCE

ANNEXURE 2: EXECUTIVE SHE RISK MANAGEMENT REPORT

ANNEXURE 3: LIST OF RISK ASSESSMENTS

C3.3.3.1.1 Introduction

In terms of the Construction Regulation 4(1) (a) of the Occupational Health and Safety Act, No. 85 of 1993, Roads Agency Limpopo (Pty) Ltd (RAL), as the Client, is required to compile a Health & Safety Specification for any intended project and provide such specification to any prospective tenderer.

The Client's further duties are as in C3.5.1.3.1.1. below and in the Construction Regulations, 2003.

This specification has as objective to ensure that Principal Contractors entering into a Contract with the Roads Agency Limpopo (Pty) Ltd (RAL) achieve an acceptable level of OH&S performance. This document forms an integral part of the Contract and Principal and other Contractors should make it part of any Contracts that they may have with Contractors and/or Suppliers.

Compliance with this document does not absolve the Principal Contractor from complying with minimum legal requirements and the Principal Contractor remains responsible for the health & safety of his employees and those of his Mandataries.

C3.3.3.1.2 Scope

Development of a health & safety specification that addresses all aspects of occupational health and safety as affected by the abovementioned contract work.

The specification will provide the requirements that Principal Contractors and other Contractors will have to comply with in order to reduce the risks associated with the abovementioned contract work that may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable.

C3.3.3.1.3 General Occupational Health & Safety Provisions

(a) Hazard Identification & Risk Assessment (Construction Regulation 7)

(i) Risk Assessments

Annexure 3 contains a list of Risk Assessment headings that have been identified by RAL as possibly applicable to the abovementioned contract work. It is, by no means, exhaustive and is offered as an assistance to Contractors intending to tender.

Based on the Risk Assessments, the Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the OH&S aspects of the construction.

The Risk Assessments, together with the site-specific OH&S rules must be submitted to the RAL before mobilisation on site commences.

Despite the Risk Assessments listed in Annexure 3, the Principal Contractor is required to conduct a baseline Risk Assessment and the aforesaid listed Risk Assessments must be incorporated into the base-line Risk Assessment. The baseline Risk Assessment must further include the Standard Working procedures (SWP) and the applicable Method Statements based on the Risk Assessments

All out-of-scope work must be associated with a Risk Assessment.

(ii) Review of Risk Assessments

The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP's at each Production Planning and Progress Report meeting as the Contract work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client, other Contractors and all other concerned-parties with copies of any changes, alterations or amendments as contemplated in above.

(b) Legal Requirements

All Contractors entering into a Contract with the RAL shall, as a minimum, comply with the

- Occupational Health & Safety Act and Regulations (Act 85 of 1993). A current, up-to-date copy of the OHS Act must be available on site at all times
- Compensation for Occupational Injuries & Diseases Act (Act 130 of 1993). The principal Contractor will be required to submit a letter of Registration and "good-standing" from the Compensation Insurer before being awarded the Contract. A current, up-to-date copy of the COID Act must be available on site at all times.
- Where work is being carried out on mines' premises the Contractor will have to comply with the Mine Health & Safety Act and Regulations (Act. 29 of 1996) and any other OH&S requirements that the mine may specify. A current, up-to-date copy of the OHS Act must be available on site at all times.

(c) Structure and Responsibilities

(i) Overall Supervision and Responsibility for OH&S

- * It is a requirement that the Principal Contractor, when he appoints Contractors (Sub-contractors) in terms of Construction Regulations 5(3), (5), (9), (10) and (12) he includes an OHS Act Section 37(2) agreement: "Agreement with Mandatary" in his agreement with such Contractors.
- * Any OH&S Act (85/1993), Section 16(2) appointee/s as detailed in his/her/their respective appointment forms

(ii) Further (Specific) Supervision Responsibilities for OH&S

The Contractor shall appoint designated competent employees and/or other competent persons as required by the Act and Regulations. Below is a list of identified appointments and may be used to select the appropriate appointments for the current contract:

	Ref. Section/Regulation in OHSAct
Batch Plant Supervisor	(Construction Regulation 6(1))
Construction Vehicles/Mobile Plant/Machinery Supervisor	(Construction Regulation 21)
Demolition Supervisor	(Construction Regulation 12)
Drivers/Operators of Construction Vehicles/Plant	(Construction Regulation 21)
Electrical Installation and Appliances Inspector	(Construction Regulation 22)
Emergency/Security/Fire Coordinator	(Construction Regulation 27)
Excavation Supervisor	(Construction Regulation 11)
Explosive Powered Tool Supervisor	(Construction Regulation 19)
Fall Protection Supervisor	(Construction Regulation 8)
First Aider	(General Safety Regulation 3)
Fire Equipment Inspector	(Construction Regulation 27)
Formwork & Support work Supervisor	(Construction Regulation 10)
Hazardous Chemical Substances Supervisor	(HCS Regulations)
Incident Investigator	(General Admin Regulation 29)
Ladder Inspector	(General Safety Regulation 13A)
Lifting Equipment Inspector	(Construction Regulation 20)
Materials Hoist Inspector	(Construction Regulation 17)
OH&S Committee	(OHS Act Section 19)
OH&S Officer	(Construction Regulation 6(6))
OH&S Representatives	(OHS Act Section 17)
Person Responsible for Machinery	(General Machinery Regulation 2)
Scaffolding Supervisor	(Construction Regulation 14)
Stacking & Storage Supervisor	(Construction Regulation 26)
Structures Supervisor	(Construction Regulation 9)
Suspended Platform Supervisor	(Construction Regulation 15)
Tunneling Supervisor	(Construction Regulation 13)
Vessels under Pressure Supervisor	(Vessels under Pressure Regulations)
Working on/next to Water Supervisor	(Construction Regulation 24)
Welding Supervisor	(General Safety Regulation 9)

The appointments must be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information must be communicated and agreed with the appointees.

Copies of appointments must be submitted to the RAL together with concise CV's of the appointees. All appointments must be officially approved by RAL. Any changes in appointees or appointments must be communicated to RAL forthwith.

The Principal Contractor must, furthermore, provide RAL with an organogram of all Contractors that he/she has appointed or intends to appoint and keep this list updated on a weekly basis.

In addition RAL may require that a Traffic Safety Officer be appointed for any project.

(iii) Designation of OH&S Representatives (Section 18 of the OHS Act)

OH&S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

(iv) Duties and Functions of the OH&S Representatives (Section 19 of the OHS Act)

The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor

OH&S representatives must be included in accident/incident investigations

OH&S representatives must attend all OH&S committee meetings.

(v) Appointment of OH&S Committee (Section 20 of the OHS Act)

The Principal Contractor must establish an OH&S Committee consisting of all the designated OH&S Representatives together with a number of management representatives that are not allowed to exceed the number of OH&S representatives on the committee and a representative of the Client who shall act as the chairman without a vote. The members of the OH&S committee must be appointed in writing.

The OH&S Committee must meet minimum monthly and consider, at least, the following Agenda:

1. Opening & Welcome
2. Present/Apologies/Absent
3. Minutes of previous Meeting
4. Matters Arising from the previous Minutes
5. OH&S Reps Reports
6. Incident Reports & Investigations
7. Incident/Injury Statistics
8. Other Matters

9. Endorsement of Registers and other statutory documents by a representative of the Principal Contractor
10. Close/Next Meeting

(d) Administrative Controls and the Occupational Health & Safety File

(i) The OH&S File (Construction Regulation 5 (7))

As required by Construction Regulation 5(7), the Principal Contractor and other Contractors will each keep an OH&S File on site containing the following documents as a minimum:

- * Notification of Construction Work (Construction Regulation 3.)
- * Copy of OH&S Act (updated) (General Administrative Regulation 4.)
- * Proof of Registration and good standing with a COID Insurer (Construction Regulation 4 (g))
- * OH&S Programme agreed with the Client including the underpinning Risk Assessment/s & Method Statements (Construction regulation 5 (1))
- * Copies of OH&S Committee and other relevant Minutes
- * Designs/drawings (Construction Regulation 5 (8))
- * A list of Contractors (Sub-Contractors) including copies of the agreements between the parties and the type of work being done by each Contractor (Construction Regulation 9)
- * Appointment/Designation forms as per (a)(i) & (ii) above.
- * Registers as follows:
 - * Accident/Incident Register (Annexure 1 of the General Administrative Regulations)
 - * OH&S Representatives Inspection Register
 - * Asbestos Demolition & Stripping Register
 - * Batch Plant Inspections
 - * Construction Vehicles & Mobile Plant Inspections by Controller
 - * Daily Inspection of Vehicles. Plant and other Equipment by the Operator/Driver/User
 - * Demolition Inspection Register
 - * Designer's Inspection of Structures Record
 - * Electrical Installations, -Equipment & -Appliances (including Portable Electrical Tools)
 - * Excavations Inspection
 - * Explosive Powered Tool Inspection, Maintenance, Issue & Returns Register (incl. cartridges & nails)
 - * Fall Protection Inspection Register

- * First Aid Box Contents
- * Fire Equipment Inspection & Maintenance
- * Formwork & Support work Inspections
- * Hazardous Chemical Substances Record
- * Ladder Inspections
- * Lifting Equipment Register
- * Materials Hoist Inspection Register
- * Machinery Safety Inspection Register (incl. machine guards, lock-outs etc.)
- * Scaffolding Inspections
- * Stacking & Storage Inspection
- * Inspection of Structures
- * Inspection of Suspended Platforms
- * Inspection of Tunnelling Operations
- * Inspection of Vessels under Pressure
- * Welding Equipment Inspections
- * Inspection of Work conducted on or Near Water
- * All other applicable records

RAL will conduct an audit on the OH&S file of the Principal Contractor from time-to-time.

(e) OH&S Goals & Objectives & Arrangements for Monitoring & Review of OH&S Performance

The Principal Contractor is required to maintain a CIFR of at least 8 (See Annexure 1. to this document: "Measuring Injury Experience) and report on this to RAL on a monthly basis

(f) Notification of Construction Work (Construction Regulation 3.)

The Principal Contractor must, where the Contract meets the requirements laid down in Construction Regulation 3, within 5 working days, notify the Department of Labour of the intention to carry out construction work and use the form (Annexure A in the Construction Regulations) for the purpose. A copy must be held on the OH&S File and a copy must be forwarded to RAL for record keeping purposes.

(g) Training, Awareness and Competence

The contents and syllabi of all training required by the Act and Regulations are to be included in the Principal Contractor's OH&S Plan.

