



NKANGALA DISTRICT MUNICIPALITY



**CONSTRUCTION OF ROADS IN VICTOR KHANYE LOCAL MUNICIPALITY
PROJECT No: 156239**

SCOPE OF WORK

Tenderer

Witness 1

Witness 2

Employer

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Witness 2



DESCRIPTION OF THE SCOPE OF WORKS

1.1 Employer's objectives

The objective of the Employer is to construct segmented paver block surfaced roads with associated stormwater drainage infrastructure. This contract covers the supply of all material, labour, plant and equipment for the construction of approximately 1km of segmented block paving road used by the public. There is currently usage of the road particularly by modes of transport ranging from Mini bus taxis and trucks ferrying people to and from work. The Minibus taxis carry the local people to urban centers where they are employed while trucks carry various goods used locally. The employer's objective is to deliver public infrastructure using labour-intensive methods and subcontractors where possible. The project will be executed using both conventional construction methods and labour-based methods. This is as per the program of the National Department of Public Works (Special Public Works Programme (SPWP)) as set out in the guidelines of the Expanded Public Works Programme (EPWP). Labour-intensive works comprise the activities described in SANS 1921-5/Earthwork's activities that are to be performed by hand/Labour-Intensive Specification (1) and its associated specification data. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

1.2 Local SMMEs Development

The Contractor will be required to employ local SMMEs Sub-Contracting Company to assist in kerbing, paving, road marking, backfilling of stormwater pipes and concrete works. The SMMEs Company will be responsible for the appointment of local labourers from the Victor Khanye Local Municipality 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 is set in the SAFCEC tables (South African Federation of Civil Engineering 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 penalized R1 000/day. Failure of sub-contractors for non-payment of his labour will be penalized at 50% of his payment by the main contractor. Contractor must provide entry market related rates. The Contractor must familiarize him/her with the abovementioned requirements and price this document accordingly.

1.3 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 the course of 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 meets these requirements. The person nominated to act as project site agent for the project must be in a possession of a diploma in Civil Engineering and have subsequent there of one-year experience in roads construction.

The person nominated for construction monitoring must have a certificate in Civil Engineering with at least one-year experience in supervision of roads construction

1.4 Overview of the works

The major work will be the construction of approximately 1km of road using paving bricks as surfacing, and the construction of storm water facilities which include a concrete trapezoidal drain and storm water culverts.

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1.3 Extent of the works

The works entails the following:

- Site Establishment
- Clearing site and surrounding to create accessible working areas as required
- Traffic accommodation
- Earthworks Cut and fill
- Demolishing of existing open drain
- Concrete kerbing , channeling and edge beams installation
- Road layer works and stormwater facilities construction
- Laying of 80mm interlocking paving blocks
- Road Marking and finishing of the road and road reserves
- Correction of defects in the Works in accordance with the requirements specified in the Contract Document

The extent of the work is not necessarily complete and shall not limit the work to be carried out by the Contractor under the contract. The works included in this contract can be summarized as upgrade of a road with moderate level of service. The road will be upgraded to block paved road. The section of road to be upgraded is approximately 1km long. The associated storm water management facilities will be done which include construction of open drains, kerbs with channeling as well as all other works as per construction drawings.

1.4 Location of the works

The area is in **Botleng Township, Delmas**, under Nkangala District Municipality in the Mpumalanga Province. The GPS Coordinates are 26° 5'28.34"S and 28°41'30.70"E.

1.5 Temporary works

The following items shall generally form the majority of temporary work required under this contract, however shall not be limited to such, and might be expanded or changed by the Engineer should circumstances on site validate such decision.

