

# **THE CONTRACT**

**PART C3:      SCOPE OF WORKS**

**PART C4:      SITE INFORMATION**

**PART C3: SCOPE OF WORK**

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**BLOUBERG LOCAL MUNICIPALITY****TENDER No: BM02/17/18****FOR: Indermark Internal Streets & Stormwater Phase 5****C3.1 DESCRIPTION OF WORKS****C3.1.1 General Description of the project**

This project involves the upgrading of Indermark Internal Streets and Stormwater. It also includes all the associated civil services such as stormwater drainage structures, road signs and road markings.

**C3.1.1 Employer's Objectives**

The objective of the client is to upgrade the Indermark Internal Streets and Stormwater in order to have a reliable and safe road especially during rainy seasons. The goals identified in the Schedule of Quantities to be achieved through labour intensive construction methods must be done in that fashion.

**Labour-intensive works**

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

**C3.1.2 Location of Works**

The project is located in Indermark Village which is within the Capricorn District and approximately 24km North of Senwabarwana Town in the boundaries of the Blouberg Local Municipality.

The section of the road to be upgraded (Phase 5) starts at km 0+900 (End of Phase 4) and ends at km 1+700 within the village. See table 2 and the Locality Plan below.

**Table 2: Road Co-ordinates**

DESCRIPTION	S-COORDINATES	E-COORDINATES	KM
Start	23° 03' 46"	29° 05' 44"	0.9 km
End	23° 03' 36"	29° 05' 16"	1.7 km

**C3.1.3 Extent of Works**

The scope of work will comprise of the following:

- Earthworks
- Construction of layerworks
- Concrete Edge-beams
- Concrete Kerbs & Side Drains
- Concrete Pipe Culverts
- Asphalt Surfacing
- Stone-Pitching
- Road Signs & Road Markings

**C3.1.5 Temporary Works**

All temporary works for concrete works, deep excavations, shoring and camp site, must be removed and cleared from site after completion to adherence to environmental protection.

**C3.1.6 General Information****C3.1.6.1 Drawings**

The reduced drawings contained in Annexure C5.3 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.

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

#### A27 Payment for the labour-intensive component of the works

Payment for works identified in clause 3.1.3 "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.

#### A28 Applicable labour laws

The Ministerial Determination for Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

#### A29 Introduction

This document contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.

## A29.2 In this document –

- (a) “department” means any department of the State, implementing agent or contractor;
- (b) “employer” means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP;
- (c) “worker” means any person working in an elementary occupation on a SPWP;
- (d) “elementary occupation” means any occupation involving unskilled or semi-skilled work;
- (e) “management” means any person employed by a department or implementing agency to administer or execute an SPWP;
- (f) “task” means a fixed quantity of work;
- (g) “task-based work” means work in which a worker is paid a fixed rate for performing a task;
- (h) “task-rated worker” means a worker paid on the basis of the number of tasks completed;
- (i) “time-rated worker” means a worker paid on the basis of the length of time worked.

**A30 Terms of Work**

- A30.1 Workers on a SPWP are employed on a temporary basis.
- A30.2 A worker may NOT be employed for longer than 24 months in any five-year cycle on a SPWP.
- A30.2 Employment on a SPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

**A31 Normal Hours of Work**

- A31.1 An employer may not set tasks or hours of work that require a worker to work–
  - (a) more than forty hours in any week
  - (b) on more than five days in any week; and
  - (c) for more than eight hours on any day.
- A31.2 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
- A31.3 A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

**A32 Meal Breaks**

- A32.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- A32.2 An employer and worker may agree on longer meal breaks.
- A32.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.
- A32.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

**A33 Special Conditions for Security Guards**

- A33.1 A security guard may work up to 55 hours per week and up to eleven hours per day.
- A33.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

**A34 Daily Rest Period**

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

**A35 Weekly Rest Period**

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

**A36 Work on Sundays and Public Holidays**

- A36.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.
- A36.2 Work on Sundays is paid at the ordinary rate of pay.
- A36.3 A task-rated worker who works on a public holiday must be paid –
- (a) the worker's daily task rate, if the worker works for less than four hours;
  - (b) double the worker's daily task rate, if the worker works for more than four hours.
- A36.4 A time-rated worker who works on a public holiday must be paid –
- (a) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;
  - (b) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

**A37 Sick Leave**

- A37.1 Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
- A37.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.
- A37.3 A worker may accumulate a maximum of twelve days' sick leave in a year.
- A37.4 Accumulated sick-leave may not be transferred from one contract to another contract.
- A37.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- A37.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- A37.7 An employer must pay a worker sick pay on the worker's usual payday.
- A37.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
- (a) absent from work for more than two consecutive days; or
  - (b) absent from work on more than two occasions in any eight-week period.
- A37.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- A37.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

**A38 Maternity Leave**

- A38.1 A worker may take up to four consecutive months' unpaid maternity leave.
- A38.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.
- A38.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- A38.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
- A38.5 A worker may begin maternity leave –
- (a) four weeks before the expected date of birth; or
  - (b) on an earlier date –
    - (i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child;



or

- (ii) if agreed to between employer and worker; or
- (c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

A38.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

A38.7 A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

### **A39 Family responsibility leave**

A39.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -

- (a) when the employee's child is born;
- (b) when the employee's child is sick;
- (c) in the event of a death of –
  - (i) the employee's spouse or life partner;
  - (ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

### **A40 Statement of Conditions**

A40.1 An employer must give a worker a statement containing the following details at the start of employment –

- (a) the employer's name and address and the name of the SPWP;
- (b) the tasks or job that the worker is to perform; and
- (c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
- (d) the worker's rate of pay and how this is to be calculated;
- (e) the training that the worker will receive during the SPWP.

A40.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

A40.3 An employer must supply each worker with a copy of these conditions of employment.

### **A 41 Keeping Records**

A41.1 Every employer must keep a written record of at least the following –

- (a) the worker's name and position;
- (b) in the case of a task-rated worker, the number of tasks completed by the worker;
- (c) in the case of a time-rated worker, the time worked by the worker;

(d) payments made to each worker.

A41.2 The employer must keep this record for a period of at least three years after the completion of the SPWP.

## **A42 Payment**

A42.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

A42.2 A task-rated worker will only be paid for tasks that have been completed.

A42.3 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

A42.4 A time-rated worker will be paid at the end of each month.

A42.5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

A42.6 Payment in cash or by cheque must take place –

- (a) at the workplace or at a place agreed to by the worker;
- (b) during the worker's working hours or within fifteen minutes of the start or finish of work;
- (c) in a sealed envelope which becomes the property of the worker.

A42.7 An employer must give a worker the following information in writing –

- (a) the period for which payment is made;
- (b) the numbers of tasks completed or hours worked;
- (c) the worker's earnings;
- (d) any money deducted from the payment;
- (e) the actual amount paid to the worker.

A42.8 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it

A42.9 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

## **A43 Deductions**

A43.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

A43.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

A43.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

A43.4 An employer may not require or allow a worker to –

- (a) repay any payment except an overpayment previously made by the employer by mistake;
- (b) state that the worker received a greater amount of money than the employer actually paid to the worker; or
- (c) pay the employer or any other person for having been employed.

#### **A44 Health and Safety**

A44.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

A44.2 A worker must–

- (a) work in a way that does not endanger his/her health and safety or that of any other person;
- (b) obey any health and safety instruction;
- (c) obey all health and safety rules of the SPWP;
- (d) use any personal protective equipment or clothing issued by the employer;
- (e) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

#### **A45 Compensation for Injuries and Diseases**

A45.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

A45.2 A worker must report any work-related injury or occupational disease to their employer or manager.

A45.3 The employer must report the accident or disease to the Compensation Commissioner.

A45.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

#### **A46 Termination**

A46.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.

A46.2 A worker will not receive severance pay on termination.

A46.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

A46.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

A46.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

**A47 Certificate of Service**

A47.1 On termination of employment, a worker is entitled to a certificate stating –

- (a) the worker's full name;
- (b) the name and address of the employer;
- (c) the SPWP on which the worker worked;
- (d) the work performed by the worker;
- (e) any training received by the worker as part of the SPWP;
- (f) the period for which the worker worked on the SPWP;
- (g) any other information agreed on by the employer and worker.

**A48 Contractor's default in payment to Labourers and Employees**

Any dispute between the Contractor and labourers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene.

The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honoured in time, out of any moneys due or which may become due to the Contractor under the Contract.

**A49 Provision of Hand tools**

The Contractor shall provide his labour force with hand tools of adequate quality, sufficient in numbers and make the necessary provisions to maintain the tools in good and safe working conditions

**A50 Reporting**

The Contractor shall submit monthly returns/reports as specified below:

- Signed Muster rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance.
- Plant utilization returns
- Progress report detailing production output compared to the programme of works

**C3.2 ENGINEERING**

**C3.2.1 Design**

- (a) The **Employer** is responsible for the design of the permanent Works as reflected in these Contract Documents unless otherwise stated.
- (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 details necessary to assist the engineer in the compilation of the as-built drawings.

**C3.2.2 Employer's Design**

- (a) Detail description of Works
- (b) General Works

**C3.2.3 Contractor's Design**

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

**C3.2.4 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 PROCUREMENT**

#### **PREFERENTIAL PROCUREMENT POINT SYSTEM POLICY**

##### **C3.3.1 DEFINITIONS**

The words in this policy shall bear a meaning as prescribed and/or ascribed by applicable legislation, and in the event of a conflict, the meaning attached thereto by National Legislation shall prevail.

- (a) "Act" means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000);
- (b) "Comparative price" means the price after the factors of a non-firm price and all unconditional discounts that can be utilised have been taken into consideration;
- (c) "Consortium or Joint Venture" means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;
- (d) "Contract" means the agreement that results from the acceptance of a tender by an organ of state;
- (e) "Disability" means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being;
- (f) "Firm price" is the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of a law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;
- (g) "Management" in relation to an enterprise or business, means an activity inclusive of control and performed on a daily basis, by any person who is a principal executive officer of the company, by whatever name that person may be designated, and whether or not that person is a director;
- (h) "Non-firm prices" means all prices other than "firm" prices;
- (i) "Person" includes reference to a juristic person;

- (j) “Rand value” means the total estimated value of a contract in Rand denomination which is calculated at the time of tender invitations and includes all applicable taxes and excise duties;
- (k) “Sub-Contracting” means the primary contractor’s assigning or leasing or making out work to, or employing,
- (l) “Trust” means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person;
- (m) “Trustee” means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
- (n) “Individual” an individual shall mean a natural person;
- (o) “The Municipality” means the Blouberg Municipality;
- (p) “Companies and Shares” shall be read so as to include Close Corporations and members interests mutatis mutandis;
- (q) “Executive Management Committee” shall mean a committee comprising the Municipality’s Heads of Divisions and any other Manager so invited.
- (r) “Tender” means a written offer or bid in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services or goods;
- (s) “EME” means Exempted Micro Enterprise
- (t) “B-BBEE” stands for Broad Based Black Economic Empowerment
- (u) “SANAS” stands for South African National Accreditation System
- (v) “IRBA” stands for Independent Regulatory Board of Auditors

**C3.3.2 PREAMBLE**

Whereas the Blouberg Municipality, being the Municipality, as defined, and engaged in contracts for the acquisition of goods and services and obliged to do so in accordance with a system which is fair, equitable, transparent, competitive and cost effective, hereby provides for a procurement policy to that effect.

**C3.3.3 GOALS**

The broad goals of this policy are to:

- (a) Ensure effective and efficient application of resources;
- (b) Promote accountability, transparency and fairness;
- (c) Create opportunities for local small, medium and micro enterprises;
- (d) Enhance quality services;
- (e) Stimulate socio-economic development;
- (f) Eliminate and counter corruption;
- (g) Contribute towards reduction of unemployment.

**C3.3.4 OBJECTIVES**

The specific objectives of the policy are to:

- (a) Implement best procurement practises through effective planning, strategic purchasing and contract management;
- (b) Standardise levels of skill and knowledge of employees/workers;
- (c) Promote HDI enterprises providing services and goods within the Province;
- (d) Introduce a systematic approach to the appointment of service providers and to promote consistency in respect of supply chain management and offer related policy initiatives.



**C3.3.5 LEGISLATIVE FRAMEWORK**

The procurement system is prescribed and regulated by legislation, amongst which being:

- (a) Section 217 of the Constitution, Act 108 of 1996 which provides that in contracting for goods and services, organs of state must do so in accordance with a system that is fair, equitable, transparent, competitive and cost effective;
- (b) Municipal Finance Management Act, 56 of 2003 which aims to regulate financial management of certain organs of state to ensure that all revenue, expenditure, assets and liabilities are managed efficiently and effectively;
- (c) Preferential Procurement Policy Act, 5 of 2000 ("the Act") and the regulations promulgated in terms of the Act giving effect to Section 217(3) of the Constitution by providing a framework for the implementation of the preferential procurement policy contemplated in Section 217 (2) of the Constitution;
- (f) All other applicable laws, policies and regulations.

**C3.3.6 GENERAL CONDITIONS**

The abovementioned provisions of this policy document shall apply, subject to the following terms and conditions:

**C3.3.6.1 Company Registration**

Whereas the Municipality shall have the above responsibilities, the respective and prospective service providers shall be:

- (a) Registered with the South African Revenue Services for all categories of taxes applicable to it.
- (b) The Municipality reserves the right to have access and/or require production of the original or certified proof of any such registration at a time agreed to by the parties or as may be prescribed by law.

**C3.3.6.2 Tender Evaluation**

- (a) Only a tenderer who has complied with the tender evaluation requirements may be considered for evaluation.

- (c) The Municipality shall, when calculating comparative prices, take into account any discounts, which have been offered unconditionally.
- (d) A discount, which has been offered conditionally must, despite not being taken into account for evaluation purposes, must be implemented when payment is affected.
- (e) In the event that different prices are tendered for different periods of a contract, the price for each period must be regarded as a firm price if it conforms to the definition of a “firm price”.
- (f) Points scored must be rounded off to the nearest two decimals.
- (g) In the event that two or more tenders have scored equal total points, the successful tenderer must be the one scoring the highest number of points in terms of B-BBEE verification level certificate. Should two or more tenders be equal in all respects, the award shall be decided by the drawing of lots.

#### **C3.3.6.3 Principles**

- (a) B-BBEE verification level certificate shall be considered for evaluation purpose. This certificate must be issued by a SANAS accredited verification agency or registered auditors approved by the IRBA. The municipality has the right to check the validity of the certificate (B-BBEE)
- (b) In the event where there is a change in the B-BBEE status after the closing date of the tender, before the award, the tenderer must notify The Municipality and such a tenderer will not be eligible for any preference points.
- (c) The contract must be awarded to the tenderer, which scores the highest points.

#### **C3.3.6.4 Declarations**

A tenderer must, in the stipulated manner, declare that-

- (a) The information provided is true and correct;
- (b) The signatory to the tender document is duly authorised; and
- (c) Documentary proof regarding sub-clause C3.3.6.3(a), shall be submitted to the Municipality.

#### **C3.3.6.5 Penalties**

- (a) Upon detecting that a B-BBEE certificate in terms of the Act, the regulations or this policy have been obtained on a fraudulent basis, or any specified goals are not attained in the performance of the contract, the Municipality shall act against the person awarded the contract.
- (b) The Municipality may, in addition to any other remedy it may have against the person contemplated in sub-clause C3.3.6.5(a):

- I. Recover all costs, losses or damages it has incurred or suffered as a result of that person's conduct;
- II. Cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- III. Restrict the contractor and its shareholders, directors, partners, sole proprietor, joint venture, trusts, etc from obtaining business from the Municipality for a period not exceeding 10 years. The Municipality reserves the right to have access and/or require production of the original or certified proof of any such registration at a time agreed to by the parties or as may be prescribed by law.

#### **C3.3.6.6 Areas of Policy Coverage**

The above-mentioned provisions of this policy shall apply to, but not limited to, the following entities and/or activity:

- (a) Procurement of goods or services;
- (b) Appointment of consultants;
- (c) Appointment of contractors, consortia and joint venture contractors;

#### **C3.3.6.7 Criteria for Tender Evaluation**

The Municipality shall use the following criteria to evaluate tenders: -

- (a) Compliance with tender conditions;
- (b) 90/10 points system on tenders with a Rand value above R1 000 000 (one million rand) and preference point system 80/20 for tenders with a Rand value equal to, or above R30 000 but up to a Rand value of R1 000 000 (one million rand);
- (c) Price and functionality.

#### **C3.3.6.8 Preference Point System: 80/20**

The following formula must be used to calculate the points in respect of tenders/procurement with a Rand value not more than R50 000 000 (Fifty million rand). This formula should be used to determine points for price.

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

Where:

$P_s$  = Point scored for price for the tender under consideration.

Pt = Rand value of tender under consideration.

Pmin = Rand value of the lowest acceptable tender.

#### **C3.3.6.9 Award of Contract to Tenderer not scoring the Highest Number of Points**

Despite the fact that only the tenderer with the highest number of points scored may be awarded, a contract may, on reasonable and justifiable ground, be awarded to a tender that did not score the highest number of points.

Note: The municipality shall adjudicate and award tenders in accordance with the Preferential Procurement Policy Framework Act. 5/2000 and revised Preferential Procurement regulation June 2011 on 100 points for functionality and 90/10 points system where 90 points are for the price and 10 points for B-BBEE according to the said legislation. Tenderers are required to submit valid B-BBEE status level verification certificates. Tenders will remain valid for 90 (ninety) days. The lowest and any tender will not necessarily be accepted and the Municipality reserves the right not to consider any tender not fully completed. Bidders are required to initialize each page of the tender document and sign where necessary.

#### **C3.3.7 PROCUREMENT OF GOODS AND SERVICES**

Directive for purchasing goods and services below a Rand value of R200 000.00.

##### **C3.3.7.1 Service Providers**

In procuring goods and services, a database, for different service providers, shall be compiled from which service providers, in their respective categories of operation, will be selected for specifically identified requirements.

The inclusion into the database shall be by way of invitation through advertisements. The database shall be used for the purposes of rotating requests for quotations from appropriate suppliers. The database shall include service providers supplying stationery, refreshments, security services, minor repairs, etc., but excluding specialized professional services such as HR Consulting, Engineering, etc.

##### **C3.3.7.2 Requirements for Inclusion in the Database**

The respective and prospective service providers shall be:

- (a) Registered with the South African Revenue Services for all categories of taxes applicable to it.
- (b) Reserve the right to have access and/or require production of the original or certified proof of any such registration at a time agreed to by the parties or as may be prescribed by law.

##### **C3.3.7.3 Procedures and Processes**

The following procedures and processes, in respect of procuring goods and services shall be applicable: -

- (a) Requests for quotations shall be issued as per 512(1) of the Blouberg SCM Policy.

### **C3.3.8 APPOINTMENT OF CONSULTANTS**

In procuring services of professional consultants, databases for different professions shall be compiled from which consulting firms will be selected for specific projects and evaluated according to the Blouberg SCM Policy.