(i) General Induction Training

All members of Contractor's Site management as well as all the persons appointed as responsible for OH&S in terms of the Construction and other Regulations will be required to attend a general induction session by the Client

All employees of the Principal and other Contractors to be in possession of proof of General Induction training.

(ii) Site Specific Induction Training

The Principal Contractor will be required to develop Contract work project specific induction training based on the Risk Assessments for the Contract work and train all employees and other Contractors and their employees in this.

All employees of the Principal and other Contractors to be in possession of proof of Site Specific OH&S Induction training at all times.

(iii) Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training as follows:

OH&S Training Requirements: (as required by the Construction Regulations and as indicated by the OH&S Specification & the Risk Assessment/s):

- * General Induction (Section 8 of the Act)
- * Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
- * Site/Project Manager
- * Construction Supervisor
- * OH&S Representatives (Section 18 (3) of the Act)
- * Training of the Appointees indicated above
- * Operators & Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
- * Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction regulation 27)
- * Basic First Aid (General Safety Regulations 3)
- * Storekeeping Methods & Safe Stacking (Construction Regulation 26)
- * Emergency, Security and Fire Co-coordinator

(iv) Awareness & Promotion

The Principal Contractor is required to have a promotion and awareness scheme in place to create an OH&S culture in employees. The following are some of the methods that may be used:

- Toolbox Talks
- OH&S Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as OH&S Safety circles.

(v) Competence

The Principal Contractor shall ensure that his and other Contractors personnel appointed are competent and that all training required to do the work safely and without risk to health, has been completed before work commences

The Principal Contractor shall ensure that follow-up and refresher training is conducted as the contract work progresses and the work situation changes.

Records of all training must be kept on the OH&S File for auditing purposes.

(h) Consultation, Communication and Liaison

OH&S Liaison between the Client, the principal Contractor, the other Contractors, the Designer and other concerned parties will be through the OH&S committee as contemplated in above.

In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S committee and their elected Trade Union Representatives, if any.

The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/ situations etc.

The Principal Contractor will be required to do Site Safety Walks with RAL at least on a basis to be determined between the two parties.

The Principal and other Contractors will be required to conduct Toolbox Talks with their employees on a weekly basis and records of these must be kept on the OH&S File. Employees must acknowledge the receipt of Toolbox Talks which record must, likewise be kept on the OH&S File.

The Principal Contractors most senior manager on site will be required to attend all RAL OH&S meetings and

a list of dates, times and venues will be provided to the Principal Contractor by RAL.

(i) Checking, Reporting and Corrective Actions

(i) Monthly Audit by Client (Construction Regulation 1(d))

RAL will be conducting a Monthly Audit to comply with Construction Regulation 4(1)(d) to ensure that the principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

(ii) Other Audits and Inspections by RAL:

RAL reserves the right to conduct other ad hoc audits and inspections as deemed necessary. This will include Site Safety Walks.

(iii) Conducting an Audit

A representative of the Principal Contractor must accompany RAL on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

(iv) Contractor's Audits and Inspections

The Principal Contractor is to conduct his own monthly internal audits to verify compliance with his own OH&S Management system as well as of with this specification.

(v) Inspections by OH&S Representative's and other Appointees

OH&S Representatives must conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees must conduct inspections and report thereon as specified in their appointments e.g. vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

(vi) Recording and Review of Inspection Results

All the results of the abovementioned inspections to be in writing, reviewed at OH&S committee meetings, endorsed by the chairman of the meeting and placed on the OH&S File.

(vii) Reporting of Inspection Results

The Principal Contractor is required to provide the Client with a monthly report in the format as per the attached Annexure 2: "SHE Risk Management Report"

(j) Incident Reporting and Investigation

Reporting of Accidents and Incidents (Section 24 and General Administrative Regulation 8 of the OHS Act)

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- * dies
- * becomes unconscious
- * loses a limb or part of a limb
- * is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- * a major incident occurred
- * the health or safety of any person was endangered
- * where a dangerous substance was spilled
- * the uncontrolled release of any substance under pressure took place
- * machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- * machinery ran out of control

to RAL within two days and to the Provincial Director of the Department of Labour within seven days (Section 24 of the Act & General Administrative Regulation 8.) EXCEPT that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both RAL and the Provincial Director of the Department of Labour forthwith by telephone, telefax or E-mail.

The Principal Contractor is required to provide RAL with copies of all statutory reports required in terms of the Act within 7 days of the incident occurring.

The Principal Contractor is required to provide RAL with copies of all internal and external accident/incident investigation reports including the reports contemplated below within 7 days of the incident occurring.

Accident and Incident Investigation (General Administrative Regulation 9)

The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic

The results of the investigation to be entered into the Accident/Incident Register listed in above.

The Principal Contractor is responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The RAL reserves the right to hold its own investigation into an incident or call for an independent external investigation.

C.3.3.3.1.4 Operational Control

(a) Emergency Preparedness, Contingency Planning and Response

The Principal Contractor must appoint a competent person to act as Emergency Controller/Coordinator.

The Principal Contractor must conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that RAL may have in place.

The Principal Contractor and the other Contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them.

(b) First Aid (General Safety Regulation 3)

The Principal Contractor must provide First Aid equipment (including a stretcher) and have qualified First Aider/s as required by General Safety Regulation 3 of the OHS Act.

The Contingency Plan of the Principal Contractor must include the arrangements for speedily and timeously transporting injured/ill person/s to a medical facility or of getting emergency medical aid to person/s that may require it.

The Principal Contractor must have firm arrangements with his other Contractors in place regarding the responsibility of the other Contractors injured/ill employees

(c) Security

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period

(d) Fall Protection (Working in Elevated Positions (Construction regulation 8.)

A pre-emptive Risk Assessment will be required for any work to be carried out above two metres from the ground or any floor level and will be classified as "Work in Elevated Positions".

As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he/she is working at ground level and whilst working in this position be wearing a single belt with lanyard that will be worn to prevent the person falling from the platform, ladder or other device utilised. This safety belt will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length that the person will not be able to move over the edge.

Alternatively any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with guard rails at two different heights as prescribed in SABS

085: Code of Practice for the Design, Erection, Use and Inspection of Access Scaffolding.

Where the requirement in is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer's head at all times and the lanyard must be fitted with a shock absorbing device OR the person must be attached to an approved, by RAL, fall arrest system.

Where the requirements are not practicable, a suitable catch net must be erected.

Workers working in elevated positions must be trained to do this safely and without risk to health

Where work on roofs is carried out, the Risk Assessment must take into account the possibility of persons falling through fragile material. Skylights and openings in the roof.

C3.3.3.1.5 Measurement and Payment

Payment for the contractor's obligations in respect of the Occupational Health and Safety act and Construction Regulations shall be made through three payment items described below. The three payment items together shall include full compensation for all personnel (including a dedicated full time Construction Safety Officer), cost and incidentals in respect of compliance with the enforcement of the Health and Safety Specifications, which shall include for the compilation, presentation, implementation and maintenance of the Health and Safety Plan as contemplated. In tendering rates for the three items the contractor shall ensure that the sum of the amounts for the three items shall not be less than one percent (1%) of the Tender Amount.

Item	Unit
C1.1 Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Lump Sum

The full amount will be paid in one instalment only once:-

- (a) The contractor has notified the Provincial Director of the Department of Labour in writing of the project.
- (b) The contractor has made the required initial appointments of employees and sub-contractors.
- (c) The client has approved the contractor's Health and Safety Plan.
- (d) The contractor has set up his Health and Safety File.

Item	Unit
C1.2 Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Month

The tendered monthly amount shall represent full compensation for that part of the contractor's general obligations in terms of the Occupational Health and Safety Act and the Construction Regulations which are mainly a function of time. This includes

inter alia payment of all costs for the appointment of all staff contemplated in the construction regulations and the transport of employees on site. Payment will be monthly only after payment for Item **C1.1** has been made.

Item	Unit
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C1.3 Submission of the Health and Safety File	Lump Sum
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The tendered lump sum shall represent full compensation for the contractor meeting all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and for the preparation and submission of his Health and Safety File complete as envisaged on this specification to the Client's satisfaction.

This amount will be paid only once the contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction.

C3.3.3.1.6 Project/Site Specific Requirements

See Annexure 3

Annexure 1: Measuring Injury Experience

Annexure 2: SHE Risk Management Report

Annexure 3. List of Risk Assessments

ANNEXURE 1: MEASURING INJURY EXPERIENCE

Injury experience has traditionally been measured by the use of a disabling injury frequency rate, the so-called “DIFR”. The DIFR is calculated by multiplying the number of disabling injuries by 1 million and dividing by the number of man-hours worked.

Lately the DIFR has been replaced internationally with a DIIR: disabling injury incidence rate. The only difference between the two rates are that the 10 million in the calculation is replaced with 200 000. (200 000 purported to be the number of hours and average person works in a lifetime.)

The use of the two rates above has proved to be somewhat problematical as they are open to manipulation and disabling injuries are often “hidden” by returning the injured employee to the workplace so as not to lose a shift and therefore having to register a disabling injury.

The Construction Industry recently decided to promote the use of a new frequency rate based on the number of compensation injury claims as these are more difficult to hide or manipulate because the reporting of compensable injuries is a legal requirement.

The industry is hoping that adoption of this new measurement of injury experience will enable the industry to monitor itself as far as work related injuries are concerned.

Below follows an explanation of this new rating system.

COMPENSATION INCIDENCE FREQUENCY RATE (CIFR)

FORMULA

No. of Compensation Claims X 200 000 /

*220 man hours X No. of Employees

DEFINITIONS

No. of Compensation

Claims: **The number of claims lodged with the COID insurer for the period under review**

200 000: The fixed factor to align the rate with other rates used internationally

Manhours Worked

Include: *

- * Hourly Paid Employees
- * Sub-contactors (No. of Employees X *220 each)
- * Staff (No. of Employees X *220 hours each)

220 manhours: The *average number of hours worked by one employee in one month in the Construction industry.

* Overtime, absence on leave or sick leave, unrecorded after hours time worked by senior and middle management factored into this average.

No. of Employees: The actual or average number of employees employed
for the period under review.

2002/03CIFRSystem

ANNEXURE 2: EXECUTIVE SHE RISK MANAGEMENT REPORT

The SAFCEC OH&S committee recently developed the following report in an attempt to standardise on reporting and assist contractors in obtaining a clear picture of their SHE Risk Management performance. It is hoped that clients will also accept this standardised report. Your comments/suggestions for improvement is invited.