These works will be as follows:

- Clearing site and surroundings to create accessible working area as required
- Provide temporary fencing around Contractor's camp site and Contractor's site office
- Provide Contractor's Camp site and Contractor's site office
- Provide site and administrative personnel, including security staff etc. as required;
- Setting out of the works by the Contractor;
- Monitor and report levels as construction progresses;
- Manage all site staff, CLO and local labourers, plant, equipment and materials etc.
- Manage all required quality control procedures as specified and as instructed by Engineer;
- Provide all personnel, equipment, clothing, accessories etc. in order to adhere to the OHS Act;

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- Attend official Site Meetings scheduled and chaired by the Engineer, and managed sufficient additional meetings on site with all personnel and CLO to ensure compliance with the OHS Act and to ensure progress on site according to the accepted Construction programme

2 ENGINEERING

2.1. Design Services and Activity Matrix

Works designed by, per design stage:

Description	Responsibility
Design of Works	Employer's Agents
Concept, feasibility and overall process	Client
Basic Engineering and detail layouts to tender stage	Employer's Agent
Final Design of Work	Employer's Agent
Final Design to approved construction stage	Client
Preparation of tender documentation & adverts	Employer's Agent
Placement of Advertisements in newspapers	Client
Application of Eskom connection point	Client / Employer's Agent / Contractor
Payment of Eskom connection fee	Contractor
Appointment of Sub-contractors	Contractor
Supervision	Employer's agent
Preparation of as built drawing	Contractor / Employer's Agent
Completion Certificate	Employer's Agent / Client / Contractor

2.2 Employer's Design

The permanent works included in this contract has been designed by the Employer's agent. The detail of the works is indicated on the drawing and in the specifications. The tenderer may submit alternative offers for designs prepared by himself subject to the conditions specified in the standard specifications.

2.3 Contractor's Design

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

2.4 Design Procedures

Designs shall be concluded by the Employer's Agent and issued to the Contractor on the day of the official site handover. The designs shall be approved by the local authority before construction commences. The Contractor shall be liable for capturing all the relevant changes to the design on the as built drawing, thereafter the drawing shall be submitted to the Employer's Agent for capturing. Under no conditions will the Contractor deviate from the issued design unless the Employer's Agent formally approves thereof in writing.

3 Procurement

3.1 Preferential procurement procedures

The works shall be executed in accordance with the Preferential Procurement Policy Framework Act and Preferential Procurement Regulation 2011.

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4. Project Specifications

4.1 Standard Specifications

The standard specifications on which this contract is based on the following COLTO specifications are also referred to in this document and the Contractor is advised to obtain them from South African Institution of Civil Engineering (SAICE)

Matters Relating to the Standard Specifications

SECTION 1200	GENERAL REQUIREMENTS AND PROVISIONS
SECTION 1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS
SECTION 1400	HOUSING, OFFICES AND LABORATORIES FOR THE EMPLOYER'S AGENT'S SITE PERSONNEL
SECTION 1500	ACCOMMODATION OF TRAFFIC
SECTION 1600	OVERHAUL
SECTION 1700	CLEARING AND GRUBBING
SECTION 1800	DAYWORK SCHEDULE
SECTION 2100	DRAINS
SECTION 2200	PREFABRICATED CULVERTS
SECTION 2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES AND CONCRETE LININGS FOR OPEN DRAINS
SECTION 3100	BORROW MATERIALS
SECTION 3200	SELECTION, STOCKPILING AND BREAKING-DOWN THE MATERIAL FROM BORROW PITS, CUTTINGS AND EXISTING PAVEMENT LAYERS, AND PLACING AND COMPACTING THE GRAVEL LAYERS
SECTION 3300	MASS EARTHWORKS
SECTION 3400	PAVEMENT LAYERS OF GRAVEL MATERIAL
SECTION 3500	STABILIZATION
SECTION 3900	PATCHING AND REPAIRING EDGE BREAKS
SECTION 4200	ASPHALT BASE AND SURFACING
SECTION 5100	PITCHING, STONWORK AND PROTECTION AGAINST ERROSION
SECTION 5600	ROAD SIGNS
SECTION 5700	ROAD MARKINGS
SECTION 5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS
SECTION 7300	CONCRETE BLOCK PAVING MATERIALS
SECTION 8100	TESTING MATERIAL AND WORKMANSHIP

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SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1201 SCOPE

B1202 SERVICES

Add the following to the fifth paragraph:

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

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

Add the following:

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

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

The cost of replacing all beacons displaced or destroyed during the course of the Contract without the consent of the Employer’s Agent shall be borne by the Contractor.”