#### **C3.3.8.1 Requirements for Inclusion in the Database**

The inclusion in the database shall be by way of invitations, through advertisements. In order to be considered for inclusion in the database the service provider shall:

- (a) Comply with all statutory labour requirements;
- (b) Be registered with the South African Revenue Service, for all categories of taxes applicable to it;
- (c) The offer to Consultants shall be made provided there's a Professional person by the time of submission.
- (d) Have Professional Indemnity Insurance;
- (e) Submit, together with application forms, an Original Valid Tax Clearance Certificate;
- (f) Be willing to submit to the physical inspection of the offices for verification of the information supplied in the application forms.

#### **C3.3.8.2 Selection of Consultants for Appointment**

The criteria for the selection of consultants for appointment shall take the following order:

- (a) B-BBEE verification level certificate must be submitted
- (b) Firms with relevant expertise and experience to perform in relation to the service under consideration;
- (c) Firms with the capacity in terms of personnel and equipment in relation to the size of the project under consideration;
- (d) Giving opportunity to others before re-appointing one firm for the second time within the appointment cycle, except for specialized type of service;
- (e) Performance history (quality, efficiency, etc.)

**C3.3.8.3 Authority to Appoint**

The Accounting Officer shall have the authority to appoint consultants, upon recommendation by the Bid Adjudication Committee. Accounting Officer has delegated powers to appoint to the Bid Adjudication Committee, the committee shall appoint.

**C3.3.8.4 Changes in Scope of Work**

- (a) The Municipality shall have the right to revise the scope of work, including discontinuing with the project during the design stage;
- (b) The consultant shall have the right to be compensated for work done prior and up to cancellation stage;
- (c) The discontinued project shall be deemed to have been removed from the Municipality's programme of work and the consultant shall have no right to be appointed on the same project should the project be revived at a later stage.

**C3.3.9 APPOINTMENT OF CONTRACTORS****C3.3.9.1 Procedure for Invitation of Tenders**

Tenders will be invited publicly through the general media and other forms of communication to ensure that target communities are reached. The intention is to ensure that the SMME's in rural areas that may not be in a position to access the general press is also reached.

In the event where normal tendering is not practical due to other constraints, at least three (3) selected service providers shall be invited to submit quotations.

**C3.3.9.2 The tender invitation shall include:**

- (a) Specifications and description of project or services to be procured;
- (b) Tendering information and documentation will be in English;
- (c) A non-refundable charge shall be payable to cover the cost of the tender documents and specifications;

**C3.3.9.3 Compulsory Requirements**

The following requirements shall be applicable to all tenders and non-adherence thereto shall result in an automatic disqualification for the advertised tender:

- (a) Attendance of site inspection for briefing;
- (b) Submission of valid original tax clearance certificate;
- (c) Authority to act and contractually bind the tenderer.

- (d) Tenderers are required to register with the Construction Industry Development Board (CIDB), which will then allocate a grade applicable to the tenderer. The grades applicable are shown in the table below.

<b>WORKS CAPABILITY</b>		
<b>Designation</b>	<b>Maximum value of contractor is considered capable of performing</b>	<b>Largest contract completed,during the 5 years immediately preceding the application,in the class of construction works applied for</b>
<b>2</b>	<b>R 650,000.00</b>	<b>R 150,000.00</b>
<b>3</b>	<b>R 2,000,000.00</b>	<b>R 500,000.00</b>
<b>4</b>	<b>R 4,000,000.00</b>	<b>R 1,000,000.00</b>
<b>5</b>	<b>R 6,500,000.00</b>	<b>R 1,600,000.00</b>
<b>6</b>	<b>R 13,000,000.00</b>	<b>R 3,250,000.00</b>
<b>7</b>	<b>R 40,000,000.00</b>	<b>R 10,000,000.00</b>
<b>8</b>	<b>R 130,000,000.00</b>	<b>R 32,500,000.00</b>
<b>9</b>	<b>No Limit</b>	<b>R 1,000,000,000.00</b>

- (e) Any special condition which may be attached to any tender of the Municipality.

#### **C3.3.9.4 Closure and Opening of Tenders**

Tenders shall close on a date and time specified in the tender document and shall be opened and read in public.

#### **C3.3.9.5 Evaluation of Tenders**

Tenders to be evaluated shall comply with the requirements as outlined under C3.3.9.3.

**C3.3.9.6 Points In Respect of Status of Enterprise**

A maximum of 20 (twenty) potential points in respect of 80/20, will be awarded in respect of the status of the B-BBEE

**C3.3.9.7 Points In Respect of Price and Functionality**

Tenders shall be evaluated on 80 points for price and 20 for B-BBEE as per the Blouberg SCM Policy.

**(a) Calculation of percentage for price**

C3.3.2 The financial offer will be scored using the following:

$$C3.3.3 \quad P_s = W_1 \left( 1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

C3.3.4 Where

- $P_s$  = Points scored for functionality and price of the bid/proposal
- $W_1$  = (1) 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of more than R50 000 000; or
- (2) 80 where the financial value inclusive of VAT of one or more responsive tender offers equals or is less than R50 000 000.

$P_t$  = Rand value of tender under consideration

$P_{min}$  = Rand value of the lowest acceptable tender

**C3.3.9.8 Cessions**

A service provider awarded a contract may not cede or subcontract a contract/project or any part thereof without written consent of the Municipality and where such consent is granted, a signed agreement involving the cedent, cessionary and the Municipality shall be entered into.

The minimum of 25% must be sub contracted to a local emerging contractor. A contractor is not allowed to subcontract more than 25% of the contract value to another enterprise that does not have equal or higher B-BBEE status level, unless the intended subcontractor is an EME that has capability and ability to execute the subcontract. Both the cedent and the cessionary shall be jointly and severally liable for the quality of the material supplied and workmanship.

**C3.3.9.9 Performance Guarantees**

The Municipality shall strive to facilitate the participation of HDI's and SMME by waiving or reducing the maximum amounts of sureties as follows:

- (a) No surety for projects between R0 to 500 000
- (b) 1% surety for projects between R500 000 and R1 million



- (c) 2,5% surety for projects between R1 million and R2 million
- (d) 5% surety for projects above R2 million not exceeding R5 million
- (e) 10% surety for projects above R5 million

The period required to provide surety shall be 21 calendar days. However, depending on circumstances, a shorter period may be prescribed. In the event of failure to submit the surety within the stipulated period, the Municipality shall be entitled to cancel the contract and award the tender to a suitable contractor.

Sureties may only be accepted from a banking institution registered in terms of the Banks Act, 1996, an insurer registered in terms of the Short-term Insurance Act (Act 53 of 1998), or from governmental institutions established for such purposes.

#### **C3.3.9.10 Notification of Acceptance**

Successful service providers or tenderers shall be notified before the tender validity period expires.

#### **C3.3.9.11 Contractual Agreement**

The relationship between the Municipality and the contractor shall be managed under the following contractual documents:

- (a) The tender document submitted by the tenderer;
- (b) The project drawings relevant for the tendered project;
- (c) The General Conditions of Contract for Construction Works (2010) published by the South African Institution of Civil Engineering (GCC) and the COLTO Standards Specifications for Road Bridge Works for State Authorities as they may apply from time to time..
- (d) The Municipality's Procurement Policy; attached in C3.4.3.2
- (e) Any other relevant legislation aimed at meeting other government policy initiatives.

**C3.3.9.12 Tax Clearance Certificate**

No contract shall be awarded to an entity which fails to submit a valid original Tax Clearance Certificate from the South African Revenue Service (SARS), certifying that the taxes of the said entity are in order.

**In cases where the successful tenderer has only submitted a letter from SARS, the tenderer will be given seven (7) working days to submit the original Tax Clearance Certificate. Failure to do so, shall lead to the disqualification of the tenderer. The tenderer with the second highest points shall be awarded the contract.**

**C3.3.9.13 Variations**

The Municipality shall have the right to reduce or increase the scope of work by no more than 20% of the tendered amount.

**C3.4 CONSTRUCTION****C3.4.1 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.

SAICE		Tel : (011) 805-5947
Waterfall Park	/ Postnet Suite 81	Fax : (011) 805-5971
Howick Gardens	/ Private Bag X65	
Vorna Valley	/ Halfwayhouse	Contact Person : Angeline Aylward
Becker Street	/ 1685	
Midrand		

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

Wherever any reference is made to the South African Bureau of Standards (SABS) 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*".

**C3.4.2 PROJECT SPECIFICATIONS RELATING TO STANDARD SPECIFICATIONS****C3.4.2.1 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.

<b>Clause No. in the Standard Specifications</b>	<b>Clause No. in COLTO General Conditions</b>	<b>Equivalent Clause No. in General Conditions of Contract 2010</b>
1202	15	12(2)
1206	14	Deleted
1209	52	49(1)(5)
1210	54	51(1)
1212(1)	49	46
1215	45	42(2)
1217	35	32
1303	49	46
1303	53	50
1303	12	10
1303	45	42(2)
1403	40(1)	37
1505	40	37
31.03	40	37
3204(b)	40	37
3303(b)	2	2
5803(c)	40	37
5805(d)	40	37
6103(c)	40	37
Item 83.03	22	19
ALL SECTIONS	48	45

**C3.4.2.2 Amendments to the Standard Specifications**

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

**C3.4.2.3 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.

**EPWP Special Project Specification**

As much as is economically feasible all work shall be implemented by employing Labour Intensive Construction methods. Over and above the normal Building and Allied works to be implemented by employing skilled and unskilled labour the works specified in the “Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)” shall be undertaken using Labour Intensive Construction methods.

**Employer's objectives**

The employer's objectives are to deliver public infrastructure using labour intensive methods.

**Labour-intensive works**

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

**EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS****Requirements for the sourcing and engagement of labour.**

- C.1.1. Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.
- C.1.2. The rate of pay set for the SPWP is R 60 per task or per day. (Insert value determined by public body in terms of clause 2.2 of these Guidelines)
- C.1.3. Tasks established by the contractor must be such that:
  - a) the average worker completes 5 tasks per week in 40 hours or less; and
  - b) the weakest worker completes 5 tasks per week in 55 hours or less.
- C.1.4. The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.
- C.1.5. The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
  - a) where the head of the household has less than a primary school education;
  - b) that have less than one full time person earning an income;
  - c) where subsistence agriculture is the source of income.
  - d) those who are not in receipt of any social security pension income

- C.1.6. The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
- a) 55 % women;
  - b) 40% youth who are between the ages of 18 and 35; and
  - c) 2% on persons with disabilities.

**Specific provisions pertaining to SANS 1914-5**

- C.1.7. Definitions
- Targeted labour:** Unemployed persons who are employed as local labour on the project.
- C.1.8. Contract participation goals
- C.1.9. There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.
- C.1.10. The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.
- C.1.11. Terms and conditions for the engagement of targeted labour
- Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.
- C.1.12. Variations to SANS 1914-5
- C.1.13. The definition for net amount shall be amended as follows: Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.
- C.1.14. The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

### **Training of targeted labour**

- C.1.15. The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.
- C.1.16. The cost of the formal training of targeted labour, will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible. The contractor, must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.
- C.1.17. A copy of this training request made by the contractor to the DOL provincial office must also be faxed to the EPWP Training Director in the Department of Public Works– Cinderella Makunike, Fax Number 012 328 6820 or email [cinderella.makunike@dpw.gov.za](mailto:cinderella.makunike@dpw.gov.za) Tel: 083 677 4026
- C.1.18. The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he/she is employed for 4 months or more.
- C.1.19. The contractors shall do nothing to dissuade targeted labour from participating in the above mentioned training programmes.
- C.1.20. An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 1.3.4 above.
- C.1.21. Proof of compliance with the requirements of 1.3.2 to 1.3.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

### **GENERIC LABOUR-INTENSIVE SPECIFICATION**

The Generic Labour-intensive specification below is the same as SANS 1921-5,

Construction and management requirement for works contracts- Part 5: Earthworks activities which are to be performed by hand and should be included in the scope of works without amendment or modification as set out below.



**SCOPE**

This specification establishes general requirements for activities which are to be executed by hand involving the following:

- a) trenches having a depth of less than 1.5 metres
- b) stormwater drainage
- c) low-volume roads and sidewalks

**PRECEDENCE**

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

**HAND EXCAVATEABLE MATERIAL**

Hand excavateable material is material:

- a) granular materials:
  - i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
  - ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;
- b) cohesive materials:
  - i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
  - ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note:

- 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.
- 2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with respect to the horizontal) into the material being used.

Table 1: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumbnail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumbnail with difficulty; slight indentation produced by blow of a geological pick point.

### **TRENCH EXCAVATION**

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

### **COMPACTION OF BACKFILLING TO TRENCHES (AREAS NOT SUBJECT TO TRAFFIC)**

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

- a) to 90% Proctor density;
- b) such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

### **EXCAVATION**

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

### **CLEARING AND GRUBBING**

Grass and small bushes shall be cleared by hand.

### **SHAPING**

All shaping shall be undertaken by hand.

### **LOADING**

All loading shall be done by hand, regardless of the method of haulage.

### **HAUL**

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

**MATTERS RELATING TO THE STANDARD SPECIFICATIONS**

SECTION 1200 : GENERAL REQUIREMENTS AND PROVISIONS .....	C.90
SECTION 1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS.....	C.100
SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL .....	C.101
SECTION 1500: ACCOMMODATION OF TRAFFIC .....	C.101
SECTION 1700: CLEARING AND GRUBBING .....	C.104
SECTION 1800: DAYWORK SCHEDULE .....	C.105
SECTION 2100 : DRAINS.....	C.106
SECTION 2200 : PREFABRICATED CULVERTS.....	C.106
SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES AND CONCRETE LININGS FOR OPEN DRAINS .....	C.108
SECTION 3100: BORROW MATERIALS.....	C.109
SECTION 3300: MASS EARTHWORKS.....	C.110
SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL .....	C.111
SECTION 4300 : SEALS: MATERIALS AND GENERAL REQUIREMENTS .....	C.113
SECTION 4500 : DOUBLE SEALS .....	C.119
SECTION 5200 : GABIONS .....	C.122
SECTION 5600 : ROAD SIGNS .....	C.122
SECTION 5700: ROAD MARKINGS .....	C.124
SECTION 5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS .....	C.126
SECTION 6400 : CONCRETE FOR STRUCTURES.....	C.126

## **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 i (rainfall formula)."

**Extension of time due to Abnormal Rainfall**

Extension of time for completion of the Contract shall be allowed in the event of abnormal rainfall in accordance with the following formula:

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

Where:

- (i)  $V$  = Extension of time in calendar days for the calendar month under consideration
- $N_w$  = Actual number of days during the calendar month under consideration on which a rainfall of 10mm and more is recorded
- $R_w$  = Actual total rainfall in mm recorded during the calendar month under consideration
- $N_n$  = Average number of days, derived from rainfall records, on which a rainfall of 10mm and more was recorded during the relevant calendar month as per the data tabulated hereinafter
- $R_n$  = Average total rainfall in mm for the relevant calendar month, derived from rainfall records, as tabulated hereinafter

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

Rainfall records for the period of construction shall be taken on Site. The Contractor shall provide and install all the necessary equipment for accurately measuring the rainfall. The Contractor shall also provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost. The Engineer or his Representative shall take and record the daily rainfall readings. The Contractor shall be permitted to attend these readings, in the company of the Engineer's Representative. Access to the measuring gauge(s) shall at all times be under the Engineer's control.

The rainfall records applicable to this Contract are those recorded at Weather Mara. The following values of  $N_n$  and  $R_n$  shall apply:

Month	R <sub>n</sub> (mm)	N <sub>n</sub> (days)
January	72.9	3.3
February	70.1	3.2
March	58.5	3.4
April	20.6	1.2
May	7.7	0.4
June	5.1	0.6
July	0.9	0.2
August	0.0	0.0
September	5.8	0.3
October	32.0	2.0
November	88.9	4.7
December	66.1	4.3
<b>TOTAL</b>	<b>428.7</b>	<b>23.6</b>

Unless otherwise provided in the Site Information, the value of “n” shall be taken as equal to the tendered time for completion of the Works in months, rounded off to an integer.

Extension of time during normal working days will be granted to the degree to which actual delays as determined in accordance with clause 42.5 hereof, exceed the number of “n” normal working days.

The value of “n” does not take into account further or concurrent delays which are caused by other abnormal climatic conditions such as floods, which have to be determined separately in accordance with clause 42.5 hereof.

**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:

Old product nomenclature	Typical new product nomenclature	
	Cement type	Cement strength class
OPC	CEM I	32,5
	CEM I	32,5R
RHC	CEM I	42,5
	CEM I	42,5R
LASRC	No provision made	No provision made
PC15SL	CEM II/A-S	32,5
	CEM II/A-S	32,5R
	CEM II/A-S	42,5
PC15FA	CEM II/A-V	32,5
	CEM II/A-V	32,5R
	CEM II/A-W	32,5
	CEM II/A-W	32,5R
RH15FA	CEM II/A-V	42,5
	CEM II/A-V	42,5R
	CEM II/A-W	42,5
	CEM II/A-W	42,5R
PBFC	CEM III/A	32,5
	CEM III/A	32,5R
PFAC	CEM II/B-V	32,5
	CEM II/B-W	32,5
RH30SL	CEM II/B-S	32,5R

Old product nomenclature	Typical new product nomenclature	
	Cement type	Cement strength class
	CEM II/B-S	42,5
RH40SL	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 TRAINING**

The contractor shall implement in-service training. 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 training**

- (i) The contractor shall attach to form RDP 1(E) basic details of his proposed in-service training programme, which details shall inter alia include the following:
  - the details of training to be provided
  - the manner in which the training is to be delivered
  - the number and details of trainers to be utilised.
- (ii) 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.
- (iii) 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.
- (iv) All labourers shall be remunerated in respect of all time spent undergoing training.
- (v) 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 07:00 and 11:00 and at other times as the need arises. His normal working day will extend from 07:00 in the morning until 15:30 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 and not necessarily for the full duration of the contract. The remuneration of the CLO shall be determined jointly by the contractor, engineer and employer.

**(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.

**B1232 SUBCONTRACTORS**

Over and above the stipulations of clause 8 of the General Conditions of Contract 1998, 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 8 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 Workmen's Compensation Act. 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 an extra payment allowed for by the contractor.

**B1234 MEASUREMENT AND PAYMENT**

Add the following items:

<b>ITEM</b>	<b>UNIT</b>
<b>B12.01 Locating Existing Services</b>	Provisional Sum
<b>"ITEM</b>	<b>UNIT</b>
<b>B12.02 Hand Excavation to determine the positions of existing services</b>	
To determine the positions of existing services	cubic metre (m <sup>3</sup> )

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

ITEM		UNIT
<b>B12.03</b>	<b>Quality Control Test Ordered by the Engineer</b>	
	Quality Control Test Ordered by the Engineer	Prime Cost Sum
<b>B12.04</b>	<b>Provision for a Community Liaison Officer</b>	
	Provisional sum for the payment of the Community Liaison Officer	Provisional Sum
<b>B12.05</b>	<b>Provisional sum for protection and/ relocation of existing services by others</b>	
	Provisional sum for the payment of the protection and/ relocation of existing services by others	Provisional Sum
<b>B12.06</b>	<b>Provisional sum for payment of contract notice board as instructed by Engineer</b>	
	Provisional sum for the payment of the contract notice board	Provisional Sum
<b>B12.07</b>	<b>Provisional sum for payment of the compensation of landowners</b>	
	Provisional sum for compensation of landowners	Prime Cost Sum
<b>B12.08</b>	<b>Relocation of services by Contractor</b>	
	Supply, lay, bed, backfill & test following reticulation	
	(a) uPVC Class 9 110mm	m
	(b) uPVC Class 9 75mm	m
	(c) HDPE Class 10 50mm	m
	(d) HDPE Class 10 32mm	m
<b>B12.09</b>	<b>Percentage for charges and profit on the provisional sums for contractor's cost and profit</b>	
	Percentage for charges and profit on the provisional sums	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 all the provisional sums sub-items, which shall include full compensation for the handling costs of the contractor, and the profit.”

