



THEMBISILE HANI LOCAL MUNICIPALITY



CONSTRUCTION OF MSHOLOZI ROAD (WARD 4)

SCOPE OF WORK

Thembisile Hani Local Municipality hereby invites quotations from suitably qualified service providers for the CONSTRUCTION OF MSHOLOZI ROAD (WARD 4).

The Contract will entail the Construction of approximately 3.63km of Road and Paving with 80mm Concrete Interlocking Paving. The road should be constructed taking into consideration EPWP requirements, labour- intensive works comprise the activities described in SANS, Such as Kerbing & Channelling, Concrete works for Drains as well as laying of paving, activities which are to be performed by hand, and its associated specification data. Such works shall be constructed using local workers who are to be temporarily employed in terms of this Scope of Work. Time is of the essence for this contract. The Tenderer shall state the time in calendar months required by him/her to complete the Works.

2.1.1 CURRENT STATE

In general, the present status of the Road can be confirmed that the existing gravel Road is not reasonably functioning in an effective and efficient way, especially during rainy seasons. The drainage of the Roads is inadequate.

The existing loose, sandy material on the Roads poses serious problems for skid resistance therefore this type of Gravel Material will require to be replaced with imported gravel material.

In general, the surface of the existing Roads is in a poor condition. The surface of most of the sections of the gravel Roads consists of sandy, stony in-situ materials.

2.2 EMPLOYER'S OBJECTIVES

The employer's objectives are to upgrade the existing gravel road , Paving and construction of associated Stormwater channels to curb the current erosion of roads due to lack of Stormwater drainage. whereby the local community benefit throughout the entire project and in doing so provide workplace training opportunities to learners.

2.2.1 Local SMMEs Development

The Contractor will be required to employ local SMMEs Sub-Contracting Company for work up to 30% of the project amount. The SMMEs Company will be responsible for the appointment of local labourers from the Thembisile Hani Local community.



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.

The rate of pay set in the SAFCEC tables (South African Federation of Civil Employer's Agenting Contractors). The rate of pay set in the SAFCEC tables (South African Federation of Civil Employer's Agenting Contractors). Sub-contractors must be paid fortnightly, and the main contractor must allow for financing such payouts. Sub-contractors must be paid within 7 days from presenting invoice and failure to adhere will be penalised R1 000/day. Failure of sub-contractors for non-payment of his labour will be penalised at 50% of his payment by the main contractor. Contractor must provide enter market-related rates.

The contractor must familiarise him/her with the abovementioned requirements and price this document accordingly.

2.2.2 Key Personnel

The Contractor shall maintain the involvement of the key personnel as the exigencies of this contract. Should it become necessary to replace any of the key personnel as detailed at the time of the tender during this contract, they may only replace by individuals with similar or better qualifications and experience and only when a written approval has been obtained from the municipality.

Sufficient suitably qualified professional staff must be made available by the contractor and sub-contractor to undertake the full scope of the project. The personnel must be knowledgeable and experienced in their fields of expertise and must be currently actively involved in these fields. The tenderer must include documentary evidence that each proposed key personnel meet these requirements.

The persons nominated for Project Manager and Site Agent must be in a possession of a minimum National Diploma in Civil Engineering (NQF Level 6) and have subsequent been Involved (1 – 3) or more comparable road construction projects.

2.3 OVERVIEW OF THE WORKS

The Contract will entail the Construction of approximately 3.63km of Road and Paving with 80mm Concrete Interlocking Paving. The road should be constructed taking into consideration EPWP requirements, labour- intensive works comprise the activities described in SANS, Such as Kerbing & Channelling, Concrete works for Drains as well as laying of paving, activities which are to be performed by hand, and its associated specification data. Such works shall be constructed using local workers who are to be temporarily employed in terms of this Scope of Work. Time is of the essence for this contract. The Tenderer shall state the time in calendar months required by him/her to complete the Works.

2.4 EXTENT OF THE WORKS

- Mass earthworks - Mass earthworks which include cut, fill, and blasting will be used for cutting and filling to roadbed;
- Roadbed – ripping (mixing or replacement through importation as instructed) mixing, shaping and compaction to 93% MOD AASHTO;
- Sub-Base(G6) – importation, mixing, shaping and compaction to 96% MOD AASHTO;
- Base (C4) - importation, mixing, shaping, addition of cement/lime (stabilisation), mixing, shaping, and compaction to 97% MOD AASHTO;
- (Surface) – 80mm Paving on 20mm river sand;
- Open channel, and concrete lined open drains;
- Gabions and stone pitching;
- Grid inlets, stormwater pipes, outlets, and daylight structures;



- Culvert bridges;
- Speed humps;
- Road signage;
- Road marking;
- Relocation of Existing services
- 1m sidewalk for NMT

2.5 LOCATION OF THE WORKS

The proposed road is in Msholozhi, which is located in Kwa-Mhlanga, a town under Thembisile Hani Local Municipality within the jurisdictions of Nkangala District Municipality. The town is approximately 73km from Pretoria. The project has been approved for funding by the Municipal Infrastructure Grant (MIG).

The GPS coordinates and Municipal wards of the townships are presented in the table below.

Location of Area

No	Village name	Ward	Latitude (S)	Longitude (E)
1	Msholozhi	04	25°24'5.60"S	28°42'28.50"E

Locality Details

- Province : Mpumalanga Province
- District : Nkangala District Municipality
- Municipality : Thembisile Hani Local Municipality

2.6 CONSTRUCTION PROGRAM

Construction work under this contract should start not later than two weeks after site handover and should be completed not later than 12 months after site handover.

It is required that the tenderer submit a detailed construction program linked to the duration of the project and clearly indicates the key deliverables times frames coupled there to and sequence of events.

2.7 TEMPORARY WORKS

The Contractor shall provide, erect, maintain and remove on completion of the Contract, ample temporary offices and sheds for the proper storage of perishable materials and for the use of his workmen

2.8 SERVICE LEVEL AGREEMENT

A service level agreement will be entered into with the successful bidder. Upon the receipt of the appointment letter the SLA will have to be signed by a successful bidder with 30 days of receipt of the appointment letter.



3.1 ENGINEERING

C 3.1.1 Drawings

The following drawings are applicable to the contract:

DRAWING No.	DESCRIPTION
PS-202404-R-G-001	General Layout
LPS-202404-R-LS-001	Long-Sectional Layout 1 Of 16
LPS-202404-R-LS-002	Long-Section 2 Of 16
LPS-202404-R-LS-003	Long-Section 3 Of 16
LPS-202404-R-LS-004	Long-Section 4 Of 16
LPS-202404-R-LS-005	Long-Section 5 Of 16
LPS-202404-R-LS-006	Long-Section 6 Of 16
LPS-202404-R-LS-007	Long-Section 7 Of 16
LPS-202404-R-LS-008	Long-Section 8 Of 16
LPS-202404-R-LS-009	Long-Section 9 Of 16
LPS-202404-R-LS-010	Long-Section 10 Of 16
LPS-202404-R-LS-011	Long-Section 11 Of 16
LPS-202404-R-LS-012	Long-Section 12 Of 16
LPS-202404-R-LS-013	Long-Section 13 Of 16
LPS-202404-R-LS-014	Long-Section 14 Of 16
LPS-202404-R-LS-015	Long-Section 15 Of 16
LPS-202404-R-LS-016	Long-Section 16 Of 16
LPS-202404-R-S-001	Sectional Layout 1 Of 7
LPS-202404-R-S-002	Sectional Layout 2 Of 7
LPS-202404-R-S-003	Sectional Layout 3 Of 7
LPS-202404-R-S-004	Sectional Layout 4 Of 7
LPS-202404-R-S-005	Sectional Layout 5 Of 7
LPS-202404-R-S-006	Sectional Layout 6 Of 7
LPS-202404-R-S-007	Sectional Layout 7 Of 7
LPS-202404-R-RS-001	Road Sections Layout Road 1 & 2
LPS-202404-R-RS-002	Road Sections Layout Road 3 & 4
LPS-202404-R-D-001	Street Or Stand Access Details
LPS-202404-R-D-002	Speed Humps Details
LPS-202404-R-D-003	Subsoil Drain Details
LPS-202404-R-XS-001	Cross-Sectional Layout Road 1 (CH00 - CH609.172)



DRAWING No.	DESCRIPTION
LPS-202404-R-XS-002	Cross-Sectional Layout Road 2 (Ch00 - Ch580)
LPS-202404-R-XS-003	Cross-Sectional Layouts Road 2 (Ch480 - Ch602.802)
LPS-202404-R-XS-004	Cross-Sectional Layout Road 3 (Ch00 - Ch580)
LPS-202404-R-XS-005	Cross-Sectional Layout Road 3 (Ch600 - Ch1198.403)
LPS-202404-R-XS-006	Cross-Sectional Layout Road 4 (Ch00 - Ch940)
LPS-202404-R-XS-007	Cross-Sectional Layout Road 4 (Ch960 - Ch1313.789)
LPS-202404-SW-001	Stormwater Layout
LPS-202404-SW-002	Stormwater Layout
LPS-202404-SW-003	Stormwater Layout
LPS-202404-SW-004	Stormwater Layout
LPS-202404-SW-005	Stormwater Layout
LPS-202404-SW-006	Stormwater Layout
LPS-202404-SW-007	Stormwater Layout



C 3.2 PROCUREMENT

C 3.2.1 preferential procurement procedures

The works shall be executed in accordance with the conditions specified in the procurement preferencing schedule.

C 3.2.2 Scope of mandatory subcontract work

It is up to the contractor to determine which works should be subcontracted; however, any work that is to be sub-contracted must be approved by the Employer.

Competitive tenders shall be invited in respect of each of the portions of the works in accordance with the relevant provisions of the latest edition of the CIDB Standard for Uniformity in Construction Procurement. The Contract Data in the associated procurement documents shall be based on the use of CIDB Standard subcontract (labour only), SAFCEC General conditions of subcontract (2003 edition) (select appropriate option), with minimal project specific variations and amendments that do not change their intended usage.

The Employer shall evaluate the tenders received in accordance with the provisions of the Standard Conditions of Tender contained in Annexure F of Standard for Uniformity in Construction Procurement. The evaluation panel shall comprise equal representatives from the Employer and from the Contractor.