B1231 COMMUNITY LIAISON OFFICER (CLO)

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

(a) Duties of the Community Liaison Officer

The Community Liaison Officer’s duties will be:

- (i) To be available on site daily between the hours of 07h00 and 17h00 and at other times as the need arises. His normal working day will extend from 07h00 in the morning until 17h00 in the afternoon.
- (ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- (iii) To communicate daily with the contractor and the Employer’s Agent to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.
- (iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a “labour desk”.
- (v) To attend all meetings in which the community and/or labour are present or are required to be represented.
- (vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor’s requirements.
- (vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
- (viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- (ix) To keep a daily written record of his interviews and community liaison
- (x) To attend monthly site meetings to report on labour and RDP matters.
- (xi) All such other duties as agreed upon between all parties concerned.

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- (xii) To submit monthly returns regarding community liaison.

(b) Payment for the Community Liaison Officer (CLO).

A special pay item is incorporated in section 1200 of the bill of quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required and not necessarily for the full duration of the contract. The remuneration of the CLO shall be determined by the Employer with a minimum salary of **R 7 000.00** per month.

(c) Period of employment of the community liaison officer

The period of employment of the community liaison officer shall be as decided upon jointly by the contractor, Employer's Agent and employer at a maximum period of eight (8) months basis, but with the option of Renewal.

B1234 HEALTH AND SAFETY ACT 1993

The contractor shall provide the following:

- a) Contractor's initial obligations in respect of the OHS Act and Constructions regulations
- b) Provision of full-time Health and Safety officer
- c) Submission of the Health and Safety file

B1235 MEASUREMENT AND PAYMENT

Add the following items:

"ITEMS

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- a) Protecting and relocating of existing services Provisional Sum
- b) Handling costs and profit in respect of sub item B1235 a) Percentage (%)

ITEMS

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B12.04 Remuneration of Community Liason Officer

- a) Provisional sum for the payment of the Community Liaison Officer (**R 5,000.00** / month) Provisional Sum
- b) Provisional Sum for the payments of calls Provisional Sum
- c) Handling costs and profit in respect of sub-item B12.04 (a) & (b) Percentage (%)

Expenditure of the above item shall be made in accordance with the general conditions of contract. The Tendered percentage is a percentage of the amount actually spent under the sub-item B12.02 (a), which shall include full compensation for the handling costs of the contractor, and the profit in connection with providing the community liaison officer."

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B12.36 Occupational Health and Safety obligation

- a) Contractors' initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations Provisional sum

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- b) Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations Month
- c) Contractor's time related obligations in respect of the COVID-19 Compliance to Occupational Health and Safety Act and Construction Regulations Month
- d) Provision of full-time health and safety officer Month
- e) Provision of full time COVID-19 Compliance officer Month
- e) Submission of the health and safety file Lump sum

Payment of the rate per month for sub-item B12.36 b) shall include full compensation for all the contractors' obligations relevant to 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.

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

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

B1302 GENERAL REQUIREMENTS

- (a) Camps, constructional plant and testing facilities

Add the following:

The contractor shall, at each area where work is being undertaken, provide on a daily basis at least one (1) portable chemical latrine unit per thirty (30) workers for use by construction workers employed on the project. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the satisfaction of the Employer's Agent. No separate payment shall be made for this requirement and shall be deemed to be included in the rates Tendered for the contractor's time-related obligations.

(1) Housing

The Contractor shall not erect any housing on the site of the works. The Contractor shall make all the necessary arrangements for accommodation of his personnel in approved areas.

(2) Services

The Contractor shall at his own expense, make the necessary connections to any utility services required by him for the execution of the works.

(3) Sanitation

The Contractor shall provide suitable sanitary arrangements for his staff at his campsite. If outside latrines are provided, they shall be of a neat construction and shall be provided with doors and locks. They shall be to the satisfaction of the Employer's Agent and the Local Authorities.