ITEM	UNIT
<b>B12.10    Percentage for charges and profit on the provisional sums for contractor's cost and profit</b>	
(a) Training allowance paid to targeted labour in terms of formal training	Prime Cost Sum
(b) Extra-over for administration of payment for training	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 all the provisional sums sub-items, which shall include full compensation for the handling costs of the contractor, and the profit.”

## **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 portable chemical latrine unit 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**

<b>ITEM</b>	<b>UNIT</b>
<b>B13.01 The contractor's general obligations</b>	(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.

Should the contractor be of the opinion that 15% is inadequate to cover his costs in terms of section 1300, he shall indicate separately with his tender where such costs have been allowed for in his tender. If no such indication is given, the contractor shall not at any stage during the contract for any reason whatsoever claim additional compensation under this item."

<b>ITEM</b>	<b>UNIT</b>
<b>B13.01 The contractor's general obligations</b>	
(d) Health and Safety obligations	Month
(e) Health and Safety Audits conducted by Independent company	Provisional Sum
(f) Percentage for charges and profit on the provisional sums for Item (e) above.	Percentage (%)

## **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 security fence. 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.

#### **b) Offices**

Add the following new sub-sub-clause:

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

## **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 at 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.

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 B8118/1.”

#### **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.”

Renumber item 15.03 as B15.02

Add the following sub-item:

#### **B15.02 Temporary traffic control facilities**

(p) Provision of high visibility safety jackets 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”.

### **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”

#### **B1704 MEASUREMENT AND PAYMENT**

Change item 17.01 to read as follows:

**ITEM****UNIT****B17.01 Clearing and grubbing of:**

Clearing and grubbing hectare

(ha)

**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 day work 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	(a) Normal hours of duty of:	
	(i) Unskilled	Hour (h)
	(ii) Semi-skilled	Hour (h)
	(iii) Skilled	Hour (h)
	(iv) Foreman	Hour (h)
B18.02	Hire of construction equipment	
	(a) Excavator 3 – 5 ton	Hour (h)
	(b) TL Backactor	Hour (h)
	(c) Front end loader	Hour (h)
	(d) Platform truck	Hour (h)
	(e) Tip truck	Hour (h)
	(f) Grader (CAT 140G or similar)	Hour (h)
	(g) Walk behind roller (Bomag BW90 or similar)	Hour (h)
	(h) Mechanical Broom	Hour (h)
	(i) D6 Dozer	Hour (h)
	(j) Compressor	Hour (h)
	(k) Submersible dewatering pump	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 40(3) 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 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  $3 \times 10^{-3}$  m per second.”

## **SECTION 2200 : PREFABRICATED CULVERTS**

### **B2201      SCOPE**

Add the following:

“Section 2200, Prefabricated culverts will read, Section B2200, Constructed culverts.

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."

## **B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD**

Add the following subclauses:

### **"(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".

## **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:

“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. The tendered rate for concrete pipe culverts shall include the additional cost of units that are half the standard length. The standard length of a concrete pipe is 2.44m”

**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 standard drawings.

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

**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 and will be deemed to have been included in his rates for borrow materials.”

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

“The contractor shall also adhere to all statutory requirements including applying for and completing Environmental Programme Management documents (EMP) for the Department of Mines and Energy. All costs for application and completion of EMP shall be borne by the contractor and will be deemed to have been included in his rates for borrow materials.”

**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 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, where-ever required by the landowner, borrow pits shall be provided with temporary fencing around the perimeters of the borrow areas. The temporary fencing shall be erected prior to entering the land for borrowing purposes and shall on final finishing of the borrow areas as specified, be dismantled and removed and discarded as decided upon by the contractor. Payment for temporary fencing around borrow pits shall be made in accordance with the stipulations of section 5500 in these specifications."

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.

The above notwithstanding, the finishing-off borrow pits and haul roads must be to a minimum requirement acceptable to the Department of Minerals and Energy. The payment to achieve the minimum standard shall be deemed included in the pay items for borrow materials"

**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."

## **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**

#### **(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 3500 : STABILISATION****B3503 CHEMICAL STABILISATION****(a) Preparing the layer**

Add the following:

Breaking-down and removal of oversize material and addition of material to make to required thickness shall be completed before stabilising agent shall be added."

**(h) Curing the stabilised work**

Add the following:

"It is the intention of this contract that curing of chemically stabilised layers shall be undertaken in accordance to protection method (ii) as specified. Any other method of curing shall only be allowed in special circumstances as decided upon by the engineer, but no additional payment whatsoever over and above that allowed for in item 35.05 will be made."

**(i) Construction limitations**

In table 3503/1, replace "8 hours" with "6 hours."

**B3506 TOLERANCES****(b) Uniformity of mix (chemical stabilisation)**

Add the following:

"All pavement layers, especially layers which are to be chemically stabilised, shall, apart from the application of other mixing equipment, include at least two motor grader blade mixing operations to the full depth of the layer.

The in-place mixing of chemical stabilising agents with gravel materials shall be executed in such a manner that the coefficient of variation in the uniformity of the mix shall not exceed 30% when the stabilised layer is subjected to the chemical titration test, TMH1 method A15d. For plant-mixed stabilised materials the coefficient of variation shall not exceed 20%.

The coefficient of variation,  $C_v$ , is calculated by the formula:

$$C_v = \frac{S_n}{X_n} \times 100 \text{ where,}$$

$S_n$  = standard deviation of n determinations of stabilising agent content

$X_n$  = mean percentage of n determinations of stabilising agent content with n = 4 minimum."

**B3509 QUALITY OF MATERIALS AND WORKMANSHIP**

Add the following:

"The preparation of chemically stabilised material for the determination of the modified AASHTO density of the material shall be executed in accordance with TMH1 test method A16T and compaction thereof in accordance with TMH1 test method A7."

**SECTION 4300 : SEALS: MATERIALS AND GENERAL REQUIREMENTS****B4302 MATERIALS**

- (a) Bituminous binders

*ADD THE FOLLOWING PARAGRAPH AFTER THE INTRODUCTORY PARAGRAPH:*

“Any tests referred to in Technical Guideline (TG1)“Use of Modified Bituminous Binders in Road Construction, October 2001”, published by the Asphalt Academy, shall supersede those specified in the Colto Standard Specifications for Road and Bridge Works 1998.”

- (v) Homogeneous hot applied polymer modified binders (summer grades)

*DELETE THE ENTIRE SUB SUB-CLAUSE AND REPLACE WITH THE FOLLOWING:*

- “(1) Base bitumen

The base bitumen shall comply with the requirements of SABS 307 or a blend of such bitumens. In addition, the chemical composition of the bitumen shall be such as to permit blending with the proposed polymer to form a stable product that will satisfy the relevant requirements.

- (2) Polymer

The type and percentage of polymer to be blended with the bitumen is not prescribed, however, the contractor shall state, in the space provided in the schedule of quantities, the type of polymer he will use.

- (3) Polymer modified blend

The polymer modified bitumen shall be blended at the factory.

The polymer modified bitumen to be used shall be binder class S-E1 and shall satisfy the relevant requirements listed in table B4302/7.

The binder for the days production shall be tested on site to determine the softening point before any seal work is commenced with. No claim for delays due to this requirement shall be considered. As a control, a hand held spindle viscometer shall be used to monitor the viscosity of the binder at the spray temperature.

**TABLE B4302/7: Requirements for hot applied homogeneous modified binders**

Property	Unit	Test Method	Binder Class
			S-E1
Softening point (R&B)	oC	MB-17	50 (min)
Dynamic viscosity @ 165oC	Pa.s	MB-18	0,55(max)
Ductility @ 15oC	cm	MB-19	75 (min)
Force ductility @ 15oC	N	-	Report*1
Complex shear modulus ( $G^* / \sin \delta$ @ rad/s)	oC	AASHTO: TP 5	Report
Creep stiffness: Bending Beam Rheometer	mPa	AASHTO: TP 1	Report
Elastic recovery @ 15oC	%	MB-4	50 (min)
Flash point	OC	ASTM: D93-97	230 (min)
Stability (R&B diff. @ 160oC)	oC	MB-6	5 (max)
Adhesion @ 5oC	%	MB-7	90 (min)
Torsional recovery @ 15oC (*3)	%	MB-5	Report
Torsional recovery @ 25oC	%	MB-5	Report
Properties after ageing (RTFOT)			
Difference in softening point	oC	MB-17	-2 to +8
Elastic recovery @ 15oC	%	MB-4	40 (min)
Mass change	%	MB-3	1.0 (max)
Dynamic viscosity @ 165oC	Pa.s	MB-18	Report
Torsional recovery @ 25oC	%	MB-5	Report

**\* Note: The properties listed “report only” will only be carried out on instruction by the engineer. The contractor shall not be responsible for the costs of any such testing.**

(b) Aggregates

(i) Aggregates for seals

*ADD THE FOLLOWING:*

"The nominal aggregate size for application of the double seal shall be 13,2 mm and 6,7 mm."

(1) Grading

*ADD THE FOLLOWING:*

"Only Grade 1 aggregate shall be used for the construction of seals".

(3) Shape

*ADD THE FOLLOWING:*

"The average least dimension (ALD) of the 13,2 mm nominal size aggregate, shall not be less than 8,0 mm when tested in accordance with TMH1 test method B18.

## (d) Hydrophilic aggregates

## (i) Pre-coating of aggregate for stockpiling or for immediate use:

In the fourth paragraph, delete “12 litre” in the second sentence, and add the following new sentence:

“Precoating fluid shall be manufactured from petroleum based products. The use of tar based precoating fluids will not be permitted. For tender purposes the nominal quantity of precoating fluid for the relevant nominal aggregate sizes is specified in table B4302/14.”

Table B4302/14: Nominal Application Rates for Precoating Fluid

Nominal aggregate size (mm)	Nominal precoating application rate (l/m <sup>3</sup> )
19,0	12
13,2	16
9,5	19
6,7	22

*ADD THE FOLLOWING SUB CLAUSES:*

## “(e) Water for diluting emulsions

Water used for the dilution of emulsions on site shall be suitable potable water, and each source of water used shall be tested for compatibility with the emulsion before it is added to the bulk emulsion.

## (f) Testing of polymer modified bitumen/emulsion

Testing shall be in accordance with the methods described in “Technical Guideline: The use of Modified Bituminous Binder in Road Construction TGI (October 2001), published by the Asphalt Academy.

During spraying of each batch, the contractor shall draw off at least three test samples of the modified bitumen/emulsion product and submit them to the engineer for acceptance testing purposes. The supplier shall submit all his tests results to the engineer for correlation purposes, failing which; the engineer’s results shall be binding in terms of acceptance or rejection of the product.”

*ADD THE FOLLOWING SUB CLAUSE:*

## “(g) Sources of aggregates

Aggregates for seal work shall preferably be obtained from sources within the Limpopo Province e.g. crushing plants at Polokwane, Mussina, Tzaneen etc. If, for reasons of limited production rates of seal work aggregate or quality of the aggregates, adequate quantities of aggregates cannot be obtained from local sources, the aggregates may be obtained from sources outside the Limpopo Province. No provision is made in the schedule of quantities for an extra over payment on seal

work rates where aggregates have to be obtained from outside sources and tenderers will be deemed to have taken the source of the aggregates into account in their tendered rates."

### **B4303 PLANT AND EQUIPMENT**

#### **(a) General**

*ADD THE FOLLOWING:*

"Apart from the specified capacity and condition of plant used for seal work, the operators and attendants of binder distributors and chip spreaders shall prove their abilities to the engineer to apply the binder and seal work aggregate within the specified tolerances for application rates, widths of application and making good of all seemingly minor defects which may occur during seal work operations. Able operators and attendants shall be kept in service throughout the construction period and not rotated with reserve staff who might not be familiar with the equipment or final product requirements.

The engineer will instruct the removal of incompetent staff from site if satisfactory performance is not achieved and maintained."

#### **(b) Binder distributor**

*ADD THE FOLLOWING:*

"The binder distributor shall be capable of spraying the binder to the specified application rates and to the satisfaction of the engineer.

It is important that the pump of the distributor shall be capable of delivering the binder at the spray-bar nozzles at the correct pressure to obtain the specified application rates, irrespective of the viscosity properties of the proposed binder.

The spray bar of the distributor shall be fitted with fishplates at the outside edge of the bar to prevent over spraying onto gravel shoulders when spraying adjacent to such shoulders, or staining of concrete elements on the edge of the surfacing of the road. If instructed by the engineer, the outside nozzles of the spray bar shall be turned to a 45° angle to achieve a thickened edge of binder along the outside limits of the seal work area.

A calibration certificate, not older than 3 months, for the binder distributor shall be presented to the engineer before any binder is sprayed.

The binder distributor shall be fitted with a suitable valve or other access gate for taking of samples of the binder for testing purposes".

#### **(c) Chip spreaders**

*DELETE THE SECOND AND THIRD PARAGRAPH AND REPLACE WITH THE FOLLOWING:*

"All chip spreaders for use in seal work operations shall be self-propelled and a minimum of two such chip spreaders shall be available at the site of the work during seal work operations."

#### **(k) Miscellaneous equipment**

*ADD THE FOLLOWING:*

"Apart from the specified plant and equipment for construction of surfacing seals, the contractor shall provide an additional pneumatic-tyred roller with a mass of at least ten tons to carry out rolling where the back-chipping team operating behind the seal work unit places seal work aggregates by hand in areas which are deficient in stone in terms of the required application rate of aggregate. The pneumatic-tyred roller shall cover the back-chipped areas with at least four passes. No separate payment shall be made for the provision and operation of the additional roller."

#### **B4304 GENERAL LIMITATIONS AND REQUIREMENTS**

- (a) Weather limitations

*ADD THE FOLLOWING:*

"As soon as the minimum air temperature at night is forecast to fall below 8°C, seal work shall cease until warmer weather conditions are experienced. Seal work using polymer modified binder shall not be permitted during the months of May, June, July and August. Winter-grade binders shall not be used in any seal work and the contractor's programme of work shall reflect this limitation. Seal work with polymer modified binder shall also not be permitted if rainy weather is eminent.

Seal work shall also not be undertaken if rain is forecast or imminent.

Application of binder shall not be allowed if existing cracks in the road contain moisture after rainy spells."

#### **B4305 HEATING AND STORAGE OF BITUMINOUS BINDERS**

- (e) Homogeneous hot-applied modified binders (summer grade)

IN THE SECOND PARAGRAPH, DELETE "TABLE 4305/3" AND REPLACE WITH "TABLE B4305/3"

**TABLE B4305/3: Storage limits for hot homogeneous modified binders**

Binder Class	Short term handling		Storage		Spraying/Asphalt mixing		
	Max Temp (oC)	Max Time (hrs)	Max Temp (oC)	Max Time (hrs)	Max Temp (oC)	Min Temp (oC)	Max Time (hrs)
S-E1/S-E2	180	24	150	240	200	185	8
C-E1	160	24	140	240	170	160	8
A-E1/A-E2/A-P1	180	24	140	240	170	160	36

#### **B4307 CONSTRUCTION OF SEAL**

- (b) Single and double aggregate seals

- (i) Application of tack coat and aggregate

*DELETE THE LAST SENTENCE OF THE FOURTH PARAGRAPH AND REPLACE WITH THE FOLLOWING:*

"The contractor shall construct the seal in such a way that the resulting longitudinal joints fall on the planned positions of the line markings."

*ADD THE FOLLOWING TO THE FOURTH PARAGRAPH:*



"Joints shall be straight and aggregate shall be broomed back in a neat straight line before the next spray. String lines shall be used to demarcate joint edges. All stone-loss and "tram-lining/roping" shall be made good by the contractor at no additional cost."

- (iii) Broom drag and final rolling of aggregate

*ADD THE FOLLOWING AFTER THE FIRST PARAGRAPH:*

"The broom drag on the newly constructed seal shall not be executed using a rotary broom but a drag broom as specified in subsubclause 4303(e)(i) of the standard specifications. The contractor shall provide a back-chipping team, together with a pneumatic-tyred roller, of such capacity that back-chipping and rolling of aggregate shall be complete within thirty minutes after initial application of the aggregate."

- (iv) Joints between binder sprays

*ADD THE FOLLOWING:*

"Allowance is made in the schedule of quantities for the provision and use of reinforced paper to ensure neat transverse joints between successive binder applications."

*ADD THE FOLLOWING SUBSUBCLAUSES:*

- "(vi) Disposal of unused or rejected bituminous products

No unused or rejected bituminous products shall be dumped on the site of the works, nor in other areas, but such products shall be returned to the supplier's production plant.

#### **B4314 TOLERANCES AND FINISH REQUIREMENTS**

- (a) New work

- (v) General

*ADD THE FOLLOWING:*

"Immediately before the tack coat and first application of aggregate is applied, the centre line of the road as well as the edges of the surfacing area shall be demarcated with a clearly visible weatherable fibre rope pegged down with nails driven into the existing surface 15m apart on straight sections, or 3m apart on curves."

- (c) The rate of application

*REPLACE THE FIRST PARAGRAPH THE FOLLOWING:*

"The maximum permissible variation from the rates of application of aggregate or slurry, as ordered by the engineer, shall be plus or minus 5%.

For binders, the maximum permissible variation from that specified shall be 5% for conventional bitumen and all emulsions (measured net cold), and 5% for hot applied modified binders (measured at spray temperature). Provided he is satisfied that the seal will perform satisfactorily, the engineer may, at his discretion, conditionally accept out of tolerance variations at the reduced rates of payment listed in Table B4314/1 below. However, variations in total binder

application rates in excess of those tabled shall be deemed rejected. Rejected sprays will not be considered for payment unless corrected to the satisfaction of the engineer.

A lot for acceptance control purposes shall be at least 2000 litres. Lots smaller than 2000 litres shall be combined with succeeding lots until a combined lot not less than 2000 litres is obtained.

**Table B4314/1: Payment Reduction Factors For Conditionally Accepted Binder Application Rates**

Conventional bitumen and emulsion. Deviation from specified spray rate Net cold bitumen. (%)	Hot applied homogeneous and non-homogeneous modified bitumen. Deviation from specified rate. At spray temperature. (%)	% Payment of tendered rate for seal
±5,0	±5,0	100%
±6,0	±6,0	97,5%
±7,0	±7,0	95%
±8,0	±8,0	90%
±9,0	±9,0	85%
±10,0	±10,0	80%

*ADD THE FOLLOWING AT THE END OF THE LAST PARAGRAPH:*

"The completed bituminous surfacing shall be of uniform texture without gaps or patches and shall be free from corrugations and any loose aggregate or binder spillage.

The edges of the completed bituminous surfacing shall be true to line."