The Contractor shall without delay enter into contract with the successful tendering subcontractor based on their accepted tender submission. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

C 3.3 CONSTRUCTION

C 3.3.1 Applicable SANS 2001 standards for construction works

The following parts of SANS 2001 Construction works standards, and associated specification data are applicable to the works:

1) SANS 2001

The abovementioned South African National Standards make several references to the Specification Data for data, provisions and variations that make these standards applicable to this contract. The Specification Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and these standards. Each item of Specification Data given below is cross-referenced to the clause in the standard to which it mainly applies.

The associated Specification Data is as follows:
SANS 2001

Essential Data:
Clause Specification data

Variations:



None

Additional clauses:

None

C 3.3.2 EPWP labour intensive specification

The Guidelines for Implementation of Labour-Intensive Infrastructure Projects under The Expanded Public Works Programme (EPWP) are applicable in this contract.

C 3.2.3 Plant and materials provided by the employer

None.

C 3.2.4 Services and facilities provided by the employer

None.

C 3.2.5 Plant and equipment

The plant and equipment used on the site shall not be inferior to that described in the Schedule of Plant and Equipment.

C 3.3 MANAGEMENT

C 3.3.1 Applicable SANS 1921 standards

The following parts of SANS 1921 Construction works standards, and associated specification data are applicable to the works:

- 1) SANS 1921

The abovementioned South African National Standards make several references to the Specification Data for data, provisions and variations that make these standards applicable to this contract. The Specification Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and these standards. Each item of Specification Data given below is cross-referenced to the clause in the standard to which it mainly applies.

The associated Specification Data is as follows:

SANS 1921-1, Construction and management requirements for works contracts – Part 1: General engineering and construction works

Clause Specification data

Essential data

4.1.7 There are no requirements for drawings, information and calculations for which the contractor is responsible



- 4.2.1 The responsibility strategy assigned to the contractor for the works is A.
- 4.2.2 The Consulting Engineer is Mahlangu Behr Infrastructure Consultants.
- 4.3.1 The planning, programme and method statements are to comply with the following:
 - 1) bar chart
- 4.3.3 The notice period for inspection is one Day.
- 4.7.3 The overbreak allowances for blasting are provided for in the scope of work.
- 4.9.3 The trees and shrubs which are not to be disturbed will be pointed out on site by the Engineer.
- 4.12.2 The samples of materials, workmanship and finishes that the contractor is to provide and deliver to the employer are:
 - 1) cleaning of site on completion
- 4.12.2 The fabrication drawings that the contractor is to provide and deliver to the employer are:
 - 1) None
- 4.14.3 The office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are:
 - 1) Site office which shall be used for site meetings and for the contractor's use. Such an office shall comprise a minimum of 20m² in area and 3 m high, be ventilated, have good lamination, must be reasonably sound proof, and have a hard floor construction. It shall be furnished with a desk on which drawings can be rolled open and on which there is sufficient writing space and sufficient temporary chairs or benches to accommodate all persons present at site meetings.
- 4.14.5 The Contractor is required to provide latrine and ablution facilities.
- 4.14.6 The requirements for the provision and erection of separate sign boards for consultants and subcontractors are:
 - 1) The boards must comply with the official standard type of signboard of the Employer and be at least 2750 x 1800 mm high.
 - 2) The boards must be constructed with a firm flat exposed face using suitable material of firm construction, painted and lettered according to the standard drawings available from the Employer on request and mounted on sturdy pipe-standards at a height of 1800 mm above natural ground level.
- 4.17.1 The requirements for the termination, diversion or maintenance of existing services are: None.
- 4.17.3 Services which are known to exist on the site are: None.
- 4.17.4 The requirements for detection apparatus are: None.
- 4.18 The following standards and specifications shall be in addition to the provisions of 4.18:
 - 1) See the scope of works.
 - Variations
 - None
 - Additional clauses
 - 1 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.

2 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 :
- b) electricity :

Service Option

A

Contractor responsibility

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.

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.

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

Clause Specification Data

Essential Data:

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

Additional clauses:

1 Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, shall be collected, loaded, off loaded and placed by hand.

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

Grout shall be mixed and placed by hand.

2 Manufactured Elements

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.

SANS 1921-6, Construction and management requirements for works contracts – Part 6: HIV/AIDS awareness.

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: www.hwseta.org.za.

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.)

C 3.3.2 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.

C 3.3.3 Unauthorized persons



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

C 3.3.4 Management meetings

There will be monthly compulsory site and technical meetings.

C 3.3.5 Forms for contract administration

Quality control forms will be made available to the contractor in hard copy.

C 3.3.6 Electronic payments

The employer will pay electronically, and the contractor must provide correct banking details.

C 3.3.7 Daily records

The contractor shall all the time keep daily records of everything on site.

C 3.3.8 Payment certificates

The contractor must prepare payment certificate every month for approval by the engineer.

C 3.3.9 Communication

The engineer's representative on this project will be:

Ms. K Seroka

Contact number: 072 174 7069

The contact person for the employer is:

Mr. S. Kalipa

Tel: 013 986 9138



C3.4 STANDARD SPECIFICATIONS

The following SANS specifications are also referred to in this document, and the Contractor is advised to obtain them from Standards South Africa (a division of SABS) in Pretoria.

SANS 10396: 2003: Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures

SANS 1914-1 to 6 (2002) : Targeted Construction Procurement

SANS 1921 – 1 (2004): Construction and Management Requirements for Works Contracts

Part 1: General Engineering and Construction Works and where accommodation of traffic is involved:

SANS 1921-2 (2004): Construction and Management Requirements for Works Contracts; and

Part 2: Accommodation of Traffic on Public Roads Occupied by the Contractor.



C3.5 PROJECT SPECIFICATIONS

STATUS

The Project Specification consists of two parts which form an integral part of the contract and supplements the Standard Specifications.

Part A contains a general description of the works, the site and the requirements to be met.

Part B contains variations, amendments and additions to the Standardized Specifications and, if applicable, the Particular Specifications.

Part C contains Environmental Management Specification.

In the event of any discrepancy between a part or parts of the Standardized or Particular Specifications and the Project Specification, the Project Specification shall take precedence. In the event of a discrepancy between the Specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Engineer before the execution of the work under the relevant item.

The standard specifications which form part of this contract have been written to cover all phases of work normally required for road contracts, and they may therefore cover items not applicable to this particular contract.



C3.5.1: PART A: GENERAL

PS-1 PROJECT DESCRIPTION

The Contract will entail the Construction of approximately 3.63km of Road and Paving with 80mm Concrete Interlocking Paving. The road should be constructed taking into consideration EPWP requirements, labour-intensive works comprise the activities described in SANS, Such as kerbing & channelling, Concrete works for Drains as well as laying of paving.

PS-3 DETAILS OF THE WORKS

A brief detail of the works for which this specification is applicable is as follows:

3.1 Construction of the followings;

- Mass earthworks - Mass earthworks which include cut, fill, and blasting will be used for cutting and filling to roadbed;
- Roadbed – ripping (mixing or replacement through importation as instructed) mixing, shaping and compaction to 93% MOD AASHTO;
- Sub-Base(G6) – importation, mixing, shaping and compaction to 96% MOD AASHTO;
- Base (C4) - importation, mixing, shaping, addition of cement/lime (stabilisation), mixing, shaping, and compaction to 97% MOD AASHTO;
- (Surface) – 80mm Paving on 20mm river sand;
- Open channel, and concrete lined open drains;
- Gabions and stone pitching;
- Grid inlets, stormwater pipes, outlets, and daylight structures;
- Culvert bridges;
- Speed humps;
- Road signage;
- Road marking;
- Relocation of Existing services
- 1m sidewalk for NMT

3.2 Nature of ground conditions and subsoil conditions

A geotechnical investigation of the site has been carried out. Detailed Geotechnical Investigation report can be provided to the contractor on request to assist them to acquaint himself with the site conditions including geotechnical conditions.

3.3 Climatic conditions

The project area falls within the summer rainfall region, with the rain season from December, January and February. The mean annual average rainfall is 693.3mm per annum and it located at an elevation ranging between 287m – 303 m.



3.4 Labour recruitment conditions

A Community Liaison Officer (CLO) will be appointed through the Local community structures community. Recruitment of all local labour should be done through the Community Liaison officer (CLO).

It is mandatory that the Contractor shall interact with the community via proactive project liaison and project participation by its leaders and constituted organizations and forums, as well as through the employment of its people, and these activities shall constitute essential facets of the project.

3.5 Construction in confined Areas

It may be necessary for the Contractor to work within confined areas. Except where provided for in the specifications, no additional payment shall be made for work done in restricted areas. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the Contractor's constructional plant.

However, the Contractor shall note that, unless provided for in terms of the scheduled payment items in the SANS and SABS Standard Specifications or these project specifications, measurement and payment shall be in accordance with the specified cross sections and dimensions only, irrespective of the method used for achieving these cross sections and dimensions, and that the tendered rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions, and that no extra payment shall be made nor shall any claim for additional payment be considered in such cases.

PS-4 CONSTRUCTION AND MANAGEMENT REQUIREMENTS

4.1 General

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

Certain aspects however require further attention as described hereafter.

4.1.1 Drawings (Read with SANS 1921 – 1: 2004 clauses 4.1.7; 4.1.11 and 4.1.12)

The requirements for drawings, information and calculations for which the Contractor is responsible are:

None.

The reduced drawings which form part of the tender documents shall be used for tendering purposes only.

The contractor shall be supplied with three complete paper copies of the construction drawings free of charge.

The Contractor shall at his own expense produce there from all further paper prints required for the construction of the work.



At the completion of the Contract, the Contractor shall return to the Engineer all drawings, provided or made, during the contract period.

Any information which the Contractor has control over, and which is required by the Resident Engineer to complete the as-built drawings shall be made available to the Resident Engineer before the completion certificate is issued.

Only written dimensions may be used. Dimensions are not to be scaled from drawings unless ordered by the Engineer. The Engineer will supply all figures / dimensions which are not shown on the drawings. The levels or dimensions given on the drawings are subject to confirmation on site. The Contractor shall submit all levels and dimensions to the Engineer for confirmation before he commences with any structural construction work. The Contractor shall also check all clearances which are given on the drawings and inform the Engineer of any conflicting dimensions.