EXAMPLE ONLY: ALL INFORMATION IS FICTITIOUS

XYZ construction

*SHE RISK MANAGEMENT REPORT

PERIOD JANUARY TO MARCH 2002

*(SHE = Safety, Health & Environment)

1. Introduction

We hope that this new format of quarterly SHE Risk Management reporting will provide a clear picture of the company's performance as far as occupational health & safety is concerned.

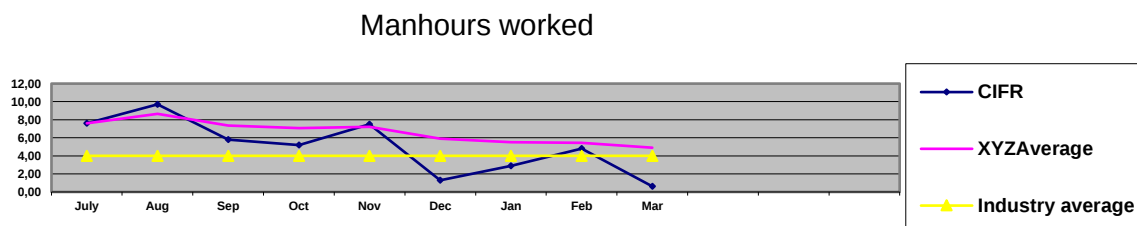
The first quarter of 2002 generally reflected an improvement in injury experience and shows a decline in the number of injuries. Although Building was the only division where there was an increase in compensation claims, figures are still well down from the average 2001 figures. A sub-contractor experienced one fatality.

All divisions are eagerly awaiting the final implementation in May of the new electronic SHE Management system that will make the tools to implement the SHE programme available to all management and supervisory staff.

2. Incident Statistics

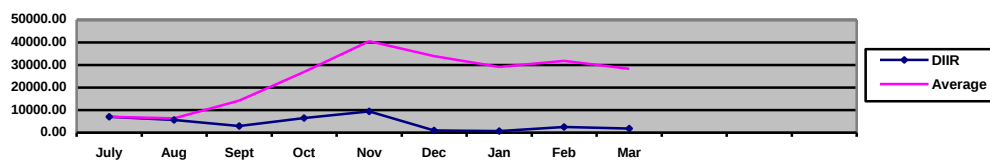
Compensation Incident Frequency Rate (CIFR)

$\text{CIFR} = \frac{\text{Total No. of Claims against the Workmen's Compensation Fund}}{\text{Manhours worked}} \times 200\,000$



2.2. Disabling Injury Incidence Rate (DIIR)

$$\text{DIIR} = \frac{\text{No. Disabling Injuries} \times 200\,000}{\text{Manhours worked}}$$



2.3. Other Major Incidents

Three other major incidents were experienced in the period under review:

- 2.3.1. A major trench collapsed at Job. 00123: XYZ Head Office, Bochum: No personnel injured, extensive damage to foundations: 3 days delay.
- 2.3.2. A concrete dumper ran away when its brakes failed. It smashed into the glass façade of the building on Job 00332: McDonalds, Polokwane. The driver jumped off and was not injured. Cost of damage to façade: R45 000.
- 2.3.3. A storage hut on Job 00567: BP Petrol Station, Swartruggens was demolished by fire when the night watchman made a fire inside the storage hut which contained concrete vibrators and levelling machines. Cost of replacing the hut and machines: R30 000

3. RISK AREAS

The following items of concern need priority consideration by management:

- 3.1. New employees must undergo pre-employment medical examinations to:
 - protect XYZ from claims at a later stage
 - ensure that only healthy persons are employed
 - prevent injuries and illness in the workplace
 - enhance XYZ image
- 3.2. Vehicle drivers and plant operators must be instructed to inspect their vehicles daily before start-up using the prescribed checklists to ensure that these are safe to operate and in good condition.

4. AUDITS

Three SHE audits were conducted in February and March:

- 4.1. Job 00432: Gillooly's Mall Compliance: 56%(*)
- Job 00786: Cullinan Head Office Compliance: 83%****)

5. TRAINING

One hundred and forty two employees, representing 7% of employees, attended nine training courses. *Our objective is to train 5,5% of employees quarterly.

Month	No. of Employees Trained	Course	Source
January	26 15 3	Induction OH&S Reps Crane Drivers	Internal Consultant External
February	23 17	Induction OH&S Reps	Internal Consultant
March	43 9 3 3	Induction OH&S Reps Bomag Rollers First Aiders	Internal Consultant Supplier St. John's

6. LEGAL ISSUES

- 6.1. An inspector of the Department of Labour issued an improvement notice on Job 00987: Gillooly's Mall. The notice requires that all scaffolding comply with the SABS standards for the Erection and Maintenance of Access Scaffolding (SABS 085). This is currently being attended to and the inspector will return on 15 April 2002 to ascertain if the notice has been complied with.

8. OCCUPATIONAL AND OTHER HEALTH MATTERS

8.1. HIV Aids

The proposed SAFCEC clinic will soon be operational and we will then be able to send our employees who have tested positive to the clinic for counselling and eventual treatment when necessary

The mobile clinic saw and tested fifty employee volunteers at 3 sites this month. Eighteen of them tested positive.

8.2. Tuberculosis

The mobile clinic will be calling at Gilleooly's Mall and Cleveland Station on 15 and 16 October respectively to screen employees for TB.

8.3. Noise

All suspected noise pollution areas have been tested and the results are awaited. Employees working in areas testing over 85dBa will be issued with suitable hearing protectors.

9. ENVIRONMENTAL MEASURES

Inspectors from the Botswana Department of the Environment visited Djwaneng and inspected the site and yard. They gave it a "clean bill of health" and advised that we should increase the dust control measures by spraying roads three times per day instead of the present twice per day.

10. ACHIEVEMENTS/AWARDS

10.1. The client at Djwaneng (Job 00786) awarded the XYZ site first position in the housekeeping competition conducted bi-monthly by the client's SHE managers. The project manager and his team are to be congratulated for this sterling effort.

10.2. Job 0987: Refurbishment of Pretoria Main Railway Station has just completed 1million compensation claim free days. This was no easy achievement if we consider the conditions being worked under after the extensive fire that caused major damage.

SHE Risk Manager

2002.09.27

ANNEXURE 3: LIST OF RISK ASSESSMENTS

- * Clearing & Grubbing of the Area/Site
- * Site Establishment including:
 - Office/s
 - Secure/safe storage for materials, plant & equipment
 - Ablutions
 - Sheltered eating area
 - Maintenance workshop
 - Vehicle access to the site
- * Dealing with existing structures
- * Location of existing services
- * Installation and maintenance of temporary construction electrical supply, lighting and equipment
- * Adjacent land uses/surrounding property exposures
- * Boundary and access control/Public Liability Exposures (NB: the Employer is also responsible for the OH&S of non-employees affected by his/her work activities.)
- * Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, lightning etc.
- * Exposure to noise
- * Exposure to vibration
- * Protection against dehydration and heat exhaustion
- * Protection from wet & cold conditions
- * Dealing with HIV/Aids and other diseases
- * Use of Portable Electrical Equipment including
 - Angle grinder
 - Electrical drilling machine
 - Skill saw
- * Excavations including
 - Ground/soil conditions
 - Trenching
 - Shoring
 - Drainage of trench
- * Welding including
 - Arc Welding
 - Gas welding
 - Flame cutting
 - Use of LP gas torches and appliances
- * Loading & offloading of trucks
- * Aggregate/sand and other materials delivery
- * Manual and mechanical handling
- * Lifting and lowering operations
- * Driving & operation of construction vehicles and mobile plant including
 - Trenching machine
 - Excavator
 - Bomag roller
 - Plate compactor
 - Front end loader
 - Mobile cranes and the ancillary lifting tackle
 - Parking of vehicles & mobile plant
 - Towing of vehicles & mobile plant
- * Use and storage of flammable liquids and other hazardous substances

- * Layering and bedding
- * Installation of pipes in trenches
- * Pressure testing of pipelines
- * Backfilling of trenches
- * Protection against flooding
- * Gabion work
- * Use of explosives
- * Protection from overhead power lines
- * As discovered by the Principal Contractor's hazard identification exercise
- * As discovered from any inspections and audits conducted by the Client or by the Principal Contractor or any other Contractor on site
- * As discovered from any accident/incident investigation.

C3.3.3.2 ENVIRONMENTAL MANAGEMENT PLAN

CONTENTS

- C3.3.3.2.1 SCOPE
- C3.3.3.2.2 DEFINITIONS
- C3.3.3.2.3 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS
- C3.3.3.2.4 LEGAL REQUIREMENTS
- C3.3.3.2.5 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS
- C3.3.3.2.6 TRAINING
- C3.3.3.2.7 ACTIVITIES/ASPECTS CAUSING IMPACTS
- C3.3.3.2.8 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES
- C3.3.3.2.9 RECORD KEEPING
- C3.3.3.2.10 COMPLIANCE AND PENALTIES
- C3.3.3.2.11 MEASUREMENT AND PAYMENT

C3.3.3.2.1 SCOPE

This environmental management programme (EMP) sets out the methods by which proper environmental controls are to be implemented by the contractor. The duration over which the contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the General Conditions of Contract, and the project specifications, as the defects notification period (maintenance period).

The provisions of this EMP are binding on the contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract. In the event that any conflict occurs between the terms of the EMP and the project specifications or Record of Decision, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any substantial changes shall be submitted to the Roads Agency Limpopo in writing for approval.

The EMP identifies the following:

Construction activities that will impact on the environment.

Specifications with which the contractor shall comply in order to protect the environment from the identified impacts.

Actions that shall be taken in the event of non-compliance.

C3.3.3.2.2 DEFINITIONS

Alien Vegetation: alien vegetation is defined as undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to

be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: a construction activity is any action taken by the contractor, his subcontractors, suppliers or personnel during the construction process as defined in the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7, 1998)

Environment: environment means the surroundings within which humans exist and that could be made up of -

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

Environmental Impact: an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Record of Decision: a record of decision is a written statement from the Limpopo Department of Economic Development, Environment and Tourism, that records its approval of a planned undertaking to improve, upgrade or rehabilitate a section of road and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Road Reserve: the road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

Road Width: for the purposes of the EMP, the road width is defined as the area within the road reserve i.e. fence line to fence line, but also includes all areas beyond the road reserve that are affected by the continuous presence of the road, e.g. a reach of a water course.