## **SECTION 4500 : DOUBLE SEALS**

### **B4503 CONSTRUCTION**

- (a) Application of tack coat and first layer of aggregate

*ADD THE FOLLOWING:*

"The aggregate for the first layer shall be 13,2 mm nominal size. The application rate of S-E1 binder shall be determined when aggregate properties and other design requirements for the seal have been determined. The nominal rate of application shall be taken as 1,0 l/m<sup>2</sup> of homogenous hot modified binder at spray temperature.

- (b) Initial rolling

*ADD THE FOLLOWING:*

"Immediately after application of the aggregate, but before back-chipping operations commence, the first layer of aggregate shall be rolled with one (1) pass of a three wheel steel-wheeled roller with a mass not exceeding 6 ton, if ordered by the engineer, after which pneumatic-tyred rolling shall follow as specified."

- (d) Second application of bituminous binder and aggregate

*ADD THE FOLLOWING:*

“The aggregate for construction of the second layer shall be 6,7 mm nominal size. The application rate of the S-E1 binder where specified shall be determined when aggregate properties and other design requirements for the seal have been determined. The nominal rate of application shall be taken as 1,0 l/m<sup>2</sup> homogenous modified binder at spray temperature.

(h) Precoating of aggregate

*ADD THE FOLLOWING:*

“The first application of aggregate used in the construction of double seals shall be precoated with “Sacrosote 70” at a rate of 16 l/m<sup>3</sup>. The precoating shall be undertaken as described in clause 4302(d) of the standard specifications. Precoating of aggregate shall be undertaken sufficiently ahead of sealing operations to permit the aggregate to dry, but at least 72 hours before application of the aggregate. Prior to application of the aggregate no free precoating fluid shall be notable when the aggregate is inspected by handling it.”

*ADD THE FOLLOWING NEW SUB CLAUSE:*

“(i) Construction trial sections

Before the contractor commences with permanent surfacing a successful trial section as described in section 4300 of the project specifications shall be constructed and approved by the engineer.”

## **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 1m<sup>3</sup> 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."

## **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."

### **B5602 MATERIALS**

**(g) Retro-reflective material**

In the first sentence, replace "SABS 1519" with "SABS 1519-1" and delete "and the adhesion requirements of CKS 191."

Add the following:

"When measured with a field retro-reflectometer in accordance with section B8118, the coefficient of retro-reflection of a retro-reflective material shall not be less than the appropriate value given in Table B8118/1

**(k) Black vinyl**

In the second sentence, replace "SABS 1519" with "SABS 1519-1" and delete the rest of the sentence.

Add the following sub-clause:

**"(m) Temporary covers for road signs**

When required, existing road signs shall be fully or partially covered with burlap or other approved material to obscure destinations that are temporarily inapplicable or irrelevant.

The covers shall be neatly applied and firmly fixed in position on the rear side of the sign so that they will be able to withstand strong gusts of wind or eddies caused by passing traffic."

**B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS**

**(a) Road signboards**

Add the following:

"The contractor shall make every effort to ensure that signboards are correct in all respect and before dispatching the boards from the manufacturer's factory shall provide the 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."

**(i) Steel plate road sign boards**

Add the following as the fourth paragraph:

"Steel plate used to manufacture guidance signs shall be pre-punched by means of an automated process with 5 mm holes in a rectangular grid pattern not exceeding 150 mm c/c."

**(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 sub-clause:

**“(e) Application of retro-reflective material**

All sign faces shall be faced with diamond 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.”

#### **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.”

#### **B5609 MEASUREMENT AND PAYMENT**

Add the following items:

<u>Item</u>	<u>Unit</u>
B56.10 Danger plates at culverts / structures	
(a) Type A storm water culverts (150mm x 600mm)	No
(b) Type B at 90° Curves (450mm x 450mm)	No

The unit of measurement shall include full compensation for be the actual number danger plates erected at storm water structures or at 90° Curves.

### **SECTION 5700: ROAD MARKINGS**

#### **B5702 MATERIALS**

##### **(a) Paint**

##### **(ii) Retro-reflective road marking paint**

Add the following:

“When measured in accordance with SABS Method 1261-1998 within a period of two weeks after application, the coefficient of retro-reflected luminance,  $R_L$ , shall be at least 150 mcd/m<sup>2</sup>.lx for white markings and 100 mcd/m<sup>2</sup>.lx for yellow markings.

Retro-reflective road-marking paint shall be used to paint road markings during the contract period and to re-paint all road markings at the end of the maintenance period.”

Add sub sub-clause (v):

“(v) Other roadmarking materials

The contractor may use other roadmarking materials which would ensure more durable markings and which would meet the specified performance criteria.

Such materials shall comply with a standard set by a recognised national standards institution. Information on such materials and the standards to which they comply shall be submitted to the engineer for approval prior to the materials being used.

**B5705 SURFACE PREPARATION**

Add the following at the end of the second paragraph:

“The onus is on the contractor to ensure that the surface on which the road markings are to be applied are sufficiently clean, dry and non-flaky to ensure that the quality of the road markings will not be adversely affected. The contractor is also responsible for protecting roadstuds from being painted over.”

**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.”

**B5708 APPLYING THE RETRO-REFLECTIVE BEADS**

Replace the second sentence with the following:

“The rate of application of the beads shall be such that the coefficient of retro-reflected luminance,  $R_L$ , specified in section B 5702(a)(ii) is achieved, but shall not be less than 0,34kg/m<sup>2</sup> of marking.”

**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.”

**B5714 MEASUREMENT AND PAYMENT**

Add the following items:

<u>Item</u>	<u>Unit</u>
B57.07 Establishment of painting unit during the construction period	Lump sum
B57.08 Re-Establishment of painting unit at the end of the maintenance period	Lump sum



The unit of measurement shall be the lump sum to compensate the contractor for the establishment and removal of the painting unit after the retention period.

The tendered lump sum shall include full compensation for the establishment on site and for the removal of all equipment, personnel, etc. as may be required for the application of the road marking.

## **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 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/m<sup>3</sup> 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**

<b>ITEM</b>	<b>UNIT</b>
<b>B64.01 Cast in situ concrete:</b>	cubic metre (m <sup>3</sup> )

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)."

**C3.4.3 PROJECT SPECIFICATIONS : ADDITIONAL SPECIFICATIONS**

**CONTENTS**

- C3.4.3.1 REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT REGULATIONS
- C3.4.3.2 ENVIRONMENTAL MANAGEMENT PLAN
- C3.4.3.3 PROVISION OF STRUCTURED TRAINING
- C3.4.3.4 PROVISION OF THE TEMPORARY WORKFORCE
- C3.4.3.5 THE PROCUREMENT POLICY / SUPPLY CHAIN POLICY OF BLOUBERG MUNICIPALITY
- C3.4.3.6 REQUIREMENTS OF EXTENDED PUBLIC WORKS PROGRAMME

### **C3.4.3.1 OCCUPATIONAL HEALTH AND SAFETY ACT 1993 : HEALTH AND SAFETY SPECIFICATION**

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ANNEXURE 1: MEASURING INJURY EXPERIENCE

ANNEXURE 2: EXECUTIVE SHE RISK MANAGEMENT REPORT

ANNEXURE 3: LIST OF RISK ASSESSMENTS

#### **C3.4.3.1.1 Introduction**

In terms of the Construction Regulation 4(1) (a) of the Occupational Health and Safety Act, No. 85 of 1993, Blouberg Municipality, 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 Blouberg Municipality 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.

#### **C3.4.3.1.2 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.

### **C3.4.3.1.3 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 Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality 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&amp;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&amp;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 Blouberg Municipality together with concise CV's of the appointees. All appointments must be officially approved by Blouberg Municipality. Any changes in appointees or appointments must be communicated to Blouberg Municipality forthwith.

The Principal Contractor must, furthermore, provide Blouberg Municipality 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 Blouberg Municipality 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

Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality OH&S meetings and

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

(i) Checking, Reporting and Corrective Actions

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

Blouberg Municipality 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 Blouberg Municipality:

Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality and the Provincial Director of the Department of Labour forthwith by telephone, telefax or E-mail.

The Principal Contractor is required to provide Blouberg Municipality 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 Blouberg Municipality 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 Blouberg Municipality reserves the right to hold its own investigation into an incident or call for an independent external investigation.



#### **C3.4.3.1.4 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 Blouberg Municipality 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 Blouberg Municipality, 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.

**C3.4.3.1.5 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
<b>C1.1 Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations</b>	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.

Payment will be made under Item **B13.01(d)**.

Item	Unit
<b>C1.2 Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations</b>	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 made under Item **B13.01(d)**.

Item	Unit
<b>C1.3 Submission of the Health and Safety File</b>	Lump Sum

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. Payment will be made under Item **B13.01(d)**.

**C3.4.3.1.6 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.

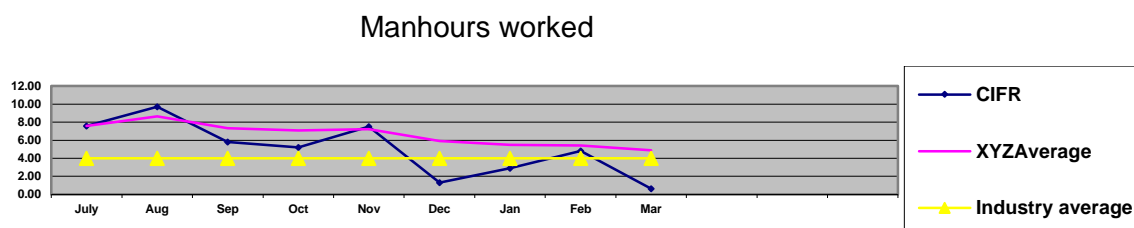
The first quarter of 2002 generally reflected an improvement in injury experience and shows a decline in the number of injuries. Although Building was the only division where there was an increase in compensation claims, figures are still well down from the average 2001 figures. A sub-contractor experienced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

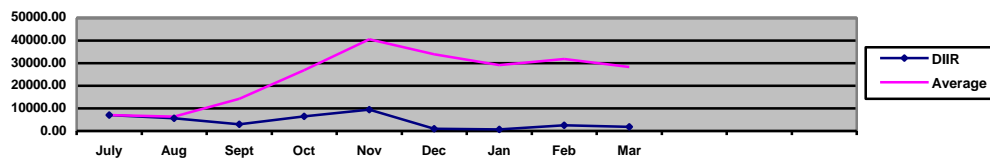
#### Compensation Incident Frequency Rate (CIFR)

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



#### 2.2. Disabling Injury Incidence Rate (DIIR)

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



### 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, Swaruggens 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.



## 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%(\*\*\*\*)  
 Job 00589: Cleveland Station Compliance: 76%(\*\*\*)

## 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 Gillooly'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.

## 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.

### **C3.4.3.2 ENVIRONMENTAL MANAGEMENT PLAN**

#### **CONTENTS**

- C3.4.3.2.1 SCOPE
- C3.4.3.2.2 DEFINITIONS
- C3.4.3.2.3 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS
- C3.4.3.2.4 LEGAL REQUIREMENTS
- C3.4.3.2.5 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS
- C3.4.3.2.6 TRAINING
- C3.4.3.2.7 ACTIVITIES/ASPECTS CAUSING IMPACTS
- C3.4.3.2.8 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES
- C3.4.3.2.9 RECORD KEEPING
- C3.4.3.2.10 COMPLIANCE AND PENALTIES
- C3.4.3.2.11 MEASUREMENT AND PAYMENT

#### **C3.4.3.2.1. 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 Municipality 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.

#### **C3.4.3.2.2. 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 Municipality 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.

#### **C3.4.3.2.3. 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

#### **C3.4.3.2.4. 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.

#### **C3.4.3.2.5. 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 4.18 and 11.11 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.



**C3.4.3.2.6. 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 Municipality'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.

**C3.4.3.2.7. 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.

**C3.4.3.2.8. 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 Municipality (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.

### C3.4.3.2.9. 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.

### C3.4.3.2.10. 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.

**C3.4.3.2.11. 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
<b>C100.01</b>	<b>Penalty for unnecessary removal or damage to trees</b>
	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
<b>C100.02</b>	<b>Penalty for serious violations</b>
(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<br>per incident, depending on environment impacts, plus<br>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
<b>C100.03      Penalty for less serious violations</b>	
• Littering on site	number (No)
• Lighting of illegal fires on site	number (No)
• Persistent or un-repaired fuel and oil leaks	number (No)
• Excess dust or excess noise emanating from site	number (No)
• Dumping of milled material in side drains or on grassed areas	number (No)
• Possession or use of intoxicating substances on site	number (No)
• Any vehicles being driven in excess of designated speed limits	number (No)
• Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife	number (No)
• Illegal hunting	number (No)
• Urination and defecation anywhere except in designated areas	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	
1700	Clearing and	Waste treatment	Selection of site	Selection of site	Protection of indigenous	

SECTION	CONTENTS	ENVIRONMENTAL IMPACTS				
		POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
	grubbing	Hazardous waste Water supply Noise /lights Dust control	Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	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 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	
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	

**C3.4.3.3 PROVISION OF STRUCTURED TRAINING****CONTENTS****C3.4.3.3.1 SCOPE****C3.4.3.3.2 GENERIC TRAINING****C3.4.3.3.3 ENTREPRENEURIAL SKILLS TRAINING****C3.4.3.3.4 MEASUREMENT AND PAYMENT****C3.4.3.3.1 SCOPE**

This specification covers the requirements for the provision of structured training to be arranged by the contractor over the period of this contract.

**C3.4.3.3.2 GENERIC TRAINING**

C3.4.3.3.2.1 The contractor shall, from the commencement of the contract, implement a structured progressive training programme.

C3.4.3.3.2.2 The generic training will inter alia comprise, but not be limited to the following subjects:

<b>COURSE DESCRIPTION</b>		<b>ESTIMATED No. OF TRAINEES</b>	<b>ESTIMATED DURATION (DAYS)</b>
1	ROAD SAFETY FOR CONSTRUCTION WORKERS	.....	
2	FLAGMEN	.....	
3	CONCRETE HANDLING, PLACING AND FINISHING	.....	
4	GUARDRAILS	.....	
5	BITUMINOUS ROAD SURFACING	.....	

C3.4.3.3.2.3 Training shall be at or by an approved accredited organisation and shall be delivered by suitably qualified and experienced trainers.

C3.4.3.3.2.4 The tenderer shall provide with his tender full details of the structured training programme he intends to implement, which details shall include the following:

- (a) The name of the training institution and programme
- (b) The manner in which the training is to be delivered.
- (c) The numbers and details of the trainers

Such details shall be entered on or attached to Form RDP 6 (E) included herein.

C3.4.3.3.2.5 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)

C3.4.3.3.2.6 Generic training courses shall commence within one month of possession of site and be completed before the end of the contract period.

C3.4.3.3.2.7 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

C3.4.3.3.2.8 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 10 (E))

### **C3.4.3.3.3 ENTREPRENEURIAL SKILLS TRAINING**

C3.4.3.3.3.1 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.

C3.4.3.3.3.2 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.

C3.4.3.3.3.3 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.

C3.4.3.3.3.4 The contractor shall facilitate in the delivery thereof, by instructing and motivating the subcontractor regarding attendance and participation therein.

C3.4.3.3.3.5 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.

C3.4.3.3.3.6 The structured training will comprise out of the following as decided by the Employer:

<b>COURSE DESCRIPTION</b>	<b>ESTIMATED DURATION (DAYS)</b>
1. BASIC BUSINESS PRINCIPLES	To be determined
2. BASIC SUPERVISION	To be determined
3. RUNNING A BUSINESS	To be determined
4. LEGAL PRINCIPLES	To be determined
5. ACHIEVING STANDARDS	To be determined

C3.4.3.3.3.7 The contractor shall provide with his tender, full details of the structured training programme, which he intends to implement, which details shall include the following:

- (a) The name of the training institution and programme
- (b) The various aspects of each type of training comprised in the programme
- (c) The manner in which the training is to be delivered
- (d) The numbers and details of the trainers to be utilised.

Such details of the proposed entrepreneurial training programme shall be entered on or attached to form RDP 7 (E) of the forms to be completed by the tenderer.

C3.4.3.3.8 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)

C3.4.3.3.9 All entrepreneurial training shall take place within normal working hours.

C3.4.3.3.10 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

C3.4.3.3.11 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 11 (E)).

#### **C3.4.3.3.4 MEASUREMENT AND PAYMENT**

<b>ITEM</b>	<b>UNIT</b>
<b>B12.10 Percentage for charges and profit on the provisional sums for contractor's cost and profit</b>	
(a) Training allowance paid to targeted labour in terms of formal training	Prime Cost Sum
(b) Extra-over for administration of payment for training	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 all the provisional sums sub-items, which shall include full compensation for the handling costs of the contractor, and the profit."

**C3.4.3.4 PROVISION OF THE TEMPORARY WORKFORCE****CONTENTS**

- C3.4.3.4.1 SCOPE
- C3.4.3.4.2 INTERPRETATIONS
- C3.4.3.4.3 PERMITTED SOURCES OF TEMPORARY WORKERS
- C3.4.3.4.4 EMPLOYMENT RECORDS TO BE PROVIDED
- C3.4.3.4.5 VARIATIONS IN WORKER PRODUCTION RATES
- C3.4.3.4.6 TRAINING OF THE TEMPORARY WORKFORCE
- C3.4.3.4.7 RECRUITMENT AND SELECTION PROCEDURES
- C3.4.3.4.8 TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE
- C3.4.3.4.9 LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES
- C3.4.3.4.10 THE SUBCONTRACTORS' WORKFORCES
- C3.4.3.4.11 MEASUREMENT AND PAYMENT

**C3.4.3.4.1 SCOPE**

This Specification covers the provisions and requirements relating to the provision of the temporary workforce.

**C3.4.3.4.2 INTERPRETATIONS****C3.4.3.4.2.1 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.

**C3.4.3.4.2.1.2 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 posses 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) "Liaison Officer" means a representative from the temporary workforce, duly elected by them, to act on their behalf and through whom all matters pertaining to the temporary workforce can be channelised.

#### C3.4.3.4.2.1.3 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.

#### C3.4.3.4.3 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 various communities, and shall not be bound to one particular community.

**C3.4.3.4.4 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 format approved by the Engineer. 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.

**C3.4.3.4.5 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.

**C3.4.3.4.6 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.



C3.4.3.4.7 RECRUITMENT AND SELECTION PROCEDURES

- C3.4.3.4.7.1 The Contractor shall be fully responsible for the recruitment and selection of workers to constitute the temporary workforce.
- C3.4.3.4.7.2 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).
- C3.4.3.4.7.3 The Contractor shall, at his own cost, take all necessary actions to advertise within the communities comprising the personnel resources, the fact that temporary employment opportunities exist and the time and place where recruiting will occur.
- C3.4.3.4.7.4 The Contractor shall record in writing, the details of all persons applying for employment, including *inter alia*:
- (a) Name, address, age and sex
  - (b) Marital status and number of dependants
  - (c) Qualifications and previous work experience (whether substantiated or not)
  - (d) Period since last economically active
  - (e) Preference for type of work or task.
- C3.4.3.4.7.5 The Contractor shall make his selection of workers from amongst the applicants, taking due cognisance of his 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 principles:
- (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.