Any destination names on road signs which may be indicated on the drawings are subject to confirmation by the Engineer before these signs are manufactured.

4.2 Responsibilities for design and construction

Design Engineer

The design engineer responsible for the design in accordance with the specification is LPS Consulting (Pty) Ltd.

4.3 Planning and Programme (Read with SANS1921-1:2004 clause 4.3)

Preliminary programme

The Contractor shall include with his tender a preliminary programme on the prescribed form to be completed by all Tenderers. The programme shall be in the form of a simplified bar chart with sufficient details to show clearly how the works will be performed within the time for completion as stated in the Contract Data.

Tenderers may submit tenders for an alternative Time for Completion in addition to a tender based on the specified Time for Completion. Each such alternative tender shall include a preliminary programme similar to the programme above for the execution of the works and shall motivate his proposal clearly by stating all the financial implications of the alternative completion time.

The Contractor shall be deemed to have allowed fully in his tendered rates and prices as well as in his programme for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Special Conditions of Contract, in the

Project Specifications and in the Contract Data.

The following constraints shall be taken into account in preparing the preliminary construction programme which must be submitted with the Tender. These same constraints shall apply to the final construction programme.

- a) The Contract time is 12 months. Plant and personnel requirements to complete the project in 12 months must be incorporated in the Tender.
- b) A high standard of traffic accommodation



- c) The relocation of services are to be determined during construction.
- d) Ancillary works by Emerging Contractors

Programme in terms of Clause 5.6 of the General Conditions of Contract

It is essential that the construction programme, which shall conform in all respects to Clause 5.6 of the General Conditions of Contract 2015 Third Edition, be furnished within the time stated in the Contract Data. The preliminary programme to be submitted with the tender shall be used as basis for this programme

4.4 Quality Assurance (QA) (Read with SANS 1921 – 1: 2004 clause 4.4)

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

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

4.5 Management and disposal of water (Read with SANS 1921 - 1: 2004 clause 4.6)

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

4.6 Earthworks (Read with SANS 1921 - 1: 2004 clause 4.10)

Borrow pits and spoil areas

The borrow pits to be used for this contract shall be pointed out at the Site Inspection. The Contractor shall be permitted to use only those borrow pits approved by the Engineer.

The spoil sites shall be determined on site in conjunction with the Engineer, and the local communities. The Contractor shall be permitted to use only those spoil areas approved by the Engineer.

Should the Contractor wish to use any other tip area for the disposal of soil, rubble, vegetation, etc, its use shall be subject to the approval of the Engineer and the landowner.

4.11 Testing(Read with SANS 1921 – 1: 2004 clause 4.11)



Process control

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

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

Acceptance control

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

4.14 Site Establishment (Read with SANS 1921 - 1: 2004 clause 4.14)

Contractor's camp site and depot

The Contractor is responsible to provide a suitable site for his camp and to provide accommodation for his personnel and labourers. If the Employer can make any specific site available to the Contractor, such site will be pointed out to the Contractor.

The chosen site shall be subject to the approval of the Engineer, the Local Authorities and the Client. Possible locations for a campsite shall be pointed out at the Site inspection. The Contractor shall conform to all local authority, environmental and industrial regulations.

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

The Contractor shall provide security watchmen for the contract as he deems fit at no extra cost for the Employer. The Contractor must ensure that all his employees as well as the employees of his subcontractors are able to identify themselves as members of the construction team.

Accommodation of Employees

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

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



No informal housing or squatting will be allowed.

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

4.15 Survey beacons (Read with SANS 1921 - 1: 2004 clause 4.15)

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

4.17 Existing Services (Read with SANS 1921 - 1: 2004 clause 4.17)

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

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

A provisional amount is included in the bill of quantities for the protection of services.

Prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately.

The Contractor shall take note of the requirements of clause 1202 of the standard specifications with regard to services.

4.18 Health and Safety (Read with SANS 1921 - 1: 2004 clause 4.18)

4.18.1 General statement

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the OHSA 1993 Construction Regulations 2003 issued on 18 July 2003 by the Department of Labour.

For the purpose of this contract the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into

an agreement with the Employer in terms of the Occupational Health and Safety Act in the form as included in section C1.2.4



Health and Safety Specifications and Plans

(a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification will be included in the tender documents as part of the Project Specifications.

(b) Tenderer's Health and Safety Plan

The Tenderer shall submit with his tender his own documented Health and Safety Plan he proposes to implement for the execution of the work under the contract. His Health and Safety Plan must at least cover the following:

- (i) A proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 7 to 28;
- (ii) Pro-active identification of potential hazards and unsafe working conditions;
- (iii) Provision of a safe working environment and equipment;
- (iv) Statements of methods to ensure the health and safety of subcontractors, employees and visitors to the site, including safety training in hazards and risk areas (Regulation 5);
- (v) Monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the Construction Regulations;
- (vi) Details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of Regulation 6 and other applicable regulations; and
- (vii) Details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2003.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or amendment, if necessary, before commencement of construction work. The Contractor will not be allowed to commence work, or his work will be suspended if he had already commenced work, before he has obtained the Employer's written approval of his Health and Safety Plan.

Time lost due to delayed commencement or suspension of the work as a result of the Contractor's failure to obtain approval for his safety plan, shall not be used as a reason to claim for extension of time or standing time and related costs Cost of compliance with the OHSA Construction Regulations

The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract.

Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

4.18.2 Requirements for Accommodation of Traffic (Read with SANS 1921 - 2: 2004)

General



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

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

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

Basic Requirements

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective and that courtesy is extended to the public at all times.

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

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

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

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

Payment

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.

4.19 Management of the environment (Read with SANS 1921 - 1: 2004 clause 4.19)

Respect for the environment is an important aspect of this contract, and the Contractor shall pay special attention to the following:

(a) Natural Vegetation

The Contractor shall confine his operation to the limits of the road reserve for the purpose of constructing the works and where applicable detours, shall be sited in consultation with the Engineer and the local communities.



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

(b) Fires

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

(c) Environmental Management Plan

In addition to the above all requirements according to the Environmental Management Plan as detailed in C3.3, Particular Specifications, will be adhered to.

**PART B: AMENDMENTS TO THE STANDARD AND PARTICULAR SPECIFICATIONS****B1 PROJECT SPECIFICATIONS RELATING TO THE STANDARD SPECIFICATIONS AND OTHER ADDITIONAL SPECIFICATIONS****VARIATIONS AND ADDITIONS TO SABS 1200 STANDARDIZED SPECIFICATIONS AND PARTICULAR SPECIFICATIONS**

The following variations and additions to the SABS 1200 Standardized Specifications referred to above apply to this Contract. The prefix PS indicates an amendment to SABS 1200. The letters and numbers following these prefixes respectively indicate the relevant Standardized Specification and clause numbers in SABS 1200 to which the variation or addition thereto applies.

PSA GENERAL**PSA 3 MATERIAL (Clause 3)****PSA 3.1 QUALITY (Sub-Clause 3.1)**

All material required for this contract shall bear the official standardization mark.

PSA 4 PLANT (Clause 4)**PSA 4.1 CONTRACTOR'S OFFICES, STORES AND SERVICES (Sub-Clause 4.2)**

Add the following to this subclause:

PSA 4.1.1 Storage (New Sub-clause)

The Contractor shall supply sufficient protection for perishable material to the satisfaction of the Engineer, and all materials shall be used in the order in which it was delivered. Cement older than three months shall be removed from the site and shall not be used in the Works.

PSA 4.1.2 Restrictions on Employee Accommodation

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

The Employer will place at the disposal of the Contractor and area to able him to erect his site offices, workshops, stores, and any temporary camp the Contractor may wish to erect for his personnel. The temporary housing and ablution facilities shall comply with the requirements of the local authority



PSA 4.2 CAPACITY OF PLANT AND EQUIPMENT (New Sub-Clause)

Add as Clause 4.3:

The Contractor shall supply plant and equipment in sound working condition and of adequate capacity to complete the Works well within the period or periods specified or stated in the appendix to the tender.

In addition, he shall have available on the Site adequate standby plant ensure that operations designed to be executed continuously are not disrupted because of breakdown of any plant provided for such operations.

PSA 5 CONSTRUCTION (Clause 5)

PSA 5.1.1 SETTING OUT OF THE WORK (Sub-Clause 5.1.1)

The Contractor shall be solely responsible for the execution of the works to the correct line and level.

The Contractor shall carefully set out the works, employing a capable surveyor to the lines and levels gleaned from information provided. The tolerance allowed in setting out shall be 3mm either way.

Work set out by the Contractor shall be checked by the Engineer where after any errors be rectified by the Contractor.

The Contractor shall provide at least one days' notice of such a check to the Engineer. The Contractor shall supply any material and labour required for the control survey work by the Engineer including the supply of and placing the necessary pegs, sight rails, etc.

Any assistance, including checking, rendered to the Contractor by the Engineer shall not be held as reliving the Contractor of his responsibility in this respect. Should any portion of these works be constructed incorrectly, the Contractor shall at his own expense rectify the work to the satisfaction of the Engineer.

The Contractor shall be held solely responsible for the protection of all benchmarks, reference pegs and level pegs. The Contractor shall establish at least three benchmarks at selected points.

The Contractor shall provide the necessary assistance during any operations necessary in connection with the removal, alteration or safeguarding of any public services.

The relevant authority and Engineer shall be informed of any damages without delay.

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

Add the following to this subclause:

The Contractor shall ensure that he complies with all the requirements of the authorities concerned with respect to the safety of the works and labourers, including the provision and wearing of protective clothing. Any negligence or non-compliance of any of these requirements shall be viewed in a serious light and shall be sufficient reason for the Engineer to order the immediate suspension of the total extent of the Works.



The Contractor shall provide for artificial lighting for any part of the Works that may be required for the proper execution of the work.

The tendered rate shall include full compensation for providing all plant, equipment, tools, transport, labour, supervision, flagmen, guards, signs, lights, barricades and all other incidentals necessary for the proper maintenance of an alternative road.