C3.3.3.2.3 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The contractor shall identify likely aspects before commencing with any construction activity. Examples of environment aspects include:

- waste generation
- stormwater discharge
- emission of pollutants into the atmosphere
- chemical use operations
- energy use operations
- water use operations
- use of natural resources
- noise generation

Thereafter the contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor shall provide plans and measures for the engineer's approval, which will limit and contain the magnitude, duration and intensity of the impact. The contractor shall demonstrate that he/she is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce an approved construction programme according to subclause 8.3 as amended by Particular Condition of the general conditions of contract and clause B1204 of these project specifications.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

Pollution of atmosphere, soil or water

Destruction or removal of fauna and flora and effect on biological diversity

Deformation of the landscape

Soil erosion

Destruction of historical/heritage sites

Effect on the built environment

Effect on agricultural land and wetlands

General good construction practice will play an important role in avoiding the occurrence of an Impact. The contractor's attention is drawn, in this regard, to C1008. Environmental Management of Construction Activities

C3.3.3.2.4 LEGAL REQUIREMENTS

a) General

Construction will be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The contractor should note that obligations imposed by the EMP are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

b) Statutory and other applicable legislation

The contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

C3.3.3.2.5 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS

a) Appointment of a Designated Environmental Officer (DEO)

For the purposes of implementing the conditions contained herein, the contractor shall submit to the engineer for approval the appointment of a nominated representative of the contractor as the DEO for the contract. The request shall be given, in writing, at least fourteen days before the start of any work clearly setting out reasons for the nomination, and with sufficient

detail to enable the engineer to make a decision. The engineer will, within seven days of receiving the request, approve, reject or call for more information on the nomination. Once a nominated representative of the contractor has been approved he/she shall be the DEO and shall be the responsible person for ensuring that the provisions of the EMP are complied with during the life of the contract. The engineer will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The DEO shall submit regular written reports to the engineer, but not less frequently than once a month.

The engineer shall have the authority to instruct the contractor to replace the DEO if, in the engineer's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMP or this specification. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required.

There shall be an approved DEO on the site at all times.

b) Administration

Before the contractor begins each construction activity the DEO shall give to the engineer a written statement setting out the following:

The type of construction activity.

Locality where the activity will take place.

Identification of the environmental aspects and impacts that might result from the activity.

Methodology for impact prevention for each activity or aspect.

Methodology for impact containment for each activity or aspect.

Emergency/disaster incident and reaction procedures.

Treatment and continued maintenance of impacted environment.

The contractor may provide such information in advance of any or all construction activities provided that new submissions shall be given to the engineer whenever there is a change or variation to the original.

The engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

c) Good Housekeeping

The Contractor shall undertake "good housekeeping" practices during construction as stated in clause 1217 of the COLTO Standard Specifications for Roads and Bridges and subclauses 4.3.1 and 4.3.2 of the General Conditions of Contract. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

C3.3.3.2.6 TRAINING

The designated environmental officer (DEO) must be conversant with all legislation pertaining to the environment applicable to this contract and must be appropriately trained in

environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies
- The environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.

In the case of permanent staff the contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the contractor shall inform the engineer when and how he/she intends concluding his environmental training obligations.

C3.3.3.2.7 ACTIVITIES/ASPECTS CAUSING IMPACTS

A list of possible causes of environmental impacts that occur during construction activities is given in Table 7/1: Aspects or Activities that Cause Environmental Impacts during Construction Activities, which is to be found at the end of this part. This list is not exhaustive, and shall be used for guideline purposes only.

C3.3.3.2.8 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

a) Site Establishment

i) Site Plan

The contractor shall establish his construction camps, offices, workshops, staff accommodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before construction can begin, the contractor shall submit to the engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course as possible. Regardless of the chosen site, the contractor's intended mitigation measures shall be indicated on the plan. The site plan shall be submitted not later than the first site meeting. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the engineer for consultation during rehabilitation of the site. Read with COLTO Specification 1302(a), 1402 (e).

ii) Vegetation

The contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous trees as were occurring, shall be re-established.

The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding. (Read in conjunction with COLTO Specification 5801(b), 5802(b), (c), (d) and (e), 5804, 5805, 5806 and 5807). Fires shall only be allowed in facilities or equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

iii) Rehabilitation

The area where the site offices were erected will require rehabilitation at the end of the

contract. All construction material, including concrete slabs and braai areas shall be removed from the site on completion of the contract.

iv) Water for human consumption

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp / office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans dams etc). Only domestic type wastewater shall be allowed to enter this drain.

v) Heating and Cooking fuel

The contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

b) Sewage treatment

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of project management, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as “enviro loos”, or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the engineer. Read with COLTO Specifications 1402(g) and 1404(a).

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the engineer.

c) Waste Management

The contractor's intended methods for waste management and waste minimisation shall be implemented at the outset of the contract. All personnel shall be instructed to dispose of all waste in the proper manner.

i) Solid Waste

Solid waste shall be stored in an appointed area in covered, tip proof metal drums for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the engineer. Disposal of solid waste shall be at a Department of Water Affairs and Forestry (DWAF) licensed landfill site or at a site approved by DWAF in the event that an existing operating landfill site is not within reasonable distance from the site offices and staff accommodation. No waste shall be burned or buried at or near the site offices, nor anywhere else on the site, including the approved solid waste disposal site. Read with COLTO Specification 1404(a).

ii) Litter

No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.

Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the contractor shall provide litter collection facilities for later safe disposal at approved sites. (Read with COLTO Specification 1302(b)).

iii) Hazardous waste

Hazardous waste such as bitumen, tar, oils etc. shall be disposed of in a Department of Water Affairs and Forestry approved landfill site. Special care shall be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.

Under no circumstances shall the spoiling of tar or bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. Any spillage of tar or bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the engineer.

d) Control at the workshop

The contractor's management and maintenance of his plant and machinery will be strictly monitored according to the criteria given below, regardless whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop).

i) Safety

All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the contractor to, and used or worn by, the staff whose duty it is to manage and maintain the contractor's and his subcontractor's and supplier's plant, machinery and equipment.

ii) Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials e.g. tar or bitumen binders shall be stored in a secured,

appointed area that is fenced and has restricted entry. Storage of tar or bituminous products shall only take place using suitable containers to the approval of the engineer.

The contractor shall provide proof to the engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected the contractor shall furnish the engineer with details of the preventative measures he proposes to install in order to mitigate against pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bunded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

iii) Fuel and Gas Storage

Fuel shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers.. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

iv) Oil and Lubricant Waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

e) Clearing the Site

In all areas where the contractor intends to, or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the engineer for his approval.

The plan shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during subsequent inspections.

The contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, road construction has to be stored temporarily or otherwise within the road reserve, or

at designated or instructed areas outside the road reserve. This responsibility shall extend until expiry of the defects notification period.

f) Soil Management

i) Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include the storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved Department of Water Affairs and Forestry waste disposal site. (Read with COLTO Specifications 3104(a), 5802(a), (g), 5804(a), (b) and (c)). The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water. Stockpiles of topsoil shall not exceed a height of 2m, and if they are to be left for longer than 6 months, shall be analysed, and if necessary, upgraded before replacement. Stockpiles shall be protected against infestation by weeds.

The contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be topsoiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the engineer. The contractor's responsibility shall also extend to the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

ii) Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the engineer, and stored separately from the topsoil if not used for road building. This soil shall be replaced in the excavation in the original order it was removed for rehabilitation purposes.

g) Drainage

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this development or expansion will affect the drainage pattern. Recognised water users / receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

Streams, rivers, pans, wetlands, dams, and their catchments shall be protected from erosion and from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous or tar products.

The contractor shall submit to the engineer his proposals for prevention, containment and rehabilitation measures against environmental damage of the identified water and drainage systems that occur on the site. Consideration shall be given to the placement of sedimentation ponds or barriers where the soils are of a dispersive nature or where toxic fluids are used in the construction process. The sedimentation ponds must be large enough to contain runoff so that they function properly under heavy rain conditions.

h) Earthworks and Layerworks

This section includes all construction activities that involve the mining of all materials, and their subsequent placement, stockpile, spoil, treatment or batching, for use in the permanent works, or temporary works in the case of deviations. Before any stripping prior to the commencement of construction, the contractor shall have complied with the requirements of sections C1008 (e) and C1008 (g). In addition, the contractor shall take cognisance of the requirements set out below.

i) Quarries and borrow pits

The contractor's attention is drawn to the requirement of the Department of Minerals and Energy, that before entry into any quarry or borrow pit, an EMP for the establishment, operation and closure of the quarry or borrow pit shall have been approved by the Department. It is the responsibility of the contractor to ensure that he is in possession of the approved EMP or a copy thereof, prior to entry into the quarry or borrow pit. The conditions imposed by the relevant EMP are legally binding on the contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific EMP and these specifications the former shall apply. The cost of complying with the requirements shall be deemed to be included in existing rates in the Bill of Quantities. (Read with COLTO Specification 3100 and 3200).

ii) Excavation, hauling and placement

The contractor shall provide the engineer with detailed plans of his intended construction processes prior to starting any cut or fill or layer. The plans shall detail the number of personnel and plant to be used and the measures by which the impacts of pollution (noise, dust, litter, fuel, oil, sewage), erosion, vegetation destruction and deformation of landscape will be prevented, contained and rehabilitated. Particular attention shall also be given to the impact that such activities will have on the adjacent built environment. The contractor shall demonstrate his "good housekeeping", particularly with respect to closure at the end of every day so that the site is left in a safe condition from rainfall overnight or over periods when there is no construction activity. (Read with COLTO Standard Specification clauses 1217 and 3309)

iii) Spoil sites

The contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site he uses during the contract period, including the defects notification period. This shall include existing spoil sites that are being re-entered. Before spoil sites may be used proposals for their locality, intended method of operation, maintenance and rehabilitation shall be given to the engineer for his approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the engineer. No spoil site shall be located within 500m of any watercourse. A photographic record shall be kept of all spoil sites for monitoring purposes. This includes before the site is used and after re-vegetation.

The use of approved spoil sites for the disposal of hazardous or toxic wastes shall be prohibited unless special measures are taken to prevent leaching of the toxins into the surrounding environment. Such special measures shall require the approval of the relevant provincial or national authority. The same shall apply for the disposal of solid waste generated from the various camp establishments. The engineer will assist the contractor in obtaining the necessary approval if requested by the contractor.