C3.4.3.4.7.6 After making his selection, the Contractor shall advise the Engineer thereof, in writing and the Engineer shall, without undue delay, ratify the Contractor's selection.

C3.4.3.4.7.7 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.

C3.4.3.4.7.8 The Contractor shall, after selecting 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."

C3.4.3.4.8 TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE

C3.4.3.4.8.1 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.

C3.4.3.4.8.2 The Contractor shall pay to all temporary workers engaged in terms of Part A of the Project Specifications, not less than the minimum rate of remuneration as specified in Form P : Appendix to Tender.

#### C3.4.3.4.9 LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES

C3.4.3.4.9.1 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.

C3.4.3.4.9.2 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.

C3.4.3.4.9.3 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.

C3.4.3.4.9.4 In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures in accordance with Sub clauses C3.4.3.4.9.2 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.

#### C3.4.3.4.10 THE SUBCONTRACTORS' WORKFORCES

C3.4.3.4.10.1 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.

C3.4.3.4.10.2 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.

#### C3.4.3.4.11 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.

**C3.4.3.2 THE PROCUREMENT POLICY / SUPPLY CHAIN POLICY OF BLOUBERG MUNICIPALITY**

**The policy document are contained in Part C5: Annexures – C5.2**

### **C3.4.3.3 REQUIREMENTS OF EXTENDED PUBLIC WORKS PROGRAMME**

#### **C3.4.3.3.1 INTRODUCTION**

The requirements of the Expanded Public Works Programme are contained in the document Guidelines for the Implementation of Labour Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP) included under PART 5: ANNEXURES; Subsection C5.1. These requirements will apply to labour intensive work described under PART C3: SCOPE OF THE WORK. .

Refer to PART T2: RETURNABLE DOCUMENTS for schedules to be completed which relate to labour intensive issues.

### **C3.5 MANAGEMENT**

#### **3.5.1 Planning and Programming**

The Contractor shall supply within the period stated in the contract Data a suitable and realistic construction programme, cash flow diagram, and critical path diagram for the consideration of the Engineer. This programme shall show the proposed scheduling and methods of execution of the Works and the resources to be allocated to each item or phase of the work. Quantities proposed for execution during each week and the anticipated cash-flow based upon these quantities should be shown, due allowance being made for price escalations and retention moneys.

The programme shall take provision for the accommodation of other contractor's requirements. It will be required from the contractor to liaise with other contractors to ensure continuous co-ordination and execution of the scheduled work.

#### **3.5.2 Recording of weather**

3.5.3 The Contractor shall provide and install a rain gauge on site and shall record rainfall data in the site diary. A site diary will be issued to the Contractor.

#### **3.5.4 Health and Safety**

##### **3.5.3.1 Health and Safety Requirements**

The Occupational health and Safety Act, Act85 of 1993 shall apply to this contract. The Contractor shall comply with the Particular Specification for Occupational Health and Safety.

##### **3.5.3.2 Protection of the Public**

As the above entails working in an already developed area where services are provided to the general public special attention must be paid to the following aspects:

- a) No blasting or working with percussion tools will be allowed unless prior written approval from the Engineer and local authorities is obtained.
- b) Safety of the public must be of prime importance and the outmost care must be taken to ensure that the correct signs, barriers and warning devices are in place.
- c) Movement of construction equipment must be controlled on site at all times.

#### **Site meetings and procedures**

The Employer's Representative and the Contractor shall hold meetings relating to the progress of the works at regular intervals and at other such times as may be necessary. The Contractor shall attend all site meetings and shall ensure that all persons under his jurisdiction are notified timeously of all site meetings should the Employer's Representative require their attendance at such meetings.

The Contractor shall keep on site a set of minutes of all site meetings, daily records of resources (people and equipment employed), a site instruction book, a complete set of contract working drawings and a copy of the procurement document and make these available at all reasonable times to all persons concerned with the contract.

**Water and electricity**

The Employer does not warrant that any water supply or electricity supply that may exist is adequate for the proper execution of the works. The responsibility strategies in terms of the tabulation below that will apply to the contract is:

- a) water : A  
b) electricity : A

Service	Option		
	A Contractor responsibility	B Employer responsibility	C
Water	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections and purchase water from the local authority for the works at his own cost.	The Contractor shall make, and upon completion remove, all the necessary connections to the Employer's water supply at designated points and make use of water free of charge for construction purposes only.	The Contractor shall make, and upon completion remove, all the necessary connections and water meters to the Employer's water supply at designated points and be responsible for costs associated with all water consumed.
Electricity	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary electrical connections and installations and purchase electricity from the local authority / ESKOM for the works at his own cost.	The Contractor shall make, and upon completion remove, all the necessary electrical connections to the Employer's electrical supply at designated points and make use of electricity free of charge for construction purposes only.	The Contractor shall make, and upon completion remove, all the necessary connections and meters to the Employer's electrical supply and be responsible for costs associated with all electricity consumed.

**SANS 1921-5, Construction and management requirements for works contracts – Part 5: Earthworks activities which are to be performed by hand.**

Clause	Specification Data
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**Essential Data:**

5.1	The depth of trenches which are to be excavated by hand is 1,5 metres.
-----	--

**Additional clauses:**

1	<p><b>Stone pitching and rubble concrete masonry</b></p> <p>All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, shall be collected, loaded, off loaded and placed by hand.</p> <p>Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.</p>
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	Grout shall be mixed and placed by hand.
2	<b>Manufactured Elements</b> Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.
<b>SANS 1921-6, Construction and management requirements for works contracts – Part 6: HIV/AIDS awareness.</b>	
4.2.1(a)	A qualified service provider is a service provider that is one that is accredited or provisionally accredited training service provider in the HIV/AIDS field. A list of accredited service providers can be obtained from the Construction SETA (CETA) (tel 011-265 5900), Health and Welfare SETA (HWSETA) (011-622 6852) or on the Health and Welfare SETA website: <a href="http://www.hwseta.org.za">www.hwseta.org.za</a> .
4.2.1(a)	The HIV/AIDS awareness programme is to be repeated at four month intervals throughout the duration of the contract. (Four times in total, including the initial one at the start of the contract.)
<b>Additional clauses</b>	
	The duration of each workshop is not to be less than 2 ½ hours.

### 3.5.5 Particular / generic specifications

The management of the site shall be in accordance with the provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition), obtainable from the South African Institution of Civil Engineering.

### 3.5.6 Recording of weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in a book. Such book shall be handed to the employer's representative for his signature no later than 12 days after rain that is considered to justify an extension of time occurs.

The following template for the record purposes of rainfall should be used:

	<b>Aug 10</b>	<b>Sep 10</b>	<b>Oct 10</b>	<b>Nov 10</b>	<b>Dec10</b>	<b>Jan 11</b>	<b>Feb 11</b>	<b>Mar 11</b>
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								



13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
<b>Total</b>							

And then summarised accordingly for each month:

<u>Month</u>	<u>Rainfall (mm)</u>	<u>Rainfall Days</u>	<u>Place Recorded</u>
<b>Total</b>			

### 3.5.7 Unauthorised persons

The Contractor shall keep unauthorized persons from the works at all times. Under no circumstances may any person except guards be allowed to sleep on the building site.

### 3.5.8 Management meetings

A progress meeting termed Site Meeting will be held within monthly intervals. The Contractor shall provide a venue and adequate seating for all members of the Project team i.e. The Client, The Engineer, the Ward Concillor, the Local Municipality's representative, members

of the community's steering committee, the CLO, the Safety officer, any other stakeholders (e.g. Private Enterprise, Mentors etc) and key members of the Contractors staff. Site inspection meetings termed Technical Meetings will also be held within monthly intervals and is approximately held midway between Site Meetings. The Contractor shall in terms of the Health and Safety Regulations hold safety meeting weekly. The Minutes of the Safety meeting shall be submitted to the Engineer at every Site Meeting

### **3.5.9 Forms for contract administration**

The Contractor shall submit to the Engineer at every Site Meeting or by the 24<sup>th</sup> of every month the following schedules:

- 5.6.1 Labour Return Schedule (These forms are available electronically)
- 5.6.2 Plant Schedule
- 5.6.3 Copies of the Minutes of the Safety Meetings
- 5.6.4 Copies of the Site Diary Recordings
- 5.6.5 An updated Construction Programme

### **3.5.10 Electronic payments**

The Contractor shall include on the Tax Invoice submitted with all claims the following banking details:

- Account Holder
- Bank Name
- Account Number
- Bank Branch Code
- Bank Branch Name
- Type of Account

The Employer is not under any obligation to transfer the Contractors payment electronically.

### **3.5.11 Daily records**

The Contractor is to keep accurate daily records of the following items on an A4 Book in duplicate:

- Date
- Weather conditions (include rainfall mm and time recorded if applicable)
- Safety Measures (include signage installed, barriers, all measures undertaken with the time checked)
- Plant used
- Activities/ Production
- Labour used (differentiate between local and non-local)
- Problems or difficulties experienced
- Information request or if follow was made (include dates and times of correspondence)
- Training (if or when it is applicable)

### **3.5.12 Payment certificates**

The Contractor shall submit the following information together with all claims to be verified and certified by the Engineer for payment by the Engineer:

- A detailed calculation sheet for all measurable items in accordance with the payment criteria relevant to that item.

- A complete schedule of quantities drawn up by the Contractor indicating all claims i.e. previous, present and accumulative with the total applicable to the accumulative quantities.
- A comprehensive Summary Page indicating all previous payments, retentions, escalation totals, penalties, discounts, guarantee deductions, material claimed, other costs (e.g. acceleration), value added tax, subtotals and totals.
- Escalation CPA indices were applicable.
- Proof of payment for all Preliminary Sums (e.g. CLO, Training, Daywork items etc)
- Proof of material including delivery notes for all material claimed as material on site)
- An draft copy of the Tax Invoice

The Contractor shall ensure that the projected cashflow allows 48 hours for the processing of payment certificates by the Engineer. The Contractor has to receive written acceptance from the Engineer on behalf of himself and the Client if more than one payment certificated is permitted monthly.

### **3.5.13 Permits**

The Contractor's staff is not required by have security or entrance permits to enter the site.

### **3.5.14 Proof of compliance with the law**

- 3.5.11.1 Basic Conditions of Employment Act 1997
- 3.5.11.2 Occupation Health and Safety Act

### **3.5.15 Annexes**

A complete book of drawings is issued with this Tender Document. The Tenderers must ensure that they have received a full set of drawings and must return the set of drawings with the Tender

**C3.6 PROJECT SPECIFICATIONS : ADDITIONAL SPECIFICATIONS**

**C3.6.1 HEALTH AND SAFETY SPECIFICATION**

## **C3.6.1 HEALTH AND SAFETY SPECIFICATION**

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## **PAP- HEALTH AND SAFETY SPECIFICATION**

### **C3.6.1.1 SCOPE**

#### **1.1 Scope of Specification**

This specification covers the principles, duties, responsibilities, liabilities, and requirements applicable in respect of health and safety in the work place on construction work.

This document constitutes the Employers' Health and Safety Specification as defined in the Construction Regulations, 2003 of the Occupational Health and Safety Act (Act 85 of 1993).

This specification applies to tunneling although the minimum requirements for tunneling are contained in the Mines Health and Safety Act. This specification however does not apply to underground construction at this point in time as covered by the Mines Health and Safety Act, 1996 (Act 29 of 1996) as amended.

#### **1.2 Philosophy**

Some of the terms and requirements of the Occupational Health and Safety Act and its Regulations may be novel to Contractors. This specification has therefore been prepared as an instructive guideline without being prescriptive, constraining the competitive advantage or interfering with the legal obligations of the responding parties.

The Health and Safety Plan required in terms of this specification may also be novel to Contractors. This specification has therefore been prepared in such a way to allow Contractors to employ the services of specialist consultants for the preparation and implementation of the same during the construction of the Works.

Health and safety can only be assured on construction works if all stakeholders buy into the Health and Safety plan and when the health and safety of all is an integrated line accountability of all management staff and workers on site. The management systems that are provided for in this specification is to enable the performance statistics of health and safety to be regularly captured, the intention of these systems is not to achieve health and safety by policing the conduct of the Contractor's employees.

In addition to ensuring health and safety, the intention of the management system is rather to commercially exploit the benefit of doing things right the first time that goes hand in hand with top health and safety performance. Accidents and

injuries never pay. The loss of production and the cost of injuries, however, relatively infrequent they may be, far outweigh the effort required to maintain top health and safety on construction.

The specification accordingly provides for:

- a) Independent periodic audits to ensure an unbiased pursuit of health and safety,
- b) Follow-up audits to ensure the implementation of prescribed remedial actions,
- c) The review of the efficiency and effectiveness of the Contractor's Health and Safety Plan,
- d) The preparation of regular reports of inspections and accidents to enable the tracking of changes in health and safety performance,
- e) The monitoring of conditions on a continuously pro-active basis to ensure that hazards are without delay identified, assessed and remedied should it threaten the health and safety of persons and property,
- f) Ad hoc inspections to ensure that health and safety is pursued with dedication and not out of intimidation or coercion, and
- g) Development of all aspects of the Contractor's Health and Safety Plan.

The fundamental intention of this specification is that the preservation of health and safety will become a core value of all involved during the construction of the Works.

This Specification does not require the preparation of an unduly extensive or complex risk assessment. The Contractor should rather prepare a risk assessment which takes the size of the project, the size of the Contractor's organization, the conditions of the workplace and the nature, complexity and significance of the hazards likely to be encountered during the execution of the Works into account.

### **C3.6.1.2 INTERPRETATIONS**

#### **2.1 Supporting specifications**

Where this specification is required for a project, the following specifications (as amended) shall, inter alia, form part of the contract document:

a) Occupational Health and Safety Act, 1993, and its regulations which shall include, but shall not be limited to the following:

- Construction Regulations, 2003,
- General Safety Regulations,
- General Administrative Regulations, 1996,
- Driven Machinery Regulations, 1988,
- Electrical Installation Regulations, 1992,
- Electrical Machinery Regulations, 1988,
- Environmental Regulations for Workplaces, 1987, and
- Facilities Regulations, 1990.

b) Clauses 6.(5)b, 6.(6), 6.(7) and 6.(8) of the Special Conditions of Contract.

c) The applicable SANS 1200 specifications as listed in Section 4.1 of this Contract Document.

## **2.2 Application**

This specification contains clauses that are applicable to the occupational health and safety requirements of the Occupational Health and Safety Act, 1993 and its Regulations, in particular the Construction Regulations, 2003 promulgated on 18 July 2003 in terms of Section 43 of the Act.

## **2.3 Definitions**

In the Contract (as defined in clause 1.(1)(e) of the Conditions of Contract) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

- (a) “Assistant Construction Supervisor” means a competent person appointed in accordance with regulation 6.(2) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (b) “Batch Plant Supervisor” means a competent person appointed in accordance with regulation 18.(1) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (c) “Construction Health and Safety Officer” means a competent person appointed in accordance with regulation 6.(6) of the Construction



Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.

- (d) “Construction Supervisor” means a competent person appointed on a full-time basis in accordance with regulation 6.(1) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (e) “Construction Vehicles & Mobile Plant Inspector” means a competent person appointed in accordance with regulation 21.(1)(j) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (f) “Contractor” means the natural or juristic person or partnership whose tender has been accepted by or on behalf of the Employer and, who is defined as the Principal Contractor in the Construction Regulations, 2003.
- (g) “Demolition Work Supervisor” means a competent person appointed in accordance with regulation 12.(1) of the Construction Regulations, 2003, in writing by the Contractor with written notification to the Engineer.
- (h) “Employer’s Designer” means the natural or juristic person or partnership named in the Appendix to Tender or any other natural or juristic person or partnership appointed from time to time by the Employer for the design of the portion of the Permanent Works which the Employer is responsible to design in terms of this Contract.
- (i) “Contractor’s Designer” means the natural or juristic person or partnership appointed from time to time by the Contractor and notified in writing to the Engineer and Employer for the design of the portion of the Permanent Works which the Contractor is responsible to design in terms of this Contract, and for the design of the Temporary Works.
- (j) “Electrical Temporary Installation Inspector” means a competent person appointed in accordance with regulation 22.(d) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (k) “Employer” means the natural or juristic person or partnership for whom the Works are to be executed, who is named as the Employer in the Conditions of Contract and who is known as the “Client”, in the Occupational Health and Safety Act, 1993 and its regulations.
- (l) “Engineer” means the natural or juristic person or partnership named as the Engineer in the Conditions of Contract and appointed by the Employer to act as the Engineer in terms of this Contract.
- (m) “Engineer's Representative” means the person appointed by the Engineer in terms of Clause 2 of the Conditions of Contract.

- (n) "Excavation Work Supervisor" means a competent person appointed in accordance with regulation 11.(1) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (o) "Explosive Powered Tools Issuer" means a competent person appointed in accordance with regulation 19.(2)(g)(i) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (p) "Fall Protection Developer" means a competent person appointed in accordance with regulation 8.(1)(a) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (q) "Fire Extinguisher Inspector" means a competent person appointed in accordance with regulation 27.(h) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (r) "Formwork and Support Work Supervisor" means a competent person appointed in accordance with regulation 15.(1) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (s) "Hazard" means any object, action or condition that can potentially harm the health and safety of persons or property.
- (t) "Hazard Identification" means the identification and documenting of existing or expected hazards.
- (u) "Health and Safety Consultant" means the natural or juristic person or partnership appointed by the Contractor to assist in any matters related to health and safety on the construction site.
- (v) "Health and Safety Plan" means a documented plan, prepared by the Contractor, of work procedures to mitigate, reduce or control hazards identified.
- (w) "Health and Safety Specification" means a documented specification of all health and safety requirements and criteria to mitigate, reduce or control hazards identified.
- (x) "Health and Safety Representative" means the person/s designated in accordance with section 17 of the Occupational Health and Safety Act.
- (y) "Ladder Inspector" means a competent person appointed in accordance with regulation 13 of the General Safety Regulations, in writing by the Contractor, with written notification to the Engineer.
- (z) "Material Hoist Inspector" means a competent person appointed in accordance with regulation 17.(8)(a) of the Construction Regulations, 2003 in writing by the Contractor, with written notification to the Engineer.
- (aa) "Method Statement" means a document detailing the key activities to mitigate, reduce or control hazards identified.

- (bb) “Professional Engineer” means any person employed from time to time by either the Employer or Contractor who holds registration as either a Professional Engineer or Professional Certificated Engineer under the Engineering Profession Act, 2000 (Act No. 46 of 2000).
- (cc) “Professional Technologist” means any person employed from time to time by either the Employer or Contractor who holds registration as a Professional Technologist under the Engineering Profession Act, 2000 (Act No. 46 of 2000).
- (dd) “Risk” means the likely occurrence and impact of a hazard.
- (ee) “Risk Assessment” means a programme carried out to identify and evaluate the likely occurrence and impact of all hazards.
- (ff) “Risk Assessor” means a competent person appointed in accordance with regulation 7.(1) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (gg) “Safety Agent” means a competent natural or juristic person or partnership named in the Appendix to Tender or any other person appointed from time to time by the Employer and notified in writing to the Contractor to act on behalf of the Employer for the purposes of this specification.
- (hh) “Scaffolding Supervisor” means a competent person appointed in accordance with regulation 14.(2) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (ii) “Stacking Supervisor” means a competent person appointed in accordance with regulation 26.(a) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.
- (jj) “Subcontractor” means the natural or juristic person or partnership who is appointed by the Contractor with prior consent of the Engineer to execute certain tasks associated with the Works and who is also an employer as defined in section 1 of the Occupational Health and Safety Act.
- (kk) “Suspended Platforms Supervisor” means a competent person appointed in accordance with regulation 15.(1) of the Construction Regulations, 2003, in writing by the Contractor, with written notification to the Engineer.