Item Unit

Accommodation of traffic..... Sum

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES (Sub-Clause 5.4)

Add the following to the subclause:

Before commencing any excavation, the Contractor shall verify the position of all known or suspected obstacles by inspection of the site, examination of drawings or, where necessary by the excavation of trial holes.

The Contractor shall take cognizance of restrictions imposed by service authorities with respect to operations of mechanical equipment adjacent to or near their services. In particular the relevant authority shall be advised by the Contractor, at least 48 hours in advance, of any operation within 3,0m, measured on a horizontal plane to the estimated position of the authority's service, so that the authority can make arrangements for the supervision of the operation by his staff.

The Contractor will be held responsible for any damage to known services (i.e. services that are within the Site and are shown on the drawings or could reasonably be located by him in good time) and he shall take all necessary measures to protect them. All work or protective measures shall be subject to approval. In the event of a service being damaged, the Contractor shall immediately notify the authorities concerned as well as the Engineer. The Contractor shall not repair any such service unless instructed to do so.

The lump sum tendered shall also include full compensation for all negotiations with private owners or public authorities controlling services to be opened to determine their exact position, or to be relocated and/or protected.

PSA 5.5 SPECIAL WATER CONTROL (Sub-Clause 5.5)

The rates tendered and paid for excavation shall include for dewatering as may be necessary.

PSA 5.6 PREVENTION OF DUST NUISANCE (Sub-Clause 5.6)

The Contractor's attention is drawn to the presence of existing dwellings on and adjoining the site are vulnerable to dust nuisance and traffic hazards which might arise from the Contractor's operations. The Contractor is particularly required to take all necessary precautions, including limiting the length of open trenches to 200 metres, watering where appropriate, to prevent dust blowing from construction material and spoil heaps and/or ground stripped of vegetation cover. The Contractor is to allow for the cost of this work as a time related item in the Preliminary and General Section of the Schedule of Quantities.

PSA 5.8 GROUND AND ACCESS TO WORK (Sub-Clause 5.8)



Add the following to Sub-clause 5.8

Access to properties should be maintained at all the times. All fences and other structures that have been damaged or interfered with by the Contractor shall be restored to a condition at least equivalent to their original conditions.

PSA 6.2 DEGREE OF ACCURACY (Sub-Clause 6.2)

Delete this sub-clause and replace with the following:

The Contractor shall construct each of the various parts of the Works to the degree of accuracy specified in the relevant standardized specification.

PSA 7 TESTING

PSA 7.2 APPROVED LABORATORIES (Sub-Clause 7.2)

Add the following to this sub-clause:

No laboratory facilities are required on site. The Contractor shall use an independent laboratory for the necessary tests.

The cost of all testing to be carried out by the Contractor in terms of the requirement of the relevant SABS 1200 standards shall be included in the rates for the various work items listed in the Schedule of Quantities. No separate payments shall be made in this regard.

The Engineer may order the Contractor to arrange special check tests to be carried out by an approved independent laboratory. The results of these tests shall be made available to the Contractor.

The cost of special check test ordered by the Engineer shall be borne by the Employer if the test results indicate compliance with the specification and by the Contractor if the results indicate non-compliance with the specification.

PSA 8 MEASUREMENT AND PAYMENT (Clause 8)

PSA 8.1.1 METHOD OF MEASUREMENT, ALL SECTIONS (Sub-Clause 8.1.1)

In no case will any dimensions be allowed or any quantities are included in the measurement for payment which shall exceed the dimensions required by the contract or as ordered in writing by the Engineer in the case of extra work.

The quantities as shown in the Bill of Quantities are estimated quantities and are used for comparing tenders and awarding of the contract. It shall be noted that only the actual work executed or materials supplied will be measured and paid for, therefore billed quantities may be increased or decreased as allowed for in the General Conditions of Contract.

PSA 8.5 PROVISIONAL SUMS (Sub-Clause 8.5)

PSA 8.5.1 Testing of Materials (Sub-Clause 8.5.1)



Item	unit
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5.2.2 PSAB ENGINEER'S OFFICE

PSAB 3.1 NAMEBOARDS (Sub-Clause 3.1)

PSAB 3.2 OFFICE STRUCTURE (Sub-Clause 3.2)

i) Engineers office - 12m²

- a) one trestle table, 2m long x 1m wide x 0,9m high, with a smooth top;
- b) One desk having a top of size at least 1,5m x 0,9m and at least two lockable drawer;
- c) Two chairs;
- d) an acceptable blind on each window;
- e) a wash-hand basin inside the office;
- f) acceptable lighting;
- g) provision for heating in winter and cooling in summer;
- i) Fifteen comfortable seating chairs around conference table.

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**PSAB 3.4 SURVEY EQUIPMENT (New Sub-clause 3.4)**

Add the following:

The Contractor shall provide the following survey equipment on the site from the commencement to the completion of the Works:

- 1 Tachometer capable of reading 20 seconds of arc;
- 1 Engineer's level with 360° circle and aluminium staff;
- 2 Tachometer staffs graduated metrically;
- 1 Steel tape of length 30m;
- 5 Ranging rods 2m in lengths;
- 1 Nylon tape of length 100m.

The tachometer may be shared by arrangement between the Contractor and the Engineer's Representative, but the remaining instruments shall be provided for the exclusive use of the Engineer's Representative. The Contractor shall keep the equipment continuously insured against any loss, damage, or breakage and he shall indemnify the Engineer and the Employer against any claims in this regard. Upon completion of the whole of the Works, the ownership of the equipment shall revert to the Contractor.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

Item	Unit
Provide and maintain survey equipment	Sum

The rate shall cover the charges for the provision, insurance and maintenance of the equipment.

PSAB 3.5 SITE INSTRUCTION BOOKS (New Sub-Clause 3.5)

Throughout the construction period the Contractor shall supply a carbon triplicate book as a site instruction book.

This book shall be kept on Site and shall be accessible to both the Contractor and the Engineer's Representative at all times. It shall be used:

- (a) by the Contractor for:
 - (i) providing the Engineer's Representative with any information regarding the construction of the Works which may be requested, and
 - (ii) giving notification in writing as required by any of the relevant clauses of the General Conditions of Contract, and
- (a) by the Engineer's representative for the purpose of writing day-to-day instructions and confirming any verbal information or instruction given to the Contractor.

**PSAB 4 PLANT (Clause 4)****PSAB 4.1 TELEPHONE (Sub-Clause 4.1)**

The Contractor shall be responsible for the supply, maintenance, payment of accounts, etc, of the cellular phone.

PSAB 5 CONSTRUCTION (Clause 5)**PSAB 5.5 SURVEY ASSISTANTS (Sub-clause 5.5)**

The Contractor shall make available to the Engineer or his Representative two suitably experienced survey assistants to assist on and about the Site with survey and measurements.

PSAB 8 MEASUREMENT AND PAYMENT (Clause 8)

Delete Clause 8 and insert the following:-

The method of measurement as described in Subclause 8.1.2 (b) and (d) of SABS 1200A shall apply and shall be by the lump sum or by number as indicated in PSAB 8.1.

PSAB 8.1 ENGINEER'S FACILITIES ON SITE (Sub-Clause 8.1)**PSAB 8.1.1 Fixed Charge and Value Related Items (Sub-Clause 8.1.1)**

Payment for fixed-charge and value-related items with respect to facilities to be provided for the Engineer will be affected in accordance with Clause PSA 8.3 as applicable.

Item	Unit
Fixed Charge and Value-Related Items	
(a) Furnished office and toilets	sum
(b) Name boards	No.
i. PSAB 8.1.2 Time-Related Items	

Payment for time-related items with respect to facilities to be provided for the Engineer, will be affected in accordance with Clause

Item	Unit
Time Related Items	
(a) Furnished offices	Sum
(b) Name boards.....	No.



5.2.3 PSC SITE CLEARANCE

PSC 3.1 DISPOSAL OF MATERIAL (Sub-Clause 3.1)

Add to this subclause :

Material obtained from clearing and grubbing from the demolition structure shall be disposal of in a borrow pit indicated by the Engineer and shall be finished to the satisfaction of the Engineer.

PSC 3.3 CLEANING CONCRETE CHANNELS AND S/WATER PIPES (New Sub-Clause 3.3)

All the Material obtained from clearing and grubbing and from the demolition of structures shall be disposed of in a borrow pit indicated by the Engineer and shall be finished to the satisfaction of the Engineer.

PSC 3.5 REMOVAL OF THE EXISTING CONCRETE CHANNEL (New Sub-Clause 3.5)

The removal of existing asphalt surfacing will involve the breaking out, removal, loading and disposal of the surfacing within a free haul distance of 1.0km.

5.2.5 PSDM EARTHWORKS (Roads, Subgrade)

PSDM 3 MATERIALS (Clause 3)

PSDM 3.1 CLASSIFICATION OF EXCAVATED MATERIAL (Subclause 3.1)

Delete this subclause and replace with the following:

Distinction shall be drawn, for payment purposes, between excavation in hard and soft material. All roadbed excavation shall be classified in accordance with the following classification.

PSDM 1.1.1 Soft excavation

Soft excavation shall be excavation in all existing fill material as well as excavation in material which can be efficiently removed by any of the following plant.

A bulldozer having a mass, including the mass of the ripper if fitted of 35 ton and having a flywheel power of approximately 220 kW.



PSDM 1.1.2 Hard excavation

Hard excavation shall be excavation in material which cannot be efficiently ripped by plant as described in PSDM 1.1.1. This excavation generally includes material such as formation of unweathered rock which can only be removed after blasting or boulders of 0,5m³ or larger in volume.

The Contractor shall be at liberty to use any method he wishes to excavate any class of material, but the method of excavation shall, however, not dictate the classification of the excavation.

The Engineer shall decide under which one of the above classes any excavation shall be classified and paid for. In the first instance the classification shall be based on inspection of the material to be excavated and the method of excavated and the method of excavation proposed by the Contractor. In the event of disagreement between the Contractor and the Engineer, the Contractor shall, if required, make available such mechanical equipment as specified in order to test the reasonable removability or otherwise of the material. The decision of the Engineer as to the classification shall thereafter be final and binding.