Spoil sites will be shaped to fit the natural topography. These sites shall receive a minimum of 75mm topsoil and be grassed with the recommended seed mixture. Slopes shall not exceed a vertical: horizontal ratio of 1:3. Only under exceptional circumstances will approval be given to exceed this ratio. Appropriate grassing measures to minimise soil erosion shall be undertaken by the contractor. This will include both strip and full sodding. The contractor may motivate to the engineer for other acceptable stabilising methods. The engineer may only approve a completed spoil site at the end of the defects notification period upon receipt from the contractor of a landowner's clearance notice and an engineer's certificate certifying slope stability (Read with COLTO standard Specifications clause 1214). The contractor's costs incurred in obtaining the necessary certification for opening and closing of spoil sites shall be deemed to be included in the tendered rates for spoiling.

iv) Stockpiles

The contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material shall be indicated and demarcated on the site plan submitted in writing to the engineer for his approval, together with the contractor's proposed measures for prevention, containment and rehabilitation against environmental damage.

The areas chosen shall have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the contractor shall at all times ensure that they are:

- Positioned and sloped to create the least visual impact;
- Constructed and maintained so as to avoid erosion of the material and contamination of surrounding environment; and
- Kept free from all alien/undesirable vegetation.

After the stockpiled material has been removed, the site shall be re-instated to its original condition. No foreign material generated / deposited during construction shall remain on site.

Areas affected by stockpiling shall be landscaped, top soiled, grassed and maintained at the contractor's cost until clearance from the engineer and the relevant Authority is received.

Material milled from the existing road surface that is temporarily stockpiled in areas approved by the engineer within the road reserve, shall be subject to the same condition as other stockpiled materials. Excess materials from windrows, in-situ milling or any detritus of material from road construction activities may not be swept off the road and left unless specifically instructed to do so in the contract drawing or under instruction from the engineer

In all cases, the engineer shall approve the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their clause only when they have been satisfactorily rehabilitated. (Read with COLTO Specification 3203 and 4306).

v) **Blasting activities**

Wherever blasting activity is required on the site (including quarries and/or borrow pits) the contractor shall rigorously adhere to the relevant statutes and regulations that control the use of explosives. In addition, the contractor shall, prior to any drilling of holes in preparation for blasting, supply the engineer with a locality plan of the blast site on which shall be shown the zones of influence of the ground and air shock-waves and expected limits of fly-rock. The plan shall show each dwelling, structure and service within the zones of influence and record all details of the dwellings/structures/services including existing positions, lengths and widths of cracks, as well as the condition of doors, windows, roofing, wells, boreholes etc. The contractor, alone, shall be responsible for any costs that can be attributed to blasting activities, including the collection of fly-rock from adjacent lands and fields. The submission of such a plan shall not in any way absolve the contractor from his responsibilities in this regard. The contractor shall also indicate to the engineer the manner in which he intends to advertise to the adjacent communities and/or road users the times and delays to be expected for each individual blast.

i) **Batching sites**

Asphalt plants are considered scheduled processes listed in the second schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965). Should the use of an asphalt plant be considered on site, the contractor shall be responsible to obtain the necessary permit from the Department of Environmental Affairs and Tourism, regardless of where they are sited.

Crushing plants and concrete batching plants, whether sited inside or outside of defined quarry or borrow pit areas, shall be subject to the requirements of the Department of Minerals and Energy legislation as well as the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be the subject of regular inspections by the relative authorities during the life of the project. In addition, the selection, entry onto, operation, maintenance, closure and rehabilitation of such sites shall be the same as for those under section C1008(h)(iii), with the exception that the contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard the contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to drainage channels and settlement dams. Ultimate approval of these measures shall be from the relevant national authority, as shall approval of closure. The engineer will assist the contractor in his submissions to the relevant authority.

Effluent from concrete batch plants and crusher plants shall be treated in a suitable designated sedimentation dam to the legally required standards to prevent surface and groundwater pollution. The designs of such a facility should be submitted to the engineer for approval.

The contractor shall invite the relevant department to inspect the site within 2 months after any plant is commissioned and at regular intervals thereafter, not exceeding 12 months apart

j) Spillages

Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and tar or bituminous products. In the event of a spillage, the contractor shall be liable to arrange for professional service providers to clear the affected area.

Responsibility for spill treatment lies with the contractor. The individual responsible for, or who discovers a hazardous waste spill must report the incident to his/her DEO or to the engineer. The Designated Environmental Officer will assess the situation in consultation with the engineer and act as required. In all cases, the immediate response shall be to contain the spill. The exact treatment of polluted soil / water shall be determined by the contractor in consultation with the DEO and the engineer. Areas cleared of hazardous waste shall be re-vegetated according to the engineer's instructions

Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. The requirement for such input shall be agreed with the engineer. The costs of containment and rehabilitation shall be for the contractor's account, including the costs of specialist input.

k) Areas of Specific Importance

Any area, as determined and identified within the project document as sensitive or of special interest within the site shall be treated according to the express instructions contained in these specifications or the approved EMP. The contractor may offer alternative solutions to the engineer in writing should he consider that construction will be affected in any way by the hindrance of the designated sensitive area or feature. However, the overriding principle is that such defined areas requiring protection shall not be changed. Every effort to identify such areas within the site will have been made prior to the project going out to tender. The discovery of other sites with archaeological or historical interest that have not been identified shall require ad hoc treatment.

i) Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the engineer of such discovery. The South African Heritage Research Agency (SAHRA) is to be contacted who will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist. (Read with COLTO General Condition of Contract Subclause 4.24 as amended by Particular Condition).

ii) Graves and middens

If a grave or midden is uncovered on site, or discovered before the commencement of work, then all work in the immediate vicinity of the graves/middens shall be stopped and the engineer informed of the discovery. SAHRA should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The Employer will be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred. (Read with COLTO General Conditions of Contract Subclause 4.24 as amended by Particular Condition).

l) Noise Control

The contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance, for instance blasting and crushing activities, should only be carried out during daylight hours. Compliance with the appropriate legislation with respect to noise, shall be mandatory.

Should noise generating activities have to occur at night the people in the vicinity of the drilling shall be warned about the noise well in advance and the activities kept to a minimum.

m) Dust Control

Dust caused by strong winds shall be controlled by means of water spray vehicles. Dust omission from batching plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant office of the Department of Minerals and Energy.

n) Alien Vegetation

The contractor shall be held responsible for the removal of alien vegetation within the road reserve disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for or from road construction has been stored temporarily or otherwise within the road reserve. This responsibility shall extend for the duration of the defects notification period.

C3.3.3.2.9 RECORD KEEPING

The engineer and the DEO will continuously monitor the contractor's adherence to the approved impact prevention procedures and the engineer shall issue to the contractor a notice of non-compliance whenever transgressions are observed. The DEO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the engineer in the monthly report.

Copies of any record of decision or EMP's for specific borrow pits or quarries used on the project shall be kept on site and made available for inspection by visiting officials from the employer or relevant environmental departments.

C3.3.3.2.10 COMPLIANCE AND PENALTIES

The contractor shall act immediately when such notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings.

Any avoidable non-compliance with the above-mentioned measures shall be considered sufficient ground for the imposition of a penalty

The following penalties shall apply for environmental violations:

a) Unnecessary removal or damage to trees

- | | | |
|---|---|------------------|
| • 2600mm girth or less | : | R 5 000 per tree |
| • Greater than 2600mm, but less than 6180mm girth | : | R10 000 per tree |
| • Greater than 6180mm girth | : | R30 000 per tree |

b) Serious violations:

- | | | |
|--|---|-------------------------------|
| • Hazardous chemical/oil spill and/or dumping in non-approved sites. | : | R10 000 per incident |
| • General damage to sensitive environments. | : | R 5 000 per incident |
| • Damage to cultural and historical sites. | : | R 5 000 per incident |
| • Uncontrolled/unmanaged erosion (plus rehabilitation at contractor's cost). | : | R1 000 to R5 000 per incident |
| • Unauthorised blasting activities. | : | R 5 000 per incident |
| • Pollution of water sources. | : | R 10 000 per incident |

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final.

c) Less serious violations:

• Littering on site.	:	R1 000 per incident
• Lighting of illegal fires on site.	:	R1 000 per incident
• Persistent or un-repaired fuel and oil leaks.	:	R1 000 per incident
• Excess dust or excess noise emanating from site.	:	R1 000 per incident
• Dumping of milled material in side drains or on grassed areas:	:	R1 000 per incident
• Possession or use of intoxicating substances on site. :	:	R 500 per incident
• Any vehicles being driven in excess of designated speed limits.	:	R 500 per incident
• Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife.	:	R2 000 per incident
• Illegal hunting.	:	R2 000 per incident
• Urination and defecation anywhere except in designated areas.	:	R 500 per incident

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The calculation shall include allied construction activities in the same way as the calculation of reduced payments under section 8200. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

C3.3.3.2.11 MEASUREMENT AND PAYMENT

The cost of complying to this specification shall be deemed to be included in the rates tendered for this project.

Item	Unit
C100.01 Penalty for unnecessary removal or damage to trees for the following diameter sizes	
(a) 2600mm girth or less	number (No)
(b) Greater than 2600mm, but less than 6180mm girth	number (No)
(c) Greater than 6180mm girth	number (No)

The unit of measurement shall be the number of trees by diameter size removed unnecessary or damaged. The penalty rates applied shall be those stated in clause C3.5.2.10.

Item	Unit
C100.02 Penalty for serious violations	
(a) Hazardous chemical/oil spill and/or dumping in non-approved sites	number (No)
(b) General damage to sensitive environments	
(c) Damage to cultural and historical sites	number (No)
(d) Pollution of water sources	number (No)
(e) Unauthorised blasting activities	number (No)

- | | | |
|-----|--|-------------|
| (f) | Uncontrolled/unmanaged erosion
per incident, depending on environment impacts, plus
rehabilitation at contractor's cost) | number (No) |
|-----|--|-------------|

The unit of measurement for C100.02 (a) to (f) shall be the number of serious violation incidents. The penalty rates to be applied shall be those stated in clause C3.5.2.10.