## **2.4 Duties, responsibilities and liabilities**

### **2.4.1 *Principal Parties***

This section covers the duties, responsibilities and liabilities of the following principal parties:

- Employer
- Employer's Safety Agent
- Contractor
- Subcontractor
- Employer's Designer
- Contractor's Designer

The duties and responsibilities of the various principal parties are briefly summarized below (the numbers indicated correspond to the applicable regulation number in the Construction Regulations, 2003). The intention of the summary is not to replace the Regulations, but is included for indicative purposes. The liabilities of each party are also shown.

a) Employer

In addition to the duties, responsibilities and liabilities specified in the Conditions of Contract, the Employer shall have the following duties and responsibilities to ensure compliance with the Construction Regulations, 2003:

- 4.(1)(a) Prepare health and safety specifications for the Works.
- 4.(1)(a) Provide copies of the specifications to Tenderers or to the appointed Contractor.
- 4.(1)(b) Provide any information to the Contractor that may affect the health and safety of his employees.
- 4.(1)(c) Appoint the Contractor in writing for the Works.
- 4.(1)(d) Take reasonable steps to ensure that the Contractor's Health and Safety Plan is implemented and maintained on the Works (which shall include monthly audits).
- 4.(1)(e) Stop the Contractor from executing work, not in accordance with, his Health and Safety Plan or which poses a threat to the health and safety of persons.
- 4.(1)(f) Ensure that sufficient health and safety information and appropriate resources are made available to the Contractor when changes are brought about to the design.
- 4.(1)(g) Ensure that the Contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to the commencement of the Works.
- 4.(1)(h) Ensure that Tenderers have made provision in their tenders for the cost of health and safety measures during the construction of the Works.
- 4.(2) Discuss and negotiate the contents of the Contractor's Health and Safety Plan.
- 4.(2) Approve the Contractor's Health and Safety Plan for implementation.

- 4.(3) On request, make available copies of the Contractor's Health and Safety Plan to his employees, his Subcontractors and inspectors.
- 4.(4) Satisfy himself on the competencies and resources of the Contractor he intends appointing.
- 4.(6) Satisfy himself on the competencies and resources of his Safety Agent should he decide to appoint one.

In terms of Clause 6.(6) of the Special Conditions of Contract, the Contractor accepts sole liability as mandatory for due compliance with the Occupational Health and Safety Act, 1993 and all its regulations including the Construction Regulations, 2003. The Employer will only be responsible for the duties imposed on the Employer in terms of the Construction Regulations, 2003 as listed above.

b) Employer's Safety Agent

Where the Employer decides to appoint an agent in accordance with regulation 4.(5) of the Construction Regulations, 2003, the duties and responsibilities as imposed by these regulations upon the Employer shall as far as reasonably practicable apply to his Safety Agent.

c) Contractor

In addition to the duties, responsibilities and liabilities specified in the Conditions of Contract, the Contractor shall have the following duties and responsibilities to ensure compliance with the Construction Regulations, 2003:

- 3.(1)(a) Notify the provincial director in writing of the commencement of the construction works.
- 3.(3) Ensure that a copy of the notification letter is kept on site for inspection on request as well as proof of its receipt by the Department of Labour.
- 5.(1) Demonstrate a Health and Safety Plan, based on the Employer's health and safety specifications.
- 5.(1) Apply the Health and Safety Plan from the Commencement Date until completion of the Works.
- 5.(2) Ensure co-operation between all contractors to enable each to comply with the provisions of Construction Regulations.
- 5.(3)(a) Provide any Tenderer or Subcontractor with copies of the Employer's health and safety specifications.
- 5.(3)(b) Appoint Subcontractors in writing.
- 5.(3)(c) Ensure that each Subcontractor's Health and Safety Management Plan is implemented and maintained on their portion of the Works.

- 5.(3)(d) Stop any Subcontractor from executing Works, not in accordance with, the Contractor's Health and Safety Plan or which poses a threat to the health and safety of persons.
- 5.(3)(e) Ensure that sufficient health and safety information and appropriate resources are made available where applicable, to the Subcontractor when changes are brought about to the design of the Works.
- 5.(3)(f) Ensure that his Subcontractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to the commencement of the Works.
- 5.(3)(g) Ensure that his Tenderers have made provision in their tenders for the cost of health and safety measures during the construction of the Works in line with the requirements of the Employers Health and Safety Specification and his Health and Safety Management Plan.
- 5.(5) Discuss and negotiate the contents of his Subcontractor's Health and Safety Plan, to ensure compliance with the Employer's Health and Safety Specification and consistent with the Contractors Health and Safety Management Plan.
- 5.(5) Approve his Subcontractor's Health and Safety Plan for implementation and to keep records of all such approvals on site for auditing purposes.
- 5.(6) On request, make available a copy of his and his Subcontractor's Health and Safety Plan to an employee, inspector, contractor, the Employer or the Employer's Safety Agent.
- 5.(7) Open and maintain a record management system regarding health and safety for the Contractors own and Subcontractors' Health and Safety Documentation on the construction site.
- 5.(7) Upon request, make available his health and safety record management system to an inspector, Employer, the Employer's Safety Agent or the Contractor.
- 5.(8) Deliver the health and safety record management system to the Employer upon completion of the Works.
- 5.(9) Ensure that a comprehensive and updated list of all his Subcontractors (including their respective subcontracting agreements) are included in the health and safety record management system.
- 5.(10) Satisfy himself on the competencies and resources of the Subcontractor he intends appointing.

- 6.(1) Appoint a construction supervisor.
- 6.(3) Appoint assistant construction supervisors if required by an inspector.
- 6.(5) Appoint individual construction supervisors for individual construction sites.
- 6.(6) The Contractor shall after due consideration of the complexity, size and potential hazards and associated risks as well as controls towards the mitigation of risks, appoint a safety officer in writing. The contractor shall submit a detailed CV of the envisaged Safety Officer appointment for final acceptance thereof by the Employer or his Safety Agent.
- 6.(7) Provide opportunities to the construction safety officer to provide inputs into the Health and Safety Plan.
- 6.(8) Satisfy himself with the competencies and resources of the construction safety officer he intends appointing.
- 7.(1) Perform a risk assessment prior to the commencement of any construction work.
- 7.(2) On request, make available copies of the his/her risk assessment.
- 7.(3) Consult with the health and safety committee on the development, monitoring and review of the risk assessment.
- 7.(4) Ensure that all employees are informed, instructed and trained regarding any hazard and the related work procedures before any work commences. The contractor shall ensure that proof of such is available on site for auditing purposes.
- 7.(5) Ensure that all Subcontractors are informed regarding any hazard as stipulated in the risk assessment. Further that Subcontractors conduct their own risk assessments as and when required
- 7.(6) Analyze ergonomic related hazards and address the same in the risk assessment.
- 7.(7) Ensure that all employees undergo health and safety induction prior to permitting each employee access to the Works. The Contractor shall ensure that proof of such is available on site for auditing purposes.
- 7.(8) Ensure that all visitors undergo health and safety induction and are provided with the necessary personal protective equipment. The Contractor shall ensure that proof of such is available on site for auditing purposes.
- 7.(9) Ensure that every employee is in possession and carries at all times his proof of health and safety induction training.

- 9.(1)(a) Prevent the uncontrolled collapse of any structure which may become unstable due to the carrying out of construction work.
- 9.(1)(b) Ensure that no structure is loaded in an unsafe manner.
- 9.(3) Ensure that all construction drawings are on site and available on request by an inspector, contractors, Employer, the Employer's Safety Agent or employee.

In terms of Clause 6.(6) of the Special Conditions of Contract, it shall be deemed that the parties to this Contract have agreed in writing in terms of Section 37(2) of the Occupational Health and Safety Act, 1993 that the Contractor accepts sole liability for due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures imposed by the Occupational Health and Safety Act, 1993 and all its regulations, including the Constructions Regulations, 2003, for which he is liable as mandatory.

d) Subcontractor

To ensure compliance with the Construction Regulations, the Subcontractor shall:

- 5.(4) Demonstrate a Health and Safety Plan, based on the Employer's health and safety specification.
- 5.(4) Apply his Health and Safety Plan from the Commencement Date and until completion of the Works.
- 5.(12) Satisfy himself on the competencies and resources of any Subcontractor he intends appointing.
- 5.(14) Provide the Contractor with any information which might affect the health and safety of any person or which might justify a review of the Health and Safety Plan.

In addition to the above items, the Subcontractor shall, to ensure compliance with the Construction Regulations, comply with regulations 5.7, 6.(1), 6.(3), 6.(5), 6.(6), 6.(7), 6.(8), 7.(1), 7.(2), 7.(3), 7.(4), 7.(6), 7.(7), 7.(8), 7.(9), 9.(1)(a), 9.(1)(b) and 9.(3), summarized in Section 2.4.1(c) above.

e) Designer (Employer's Designer or Contractor's Designer)

To ensure compliance with the Construction Regulations, 2003, the Designer (as defined in the Construction Regulations, 2003) shall:

- 9.(2) Make available to the Employer all relevant information affecting the pricing of the Works.
- 9.(b) Inform the Contractor of any hazards relating to the Works.



- 9.2(b) Make available all information required for the safe execution of the Works.
- 9.2(c) Ensure that information relating to geo-sciences, designs loads, and the methods and sequencing of construction processes are made available to the Contractor in a report.
- 9.2(d) Not include dangerous procedures or hazardous materials in the structure's design which could be avoided.
- 9.2(e) Make provision in the design of the Works for hazards likely to be encountered during its subsequent maintenance.
- 9.2(f) Carry out inspections of the construction work during the construction period to ensure compliance with the designs.
- 9.2(f) Keep records of the inspections carried out on the construction site.
- 9.2(g) Stop any contractor from executing works not in accordance with the designs.
- 9.2(h) Conduct a final inspection of the completed Works prior to its commissioning.
- 9.2(h) Issue a completion certificate to the Contractor subsequent to a successful final inspection.
- 9.2(i) Ensure that cognizance is taken of ergonomic design principles in order to minimize related hazards.

The Employer's Designer shall only accept responsibility to comply with the Construction Regulations, 2003 for that portion of the Permanent Works which the Employer is responsible to design in terms of the Contract.

The Contractor's Designer shall accept sole responsibility and liability to comply with the Construction Regulations, 2003 for that portion of the Permanent Works for which the Contractor is responsible to design in terms of the Contract as well as the design of the Temporary Works.

#### 2.4.2

##### *Secondary Parties*

This section covers the duties, responsibilities and liabilities of the following secondary parties:

- Construction Health and Safety Officer
- Contractor's Employees
- Fall Protection Developer
- Health and Safety Consultant
- Health and Safety Representative
- Risk Assessor

a) Construction Health and Safety Officer

The Construction Health and Safety Officer will act as Health and Safety advisor to the site management staff, ensuring the integrity of the Safety management System and Plan and its implementation. The Construction Health and Safety Officer can therefore never take over the line management responsibilities for safe work practices.

The Contractor is responsible for the development of the position outcomes descriptors for the Construction Health and Safety Officer. This documentation shall be available on site for auditing purposes.

The Construction Health and Safety Officer shall if given an opportunity, provide an input into the Contractor's Health and Safety Plan.

b) Contractor's Employees

All employees will be responsible for safety on the construction site and the work place as prescribed in section 14 of the Occupational Health and Safety Act, 1993 and briefly summarized as follows:

- Take reasonable care for the health and safety of himself and of other persons who may be affected by his acts,
- Co-operate with his employer with regards to health and safety to ensure that his employer complies with requirements imposed on him,
- Obey the health and safety rules and procedures laid down by his employer,
- Report any unsafe or unhealthy situation to his employer or to the health and safety representative for his workplace,
- Immediately report any incident in which he was involved which has caused an injury to himself or others, and
- Assist in inquiries and incident investigations.

No employee shall intentionally or recklessly interfere with, damage or misuse anything which is in the interest of health and safety

c) Fall Protection Developer

The Fall Protection Developer will be responsible for the preparation and maintenance of a fall protection plan to be implemented by the Contractor, in such a manner to ensure compliance with regulation 8 of the Construction Regulations, 2003.

d) Health and Safety Consultant

The Health and Safety Consultant shall assist the Contractor in any health and safety matters on the Works for which he is appointed.

e) Health and Safety Representative

The Health and Safety Representative shall fulfill the duties as set out in section 18 of the Occupational Health and Safety Act, (Act 85 of 1993). A health and safety representative shall not incur any civil liability by reason of the fact only that he failed to do anything which he may do or is required to do in terms of the Act.

f) Risk Assessor

The Risk Assessor shall facilitate the risk assessment process of the Contractor or Subcontractor. The Risk Assessor shall be responsible for the compilation and implementation of a management plan towards the continuous mitigation of identified risks to as low as is reasonable practicable.

#### 2.4.3 Supervisors, Inspectors and Issuers

This section covers the duties, responsibilities and liabilities of the following Supervisors, Inspectors and Issuers likely to be found on the Works:

a) Batch Plant Supervisor

The Batch Plant Supervisor shall be required to ensure compliance with regulation 18 of the Construction Regulations, 2003. In addition, he shall fulfill the following duties and responsibilities:

- Manage the day to day operation of a batch plant,
- Be responsible for the maintenance of the batch plant,
- Be able to identify developing defects and hazardous situations,
- Act as the Occupational Health and Safety Representative at the batch plant, and
- Take responsibility for the safety of the personnel at the batch Plant.

The Batch Plant Supervisor will have the authority to stop operation of the plant should any hazardous situation require it.

b) Construction Supervisor

The Construction Supervisor shall be responsible for supervising the construction work inclusive of the implementation and maintenance of safe work practices.

c) Construction Vehicle & Mobile Plant Inspector

The Construction Vehicle and Mobile Plant Inspector will ensure the safety of all construction vehicles and plant in such a manner to ensure compliance with regulation 21 of the Construction Regulations, 2003. The inspector will also be responsible for the regular inspection of all vehicles and plant and the recording of his findings. The Contractor shall ensure that proof of such is available on site for auditing purposes.

d) Demolition Work Supervisor

The Demolition Work Supervisor will supervise and control all demolition work on the Works in such a manner to ensure compliance with regulation 12 of the Construction Regulations, 2003. The supervisor will be responsible for all administration related to the demolition works. The Contractor shall ensure that proof of such is available on site for auditing purposes.

e) Electrical Temporary Installation Inspector

The Electrical Temporary Installation Inspector will control all temporary electrical installations on the Works to ensure compliance with regulation 22 of the Construction Regulations, 2003, the Electrical Installations Regulations, 1992 and SANS 0142. The Contractor shall ensure that proof of such is available on site for auditing purposes.

f) Excavation Work Supervisor

The Excavation Work Supervisor will supervise all excavation work on the Works in such a manner to ensure compliance with regulation 11 of the Construction Regulations, 2003 and shall in particular ensure that every excavation is inspected:

- On a daily basis before each shift,
- After every blasting operation,
- After an unexpected fall of ground,
- After substantial damage to supports, and
- After rains.

The Contractor shall ensure that proof of such is available on site for auditing purposes.

g) Explosive Power Tools Issuer

The Explosives Power Tools issuer will control the issuing and collection of explosive tools, cartridges and nails or studs to ensure compliance with regulation 19 of the Construction Regulations, 2003. The Contractor shall ensure that proof of such is available on site for auditing purposes.

h) Fire Extinguisher Inspector

The Fire Extinguisher Inspector will be responsible for the operation and inspection of all firefighting equipment on the Works to ensure compliance with regulation 27 of the Construction Regulations, 2003. The Contractor shall ensure that proof of such is available on site for auditing purposes.

i) Formwork and Support Work Supervisor

The Formwork and Support Work Supervisor will supervise all formwork and support work operations and will see to it that formwork and support work erectors, operators and inspectors are competent to carry out their work Works to ensure compliance with regulation 10 of the Construction Regulations, 2003. The Contractor shall ensure that proof of such is available on site for auditing purposes.

j) Ladder Inspector

The Ladder Inspector will be responsible for the regular inspection and recording of his/her findings of all ladders on the Works and to ensure compliance with regulation 13 of the General Safety Regulations. The Contractor shall ensure that proof of such is available on site for auditing purposes.

k) Material Hoist Inspector

The Material Hoist Inspector will be responsible for the daily inspection of material hoists or similar machinery and to ensure Works to ensure compliance with regulation 17 of the Construction Regulations, 2003. The inspector must have experience pertaining to the erection and maintenance of all hoists on the Works. The inspector must be able to determine the serviceability of the entire material hoist including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices. The Contractor shall ensure that proof of such is available on site for auditing purposes..

l) Scaffolding Supervisor

The Scaffold Supervisor will be required to supervise all scaffolding work operations carried out on the Works and to ensure compliance with regulation 14 of the Construction Regulations, 2003 as well as ensure compliance with applicable SANS 085 specifications. The Contractor shall ensure that proof of such is available on site for auditing purposes.

m) Stacking Supervisor

The Stacking Supervisor shall supervise the stacking and storage of all articles on site and shall be responsible to ensure compliance with regulation 26 of the Construction Regulations, 2003.

n) Suspended Platform Supervisor

The Suspended Platform Supervisor will supervise all suspended platform work operations carried out on the Works and to ensure compliance with regulation 15 of the Construction Regulations, 2003. The supervisor will also see to it that all suspended platform erectors, operators and inspectors are competent to carry out their work. The Contractor shall ensure that proof of such is available on site for auditing purposes.

**C3.6.1.3****GENERAL REQUIREMENTS OF HEALTH AND SAFETY PLAN****3.1****General**

It will be expected from the Contractor to include in his safety plan method statements on how to accomplish the requirements relating to the Construction Regulations, 2003 and related incorporated standards and regulations.

Contractors should describe how their safety management systems will work and what control procedures they plan on using to ensure safety on the construction site

The following generic aspects should be covered in their safety plan

- What administrative procedures the Contractor envisages to use in the implementation and maintenance of the safety plan with reference to the construction site
- How continuous assessment of the safety plan will be assessed and implemented with respect to construction site
- What control systems the Contractor envisages to implement on site to support his safety program
- How the Contractor will ensure that he adheres to the construction regulations in respect of competent persons for appointments
- What external resources the Contractor envisages on using to ensure successful implementation and sustainability of the safety plan
- What training to employees the Contractor envisages and how he would go about to execute it
- The Contractor should indicate which competent persons he plans on employing

During the tendering phase it will be expected from the tenderer to briefly explain how the abovementioned will be accomplished.

Once a successful tenderer has been appointed, the Contractor shall supply a detailed Health and Safety Plan for review by the Employer, prior to site mobilization, to ensure compliance with the Construction Regulations, 2003. Mobilization shall be dependent upon the acceptance of the Contractor's Health and Safety Management Plan by the Employer. The Contractor's Health and Safety Plan should include, but not be limited to, those sections indicated in Section 3.2 of this specification.