The Contractor shall immediately inform the Engineer as and when the nature of the material being excavated changes to the extent that a new classification for further excavation is warranted. Failure on the part of the Contractor to timeously advise the Engineer shall entitle the Engineer to classify, in his sole discretion, such excavation as may have been executed in material of a different nature.

PSDM 4 PLANT (Clause 4)

Add the following to this clause.

The following plant are necessary for road preparation:

- a) Vibrant roller

The vibrator roller must be able to apply a combined static and dynamic load of not less than 120 kN/m at a working frequency of 1500 r.p.m. maximum.

- b) Impact roller

The impact roller shall be a single multi surface roller with a maximum of five flat or nearly flat surfaces and a roller mass of 8 to 10 tons. The roller and tow mechanism, which shall be of the free fall type, shall be designed to make all the energy necessary to take the roller onto the ridge between two flat surfaces available for distribution at impact when the roller falls. The roller shall be towed at a speed of between 8 and 10 kilometres per hour.

PSDM 5.1 CONSTRUCTION (Clause 5)

PSDM 5.1.2 ACCOMMODATION OF TRAFFIC (Subclause 5.1.2)

Add the following to this subclause:

Whereby reason of difficult terrain or for any other reason, the construction of bypasses is unfeasible, the Contractor shall, upon the written instruction of the Engineer, construct the road in half widths to allow traffic to use that half of the road not under construction. The length of the half-width construction shall be kept to a minimum, with provision for traffic travelling in opposite directions to pass at frequent intervals.



The Contractor shall arrange his work so as to allow traffic to have free one-way access to at least half the width of the roadway at all times during the construction period. He shall maintain that half of the road, which is being used for traffic for the time being, free from corrugations to the satisfaction of the Engineer.

Wherever possible, the Contractor shall ensure that the entire road width shall be open at night and shall be left, at the end of each day's work, in good and safe trafficable condition to the satisfaction of the Engineer.

Should the road not be in a safe trafficable condition for two-way traffic over the entire width at the end of each day's work, the Contractor shall provide adequate flagmen, signs, barricades, lights and the necessary staff at his own cost to ensure a reasonably free flow of traffic alternately in each direction throughout the entire period when the roadway is open to one-way traffic only.

PSDM 5.2 METHODS AND PROCEDURES

PSDM 5.2.1 STRIPPING OF SITE (Subclause 5.2.1)

Add the following to this subclause.

Before the Contractor does any roadbed preparation, he shall get instructions from the Engineer on any stripping of topsoil or clearing and grubbing that may be required. This work shall be carried out according to SABS 1200C "Site Clearance".

During the compaction of the roadbed with an impact roller if required by the Engineer the roadbed shall be graded before each pass if, according to the Engineer, the surface is uneven and prevents the flat surface of the impact roller to fall uneven.

PSDM 5.2.3 PREPARATION OF THE ROADBED (Subclause 5.2.3)

Add the following as subclause 5.2.3.4.

PSDM 5.2.3.1 Removal of unsuitable material

Any roadbed material that will, according to the judgement of the Engineer, have a detrimental effect on the quality of the finished street, shall be removed to the depth and width as instructed by the Engineer, and will be disposed of according to specification. It shall then be backfilled with approved imported material and compacted to the specified compaction.

The Engineer may instruct the Contractor to remove over wet material which cannot form a solid layer or platform and replace it with approved dry material. The Contractor will be paid for this operation if the Engineer is convinced that the material will not dry out in a reasonable time in spite of adequate temporary drainage and that the condition may not have been prevented by reasonable preplanning to build the work during the dry season.



PSDB 8 MEASUREMENT AND PAYMENT (Sub-Clause 8)

PSDM 8.1 BASIC PRINCIPLES (Subclause 8.1)

Change the following in this subclause:

The free haul distance will be 1,0km.

PSDM 8.1.1 ACCOMMODATION OF TRAFFIC (New Sub-Clause)

Item	Unit
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Accommodation of traffic where the road is constructed in half-widths

Sum

The unit of measurement for accommodating traffic where the road is constructed in half-widths shall be the metre measured along the centre line of the road which is constructed in half-widths on the written instruction of the Engineer.

The tendered rate shall include full compensation for providing all plant, equipment, tools, transport, labour, supervision, flagmen, guards, signs, lights, barricades and all other incidentals necessary for the proper and safe handling of traffic as specified and shall include full compensation for all additional costs and work resulting from construction of the road in half-widths

5.2.6 PSGA CONCRETE (Small Works)

PSGA 4 PLANT (Clause 4)

PSGA 4.4.1 FINISH OF CONCRETE (Sub-Clause 4.4.2)

- Change this sub-clause as follows :
- The quality of the finished concrete surface shall be as follows:
- All off-shutter concrete from 150mm underneath the ground level ... Smooth.
- Unseen concrete up to 150 mm underneath the ground level ... Rough.

PSGA 5.1.2 FIXING OF REINFORCEMENT (Subclause 5.1.2)

Add to this subclause :
No welding shall be allowed.

PSGA 5.3.1.5 STRENGTH CONCRETE (Subclause 5.4.1.5)

Add to this subclause :

The following classes of concrete of concrete shall be used in the following positions:



- Class 15/19 Blinding, mass concrete, encasement of pipes, etc.
- Class 20/19 Strip foundation for brick walls and mass foundation.
- Class 30/19 All structural concrete, including concrete floors and paving.

The Contractor shall design trial mixes in accordance with SABS 0100, Part II 1980, Appendix B. The target strength of the trial mix shall be determined using K equal to 1,7 and a standard deviation Mpa for a “good” degree of site control. The average 28-day cube strength of the trial mix shall equal or exceed the target strength. The Contractor shall submit the trial mixes and the 7- and 28-day test results to the Engineer for approval. No concreting may proceed until the trial mixes have been approved.

PSGA 5.4.1.6 READY MIXED CONCRETE (Subclause 5.4.1.6)

Delete the subclause and replace with the following:

Only Ready-mixed concrete will be allowed on the site.

PSGA 5.4.8 CONCRETE SURFACES (Clause 5.4.8)

Add the following:

Concrete surface finishes required shall be indicated on the drawings and shall be classified as follows:

- a) Rough : This shall comprise a lightly ridged surface as struck off with a tamping board. Degree of accuracy III is required. This finish shall provide a good key for subsequent finishing with a screed or bituminous carpet.
- b) Smooth wood float : The surface shall be wood floated to a uniform surface free of trowel marks and to Degree of Accuracy II.
- c) Smooth steel float : The surface shall be accurately struck off and floated and finished with a steel float to a smooth and uniform surface, free of trowel marks, to Degree of Accuracy I. Rubbing with a carborundum stone will be permitted but no plastering to correct imperfections will be permitted.

PSGA 5.4.11 CONSTRUCTION JOINTS (CLAUSE 5.4)

Add to this clause

Concrete shall be carried out continuously up to the locations where joints are shown on the drawings or up to approved locations. Joints shall be constructed in accordance with the details shown on the drawings.

The Contractor shall continue concreting through meal breaks or after normal working hours in order to complete work up to a construction joint and no extra payment shall be made to the Contractor for working overtime.

If, because of an emergency (such as a breakdown of the mixing plant or the occurrence of unsuitable weather), concreting has to be interrupted, concrete shall be finished off at the place of stoppage in the manner that will least impair the durability, appearance, and proper functioning of the concrete.



PSGA 5.4.12 JOINT SEALING (New Sub-Clause)

Add to this clause:

Joints shall be formed as indicated on the drawings, using bitumen impregnated fibre board or closed cell expanded polyethylene compressible joint filler complying with AASHTO Specification M153.

Joints shall be sealed as indicated on the drawings, using rubberised bitumen joint sealant for concrete pavement complying with BS5212. Where indicated on the drawings joint sealant shall be backed by a Polythene Tape bond breaker.

The use of the joint former and joint sealing materials and all joint sealing shall be carried out by workmen experience in the use of the materials and shall be strictly in accordance with the instruction and recommendations of the manufacturer and supplier.

PSGA 5.4.6.3 MECHANICAL VIBRATION (New Sub-Clause)

Delete this subclause and replace with the following:

Only mechanical vibrations shall be accepted for the compaction of the concrete. Any other method of compaction shall only be accepted with the written approval by the Engineer.

PSGA 5.4.8.2 WATERTIGHT CONCRETE (Subclause 5.4.8.2)

Add to this subclause :

Manholes and the stormwater channel shall be water tights and no water leakage will be allowed at the joints.

PSGA 6 TOLERANCES (Clause 6)

PSGA 6.1 GENERAL (Subclause 6.1.1)

All concrete, excluding blinding and mass concrete, shall comply with the specified tolerances, except where a different tolerance is shown on the drawings, in which case the specification on the drawing shall prevail.

PSGA 6.4 TOLERANCES (Clause 6.4)

Degree of accuracy required is : (II).

PSGA 7 TESTS (Clause 7)

PSGA 7.1.1 FACILITIES (Sub-Clause 7.1.1)

Facilities



Add the following :

The Contractor shall be fully responsible for sampling and testing the concrete at the frequency specified.

PSGA 7.1.2.2 FREQUENCY OF SAMPLING (Sub-Clause 7.1.2.2)

Add the following :

At least one sample sufficient for 3 cubes and a slump test shall be taken from each day's casting and from at least every 20m³ of concrete of each grade placed. More frequent slump tests shall be taken should the consistency of the concrete be seen to vary.



PART C: ENVIRONMENTAL MANAGEMENT SPECIFICATION

1 General

In order to ensure that the construction works is carried out in an environmentally sensitive matter, strict compliance to the Environmental Management Plan (EMP) guidelines is required. The purpose of the EMP is to:

- ☐ Encourage good management practices through planning and commitment to environmental issues,
- ☐ Provide rational and practical environmental guidelines to:
 - i. Minimise disturbance of the natural environment,
 - ii. Prevent pollution of land, air and water,
 - iii. Prevent soil erosion and facilitate re-vegetation.
- ☐ Adopt the best practicable means available to prevent or minimise adverse environmental impact,
- ☐ Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of wastes,
- ☐ Train employees and contractors with regard to environmental obligations.

2 Training and Induction of Employees

- ☐ The Contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes sub-contractors, casual labour, etc.). The CMP shall be part of the terms of reference for all contractors, sub-contractors and suppliers.