The Contractor shall provide at each work site at least one portable chemical latrine for use by construction workers. The latrines shall be serviced daily and maintained in good condition.

The Contractor shall be responsible for providing all necessary services to keep the latrines for himself, the Employer's Agent and the subcontractors and the Site in a clean, neat and hygienic condition, including the cost of refuse removal and disposal from the Site and from all accommodation provided by him.

If the Contractor fails to provide and / or maintain all Site sanitation facilities in a clean and hygienic condition the Employer's Agent may order the Contractor to suspend any or all work on the Site until the requirements

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of the Specifications are met. No payment shall be made for any delays or disruption of the Works caused thereby nor shall extensions of time be granted for such delays.

On completion of the Contract, the Contractor shall remove the sanitation system and reinstate the area to the satisfaction of the Employer's Agent. No separate payment will be made for this work and the Contractor shall allow for this in his tendered rates for establishment.

(4) Security

The Contractor shall provide adequate security and strict control of access to the campsite on a 24-hour basis including weekends and public holidays. The campsite area shall be adequately fenced with security fencing and security lights placed at strategic points. Notices to indicate that unauthorised persons may not enter the campsite area shall be erected at prominent locations as agreed with the Employer's Agent. All costs in connection with the provision of security shall be allowed for by the Contractor in his tendered rates for establishment on site.

(5) Environmental Protection

Construction will take place within the existing road reserve and every precaution must be taken to protect the established vegetation and roadside facilities. It is therefore essential that the Employer's Agent be continually consulted throughout the contract period to ensure that environmental considerations are satisfied. Failure to show adequate consideration to the environmental aspects of this contract will be sufficient for the Employer's Agent to have the Contractor's representative or any other Contractor's employee(s) removed from the site in terms of Clause 24 of the General Conditions of Contract.

The following conditions have been imposed and shall be strictly complied with:

Personnel and plant shall not enter property beyond the road reserve boundary irrespective of whether the boundaries are fenced off or not.

The Contractor shall, to the satisfaction of the Employer's Agent, take every necessary precaution to prevent the contamination of any watercourses.

The Contractor shall plan his activities so that materials, in so far as is possible, can be transported direct to and placed at the point where they are to be used. However, where utilising materials in this manner is impractical, it shall be temporarily stockpiled for later loading and transportation to where it will be used. Stockpiling areas shall be indicated to and approved by the Employer's Agent. Before any stockpiling of material may be done, the site shall be cleaned, and all loose stones or any plant or other material which may cause pollution shall be removed. After the stockpiled material has been removed, the site shall be reinstated as closely as possible to its original condition.

The Contractor shall be responsible for the establishment of a refuse control system for the collection and removal of refuse from the campsite and working areas.

The Contractor shall ensure that waste and surplus food, food packaging plastic and organic waste are not deposited by his employees anywhere on the site except in refuse bins for removal. If his employees are to eat elsewhere on site than in the campsite, the Contractor shall designate restricted places for eating in his working areas, shall provide adequate refuse containers in all these places and shall remove the refuse and clean up any remaining food containers immediately after mealtimes.

The Contractor has no right to the trees and shrubs on the site.

No bituminous material or waste material shall be dumped within the road reserve, even if only as a temporary measure. Provision shall be made to remove such excess material directly off the site to spoil areas to be provided by the Contractor".

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B1303 PAYMENT

ITEM

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B13.01 The contractor's general obligations (As specified)

Add the following after the fifth paragraph:

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

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

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

B1402 OFFICES AND LABORATORIES

(a) General

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

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

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

b) Offices

Add the following new sub-sub-clause:

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

Provision of Photostat facilities

(xix) The contractor shall provide for general use the photo copying equipment with the necessary ink and paper to produce black and white as well as colour copies complete with power supply.

(xx) Supply of computers, printers and related equipment.