### 3.2 Outline of Health and Safety Plan

The Contractor's Health and Safety Plan prepared in accordance with this specification shall consist of at least the following sections and sub-sections:

1. Aim and Scope of Plan,
2. Risk Assessment,
  - a. Alternative Forms of Risk Assessment,
  - b. Methodology of Risk Assessment,
  - c. Elements of Risk Assessment,
    - i. Scope of assessment,
    - ii. Risks Identified,
    - iii. Risk Analysis,
    - iv. Risk Evaluation,
    - v. Risk Treatment,
    - vi. Monitoring and reviewing,
3. Resources,
  - a. Health and Safety Staffing Organogram,
  - b. Supervisors, Inspectors and Issuers,
  - c. Employees,
  - d. Subcontractors inclusive of their scope of work and their core resources,
  - e. Training,
  - f. Plant,
  - g. Vehicles,
  - h. Equipment
4. Materials,
  - a. Temporary Materials
  - b. Permanent Materials
5. Categories of Work
6. Implementation of Health and Safety Plan,
  - a. Administrative systems,
  - b. Training,
  - c. Reporting,
  - d. Monitoring,
  - e. Inspections,
7. Auditing,
  - a. Internal audits,
  - b. Follow-up audits,
8. Financial Aspects,
9. Emergency procedures and response

**C3.6.1.4 RISK ASSESSMENT****4.1 General**

This section of the specification provides guidelines for the Contractor in preparation of risk assessments in order to ensure compliance with Regulation 7 of the Construction Regulations, 2003. This section highlights the principles related to the preparation of suitable and sufficient risk assessments. Contractor Staff intending to prepare risk assessments should be trained and suitably experienced in the application envisaged.

A suitable and sufficient risk assessment is an assessment which:

- Accounts for risks that are likely to arise during the construction of the Works,
- Enables the development and implementation of systems to manage the risks,
- Remains valid for a reasonable period of time,
- Provides a basis for training of employees, and
- Improves working procedures and introduce long term controls.

The requirements of the Construction Regulations will not be satisfied by a single risk assessment exercise that holds good for all time. The risk assessment process on the Works is an ongoing process.

The objectives of risk assessments are to:

- Identify the risks that are mostly in need of reduction,
- Identify the various options for achieving such reduction,
- Identify the risks that require careful ongoing management, and
- Identify the nature of the required ongoing attention.

**4.2 Forms of Risk Assessment**

In order to ensure compliance with the Construction Regulations, the Contractor will be required to carry out the following three forms of risk assessment:

**4.2.1 *Baseline or datum risk assessments***

The Contractor will be required carry out a risk assessment before the commencement of construction activities on the Works. This “baseline” or “datum” risk assessment will form part of the Contractor’s Health and Safety Plan. The risks and hazards to which persons, plant, vehicles and facilities may be exposed during the construction of the Works should be identified and evaluated. Measures to reduce or control these risks or hazards should be defined during this assessment. The effectiveness of the measures defined and the baseline risk assessment prepared shall be monitored and reviewed from time to time to ensure that it remains relevant and accurate.



#### 4.2.2 *Issue based risk assessments*

The Contractor will be required to carry out separate risk assessments during construction of the Works when methods and procedures are varied, for example when:

- Designs are amended,
- New machines are introduced,
- Plant is periodically cleaned and maintained,
- Plant is started-up or shut-down,
- Systems of work change or operations alter,
- Incidents or near-misses occur, or
- Technological developments invalidate prior risk assessments.

#### 4.2.3 *Continuous risk assessments*

The Occupational Health and Safety Act specifically requires that employers shall provide and maintain working environments that are safe and without risk to health. The general awareness of hazards needs to be raised as work ethic to maintain a safe and risk free environment on an ongoing basis. This is achieved by continuous risk assessments, the most important form of risk assessment that takes place as an integral part of day-to-day management. Examples of continuous risk assessments include:

- Regular audits,
- Maintaining general hazard awareness,
- Pre-work risk assessment

### 4.3 **Methodology for the Preparation of Risk Assessments**

The Contractor shall in the preparation of his risk assessments, follow the following general principles:

- Employ a team of suitably qualified individuals with appropriately varied and relevant experience in risk assessment,
- The appointed risk assessor shall lead the risk assessment,
- Provide the team with background data, scope of work, potential hazards and underlying causes, and
- Where necessary employ experts for complex risk assessments and aspects of risk assessments that require experiential judgment,
- Institute an ongoing system of identifying aspects of the work that require risk assessment, and

- Conduct risk assessments in workshops of the team or by individual members of the team under guidance of the leader as appropriate to the situation.

## 4.4

### **Elements of a Risk Assessment**

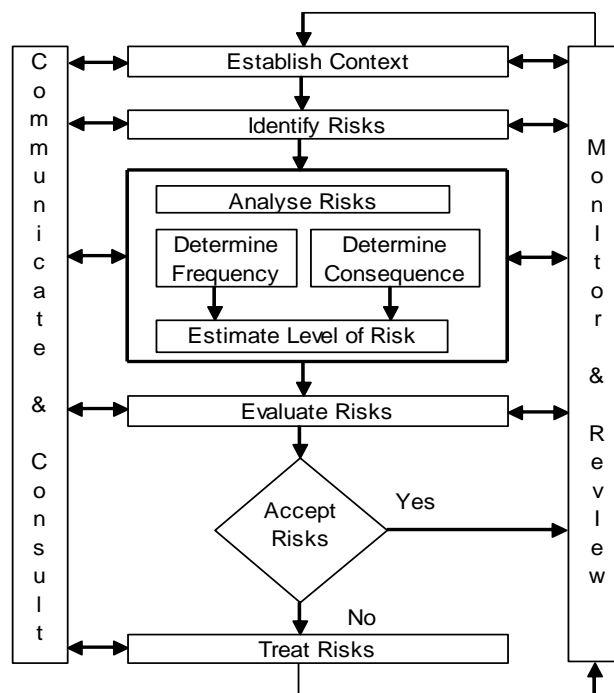
#### 4.4.1

##### *General*

The process of carrying out a risk assessment consists of a number of well-defined steps. These steps improve decision-making by providing a greater understanding of the risks and their impacts. The main steps or elements of the risk assessment process are as follows:

- 1) Consider scope and nature of risks involved, determine purpose and physical and legal bounds of assessment and define risk evaluating criteria,
- 2) Systematically identify risks,
- 3) Analyze risks with regard to causes, likelihood of occurrence and possible consequences against the background of existing controls and its effectiveness,
- 4) Evaluate risks in terms of pre-established criteria to determine need and priority for attention,
- 5) Treat risks through a process of risk elimination, substitution, controlling risk at source, risk mitigation such as training and as far as risk remains, provide personal protective equipment (PPE),
- 6) Monitor and review progress and performance in terms of management system, and
- 7) Communicate and consult.

The following sections 4.4.2 to 4.4.7 deal with items (2) to (7) above. These items form the continuing process of the risk assessment as indicated in Figure 1, below.



### Figure 1: Risk Management Process

The Contractor shall ensure that the risk assessment compiled as part of his Health and Safety Plan contains at least these items.

### 4.4.2

### *Risk Identification*

The Contractor should regard this step of the risk assessment as the most important. Subsequent analysis and evaluation of risks and the development of risk control measures are wasted if the risks or hazards on the Works are not carefully identified.

The Contractor should bear the following principles in mind when identifying the risks:

- i) Systematically address all risks or hazards on the Works,
- ii) Review all aspects of the work, but consider only those that have a potential to cause harm,
- iii) Rank the risks identified in order of importance and then use appropriately advanced techniques to deal with major risks,
- iv) Deal mainly with major risks and don't obscure these with unimportant information, especially minor risks,
- v) Address what actually happens in the workplace during the work activity
- vi) Consider all persons that may be affected,
- vii) Highlight those groups and individuals who may particularly be at risk, and
- viii) Review the adequacy and effectiveness of existing safety controls and measures

#### 4.4.3 Risk Analysis

In this step, the Contractor will be required to analyze the risks identified by determining each risks frequency and magnitude or severity of the consequence of the risk or hazard.

The frequency of occurrence of a hazard may be expressed as the number of times that it may occur in a year, decade, lifetime, century, or longer period, according to comparative human experience. The magnitude of the likely consequence of a hazard may be expressed in terms of the degree of incapacitation, number of people or costs involved. The frequency of occurrence of a hazard and the magnitude of its consequence may be compounded as the risk that it poses as shown in the “risk matrix” in Figure 2 below.

Frequency of Occurrence of Hazard	Severity of Consequences of Potential Hazard					
	1 Medically treatable injury	1 Compensable injury	10 Compensable injuries	1 Permanently disabling injury	1 Fatality	10 Fatalities
Frequent; 1 or more occurrences per year	Medium	High	Very high	Severe	Severe	Severe
Several times during a career; 0.1 occurrences per year	Medium-low	Medium	High	Very high	Severe	Severe
Unlikely, but possible during a career; 0.01 occurrences per year	Low	Medium-low	Medium	High	Very high	Severe
Very unlikely during a career; 0.001 occurrences per year	Low	Low	Medium-low	Medium	High	Very high
Barely credible; 0.0001 occurrences per year	Low	Low	Low	Medium-low	Medium	High

**Figure 2: Compounded Risk Matrix**

The columns in the table represent the likely consequence of the hazard and the rows, the frequency of occurrence. The scales for both quantities represent consistent progressions, albe they qualitative. The risks evidently range from low to severe. Note that diagonals in the matrix represent the risks of the identified hazards, taking the effectiveness of controls into consideration.

The table represents a typical risk matrix that need not necessarily be adopted by the Contractor. The Contractor may use an alternative risk matrix provided that it is approved as part of his Health and Safety Plan.

#### 4.4.4 Risk Evaluation

In this step the Contractor will be required to compare the assessed risk with similar risks previously experienced for the purpose of deciding how to treat the risk. A useful systematic approach for this purpose is as follows:

- If the assessed risk exceeds similar risks that have occurred in the past and that are considered to be unacceptable, the assessed risk would require treatment depending upon its magnitude as discussed in Section 4.4.5, or
- If the assessed risk exceeds similar historical risks that are acceptable, treatment of the assessed risk will depend on the extent by which it exceeds the historical risks, or
- If the assessed risk is less than historical risks that are unacceptable, treatment of the assessed risk will depend on the extent by which it is less than the historical risks, or
- If the assessed risk is less than historical risks that are acceptable, the assessed risk would also be acceptable and would not require any treatment.

#### 4.4.5

#### *Risk Treatment*

In this step, the Contractor will select and implement appropriate measures for dealing with risk. Typically measures comprise the following:

- Elimination by changing designs, procedures, management methods, etc, applicable to high frequency–high consequence risks, or
- Reduction by changing designs, procedures, management methods, etc, applicable to high frequency–high consequence risks, or
- Minimization by changing designs, procedures, management methods, etc, applicable to high frequency–low consequence risks, or
- Transfer or share whole or part of the risk to another party by insurance, contractual arrangements or organizational structures, applicable to low frequency–high consequence risks, or
- Control to ensure that risks do not increase, applicable to low frequency–high consequence risks, or
- Retention together with provision of monitoring and personal protective equipment, applicable to low frequency–low consequence residual risks after reduction, or
- Acceptance without particular action other than provision of personal protective equipment, applicable to low frequency–low consequence risks.

The following principles enable the optimum treatment to be determined:

- Avoid risks altogether if possible by using different approaches, substances or methods of work,
- Combat risks at source rather than by adopting secondary measures,

- Adapt work to the individual rather than the individual to the work, that is, in the design consider the people and their attributes that will operate the system
- Take advantage of technological and technical progress,
- Risk prevention measures must be part of a coherent policy and approach to safety management that involves performance measurement, goal setting, feedback and analysis,
- Give preference to measures that protect the whole work force,
- Ensure that those for whom protection is provided understand what they need to do to make sure that the protection works, and
- Ensure that measures to control risks are an accepted part of an active health and safety culture supported by all levels of the organization; single risk reduction initiatives invariably fail.

#### 4.4.6

##### *Reporting and Recording*

The Contractor shall ensure that the risk assessment process is recorded in the form of a report and included in his Health and Safety Plan. The report should be easily accessible to the Contractor's employees, their representatives, to inspectors, the Employer or his Safety Agent and the Engineer. The essential contents of the report should be as follows:

- Objectives and expected outcomes,
- Description of the Works under assessment,
- Summary of context of study
- Composition of risk assessment team, (including qualifications and relevant experience),
- Approach used to systematically identify risks,
- Identified risks (ranked in order of priority),
- Method adopted for assessing frequencies and consequences of risks,
- Consequences (ranked in order of magnitude),
- Identification of individuals and groups who may be affected by major hazards and risk and who may especially be at risk,
- Basis for defining safety standards to be achieved,
- Contractor's resources devoted to risk assessment,
- Actions proposed to reduce unacceptably high risks,
- Review effectiveness of existing safety measures to control risks, and
- Implementation programme of selected treatments (including controls to manage unacceptably high risks).

#### 4.4.7 *Monitoring and Review*

It is necessary to monitor risks, the effectiveness of the risk treatment plan and the strategies and management system set up to control implementation. Control of the risk management program entails the setting of standards, monitoring actual performance, comparing the performance with the standards and correcting any deviations from the standard. Risks and the effectiveness of the control measures need to be monitored to ensure changing circumstances do not alter risk priorities. Few risks remain static.

Ongoing review is essential to ensure that the management plan remains relevant. Factors that affect the likelihood and consequences of an outcome may change, as may factors that affect the suitability or cost of the various treatment options. If an accident occurs, or if more is learnt about the hazards in the workplace, the risk assessment may need to be reviewed or modified. Hazards may be observed that have not been anticipated or previously identified and which may require appropriate measures to be taken. After an accident has occurred, it is important to determine whether it was predicted, whether preventive measures were identified, and if so, why they did not work, whether the risk assessment is still suitable and sufficient if it failed to predict the accident, whether the decision to accept a predicted risk as tolerable is still valid, why the accident occurred and what should be done to prevent similar accidents occurring again. It is therefore necessary to regularly repeat the risk management cycle, the time between reviews being dependent on the nature of the risks and the degree of change likely to take place in the work activity. Review is an integral part of the risk management treatment plan.

#### 4.4.8 *Communication and Consultation*

The Contractor will be required to communicate and consult with internal and external stakeholders during each step of the risk assessment process. Stakeholders will include the Employer and his Safety Agent, the Engineer and the Contractor's employees and consultants.

Effective communication will ensure that those responsible for implementing the risk management process and those with a vested interest, understand the basis on which decisions are made and why particular actions are taken. It will also ensure that the perceptions of all those involved are noted and accommodated during the process.

**C3.6.1.5 RESOURCES****5.1 General**

In this section of his Health and Safety Plan, the Contractor will be required to state how he intends to comply with the requirements of the Occupational Health And Safety Act, 1993 and all its Regulations and related incorporated standards with regards to the resources and facilities intended for use on the temporary and permanent Works.

**5.2 Employees****5.2.1 *Inspectors, supervisors and Issuers***

The Contractor shall provide in his Health and Safety Plan his intended Staffing Organogram for the Works. The organogram should include those inspectors, supervisors and issuers as envisaged in the Construction Regulations, 2003 required for the Works and any additional supervisory staff members as the Contractor (having taken the scope of the Works into account) considers necessary.

Copies of the supervisory staffs' curriculum vitae or portfolio of evidence and their appointment letters should be appended to the Contractor's Health and Safety Plan.

The Contractor's Health and Safety Plan should in addition cover at least the following aspects:

- The number of unskilled, semi-skilled and skilled (including Foreman, Charge hands, Artisans, Operators, Drivers, Clerks, Storeman and Team Leaders) employees he intends employing on the Works,
- The health and safety training to be provided to the Contractor's employees,
- The programme of the health and safety training,
- Systems for the review of the effectiveness of the training provided, and
- Systems to determine further training requirements throughout the construction period.

In preparing his Health and Safety Plan, the Contractor shall ensure compliance with Clause PS 22 in Section 4.2 of the Project Specifications.

Pro-forma letters of appointment for the various inspectors, supervisors and issuers as contemplated in the Construction Regulations, 2003 are included in Annexure 1 to this specification for use by the Contractor. The Contractor shall ensure that he includes in his Health and Safety Plan the



appointment letters for all his inspectors, supervisors and issuers appointed for the Works.

### 5.2.2 *Subcontractors*

The Contractor shall with reference to the use of subcontractors on the Works and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- The steps intended to ensure that his Subcontractors prepare, implement and maintain Health and Safety Plans,
- How health and safety information will be made available to his Subcontractors when changes are brought about to the design,
- How he intends determining that his Subcontractors are registered and in good standing with the compensation fund or with a licensed compensation insurer prior to the commencement of the Works,
- How he intends determining if his Subcontractors have made provision in their tenders for the cost of health and safety measures during the construction of the Works,
- How he intends satisfying himself on the competencies and resources of Subcontractors he intends appointing, and
- How he intends ensuring that his Subcontractors perform risk assessments prior to commencing their respective portions of the Works.

### 5.2.3 *Competencies*

The Contractor shall establish if a person is competent to perform a certain duty or be appointed in a certain capacity by requesting all candidates to supply the required certificates of competency. Where certificates of competencies cannot be delivered, the Contractor shall request a portfolio of evidence from the respective candidates.

Contractors should do enquiries at the South African Qualifications Authority (SAQUA) relating to the qualifications required for appointment of competent persons.

## 5.3 **Plant, Vehicles and Equipment**

### 5.3.1 *Suspended platform*

The Contractor shall with reference to Regulation 15: Suspended platforms of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends complying with SANS 1808 and SANS 1903,
- What systems he intends using to ensure the safety of all suspended platforms,

- What tests will be performed to establish the safety of suspended platforms,
- How he intends maintaining suspended platforms being used, and
- How he will document the design, testing, maintenance and inspections of the suspended platforms.

#### 5.3.2

##### *Boatswains chairs*

The Contractor shall with reference to Regulation 16: Boatswains chairs of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Explain what systems he intends using to ensure the safety of all boatswains chairs,
- Explain how he intends maintaining boatswains chairs in use,
- What tests will be performed to establish the safety of boatswains chairs, and
- How he will document the design, testing, maintenance and inspections of the boatswains chairs.

#### 5.3.3

##### *Material hoists*

The Contractor shall with reference to Regulation 17: Materials Hoist, of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends confirming the construction stability of the material hoists,
- What systems he intends using to ensure the safety of all material hoists,
- What tests will be performed to establish the safety of all material hoists,
- How he intends maintaining the material hoists being used, and
- How he will document the design, testing, maintenance and inspections of all material hoists and
- What safety procedures and precautions are envisaged to ensure safe operation of the materials hoists.

#### 5.3.4

##### *Batch Plants*

The Contractor shall with reference to Regulation 18: Batch plants of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- What systems he intends using to ensure the safety of all batch plants,
- How he intends maintaining the batch plants in use, and
- How he will document the design, testing, maintenance and inspections of batch plants in use.

### 5.3.5 *Explosive powered tools*

The Contractor shall with reference to Regulation 19: Explosive powered tools, of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends controlling the issuing of explosive powered tools,
- How he intends implementing safety procedures prior to use of explosive powered tools, and
- What safety measures will be required during the use of explosive powered tools.