3 Complaints Register and Environmental Incident Book

Any complaints received by the project team from the public will be recorded. The complaint should be brought to the attention of the site manager, who will respond.

The following information must be recorded:

- ☐ Time, date and nature of the complaint,
- ☐ Type of communication (telephone, letter etc),
- ☐ Name, contact address and telephone number of the complainant,
- ☐ Response and investigation undertaken and
- ☐ Actions taken and by whom.

All complaints received will be investigated and a response given to the complainant within 14 days.

All environmental incidents occurring on the site will be recorded. The following information will be provided:

- ☐ Time, date, location and nature of the incident,
- ☐ Actions taken and by whom.

4 Site Cleanliness and Neatness

- ☐ Location of a construction camp is to be approved by the Engineer and is to be restored to its previous condition after completion of construction.
- ☐ The construction camp should preferably be fenced with a 1.8m bonnox fence or similar approved.
- ☐ All materials, equipment, plant and vehicles must be stored within the construction camp.
- ☐ A dedicated area must be made available for construction staff to change and store their personal belongings.



5 Access

Access to existing roads, schools, buildings, shops and residential properties must not be impeded during construction.

Access roads utilised by the Contractor must be maintained in good condition.

6 Borrow Pits

- ☐ Mining authorisations (permits) for borrow pits must be obtained from the Department of Minerals and Energy (DME) in consultation with the Department of Water Affairs (DWA).
- ☐ Spoil dumps resulting from borrow pits must not interfere with any natural surface drainage.
- ☐ Borrow pits must be rehabilitated after use in accordance with the requirements of DME and DWA.

7 Dust Control / Air Quality

- ☐ Dust suppression measures must be implemented during construction by ensuring that all surfaces prone to dust generation are kept damp (e.g. use of water tanker).
- ☐ Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive.
- ☐ Ensure that vehicles and equipment are in good working conditions and that emissions are not excessive.
- ☐ Special care must be taken in areas where the route passes close to schools and residential areas.
- ☐ The speed of construction vehicles must be reduced.

8 Fauna

- ☐ Contractor staff may not chase, catch or kill animals encountered during construction.

9 Fire Prevention and Control

- ☐ Smoking is prohibited in the vicinity of flammable substances.
- ☐ The contractor must ensure that fire-fighting equipment is available on site, particularly where flammable substances are being stored or used, and that construction staff are aware of where it is kept and how it is operated.
- ☐ Fires started for comfort (warmth) are prohibited, due to the risk of veld fires and risk to adjacent property owner's lands.

10 Grave Sites

- ☐ Gravesites in close proximity to the road must not be disturbed during construction.



11 Materials Handling and Spills Management

- ☐ Any hazardous materials to be used during construction (e.g. lime, fuel, paint, etc) are to be stored in a designated area at the campsite.
- ☐ The storage containers/facilities (including any diesel/petrol tanks) must be placed on an impermeable surface and surrounded by a bund wall, in order to ensure that accidental spillage does not pollute the environment.
- ☐ Workers must at all times be made aware of the health and safety risks associated with any hazardous substances used (e.g. smoking near fuel tanks) and must be provided with appropriate protective clothing/equipment in case of spillages or accidents.
- ☐ Ensure all staff and contractors undergo relevant training in the maintenance of equipment to prevent the accidental discharge or spill of fuel, oil, lubricants and other chemicals.
- ☐ Any spill of potentially hazardous materials must be cleaned up immediately (Potentially hazardous materials on site include paint, oil, grease, fuel, turpentine, etc).
- ☐ The area of contaminated soil or spill must be deposited into the hazardous waste container(s).
- ☐ The contractor should keep Peat Sorb or a similar absorbent on site to clean up any spills. The absorbent must be stored in a designated area and be available for inspection.
- ☐ All spills are to be recorded in the environmental incident book.

12 Noise

- ☐ Noise generating activities must be restricted to between 07h00 and 17h00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons.
- ☐ All equipment, vehicles and machinery must be in good working condition and be equipped with sound mufflers if necessary.
- ☐ Construction staff must be trained and made aware of not creating unnecessary noise such as hooting and shouting.

13 Pollution Control

- ☐ Soil and water pollution through usage of fuel, oil, paint, bitumen or other hazardous substances must be avoided.
- ☐ All construction vehicles are to be maintained in good working order so as to prevent soil or water pollution from oil, fuel or other leaks, and to reduce noise pollution.

14 Rivers and Streams

- ☐ During construction of bridge structures, there must be no obstruction of the water flow of rivers and streams.
- ☐ Excavated material must not be stockpiled on or near riverbanks, in order to prevent sedimentation occurring.
- ☐ Erosion control measures must be employed both during and after construction.
- ☐ No impediments to natural surface water flow, other than approved erosion control measures, must occur.



15 Safety

- ☐ Safety measures, such as detour signs, must be implemented during construction to ensure the safety of workers, pedestrians and drivers/passengers in vehicles in the vicinity of construction work.
- ☐ Special care must be taken in the vicinity of schools to ensure the safety of children wishing to cross the road under construction.
- ☐ The relevant signage (e.g. speed control signs) must be erected alongside the road during the operation phase in order to control traffic.
- ☐ Accommodation must be made for pedestrian pathways alongside the road during the construction and operation phases.

16 Soil Management

- ☐ Stormwater drainage pipes must be installed alongside the road in all areas susceptible to soil erosion.
- ☐ Erosion should be minimised by the construction of meadow drains and the planting of indigenous vegetation on the side slopes and drains to reduce flow velocity of stormwater.
- ☐ Spoil from cuts may be used in existing erosion galleys.
- ☐ Stone pitching and gabions should be constructed at pipe culvert outlets.
- ☐ Accidental spills of contaminants onto the ground e.g. oil, concrete, fuel and chemicals should be removed together with the contaminated soil.
- ☐ If necessary, an absorbent such as Peat Sorb should be used the aid in cleaning up the spill. The contaminated soil should be disposed of in an appropriate container, depending on its classification.
- ☐ Servicing and re-fuelling of vehicles must only be carried out at construction camp.

17 Worker Conduct

Code of Conduct for Construction Personnel:

- Do not leave the construction site untidy and strewn with rubbish which will attract animal pests.
- Do not set fires.
- Do not cause any unnecessary, disturbing noise at the construction camp/site or at any designated worker collection/drop off points.
- Do not drive a construction-related vehicle under the influence of alcohol.
- Do not exceed the national speed limits on public roads or exceed the recommended speed limits on the site.
- Do not drive a vehicle which is generating excessive noise or gaseous pollution (noisy vehicles must be reported and repaired as soon as possible).
- Do not litter along the roadsides, including both the public and private roads.
- Do not pollute any water bodies (whether flowing or not).
- No member of the construction team is allowed to enter the areas outside the construction site.

18 Traffic Disturbances and Diversions

- ☐ Any traffic diversions must be undertaken with the approval of all relevant authorities and in accordance with all relevant legislation.
- ☐ Wherever possible, traffic diversion must only take place on existing disturbed areas and remain within the existing road reserve.
- ☐ Traffic diversion routes must be rehabilitated after use.



19 Vegetation

- ☐ Only vegetation falling directly on the route must be removed where necessary.
- ☐ Alien vegetation within the road reserve must be eradicated, and management measures must be implemented for future control of these species.
- ☐ Vegetation that has been removed from large areas (e.g. on traffic diversion routes) during construction must be replaced with indigenous vegetation after construction has been completed.

20 Waste Management

- ☐ All general, non-hazardous waste must be placed in a skip container and disposed of at a registered waste disposal site.
- ☐ The contractor is to ensure that the portable toilet facilities at the campsite are properly maintained and in working order.
- ☐ No disposal, or leakage, of sewage must occur on or near the site.
- ☐ All hazardous waste (e.g. oil, paint, empty lime bags, contaminated wash water, etc) must be stored in leakproof containers and disposed of at a registered hazardous waste disposal site.
- ☐ The contents of waste storage containers must, under no circumstances, be emptied to the surrounding area. In general, littering, discarding or burying of any materials is not allowed on site or along the route.
- ☐ Adequate waste receptacles must be available at strategic points around the construction camp and site for all domestic refuse and to minimise the occurrence of littering.
- ☐ Concrete rubble must be collected and disposed of as directed by the Project Manager.

- ☐ Each working area must be cleared of litter and building waste (e.g. rubble, wood, concrete packets etc) on completion of the day's work.
- ☐ Any spill around the container(s) should be treated as per Section C11 and C16.



PART D: DAYWORKS

This part of the Project Specifications deals with the provision for Dayworks in the Schedule of Quantities. Rates for Dayworks shall be entered in Schedule D of the Schedule of Quantities in accordance with the following specifications.

D. 1 SCOPE

Certain work may be carried out using rates tendered in the daywork schedule. A schedule of personnel, plant and equipment which may be necessary to perform work on a daywork basis is included in the schedule of quantities. The quantities used in the schedule are for tender evaluation purposes only and the use or not of these items shall not constitute a variation.

No work will be paid for as Dayworks without the written instruction or approval of the Engineer.

D. 2 TYPE OF WORK

The Engineer may order daywork in certain cases where it is necessary to vary or to extend the works due to new or unforeseen circumstances to such an extent that the tendered rates for specific items of work are no longer applicable, or where no suitable combination of tendered rates can be used to pay for such work.

As a general rule, applicable rates for additional work items will be agreed between the Contractor and the Engineer. Dayworks will only be used in exceptional circumstances.

D. 3 MATERIALS

Materials for use in works carried out under Daywork shall be purchased by the Contractor who shall also arrange for delivery to site and shall be responsible for any other requirements associated with specific materials. A Provisional Sum has been allowed in Schedule D for Daywork materials. The Contractor shall enter a tendered percentage in the schedule to cover his handling costs and profit, as per other provisional and prime cost sums in this Contract.

Materials shall be paid for using the method described in the Pricing Data. No contract price adjustment will be applicable to materials.

The Contractor shall submit proof of ownership for any materials used in Dayworks with his dayworks claim to the Engineer. Further, if specific materials are required for Dayworks, quotations will be called for.