The contractor shall supply the Employer's Agent with HP Probook 470 G2 core 17 or higher complete windows 7 professional, with latest version of office and Ms Projects, the up-to-date antivirus and WinZip. The contractor shall also provide a print, scan and copy combo machine for the exclusive use of the Employer's Agent's staff.

(xxi) Supply of survey services, assistants and survey equipment. The contractor shall provide the services of a qualified Engineering surveyor complete with assistants and equipment.

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B1403 HOUSING

c) Rented accommodation

Add the following

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

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1503 TEMPORARY TRAFFIC CONTROL FACILITIES

Add the following after the first paragraph:

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

(b) Road signs and barricades

Add the following:

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

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

The obligation to arrange safe passage of traffic shall always be vested with the contractor regardless what is indicated on the drawings of the Employer's Agent."

(c) Channelization devices and barricades

Add the following:

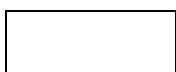
"Drums shall not be used as channelization devices.

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

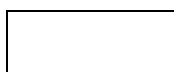
a) It shall be manufactured from a flexible material and shall comply with SABS 1555. The blade portion of the delineator shall be positively affixed to a base unit which in turn shall be stable on its own or be stabilized by means of sandbags when used on the road.

ii) The blade shall be retro-reflectorised, with class 1 yellow sheeting on the side facing oncoming traffic.

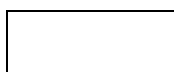
iii) It shall nominally be 1000mm high x 250mm wide and the bottom edge of the delineator shall not be more than 200mm above the road surface



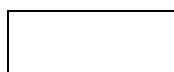
Tenderer



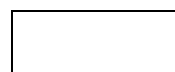
Witness 1



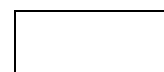
Witness 2



Employer



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iv) It shall be subject to the approval of the Employer's Agent.

The maximum spacing between centers of delineators shall be as shown on the drawings or as directed by the Employer's Agent."

e) Warning devices

Add the following:

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

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

B1517 RETRO-REFLECTIVE MATERIAL

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

B1518 MEASUREMENT AND PAYMENT

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

"The tendered rate shall also include for all measures necessary to safeguard traffic on temporary deviations during blasting operations."

Renumber item 15.03 as B15.03

Add the following sub-item:

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B15.01: Accommodating traffic and maintaining temporary Deviation's

kilometer (km)

Add the following:

"The tendered rate shall include full compensation for the general obligations and incidental cost-items necessary for the accommodation of traffic and the construction and maintenance of deviations, including existing roads that are being used as deviations, during the construction period and during the maintenance period where such items of cost are not specially paid for under the pay items provided under this section in the schedule of quantities.

It shall also include, where necessary, communications equipment required to regulate traffic, for the provision and maintenance of temporary drainage, arranging for the moving of services, attending to traffic problems, complying with the requirements of the Road Signs Manual, and for providing temporary access to private properties. Additional payment will only be made for extra traffic aids, not shown on the drawings that have to be provided or used on instruction of the Employer's Agent.

The length of a specific section shall be measured once only and compensation shall include all work to be carried out regardless of the number of widths in which it has to be executed.

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Payment shall be made in two equal instalments. The first instalment shall be made when suitable deviations have been approved for use or when traffic is taken over half-width construction.

The second instalment shall become due when the traffic can be accommodated on the new road, all bypasses have been obliterated and all general obligations of the Contractor have been complied with, all to the satisfaction of the Employer's Agent."

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B15.03: Temporary traffic-control facilities

Amend the subitem as follows:

"(a) Flagmen month

Amend the first paragraph as follows:

"The tendered sum per month shall be full compensation for the providing of flagmen as required and indicated on the drawings, as well as for flagmen required for any other activities by the Contractor."

Add the following new subitems:

"(n) Road signs,

Number (No)

TW series, 1 500 triangular sides, including TIN 1 500 x 400

(o) Road signs

Number (No)

TW series, 1 200 x 1 600 including TIN 1 200 x 400

A provisional sum has been included in the schedule of quantities to allow for the supply and installation of any additional signs, reflective tape or other materials requested by the Employer's Agent on instruction and in accordance with clause 1503, and press releases".