### 5.3.6 *Cranes*

This section of the specification shall be read in conjunction with the provisions of the Driven Machinery Regulations, 1988.

The Contractor shall with reference to Regulation 20: Cranes, of the Construction Regulations, 2003 and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How will environmental factors be taken into account in respect to the use of cranes,
- What systems he intends using to ensure the safety of all cranes in use,
- How he intends maintaining cranes in use,
- What tests will be performed to establish the safety of all cranes in use,
- What safety procedures and precautions are envisaged to ensure the safe operation of all cranes in use,
- How he will document the design, testing, maintenance and inspections of all cranes in use, and
- The contractor shall proof compliance of the Driven Machinery Regulation, 1988, with reference to the lifting machinery and tackle being used.

### 5.3.7 *Construction vehicles and mobile plant*

The Contractor shall with reference to Regulation 21: Construction vehicles and mobile plant of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends ensuring that construction vehicles and mobile plant are:
  - Of acceptable design and construction,
  - Maintained and in good working order,
  - Used according to design specifications, and

- Are protected from falling into excavations, water or areas lower than the working surfaces,
- How he intends ensuring that workers are trained, authorised and physically fit to operate construction vehicles and mobile plant,
- What traffic arrangements and safety precautions will be implemented to ensure safe operation of construction vehicles and mobile plant on the Works, and
- How he intends safeguarding employees against construction vehicles and mobile plant moving on the construction site.

### 5.3.8 *Electrical Installation and Machinery on construction sites*

This section of the specification shall be read in conjunction with the provisions contained in the Electrical Installation Regulations, 1992.

The Contractor shall with reference to Regulation 22: Electrical Installation and machinery on construction sites of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends safeguarding employees against electrical cables or apparatus under, over or on site, and
- How he will ensure that electrical installations are of adequate strength to withstand working conditions on a construction site.

### 5.3.9 *Ladders*

The Contractor shall with reference to Regulation 13A of the General Safety Regulations and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How he intends ensuring that ladders used are safe and constructed of materials approved for its intended use, and
- What precaution will be made to ensure the stability of ladders in use.

## **C3.6.1.6 MATERIALS**

### **6.1 General**

In this section of his Health and Safety Plan, the Contractor will be required to state how he intends to comply with the requirements of the Occupational Health and Safety Act, 1993 and all its regulations and related incorporated standards with regards to the design, supply, storage and erection of materials used for the temporary and permanent Works.

## 6.2 **Fall Protection Equipment**

The Contractor shall with reference to Regulation 8: Fall Protection Equipment of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Compilation of a fall protection plan,
- How the fall protection plan will be implemented and maintained,
- How employees will be screened and declared medically fit to work in areas where fall protection equipment is needed,
- How the safeguarding of persons, plant, vehicles, equipment and facilities on the construction site is contemplated,
- Training of staff working at heights and in the use of fall protection equipment,
- How a continuous assessment of the situation will be executed,
- How fall protection equipment will be inspected for safety, and
- How corrective actions will be implemented
- Emergency plans and procedures for treatment of incidents relating to falls from height.

## 6.3 **Scaffolding**

The Contractor shall with reference to Regulation 14: Scaffolding of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How compliance with SANS 085 will be ensured,
- How scaffolding in use will be maintained,
- What systems are intended to ensure the safety of scaffolding used, and
- What tests will be performed to establish the safety of scaffolding used
- Training plan for scaffold erectors and inspectors.

## 6.4 **Use and temporary storage of flammable liquids on construction sites**

This section of the specification shall be read in conjunction with the provisions for the use and storage of flammable goods as determined in the General Safety Regulations.

The Contractor shall with reference to Regulation 23: Use and temporary storage of flammable liquids on construction sites of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How flammable liquids will be stored to minimize the risk of fire or explosions,
- How the contractor will identify a flammable store
- What safety precautions will be employed if ventilation of the flammable store is not possible,
- How access to flammable stores will be controlled,
- How empty vessels used for the storage of flammable liquids will be disposed of,
- What quantity of flammable liquids will be stored on the construction site,
- What systems are intended to ensure the safe storage of flammable liquids, and
- What retaining methods will be used to prevent the spreading of any spillage.

## **6.5                   Stacking and storage**

This section of the specification shall be read in conjunction with the provisions for the stacking of articles contained in the General Safety Regulations.

The Contractor shall with reference to Regulation 26: Stacking and storage on construction sites of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- Who will supervise the stacking and storage of materials on site, and
- What systems are intended to ensure the safe stacking and storage of materials on the site

## **6.6                   Personnel Safety Equipment and Facilities**

The Contractor shall comply with Section 2 of the General Safety Regulations, and shall in particular provide all necessary personnel protective equipment for his personnel for the duration of the construction period. To this end the Contractor shall without limiting his obligations indicate in his Health and Safety Plan:

- Identify training requirements in the Contractors Training plan in the use and maintenance of personal protective equipment,
- The type of personnel safety equipment he will provide,
- How he intends issuing it to his employees, and
- How he will maintain the personnel safety equipment issued.

## **6.7 First Aid, Emergency Equipment and Procedures**

The Contractor shall comply with Section 3 of the General Safety Regulations regarding first aid, emergency equipment and procedures.

### **C3.6.1.7 CATEGORIES OF WORK**

In this section of his Health and Safety Plan, the Contractor will be required to state how he intends to comply with the requirements of the Occupational Health and Safety Act, 1993 and all its regulations and related incorporated standards with regards to the execution of the following categories of work.

#### **7.1 General**

The Contractor shall, without limiting his obligations, cover at least the following matters in his Health and Safety Plan under this category of work:

##### **7.1.1 *Construction welfare facilities***

Contractors will be required to adhere to Regulation 28: Construction welfare facilities of the Construction Regulations, 2003.

This regulation must be read in conjunction with the provisions of the Facilities Regulations, 1990 (as amended) and SANS 0400.

The Contractor must discuss the following in detail in his safety plan:

- How will the Contractor establish the amount of facilities required for employees to shower, change, eat and attend to sanitary needs
- What measures will the employer take to house employees on site who lives far from their residences or for the provision of transport

##### **7.1.2 *Environmental regulations for workplaces***

The Contractor shall comply with the Environmental Regulations for Workplaces, 1987, and shall address the following aspects as described in the regulations in his Health and Safety plan:

- Thermal requirements,
- Lighting,
- Windows,
- Ventilation,
- Housekeeping,
- Noise and hearing conservation,
- Precautions against flooding, and
- Fire precautions and means of egress.

### 7.1.3 *Housekeeping on construction sites*

Contractors will be required to adhere to Construction Regulation 25: Housekeeping on construction sites, of the Construction Regulations, 2003.

This regulation must be read in conjunction with the provisions of the Environmental Regulations for Workplaces, 1987 (as amended).

The Contractor must discuss the following in detail in his safety plan:

- How will contractors ensure the neatness of construction sites
- What measures does the Contractor envisage to
  - Store and/or stack materials,
  - Remove debris from site,
  - Prevent unauthorized entrance to the site
  - Protect employees or passers-by from falling objects

### 7.1.4 *Fire precaution on construction sites*

Contractors will be required to adhere to Construction Regulation 27: Fire precautions on construction sites, of the Construction Regulations, 2003.

This regulation must be read in conjunction with the provisions of the Environmental Regulations for Workplaces, 1987 (as amended).

The Contractor must discuss the following in detail in his safety plan:

- How the Contractor will minimize the risk of fire on the site
- How the Contractor will identify potential fire hazards
- What prohibitions the Contractor will implement to manage risk areas
- How many employees the Contractor will train in fire fighting
- What organization the Contractor envisage to combat fires on sites
- What precautions and procedures will be followed to evacuate employees in the case of a fire

### 7.1.5 *Water Environments*

The Contractor will be required to adhere to Construction Regulation 24: Water Environments, of the Construction Regulations, 2003.

The Contractor must discuss the following in detail in his safety plan:

- What precautions will the Contractor take to identify dangers where employees may fall into water
- What safety procedures and equipment will the Contractor implement to safeguard employees working at water environments



### 7.1.6 Structures

The Contractor will be required to adhere to Construction Regulation 9: Structures, of the Construction Regulations, 2003.

The Contractor must discuss the following in detail in his safety plan:

- Explain what controls, test or precautions will be made to prevent structures from collapsing during construction,
- The Contractor shall indicate what steps will be taken and implemented to ensure that structures or parts thereof will not be loaded in such a manner that it may collapse, and
- What procedures does the Contractor envisage to implement in order to obtain all relevant data on structures before commencement of construction work.

### 7.1.7 Watching, barricading and lighting

The Contractor will be required to adhere to regulations 11.3.(i) and 11.3.(l) of the Construction Regulations, 2003.

The Contractor must discuss the following in detail in his safety plan in respect of any excavation or other dangerous activity adjacent to public roads and thoroughfares:

- Type of barrier or fencing to be used,
- Type and spacing of warning lights and warning signs, and
- Control systems and personnel he intends employing to ensure that the above items are maintained.

## 7.2 Site Clearance

The Contractor shall, without limiting his obligations, cover at least the following matters in his Health and Safety Plan under this category of work:

### 7.2.1 Demolition work

Contractors will be required to adhere to Construction Regulation 12: Demolition work, of the Construction Regulations, 2003.

The Contractor shall discuss the following in detail in his safety plan:

- Briefly explain how he will safeguard people and property during and after demolition works
- Briefly explain how he will protect staff from dangerous situations
- Discuss the methods proposed to safeguard the public and property against harm during demolition works
- Discuss what type of equipment he envisage to use during demolition work

- How will the Contractor ensure the safety of equipment used during demolition work
- What steps will the Contractor deem necessary to take where hazardous materials is encountered

### **7.3 Earthworks**

The Contractor shall, without limiting his obligations, cover at least the following matters in his Health and Safety Plan under this category of work:

#### **7.3.1 *Excavation work***

Contractors will be required to adhere to Construction Regulation 11: Excavation work, of the Construction Regulations, 2003.

The Contractor must discuss the following in detail in his safety plan:

- How will the Contractor establish the stability of ground prior to excavations,
- What steps will the Contractor follow to ensure that bolstering, shoring and bracing is sufficient to ensure the safety of the excavation, and
- What steps will the Contractor follow to ensure the equipment used to safeguard an excavation is sufficient and safe.

### **7.4 Concrete**

The Contractor shall, without limiting his obligations, cover at least the following matters in his Health and Safety Plan under this category of work:

#### **7.4.1 *Formwork and support work***

The Contractor shall with reference to Regulation 10: Formwork and support work, of the Construction Regulations, 2003, and without limiting his obligations, cover at least the following matters in his Health and Safety Plan:

- How the design of formwork and support work will be carried out,
- How the erection of formwork and support work will be managed,
- How the continuous assessment of the safety of formwork will be done,
- How the loading of formwork and support work will be managed or limited, and
- How he intends keeping records of the above.

## **7.5 Pipes**

The Contractor shall comply with Section 9 of the General Safety Regulations, with regards to the welding, flame cutting, grinding, soldering or similar operations associated with pipework.

The Contractor shall comply with Section 5 of the General Safety Regulations, with regards to work in confined spaces.

## **C3.6.1.8 IMPLEMENTATION OF CONTRACTOR'S HEALTH AND SAFETY PLAN**

### **8.1 General**

The Contractor shall describe in his Health and Safety Plan how he intends implementing his plan.

The Contractor shall indicate the methods he intends using to ensure accurate record keeping of all critical elements identified in his risk assessment and covered in his Health and Safety Plan.

The Contractor shall indicate how internal audits will be carried out, how shortcomings will be addressed, how he intends to review the safety plans, how he would train staff and how he would implement the findings and recommendations of internal audits or inputs of employees.

### **8.2 Administrative Systems**

The Contractor shall comply with Section 9 of the General Administrative Regulations, 1996. The Contractor's administrative system shall without limiting his obligations, cover the following:

- Up keep of a safety file on site,
- Maintenance of his Health and Safety plan,
- Procedures to follow for the appointment of competent persons,
- Application for permits,
- Procedures to follow for notifications,
- Injury on duty [IOD] administration,
- Recording of minutes of safety meetings,
- Recording of checklists,
- Safe keeping of checklists, and
- Internal audits.

The Contractor shall in particular ensure that at least one copy of the Occupational Health and Safety Act, 1993 and its Regulations is available on the for every 20 employees employed.

### **8.3 Reporting Systems**

The Contractor shall comply with Section 9 of the General Administrative Regulations, 1996 and shall in particular (in accordance with section 12) furnish an inspector with information relating to health and safety on the construction site, when requested to do so.

The Contractor shall notify the Employer of any investigations, complaint or criminal charge which may arise as a consequence of the provision of the Occupational Health and Safety Act, 1993 and its Regulations, pursuant to work performed in terms of this Contract.

### **8.4 Training**

The Contractor shall train all his employees in accordance with the requirements of section 13 of the Occupational Health and Safety Act, 1993. The Contractor shall ensure that every employee is informed of the following:

- The hazards of any work he has to perform or plant machinery or equipment he is permitted to use, and
- The precautionary measures which should be taken regarding the above.

The Contractor shall, without limiting his obligations, indicate in his Health and Safety Plan how he intends:

- Identifying the training needs of the personnel he intends employing, and
- Implementing the training identified.

### **8.5 Inspections and Monitoring**

The Contractor shall be required to inspect each workplace prior to works commencing to ensure that all protective equipment is in place and that by entering the workplace no person will be exposed to any hazard which could affect his health or safety. The Contractor shall without limiting his obligations, indicate the following in his Health and Safety Plan:

- The inspection and monitoring procedures he intends employing to determine the safety of workplaces, and
- Who will be responsible for the checking of each workplace at the commencement of each shift.

The Contractor shall include in his Health and safety Plan all the checklists he intends using during the inspection and monitoring of the implementation of his Health and Safety Plan.

The Contractor can expect inspections of the works by any of the following parties:

- The Employer or his Safety Agent, or
- The designated officer serving in the Department of Manpower and appointed by the Minister as chief inspector or his representative.

In addition to site inspections performed by the Employer or his safety agent they shall also do audits and assess the safety situation at the works and investigate incidents. Follow-up inspections will be performed to ensure compliance to recommendations done.

Inspections by the Chief inspector or his representative will be by appointment and the purpose would be to investigate complaints received by the Inspector or to investigate serious incidents.

The Chief Inspector or his representative may issue prohibition notices to stop the activities at the works until the situation investigated has been resolved or he may issue an improvement notice whereby the Contractor will have a period to rectify any hazard identified by the inspector.

### **C3.6.1.9**

## **AUDITING**

### **9.1**

## **Internal Audits**

The audits contemplated in regulation 4.(1)(d) of the Construction Regulations, 2003 will be carried out by the Employer or his appointed Safety Agent.

The intervals for the audits shall be agreed between the Contractor and the Employer or his Safety Agent during the preparation of the Contractor's Health and Safety Plan, but shall be carried out at least once every month or at such shorter interval that an inspector may require. The Employer or his Safety Agent shall provide at least 7 calendar days notice prior to the conducting of an audit.

The findings of each audit will be made known to the Contractor and the Employer in a report prepared by the Employer or his Safety Agent and will be submitted to all parties within seven working days of the respective audit being completed. Any shortfalls identified will be documented in the audit report together with the Contractor's proposals to rectify the same. All audit reports will be filed in the Health and Safety File.

A date for a follow up audit will be negotiated with the Contractor to verify the implementation of all actions to rectify shortfalls as identified in the audit report .

The Contractor will ensure that the same arrangement detailed above be implemented with his Contractors to ensure his compliance with the Construction Regulations and contemplated in regulation 5. (3)(c).

The audits described above only constitutes part compliance by the Employer or the Safety Agent with regulation 4.(1)(c) of the Construction Regulations, 2003.

## **9.2 Audits by Employer or Safety Agent**

The Employer or Safety Agent will be entitled to carry out additional audits or follow-up audits, as the case may be, at any time during the construction period provided that:

- i) The audit or follow-up audit are carried out during ordinary working hours, and
- ii) The Employer or Safety Agent gives the Contractor at least 24 hours notice of his intention to carry out such audits.

The Contractor's employees indicated in Section 9.1 will be present during any audit carried out by the Employer or his Safety Agent.

## **C3.6.1.10 MEASUREMENT AND PAYMENT**

### **10.1 Measurement and Payment**

10.1.1 The scheduled items for health and safety will be included in the preliminary and general section of the schedule of quantities. Measurement will be in terms of Clause 8.1.2 of SANS 1200 A.

10.1.2 The Contractor shall price all items scheduled in this section of the schedule of quantities to enable the Employer to comply with clause 4.1.(h) of the Construction Regulations, 2003. Failure by the Contractor to price these items will force the Employer to reject the Contractor's tender in terms of clause 4.(4) of the Construction Regulations, 2003.

10.1.3 Payment for the scheduled items will be in terms of clause 8.2 of SANS 1200 A.

### **10.2 Scheduled Items**

#### *10.2.1 General*

The maintenance of safe work practice at all times and in all sections of the execution of the works is embedded in the day to day site activities of all the Contractor's management, staff and workforce on the contract.

However, the introduction of the Construction Regulations in 2003 requires from the Employer to ensure that the Contractor has made adequate provision for the execution of the works within the specifications of said regulations. The following items have been identified as critical towards ensuring the minimum standards of safe work practice:

It must be noted that the lists below are not exhaustive and that many items have been t  
Regulations, requires that the Contractor ensures adherence to the  
Occupational Health and Safety Act (Act 85 of 1993) the Construction  
Regulations, 2003.

#### 10.2.2 *Fixed-Charge Items*

- a) Compliance with the Occupational Health and Safety Act ..... Unit: Sum  
(Act 85 of 1993) and its regulations and with the Employer's  
Health and Safety Specification

The fixed charge item shall include but shall not be limited to the following:

- Health and Safety Training
- Personal Protective Clothing and Equipment
- Fences, Signs and Barricades
- Establishment of Safety Administration
- Other Health and Safety Fixed-charge Obligations

#### 10.2.3 *Time-related Items*

- a) Compliance with the Occupational Health and Safety Act ..... Unit: Sum  
(Act 85 of 1993) and its regulations and with the Employer's  
Health and Safety Specification

The time related item shall include but shall not be limited to the following:

- The employment cost of all health and safety personnel including consultants, health and safety officers, inspectors, supervisors and issuers required in terms of the Contractor's Health and Safety Plan,
- Updating the Health and Safety Plan as needed,
- Carrying out of periodic own audits and follow-up audits,
- Compiling ongoing risk assessments and risk assessment reports as required by the Works,
- Convening of regular safety meetings with the Safety Representatives,
- Accompanying and supporting the Employer or his Safety Agent during ad hoc audits,
- Compilation of monthly safety reports and statistics for the Employer or his Safety Agent,
- Implementation and maintenance of Training
- Maintenance of personal protective clothing and equipment
- Maintenance of fences, signs and barricades
- Implementation and maintenance of safety administration
- Other Health and Safety Time-related Obligations

## **ANNEXURES**

### **ANNEXURE 1-APPOINTMENT LETTERS**



## **ANNEXURES**

### **ANNEXURE 2-NOTIFICATION TEMPLATE**