D. 4 CONSTRUCTION PLANT HIRE

Where daywork is ordered, the tendered rates for plant hire in Schedule D shall be used in calculating the payment due for any plant required to execute the daywork. If no rate is included in the schedule for a particular piece of equipment, and where no other rate or combination of rates would provide suitable compensation, then the daywork method of payment described in Clause 6.5.1.3 of the General Conditions of Contract 2015, (Third Edition) will be used.

The tendered rates for each item of constructional plant shall include for all operating costs associated with the said item of plant. Such costs are deemed to include fuel, re-fuelling costs, lubrication and routine servicing /



maintenance, breakdowns and spares, all overhead costs, site management costs and administration costs. The tendered rates shall also include the plant operator and the general supervision of the plant while it is engaged in the dayworks.

D. 5 SALARIES AND WAGES OF WORKMEN

The salaries and wages of workmen executing daywork shall be paid for using the tendered rates in Schedule D. The tendered rates shall include for all costs associated with the employment of personnel, including salaries, wages, allowances, workmen's compensation, medical aid and pension contributions, Municipality levies and taxes, training costs and any costs associated with living on the site. The tendered rates shall also include for the transportation of the workmen to the site of the dayworks.

All overhead costs, administration costs, site management costs and the Contractor's profit are deemed to be covered by the Dayworks rates, and no additions or mark ups will be made to the tendered rates.

The tendered rates shall also include any hand tools normally associated with the workmen's job description e.g. picks, shovels, hammers, saws, spirit levels, etc. The tendered rate for labourers shall also include for the casual supervision by a gang boss or foreman. Only when specifically called for by the Engineer, will payment be made for the use of a gang boss or foreman supervising on a continuous basis.

D. 6 MEASUREMENT AND PAYMENT

The following principles shall also apply to the measurement and payment of Dayworks.

The unit of measurement for plant shall be the number of vibroclock hours worked and each item of plant shall be fitted with a vibroclock, the cost of which shall be included in the rates. Excessive non-productive time when the engine is idling will not be paid for. Where there is ambiguity between the flywheel horsepower and mass of the machine, the flywheel horsepower shall govern the measurement category. Where width and mass are specified, mass shall govern the measurement category.

The Contractor's attention is drawn to the requirements of Sub-clauses 6.5 of the General Condition of Contract 2015 (Third Edition) with regard to the submission of Dayworks claims.



PART E: OHSA 1993 HEALTH AND SAFETY SPECIFICATION

E1. SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works.

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2003, and all other safety codes and specifications referred to in the said Construction Regulations.

In terms of the OHSA Agreement in Section C1.2.4 of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHSA 1993 and the Construction Regulations 2003.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2003, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

- ☐ Working high above the ground on top and below the bridge, most of the time in a restricted environment with limited landings (working platforms)
- ☐ Working above a continuously flowing river and in an flood plain environment subject to flooding
- ☐ Lifting and lowering of materials and equipment from the ground to the bridge and vice versa, exposed to cross winds
- ☐ Steep and restricted access to the lower flood plain below the bridge
- ☐ Potentially dangerous existing services, i.e. gas lines, water and sewerage mains, electrical high voltage cables, on the bridge, buried and overhead
- ☐ Deep excavations in soils requiring shoring or reducing of slopes
- ☐ Blasting of hard rock or demolition of concrete
- ☐ High pressure during testing of the new rising main, which could result in potentially dangerous situations in the event of the pipeline or fittings failing
- ☐ Potentially harmful gasses when tying into the existing sewer mains
- ☐ Movement of construction vehicles on site, taking into consideration steep slopes, other traffic and existing services
- ☐ Exposure to possible injuries due to mishandling or failure of power and hand tools
- ☐ Falling debris, tools and materials from bridge
- ☐ Non-conformance to specifications with regards to fasteners and materials
- ☐ Risks related to general safety and security on site

Additional risks may arise from specific methods of construction selected by the Contractor which are not necessarily covered in the above.



E2. DEFINITIONS

For the purpose of this contract the following shall apply:

(a) “Employer” where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract and it shall have the exact same meaning as “client” as defined in the Construction Regulations 2003. “Employer” and “client” is therefore interchangeable and shall be read in the context of the relevant document.

(b) “Contractor” wherever used in the contract documents and in this specification, shall have the same meaning as “Contractor” as defined in the General Conditions of Contract.

In this specification the terms “principal contractor” and “contractor” are replaced with “Contractor” and “subcontractor” respectively.

For the purpose of this contract the Contractor will, in terms of OHSA 1993, be the mandatory, without derogating from his status as an employer in his own right.

(c) “Engineer” where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

E3. TENDERS

The Contractor shall submit the following with his tender:

(a) a documented Health and Safety Plan as stipulated in Regulation 5 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2003 and will be subject to approval by the Employer;

(b) a declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2003;

(c) a declaration to the effect that he made provision in his tender for the cost of the health and safety measures envisaged in the Construction Regulations.

(d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

E4. NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

After award of the contract, but before commencement of construction work, the Contractor shall, in terms of Regulation 3, notify the Provincial Director of the Department of Labour in writing if the following work is involved:



- (a) the demolition of structures and dismantling of fixed plant of height of 3,0m or more;
- (b) the use of explosives;
- (c) construction work that will exceed 30 days or 300 person-days;
- (d) excavation work deeper than 1,0 m; or
- (e) working at a height greater than 3,0 m above ground or landings.

The notification must be done in the form of the pro forma included under Section 9 (Forms to be Completed by Successful Tenderer) of the tender document.

A copy of the notification form must be kept on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

E5. RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 7 of the Construction Regulations 2003).

The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract, and it shall include a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards identified.

The risk assessment shall be available on site for inspection by inspectors, Employer, Engineer, subcontractors, employees, trade unions and health and safety committee members, and must be monitored and reviewed periodically by the Contractor.

E6. APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

6.1 Health and Safety plan

The Contractor shall appoint his employees and any subcontractors to be employed on the contract, in writing, and he shall provide them with a copy of his documented Health and Safety Plan, or relevant sections thereof. The Contractor shall ensure that all subcontractors and employees are committed to the implementation of his Safety Plan.

6.2 Health and safety induction training

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo a health and safety induction training course by a competent person before commencement of construction work. No visitor or other person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety training pertaining to hazards prevalent on site.

The Contractor shall ensure that every employee on site shall at all times be in possession of proof of the health and safety induction training issued by a competent person prior to commencement of construction work.



E7. APPOINTMENT OF SAFETY PERSONNEL

7.1 Construction Supervisor

The Contractor shall appoint a full-time Construction Supervisor with the duty of supervising the performance of the construction work.

He may also have to appoint one or more competent employees to assist the construction supervisor where justified by the scope and complexity of the works.

7.2 Construction safety officer

Taking into consideration the size of the project and the hazards or dangers that can be expected, the Contractor shall appoint in writing a full-time or part-time Construction Safety Officer if so decided by the Inspector of the Department of Labour. The Safety Officer shall have the necessary competence and resources to perform his duties diligently.

Provision shall be made by the Contractor in his rates, to cover the cost of this dedicated construction safety officer appointed after award of the contract.

7.3 Health and safety representatives

In terms of Section 17 and 18 of the Act (OHSA 1993) the Contractor, being the employer in terms of the Act for the execution of the contract, shall appoint a health and safety representative whenever he has more than 20 employees in his employment on the site of the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 100 employees.

The function of health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents (in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery etc. on a regular base, to participate in consultations with inspectors and to attend meetings of the health and safety committee.

7.4 Health and safety committee

In terms of Sections 17 and 18 of the Act (OHSA 1993) the Contractor (as employer), shall establish one or more health and safety committee(s) where there are two or more health and safety representatives at a workplace. The persons selected by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals, but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor and the inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of recommendations and reports made by the committee.



7.5 Competent persons

In accordance with the Construction Regulations the Contractor has to appoint in writing competent persons responsible for supervising construction work on each of the following work situations that may be expected on the site of the works.

- (a) Risk assessment and induction training as described in Regulation 7 of the Construction Regulations;
- (b) Fall protection as described in Regulation 8;
- (c) Formwork and support work as described in Regulation 10;
- (d) Excavation works as described in Regulation 11;
- (e) Demolition works as described in Regulation 12;
- (f) Scaffolding work as described in Regulation 14;
- (g) Suspended platform operations as described in Regulation 15;
- (h) Material hoists as described in Regulation 17;
- (i) Batch plant operations as described in Regulation 18;
- (j) Explosive powered tools as described in Regulation 19;
- (k) Cranes as described in Regulation 20;
- (l) Construction vehicle and mobile plant inspections on a daily basis by a
- (m) competent person as described in Regulation 21(1);
- (n) Control of all temporary electrical installation on the construction site as described in Regulation 22;
- (o) Stacking and storage on construction sites as described in Regulation 26; and
- (p) Inspections of fire equipment as described in Regulation 27.

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work on all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities to comply with all requirements of the Construction Regulations.

E8. RECORDS AND REGISTERS

In accordance with the Construction Regulations the Contractor is bound to keep records and registers related to health and safety on site for periodic inspection by inspectors, the Engineer, the Employer, trade union officials and subcontractors and employees. The following records and registers must be kept on site and shall be available for inspection at all times.

- (a) A copy of the OHSA 1993 Construction Regulations 2003;
- (b) A copy of this Health and Safety Specification;
- (c) A copy of the Contractor's Health and Safety Plan (Regulation 4);
- (d) A copy of the Notification of Construction Work (Regulation 3);
- (e) A health and safety file in terms of Regulation 5(7) with inputs by the Construction Safety Officer (Regulation 6(7));
- (f) A copy of the risk assessment described in Regulation 7;
- (g) A full protection plan and the corresponding records of evaluation and training of employees working from elevated positions as described in Regulation 8;



- (h) Drawings pertaining to the design of structures (Regulation 9(3)) and formwork and support work structures (Regulation 10(d)) must be kept on site;
- (i) Pronouncement of the safety of excavations must be recorded in a register to be kept on site (Regulation 11(3)(h));
- (j) A copy of the certificate of the system design for suspended platforms (Regulation 15(3));
- (k) A notice must be affixed around the base towers of material hoists to indicate the maximum mass load, which may be carried at any one time by material hoists (Regulation 7(5));
- (l) Maintenance records of material hoists and inspection results must be kept in a record book to be kept on site (Regulation 17(8));
- (m) A record of any repairs to or maintenance of a batch plant must be kept on site (Regulations 18(9));
- (n) A warning notice must be displayed in a conspicuous manner when and wherever an explosive powered tool is used (Regulation 19(2));
- (o) A register for recording of findings by the competent person appointed to inspect construction vehicles and mobile plant (Regulation 21(1)(j)).