Item		Unit
C100.03	Penalty for less serious violations	
	• Littering on site • Lighting of illegal fires on site • Persistent or un-repaired fuel and oil leaks • Excess dust or excess noise emanating from site • Dumping of milled material in side drains or on grassed areas • Possession or use of intoxicating substances on site • Any vehicles being driven in excess of designated speed limits • Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife • Illegal hunting • Urination and defecation anywhere except in designated areas	number (No) number (No) number (No) number (No) number (No) number (No) number (No) number (No) number (No) number (No)

The unit of measurement shall be the number of less serious violation incidents. The penalty rates applied shall be those stated in clause C3.5.2.10.

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The calculation shall include allied construction activities in the same way as the calculation of reduced payments under section 8200. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

Table 1: Mechanisms that Cause Environmental Impacts during Construction Activities

SECTION	CONTENTS	ENVIRONMENTAL IMPACTS				
		POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
1300	Camp Establishment	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
1400	Housing, Offices and laboratories	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
1500	Accommodation of Traffic	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
1600	Overhaul	Spillage Storage Noise/lights Dust control Exhaust fumes Washing waste	Turning circles Parking areas	Restrict access to sensitive areas	Protection of indigenous vegetation Preserve topsoil	

SECTION	CONTENTS	ENVIRONMENTAL IMPACTS				
		POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
1700	Clearing and grubbing	Waste treatment Hazardous waste Water supply Noise /lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Protection of indigenous vegetation Preserve topsoil	
2100 2400	- Drainage	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3100	Borrow pits	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3200	Stockpiling	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3300	Mass Earthworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
3400 3900	- Pavement layers	Waste treatment Hazardous waste Water supply	Selection of site Preserve indigenous vegetation	Selection of site	Preserve indigenous vegetation	

SECTION	CONTENTS	ENVIRONMENTAL IMPACTS				
		POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
		Spillage Storage Noise / lights Dust control	Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Preserve indigenous vegetation Preserve topsoil	Preserve topsoil Management of weeds	
4100	Asphalt works / sealing operations	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control Smoke control Storage of materials	Selection of site Preserve indigenous vegetation Preserve topsoil Turning circles Parking areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	
5000	Ancillary roadworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
6000	Structures	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
7000	Concrete pavements etc	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

C3.3.3.3 PROVISION OF STRUCTURED TRAINING

CONTENTS

- C3.3.3.3.1 SCOPE
- C3.3.3.3.2 GENERIC TRAINING
- C3.3.3.3.3 ENTREPRENEURIAL SKILLS TRAINING
- C3.3.3.3.4 MEASUREMENT AND PAYMENT

C3.3.3.3.1 SCOPE

This specification covers the requirements for the provision of structured training to be arranged by the contractor over the period of this contract.

C3.3.3.3.2 GENERIC TRAINING

C3.3.3.3.2.1 The contractor shall, from the commencement of the contract, implement a structured progressive training programme.

C3.3.3.3.2.2 Training shall be at or by an approved accredited organisation and shall be delivered by suitably qualified and experienced trainers.

C3.3.3.3.2.3 The contractor shall be responsible for the provision of everything necessary for the delivery of the generic training programme, including the following:

- (a) A suitable venue with sufficient furniture, lighting and power.
- (b) All necessary stationery consumables and study material.
- (c) Transport of the students (as necessary).

C3.3.3.3.2.4 The contractor's training programme shall be subject to the approval of RAL and the contractor shall if so instructed by RAL alter or amend the programme and course content if a need is identified once the contract commences.

C3.3.3.3.2.5 The contractor shall keep comprehensive records of the training given to each student and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form is illustrated in Part C5 of this document (form RDP 11 (E))

C3.3.3.3.3 ENTREPRENEURIAL SKILLS TRAINING

C3.3.3.3.3.1 Small contractors, subcontractors and the Project Steering Committee (PSC) will be entitled to receive a structured training programme, which will comprise both management skills as well as business development skills.

C3.3.3.3.3.2 The contractor shall closely monitor the performance of all small subcontractors in the execution of their contracts and shall identify all such subcontractors who, in his opinion, display the potential to benefit from structured training as may be provided for in the contract and where required by the engineer, shall make recommendations in

this regard. The final list of candidates will be decided between the contractor and the engineer.

C3.3.3.3.3 The training will be delivered by trainers who are accredited by the Civil Engineering Training Scheme (CEITS) or other institutions recognised by the Department of Labour. Accredited training refers to both the trainers as well as to the training material.

C3.3.3.3.4 The contractor shall facilitate in the delivery thereof, by instructing and motivating the subcontractor regarding attendance and participation therein.

C3.3.3.3.5 The contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor's work with that of the delivery of the structured training.

C3.3.3.3.7 The contractor shall be responsible for the provision of everything necessary for the delivery of the entrepreneurial training programme, including the following:

- (a) A suitably furnished venue (if required) with lighting and power.
- (b) All necessary consumables, stationery and study material.
- (c) Transport of the subcontractors (as necessary).

C3.3.3.3.7 All entrepreneurial training shall take place within normal working hours.

C3.3.3.3.8 The contractor's training programme shall be subject to the approval of RAL and the contractor shall if so instructed by RAL alter or amend the programme and course content if a need is identified once the contract commences.

C3.3.3.3.10 The contractor shall keep comprehensive records of the training given to each subcontractor and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each subcontractor shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form to be used is illustrated in Part C5 of this document, (form RDP 12 (E)).

C3.3.3.4 MEASUREMENT AND PAYMENT

<u>ITEM</u>	<u>UNIT</u>
E12.05 Provision for accredited training	
(a) Generic skills	Provisional sum
(b) Entrepreneurial skills	Provisional sum
(c) Handling cost and profit in respect of sub-item E12.05(a) and (b) above	percentage (%)
(d) Training venue (only if required)	lump sum

The prime cost sums are provided to cover the actual costs (including wages and the daily PSC reimbursement) for attendance of accredited training courses as agreed with the engineer and shall be expended in accordance with the provisions of sub-clause 48(2) of the general conditions of contract. The tendered percentage in sub-item E12.05 (c) is a percentage of the amount actually spent under sub-items E12.05(a) and (b) which shall include full compensation for the contractor's handling cost, profit, mentoring, record keeping, reporting and all other costs in connection therewith.

The lump sum tendered for E12.05(d) shall include full compensation for the provision of the training venue, for all necessary lighting, power, furniture, stationery, consumables and study material and for transportation of the students to and from the training venue.

Payment of the lump sum will be made after the provision of all the accredited training, issuing of all certificates and submission of all records as specified in the document.

C3.3.3.4 PROVISION OF THE TEMPORARY WORKFORCE

CONTENTS

C3.3.3.4.1 SCOPE

C3.3.3.4.2 INTERPRETATIONS

C3.3.3.4.3 PERMITTED SOURCES OF TEMPORARY WORKERS

C3.3.3.4.4 EMPLOYMENT RECORDS TO BE PROVIDED

C3.3.3.4.5 VARIATIONS IN WORKER PRODUCTION RATES

C3.3.3.4.6 TRAINING OF THE TEMPORARY WORKFORCE

C3.3.3.4.7 RECRUITMENT AND SELECTION PROCEDURES

C3.3.3.4.8 TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE

C3.3.3.4.9 LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES

C3.3.3.4.10 THE SUBCONTRACTORS' WORKFORCES

C3.3.3.4.11 MEASUREMENT AND PAYMENT

C3.3.3.4.1 SCOPE

This Specification covers the provisions and requirements relating to the provision of the temporary workforce. Reference is also made to the Basic Conditions of Employment Act (Act 75 of 1997) with specific reference to the Sectoral Determination 2: Civil Engineering Sector

C3.3.3.4.2 INTERPRETATIONS

C3.3.3.4.2.1 Supporting documents

The Tender Rules, Conditions of Contract, Standard and Project Specifications, Drawings and statutory minimum requirements relating to the employment and remuneration of labour shall *inter alia* be read in conjunction with this Specification.

C3.3.3.4.2.1.2 Definitions and abbreviations

For the purposes of this specification, the definitions given in the Conditions of Contract, the Standard Specifications and the Project Specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

- (a) "Key Personnel" means all contracts managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators, artisans and the like, and all other personnel in the permanent employ of the Contractor or Subcontractor who possess special skills and/or who play key roles in the Contractor's or Subcontractor's operation
- (b) "Project Committee" means a committee consisting of the Employer, the Engineer, the Contractor, (or their nominated representatives) as well as representatives of the temporary workforce, which is convened from time to time at the discretion of the Engineer, for the purposes of acting as an avenue for effective communication and liaison between all the parties referred to, in all matters pertaining to the Contract

- (c) "Subcontractor" means any person or group of persons in association, or firm, or body corporate (whether formally constituted or otherwise) not being the Contractor, to whom specific portions or aspects of the Works are sublet or subcontracted by the Contractor in accordance with the provisions of the Contract
- (d) "Worker" for the purposes of this Specification means any person, not being one of the Contractor's key personnel, nor any key personnel of any Subcontractor, who is engaged by the Contractor, a Subcontractor or the Employer to participate in the execution of any part of the Contract Works and shall include unskilled labour, semi-skilled and skilled labour, clerical workers and the like
- (e) "Workforce" means the aggregate body comprising all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all Subcontractors
- (f) "Project Steering Committee (PSC)" means a committee comprising mainly of representatives (to a maximum of 10) of the affected communities with additional members from RAL, the Contractor, Consultants and the Municipality. The PSC convenes at least once a month as well as when the need so dictates, for the purpose of recruiting labour for the project, to address community issues and for acting as an avenue for effective communication and liaison between all the parties.
- (g) "Liaison Officer" means a local representative of the temporary workforce, duly appointed through the PSC processes, to act on behalf of the workers and through whom all matters pertaining to the temporary workforce can be channelled.

C3.3.3.4.2.1.3 Status

Where any provisions or requirements of this Specification are in conflict with anything elsewhere set out in the Contract, the provisions and requirements of this Specification shall take precedence and prevail.

C3.3.3.4.3 PERMITTED SOURCES OF TEMPORARY WORKERS

The Contractor shall as far as possible make optimum use of the human resources outside his own workforce and the workforces of all subcontractors. The temporary workforce that is to be used in the execution of the Works in terms of Part C3 may consist of the workers of local communities, and shall not be bound to one particular community.