Add the following:

"(n) and (o)"

The unit, of measurement shall be number of each sign provided and completely erected".

Amend the following notes in the measurement paragraphs as follows:

"The tendered rate for subitem (h) shall also include full compensation for the sign stand, for the provision of two sandbags per delineator to hold it in position and for their replacement when necessary due to whatever reason. Only the standard plastic type road sign TW 401/402 (Old DTG 50 J) will be allowed on this Contract".

SECTION: 1700: CLEARING AND GRUBBING

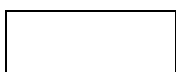
B1702 DESCRIPTION OF WORK

a) Clearing

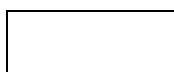
Add the following:

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

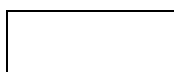
Should the required depth exceed 150mm, the total volume of material removed shall either be classified as



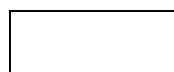
Tenderer



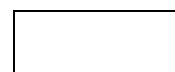
Witness 1



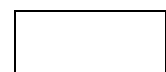
Witness 2



Employer



Witness 1



Witness 2



“temporary stockpiling of topsoil” or “unsuitable roadbed material” or “cut to spoil” whichever is applicable as allowed for in the standard specifications. In these cases no payment shall be made for clearing and grubbing.

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

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

SECTION: 1800: DAYWORK SCHEDULE

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

Add the following:

B1801 SCOPE

This section covers the listing of day work items for use in determining payment for work which cannot be quantified in specific pay item “units” in the bill of quantities or work ordered by the Employer’s Agent during the construction period which was not foreseen at Tender stage for which no applicable rate exists in the schedule or for work of a special or different character warranting special payment as decided by the Employer’s Agent.

B1802 ORDERING OF DAYWORK

No day work shall be undertaken unless specific written authorization is obtained from the Employer’s Agent.

B1803 MEASUREMENT AND PAYMENT

The Employer’s Agent may order the following day work items:

ITEM	DESCRIPTION	UNIT
B18.01	Labour charges	
	(c) Un-skilled	Hour (h)
	(b) Semi skilled	Hour (h)
	(c) Skilled	Hour (h)
	(d) Foreman	Hour (h)
B18.02	Construction Plant charges	
	(a) Tipper trucks	
	(i) Capacity 6m3	Hour (h)
	(ii) Capacity 10m3	Hour (h)
	(b) Flatbed trucks	
	(i) Capacity 5 ton	Hour (h)
	(a) Capacity 10 ton	Hour (h)
	(c) LDV	
	(i) LDV up to 1 ton	Hour (h)
	(d) Water tankers	
	(i) Capacity 8 000 litres	Hour(h)
	(ii) Capacity 10 000 litres	Hour (h)

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



B18.03	(e) Crawler excavators	
	(i) Bigger than 93Kw but smaller than 200Kw	Hour(h)
	(ii) Bigger than 200Kw but smaller than 400Kw	Hour(h)
	(f) Walk behind vibrating rollers	
	(i) Model - Bomag 60 or similar	Hour(h)
	(ii) Model - Bomag 76 or similar	Hour(h)
	(iii) Model - Bomag 90 or similar	Hour(h)
	(g) Plate compactors	
	(i) Vipac or similar	Hour(h)
	(h) Concrete mixers	
	(i) Volume 100 liter wet (small)	Hour(h)
	(ii) Volume 250 liter wet (large)	Hour(h)
	(i) Diesel compressors including hoses and tools	
	(i) Capacity smaller than 200 cfm	Hour (h)
	(ii) Capacity bigger than 200 cfm but smaller than 400 Cfm	Hour(h)
	(j) Water pumps	
	(i) Capacity smaller than 400litres/min	Hour (h)
	(ii) Capacity bigger than 400litres/min but smaller than 600 liters/min	Hour (h)
	(iii) Capacity bigger than 600 liters/min but smaller than 1100 liters/min	Hour(h)
	(k) Low-bed	
	(i) Low-bed (suitable for the biggest piece of equipment above)	Hour(h)
	(l) Grader (Cat 140G or similar)	Hour (h)
	Materials required to execute dayworks	Sum

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

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



plant.