E9. CONTRACTORS RESPONSIBILITIES

For this contract the Contractor will be the mandatory of the Employer (Client), as defined in the Act (OHSA 1993), which means that the Contractor has the status of employer in his own right in respect of the contract. The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHSA 1993) and the Construction Regulations 2003.

Before commencement of work under the contract, the Contractor shall enter into an agreement with the Employer (Client) to confirm his status as mandatory (employer) for the contract under consideration.

The Contractor's duties and responsibilities are clearly set out in the Construction Regulations 2003 and are not repeated in detail but some important aspects are highlighted hereafter, without relieving the Contractor of any of his duties and responsibilities in terms of the Construction Regulations.

- (a) Contractor's position in relation to the Employer (Client) (Regulation 4)

In accordance with Section 4 of the Regulations, the Contractor shall liaise closely with the Employer or the Engineer on behalf of the Employer, to ensure that all requirements of the Act and the Regulations are met and complied with.

- (b) The Principal Contractor and Contractor (Regulation 5)

The Contractor is in terms of the definition in Regulation 2(b) the equivalent of Principle Contractor as defined in the Construction Regulations, and he shall comply with all the provisions of Regulation 5.

Any subcontractors employed by the Contractor must be appointed in writing, setting out the terms of the appointment in respect of health and safety. An independent subcontractor shall however provide and demonstrate to the Contractor a suitable, acceptable and sufficiently documented health and safety plan before commencement of the subcontract. In the absence of such a health and safety plan the subcontractor shall undertake in writing that he will comply with the Contractor's safety plan, the health and safety specifications of the Employer and the Construction Regulations 2003.

- (c) Supervision of construction work (Regulation 6)



The Contractor shall appoint the safety, and other personnel and employees as required in terms of Regulation 6 and as set out in paragraph 7 above. Appointment of those personnel and employees does not relieve the Contractor from any of the obligations under Regulation 6.

(d) Risk assessment (Regulation 7)

The Contractor shall have the risk assessment made as set out in paragraph 7 above before commencement of the work and it must be available on site for inspection at all times. The Contractor shall consult with the health and safety committee or health and safety representative(s) etc. on a regular basis to ensure that all employees, including subcontractors under his control, are informed and trained by a competent person regarding health hazards and related work procedures.

No subcontractor, employee or visitor shall be allowed to enter the site of works without prior health and safety induction training, all as specified in Regulation 7.

(e) Fall protection (Regulation 8)

Fall protection, if applicable to this contract shall comply in all respects with Regulation 8 of the Construction Regulations.

(f) Structures (Regulation 9)

The Contractor will be liable for all claims arising from collapse or failure of structures if he failed to comply with all the specifications, project specifications and drawings related to the structures, unless it can be proved

that such collapse or failure can be attributed to faulty design or insufficient design standards on which the specifications and the drawings are based.

In addition, the Contractor shall comply with all aspects of Regulation 9 of the Construction Regulations.

(g) Formwork and support work (Regulation 10)

The Contractor will be responsible for the adequate design of all formwork and support structures by a competent person.

All drawings pertaining to formwork shall be kept on site and all equipment and materials used in formwork, shall be carefully examined and checked for suitability by a competent person.

The provisions of Regulation 10 of the Construction Regulations shall be followed in every detail.

(h) Excavation work (Regulation 11)

It is essential that the Contractor shall follow the instructions and precautions in the Standard Specifications and Project Specifications as well as the provisions of the Construction Regulations to the letter as unsafe excavations can be a major hazard on any construction site. The Contractor shall therefore ensure that all excavation work is carried out under the supervision of a competent person, that inspections are carried



out by a Professional Engineer or Technologist, and that all work is done in such a manner that no hazards are created by unsafe excavations and working conditions.

Supervision by a competent person will not relieve the Contractor from any of his duties and responsibilities under Regulation 11 of the Construction Regulations.

(i) Demolition work (Regulation 12)

Whenever demolition work is included in a contract, the Contractor shall comply with all the requirements of Regulation 12 of the Construction Regulations. The fact that a competent person has to be appointed by the Contractor does not relieve the Contractor from any of his responsibilities in respect of safety of demolition work.

(j) Tunnelling (Regulation 13)

The Contractor shall comply with Regulation 13 wherever tunnelling of any kind is involved.

(k) Scaffolding (Regulation 14)

The Contractor shall ensure that all the provisions of Regulation 14 of the Construction Regulations are complied with. [Note: Reference in the Regulations to "Section 44 of the Act" should read "Section 43 of the Act"].

(l) Suspended platforms (Regulation 15)

Wherever suspended platforms will be necessary on any contract, the Contractor shall ensure that copies of the system design issued by a Professional Engineer are submitted to the Engineer for inspection and approval. The Contractor shall appoint competent persons as supervisors and competent scaffold erectors, operators and inspectors and ensure that all

work related to suspended platforms are done in accordance with Regulation 15 of the Construction Regulations.

(m) Boatswain's chains (Regulation 16)

Where boatswain's chains are required on the construction site, the Contractor shall comply with Regulation 16.

(n) Material Hoists (Regulation 17)

Wherever applicable, the Contractor shall comply with the provisions of Regulation 17 to the letter.

(o) Batch plants (Regulation 18)

Wherever applicable, the Contractor shall ensure that all lifting machines, lifting tackle, conveyors, etc. used in the operation of a batch plant shall comply with, and that all operators, supervisors and



employees are strictly held to the provisions of Regulation 18. The Contractor shall ensure that the General Safety Regulations (Municipality Notice R1031 of 30 May 1986), the Driven Machinery Regulations (Municipality Notice R295 of 26/2/1988) and the Electrical Installation Regulations (Municipality Notice R2271 of 11/10/1995) are adhered to by all involved.

In terms of the Regulations, records of repairs and maintenance shall be kept on site.

(p) Explosive powered tools (Regulation 19)

The Contractor shall ensure that, wherever explosive-powered tools are required to be used, all safety provisions of Regulation 19 are complied with.

It is especially important that warning notices are displayed and that the issue and return of cartridges and spent cartridges be recorded in a register to be kept on site.

(q) Cranes (Regulation 20)

Wherever the use of tower cranes becomes necessary, the provisions of Regulation 20 shall be complied with.

(r) Construction vehicles And mobile plant (Regulation 21)

The Contractor shall ensure that all construction vehicles and plant are in good working condition and safe for use, and that they are used in accordance with their design and intended use. The vehicles and plant shall only be operated by workers or operators who have received appropriate training, all in accordance with all the requirements of Regulation 21.

All vehicles and plant must be inspected on a daily basis, prior to use, by a competent person and the findings must be recorded in a register to be kept on site.

(s) Electrical installation and machinery on construction sites (Regulation 22)

The Contractor shall comply with the Electrical Installation Regulations (Municipality Notice R2920 of 23 October 1992) and the Electrical Machinery Regulations (Municipality Notice R1953 of 12 August 1993). Before commencement of construction, the Contractor shall take adequate steps to ascertain the presence of, and guard against dangers and hazards due to electrical cables and apparatus under, over or on the site.

All temporary electrical installations on the site shall be under the control of a competent person, without relieving the Contractor of his responsibility for the health and safety of all workers and persons on site in terms of Regulation 22.

(t) Use of temporary storage of flammable liquids on construction sites (Regulation 23)

The Contractor shall comply with the provisions of the General Safety Regulations (Municipality Notice R1031 of 30 May 1986) and all the provisions of Regulation 23 of the Construction Regulations to ensure a safe and hazard-free environment to all workers and other persons on site.



(u) Water environments (Regulation 24)

Where construction work is done over or in close proximity to water, the provisions of Regulation 24 shall apply.

(v) Housekeeping on Construction sites (Regulation 25)

Housekeeping on all construction sites shall be in accordance with the provisions of the environment Regulations for workplaces (Municipality Notice R2281 of 16 October 1987) and all the provisions of Regulation 25 of the Construction Regulations.

(w) Stacking and storage on construction sites (Regulation 26)

The provisions for the stacking of articles contained in the General Safety Regulations (Municipality Notice R1031 of 30 May 1986) as well as all the provisions Regulation 26 of the Construction Regulations shall apply.

(x) Fire precautions on construction sites (Regulation 27)

The provisions of the Environmental Regulations for Workplaces (Municipality Notice R 2281 of 16 October 1987) shall apply.

In addition, the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 27 of the Construction Regulations.

(y) Construction welfare facilities (Regulation 28)

The Contractor shall comply with the construction site provisions as in the Facilities Regulations (Municipality Notice R1593 of 12 August 1988) and the provisions of Regulation 28 of the Construction Regulations.

(z) Non-compliance with the Construction Regulations 2003

The foregoing is a summary of parts of the Construction Regulations applicable to all construction projects.

The Contractor, as employer for the execution of the contract, shall ensure that all provisions of the Construction Regulations applicable to the contract under consideration are complied with to the letter.

Should the Contractor fail to comply with the provisions of the Regulations 3 to 28 as listed in Regulation 30, he will be guilty of an offence and will be liable, upon conviction, to the fines or imprisonment as set out in Regulation 30. The Contractor is advised in his own interest to make a careful study of the Act and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations.



E10. MEASUREMENT AND PAYMENT

10.1 Principles

It is a condition of this contract that Contractors, who submit tenders for this contract, shall make provision in their tenders for the cost of all health and safety measures during the construction process. All associated activities and expenditure are deemed to be included in the Contractor's tendered rates and prices.

(a) Safety personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons shall be members of the Contractor's personnel, and no additional payment will be made for the appointment of such safety personnel.

(b) Records and Registers

The keeping of health and safety-related records and registers as described in 8 is regarded as a normal duty of the Contractor for which no additional payment will be considered, and which is deemed to be included in the Contractor's tendered rates and prices.