C3.3.3.4.4 EMPLOYMENT RECORDS TO BE PROVIDED

- (a) The Contractor shall maintain accurate and comprehensive records of all workers engaged on the Contract and shall provide the Engineer at monthly intervals from the commencement of the Contract, with interim records substantiating the actual numbers of employment opportunities that shall have been generated to date and the amounts actually paid in respect thereof. Such interim records shall be in a RAL approved format. An example of the forms to be used is illustrated in Part C5 of this document, (forms RDP 9 and 10 (E)).
- (b) The Contractor shall, on completion of the Contract, and as a pre-requisite event to the release of any retention money in terms of the Conditions of Contract, provide the Engineer with copies of the Terms of Employment as well as independently audited

documentary evidence of the total number of temporary and permanent employment opportunities actually generated during the Contract.

C3.3.3.4.5 VARIATIONS IN WORKER PRODUCTION RATES

Notwithstanding anything to the contrary as may be stated in or inferred from any other provision of this Contract, the Contractor shall not be entitled to any additional payment or compensation whatever, in respect of any differences as may result between the production rates actually achieved by workers in the course of the execution of the Contract Works and those production rates on which he has based his tender.

C3.3.3.4.6 TRAINING OF THE TEMPORARY WORKFORCE

- (a) Selected members of the workforce are to be provided with structured training in accordance with the provisions of Part C3.4.3.3.
- (b) The Contractor shall make all necessary allowances in his programme of work to accommodate and facilitate the delivery of such structured training and shall comply fully with the requirements of Part C3.4.3.3.
- (c) The provision of structured training as described in Part C3.4.3.3. shall not relieve the Contractor of any of his obligations in terms of the Conditions of Contract and the Contractor shall remain fully liable for the provision, at his own cost, of all training of the workforce, additional to that as provided for in Part C3.4.3.3, as may be necessary to achieve the execution and completion of the works strictly in accordance with the provisions of the Contract.

C3.3.3.4.7 RECRUITMENT AND SELECTION PROCEDURES

C3.3.3.4.7.1 The Project Steering Committee, through the assistance of the Social Facilitator and the Contractor, shall be responsible for the recruitment and selection of the Community Liaison Officer and the workers to constitute the temporary workforce.

C3.3.3.4.7.2 The Contractor shall advise the Engineer in writing of the numbers of each category of temporary worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall possess (taking due cognisance of the provisions of the Contract relating to training).

C3.3.3.4.7.3 The Social Facilitator shall take the necessary actions to advertise within the affected local communities comprising the personnel resources, the fact that temporary employment opportunities exist and the time and place where recruiting will occur

C3.3.3.4.7.4 The Social Facilitator shall record in writing, the details of all persons applying for employment, including *inter alia*:

- (a) Name, Identity Number, Date of Birth, age and sex
- (b) Marital status and number of dependants
- (c) Qualifications and previous work experience (whether substantiated or not)
- (d) On the job training programmes attended
- (e) Period since last economically active
- (f) Preference for type of work or task.

C3.3.3.4.7.5 The selection of workers from amongst the applicants should take into cognizance the Contractor's requirements for the workforce and the provisions of the contract in regard to the provision of training to the workforce and in accordance with the following principle:

- (a) No potential temporary worker shall be precluded from being employed by the Contractor on the execution of the Works, by virtue of his lack of skill in any suitable operation forming part of the Works, unless -
 - (i) all available vacancies have been or can be filled by temporary workers who already possess suitable skills, or
 - (ii) the Time for Completion allowed in the Contract, or the remaining portion of the Contract Period (as the case may be) is insufficient to facilitate the creation of the necessary skills.
- (b) Preference shall be given to the unemployed and single heads of households.
- (c) The Contractor shall, in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected.
- (d) The selection process shall not be prejudicial to youth (over the age of fifteen years) and women. The Contractor should strive to achieve the participation target for employment set for this project which is 60% female and 20% youth.

C3.3.3.4.7.6 After making the selection, the Social Facilitator shall forward the list in writing and without undue delay, to the Engineer for record keeping.

C3.3.3.4.7.7 The provisions of this clause shall apply *mutatis mutandis* in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the Contract.

C3.3.3.4.7.8 The Contractor shall, after appointing his temporary workforce, arrange at his own cost for the appointment of the Liaison Officer as representative of the workforce to act on their behalf with regards to all matters pertaining to the workforce.

C3.3.3.4.8 TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE

C3.3.3.4.8.1 All temporary workers engaged in accordance with the provisions of Part A of the Project Specifications, shall be employed on the terms and conditions of employment as are consistent with those as set out in this Contract. The Contractor shall implement and adhere strictly to such terms and conditions relating to the employment of the temporary workforce, and subject only to the provisions of this Contract, shall not employ any temporary worker on terms and conditions which are less favourable to the worker or inconsistent with the standards and norms generally applicable to temporary workers in the Civil Engineering Industry and applicable to the particular area. Refer to the Contract of Employment drafted/published by Department of Labour.

C3.3.3.4.8.2 RATE OF REMUNERATION. The Contractor shall pay to all workers engaged in terms of the contract, not less than the applicable gazetted minimum rate of remuneration in terms of the Sectorial Determination 2: Civil Engineering Sector.

The remuneration of the CLO shall be paid monthly at the rate equivalent to Task Grade 3 in accordance with the provisions of the Basic Conditions of Employment Act, No. 75 of 1997, Amendment to Sectorial Determination 2: Civil Engineering Sector, South Africa

Compensation for transport for the members of the Project Steering Committee shall be made at a rate of R200 / month. This will cover for transport cost to and from the PSC meeting, site meeting and any other meeting deemed necessary to fulfil their obligations.

C3.3.3.4.8.3 NON-PAYMENT OF LABOURERS. Under this contract it is expected of the Main Contractor to ensure that all labourers are paid in time on a monthly basis, whether they are employed by him/her directly or by any of his/her subcontractors. In the event of non-compliance, the employer reserves the right to use any remedies available at its disposal.

C3.3.3.4.9 LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES

C3.3.3.4.9.1 The Contractor, as the Employer of the workforce, shall be fully responsible for the establishment and maintenance at his own cost, of satisfactory labour relations on site and the resolution of all grievances of temporary workers as may occur. Refer to Disciplinary Procedures for Small Business drafted/published by Department of Labour.

C3.3.3.4.9.2 The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the Civil Engineering Construction Industry and shall conduct himself in a fair and reasonable manner, within the constraints as may be imposed upon him by the terms of the Contract.

C3.3.3.4.9.3 In the event of any temporary worker engaged by the Contractor in terms of the Contract, being aggrieved with regard to his Terms of Employment, working conditions and training, he shall have the right, at his discretion, to be supported in any inquiry or disciplinary hearing or investigation instituted by the Contractor in terms of Subclause C3.4.3.4.9.2 above, by one member of the temporary workforce and one member of the Project Committee, which persons shall be nominated by the worker.

C3.3.3.4.9.4 In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures in accordance with Sub clauses C3.3.3.4.9.2 and C3.4.3.4.9.3, then either the Contractor or the worker concerned may require that the matter be referred to the Project Committee for further consideration, with a view to facilitate the resolution thereof.

C3.3.3.4.10 THE SUBCONTRACTORS' WORKFORCES

C3.3.3.4.10.1 The provisions of this Part C shall apply *mutatis mutandis* to the workforces employed by all subcontractors engaged by the Contractor and the Contractor shall be fully responsible for ensuring, at his own cost, that the terms of every subcontract agreement entered into are such as to facilitate the application of these provisions in respect of the workforces of all subcontractors.

C3.3.3.4.10.2 The Contractor shall at his own cost and to the extent necessary, assist and monitor all subcontractors in the application of the provisions of this Specification, and shall, in terms of the Conditions of Contract, remain fully liable in respect of the acts, omissions and neglects of all subcontractors, in respect of the application of the provisions of this Specification.

C3.3.3.4.11 MEASUREMENT AND PAYMENT

The Contractor will not be separately reimbursed or compensated in respect of the provision of the workforce and creation of temporary employment opportunities and all the Contractor's costs associated with compliance with the provisions of this part of the Project Specifications shall, except to the extent provided for in Part C3.4.3.3. as relevant, be deemed to be included in the rates tendered for the various items of work listed in the Schedule of Quantities.

C3.4 MANAGEMENT

C3.4.1 MANAGEMENT MEETINGS

The following meetings will be required as minimum for the management of the contract.

- (a) Monthly client site meeting (using standard agenda for management control).
- (b) Technical meetings as required for each phase of the work.
- (c) Monthly safety meetings in terms of the OHS requirements.
- (d) Weekly progress meetings

C3.4.2 QUALITY CONTROL

Contractor to supply details of quality plan and procedures. These shall include:

- Accommodation of traffic.
- Inspection and test plans.
- Approval process.
- Hold-points.
- Milestones.

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PART C4: SITE INFORMATION

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C4.1 SITE INFORMATION

C4.1.1 Material site investigation

Materials Investigations were done for the road and an electronic copy can be availed on request.

C4.1.2 Pavement and layerworks design

Base repair:

The following base repair method will be used:

- Cut to stockpile existing base for reuse in repairing shoulders
- Stabilise 100mm of existing subbase to C4.
- Import 150mm G4 to form new base.
- 30mm Asphalt or Double seal as surfacing

Single Seal

The following method will be followed

- Application of texture slurry for the length to be sealed
- Application of tack coat
- Application of single seal.

C4.1.3 Structures

- Foundation design
- Details of structures

C4.1.4 Services

There are no services to be wary off.

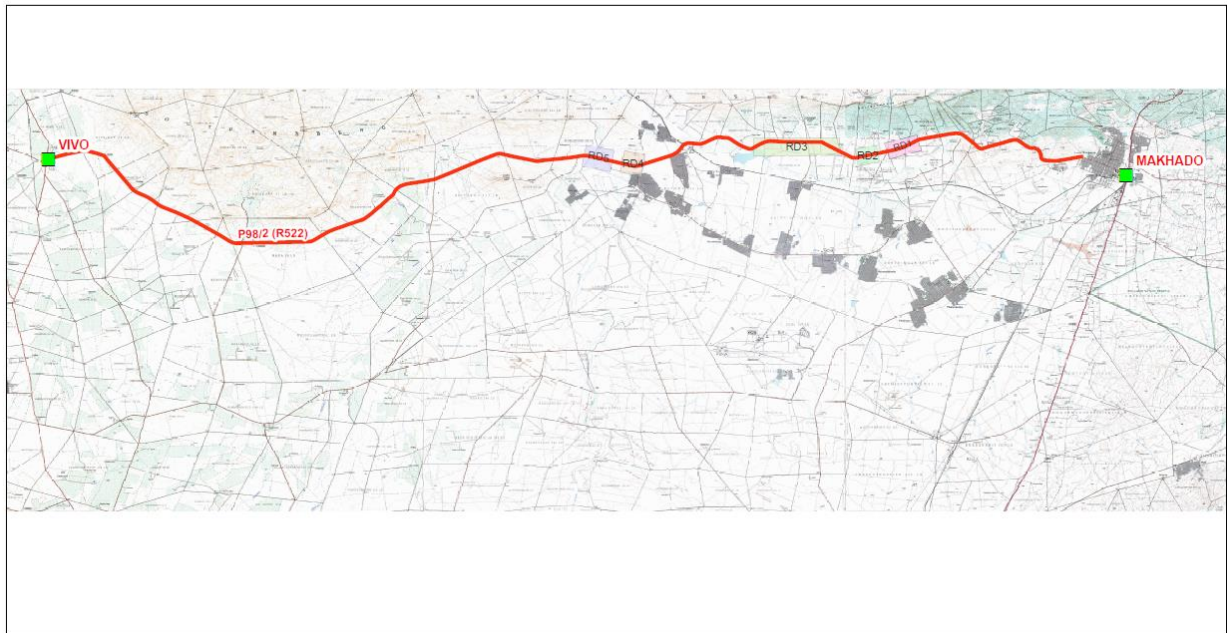
C4.1.5 Traffic counts

Traffic can be availed if required.

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C4.2 LOCALITY PLAN

P98/2 (R522) MAKHADO TO VIVO



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PART C5: ANNEXURES

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C5.1 PROFORMA DOCUMENTS

The following is a list of proforma documents and examples that are required to be completed by the successful tenderer.

C5.1.1	RETENTION MONEY GUARANTEE PROFORMA.....	158
C5.1.2	EXAMPLE OF SMME DECLARATION AFFIDAVIT	160
C5.1.3	FORM RDP 9(E) : CONTRACT EMPLOYMENT REPORT	162
C5.1.4	FORM RDP 10(E) : EMPLOYMENT OF SUPERVISORY STAFF REPORT ...	163
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C5.1.8	FORM RDP 14(E) : COMMUNITY LIAISON MEETING REPORT.....	167

C5.1.1 RETENTION MONEY GUARANTEE PROFORMA

EXAMPLE

Roads Agency Limpopo SOC Limited
Private Bag X9554
Polokwane
0700

FOR INFORMATION ONLY:
This Guarantee is not to be
completed and signed by the
Guarantor.

A separate form will be issued
to the successful Tenderer

Notes to Tenderer

1. **This pro forma is for information only. The successful tenderer's guarantor will need to reproduce it without amendment, omission or addition for completion and lodgement with the Employer.**
2. **The tenderer's guarantee will have to be on letterheads indicating the contact details of the guarantor, shareholders/board of directors, guarantee number and the company registration number.**

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The guarantee is issued on behalf of

Registration No

(hereinafter referred to as "the Contractor") in connection with the above mentioned contract (hereinafter referred to as "the Contract").

Whereas you have agreed that the Contractor may provide a guarantee in lieu of the retention monies provided for under the Contract.

Now therefore we, the undersigned, being duly authorised to represent the

.....
(full name of guarantor) registration number

undertake to pay you such amounts as you may from time to time demand from us, immediately upon receipt of a written demand from you.

1. Each demand shall be in writing and delivered to us at
or such other address as we shall in writing notify to you.
2. Our liability to make the payments herein referred to shall be unconditional and not be affected or diminished by any disputes, claims or counterclaims between you and the Contractor.
3. Our aggregate liability under this guarantee is limited to
(R.....) and is restricted to payment of monies only.
4. This guarantee shall expire on the date on which the last of the retention monies, which but for this guarantee would have been retained by you, becomes payable to the Contractor.
5. This guarantee is neither negotiable nor transferable and must be returned to us

against final payment of our aggregate liability or on the date of the expiry of the guarantee in terms of Clause 4 (above), whichever is the earlier.

Signed atfor and on behalf of
on this the day of.....in the year

GUARANTOR:

AS WITNESS:

1. 2.

NAME(Print): NAME(Print):

ADDRESS ADDRESS

.....

.....

C5.1.2 EXAMPLE OF SMME DECLARATION AFFIDAVIT

1. Name of SMME firm :
Postal address :
Physical address of Head Office:
.....
Telephone no. : Fax no
Cell no :
Contact person :
VAT registration no. :

2. Type of firm (tick as appropriate)
- Partnership.....
 - One person business/sole trader.....
 - Close corporation: registration no.....
 - Date of registration.....
 - Company: registration no.....
 - Pty Ltd: registration no.....

[ATTACH LATEST CIPRO PRINTOUT TO PROVE ABOVE INFORMATION]

3. Principal Business Activities :.....
4. Service/work to be performed on this contract:
5. CIDB registration no (if applicable):

[ATTACH LATEST CIDB INFORMATION AS PROOF]

5. SMME status (mark the appropriate category)
- 5.1. Total full time equivalent of paid employees:
- 5.2. Total Annual turnover:
- 5.3. Total gross asset value (fixed property excluded):

[ATTACH CONFIRMATION LETTER OF AUDITER OR INCOME STATEMENT TO SUBSTANTIATE AND PROVE ABOVE INFORMATION]

8. Declaration

I,,
being duly authorised to sign on behalf of the firm, affirm that the SMME status as stated above and the information as furnished is true and correct.

Signature

Name (print)
Date
Signed on behalf of (print name)
Address
.....
Telephone no.

Commissioner of Oath
Date

Note: In the case of a Company a certificate of authority for signatory must be provided.

EXAMPLE

C5.1.3 FORM RDP 9(E) : CONTRACT EMPLOYMENT REPORT

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REPORT ON EMPLOYMENT ON THE ABOVE CONTRACT FOR THE MONTH OF 2011										
NAME OF COMPANY OR FIRM AND VENDOR NUMBER	AGE OF COMPANY OR FIRM	EMPLOYMENT GROUP	EMPLOYMENT							
			MALE	FEMALE	TOTAL	PERSON/HOURS			VALUE (RAND)	
						MALE	FEMALE	TOTAL	MALE	FEMALE
		Unskilled (US)								
		Semi-Skilled (SS)								
		Skilled (SK)								
		Lab.Tech (LT)								
		Surveyor (SUR)								
		Eng. Tech (ET)								
		Engineer (EN)								
		Admin (AD)								
		Others (o)								
TOTALS										
GRAND TOTALS										

EXAMPLE

C5.1.4 FORM RDP 10(E) : EMPLOYMENT OF SUPERVISORY STAFF REPORT

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REPORT ON THE EMPLOYMENT OF SUPERVISORY STAFF ON THE ABOVE CONTRACT FOR THE MONTH OF _____ 2011				
POSITION HELD	NAME	PDI	NON-PDI	TOTAL
Site Agent				
Senior Materials Technician				
Senior Surveyor				
Earthworks Surveyor				
Compaction Supervisor				
Surfacing Supervisor				
Structures Supervisor				
Others: - List				
TOTALS				

EXAMPLE

C5.1.5 FORM RDP 11(E) : GENERIC TRAINING REPORT

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REPORT ON GENERIC TRAINING ON THE ABOVE CONTRACT FOR THE MONTH OF										2011	
DATES OF TRAINING COURSES		EMPLOYER OF TRAINEE		NAME OF TRAINING INSTITUTE OR IF IN-HOUSE WRITE IH	ATTENDANCES				TOTAL COST OF TRAINING PER TYPE OF TRAINING		
					NUMBER ATTENDING		CERTIFICATES AWARDED				
START	FINISH	NAME	VENDOR NO.		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	
TOTAL											
TOTAL ALL TRAINEES											

EXAMPLE

C5.1.6 FORM RDP 12(E) : ENTREPRENEURIAL TRAINING REPORT

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[illegible]

EXAMPLE

C5.1.7 FORM RDP 13(E) : ENGINEERING TRAINING REPORT

CONTRACT NO.....

REPORT ON ENGINEERING TRAINING ON THE ABOVE CONTRACT FOR THE MONTH OF 2011										
DATES OF TRAINING COURSES		EMPLOYER OF TRAINEE		NAME OF TRAINING INSTITUTE OR IF IN-HOUSE WRITE – IH	ATTENDANCES				TOTAL COST OF TRAINING PER TYPE OF TRAINING	
START	FINISH	NAME	VENDOR NO.		NUMBER ATTENDING		CERTIFICATES AWARDED		MALE	FEMALE
					MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
TOTAL										
TOTAL ALL TRAINEES										

EXAMPLE

C5.1.8 FORM RDP 14(E) : COMMUNITY LIAISON MEETING REPORT

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REPORT ON COMMUNITY LIAISON MEETINGS ON THE ABOVE CONTRACT FOR THE MONTH OF _____ 2011						
DATE OF MEETING	COMPANY/FIRM OR ORGANISATION RESPONSIBLE FOR ARRANGING THE MEETING		NUMBER OF COMMUNITY MEMBERS PRESENT	DURATION OF MEETING (hours)	TOTAL COST OF THE MEETING	COMMENTS
	NAME	VENDOR NO.				
1						

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C5.2 CONTRACT DRAWINGS

The following is a list of contract drawings included in a separate volume entitled “Part C5.2: Contract Drawings.”

Plan No.	Title
298.2/C/101	ROAD LAYOUT SHEET 1 OF 7
298.2/C/102	ROAD LAYOUT SHEET 2 OF 7
298.2/C/103	ROAD LAYOUT SHEET 3 OF 7
298.2/C/104	ROAD LAYOUT SHEET 4 OF 7
298.2/C/105	ROAD LAYOUT SHEET 5 OF 7
298.2/C/106	ROAD LAYOUT SHEET 6 OF 7
298.2/C/107	ROAD LAYOUT SHEET 7 OF 7
T1056/RD201	TYPICAL PAVEMENT CROSS-SECTION
T1056/RD202	TYPICAL PAVEMENT CROSS SECTION
T1056/RD203	ACCOMMODATION OF TRAFFIC PERMANENT STOP – GO
T1056/RD204	ACCOMMODATION OF TRAFFIC SINGLE CARRIAGEWAY
T1056/RD205	PROPOSED CONSTRUCTION PHASES (SHEET 1 OF 2)
T1056/RD206	PROPOSED CONSTRUCTION PHASES (SHEET 2 OF 2)
T1056/RD207	ROAD MARKING DETAILS SHEET 1 OF 2
T1056/RD208	ROAD MARKING DETAILS SHEET 2 OF 2