The tendered rates shall include full compensation for all cost items including overheads, head-office expenses and profits as described in subclause 40(3) of the general conditions of contract and shall be subject to contract price adjustment as provided for in the contract.

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

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

2100: DRAINS

B2103 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

Amend this sub-clause by adding the following to the end of the third paragraph:

"(category-heavy duty) or SABS 1601 (stiffness class 350)

The pipes to be used shall be either slotted u PVC pipes or perforated HDP pressure pipes, 100 mm ID."

(ii) Natural permeable material

Add the following to the 3rd paragraph:

"The crushed stone shall coarse (19mm nominal) and shall be washed clean of all fines", conforming to the following specification:

Percentage passing through a 26,5mm sieve: 100 %.

Percentage passing through a 19,0mm sieve: 60-85 %.

(iii) Synthetic-fibre filter fabric

Under item (4) Selection, of this sub-clause, replace the 1st paragraph with the following:

"The filter-fabric used for subsoil drains shall be grade 2 and shall satisfy the criteria for a grade 2 geotextile as given in Table 2104/2."

(b) Construction of subsoil drainage systems

Add the following sub-clause:

"(v) Proving of pipes in subsoil drainage systems

On completion of the pipe laying and prior to backfilling, all pipe joints shall be surveyed as proof of their installation to line and level. After backfilling the pipes shall be proved by pulling through a cylindrical cleaning brush followed by a wooden mandrill \pm 400mm long

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



and 5mm in dia less than the bore of the pipe. Proving of pipes shall not be paid for separately and the cost thereof shall be deemed to be included in the rate tendered for laying the pipe."

B2107 MEASUREMENT AND PAYMENT

ITEM

UNIT

B21.01 Excavation for open drains

Add the following to the penultimate paragraph:

"The tendered rate shall also include full compensation for trimming the open drains and preserving excavated material for shoulder reconstruction"

ITEM

UNIT

B21.04 Impermeable backfilling to subsoil drainage systems

Add the following new subitems:

(a) Unstabilised natural gravelcubic metre (m³)

(b) G5 material stabilised with 4% stabilising agentcubic metre (m³)

ITEM

UNIT

B21.12 Concrete outlet structures, manhole boxes, Junction boxes,
and cleaning eyes for subsoil drainage systemsnumber (No)

Add the following:

"The tendered rate shall also include full compensation for procuring and finishing the galvanised woven wire mesh, cutting, waste, installing the wire mesh at outlets and keeping the wire mesh in the pipe openings clean for the duration of the contract period."

SECTION 2200: PREFABRICATED CULVERTS

B2201 SCOPE

Add the following:

"All rectangular culverts with spans from 0,9m up to and including 14m shall be constructed with precast units.

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

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

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

The precast units will be founded on a Precast Concrete Base Slab, size of which must be verified before it is purchase. The Precast Concrete Base Slab will be founded on a soil cement bedding.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



B2203 MATERIALS

(f) Skewed Ends

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

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

B2204 CONSTRUCTION METHODS

Add the following:

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

(c) Excavation by hand

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

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

B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

Add the following subclauses:

"(c) Excavation by hand

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

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

(d) Drainage of excavations

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

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

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

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



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

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

B.2210 (b) (i) Cast in situ invert slabs

Replace with the following:

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

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

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

B2211 BACKFILLING OF PREFABRICATED CULVERTS

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

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

(b) Concrete work

Add the following:

"The type of surface finish for in situ concrete in the culverts shall be as indicated on the drawings. Generally, all exposed faces shall be of Class F2 formwork and faces covered by backfill shall be Class F1. The top of parapet walls and wingwalls shall be finished to a Class U2 surface finish."

(h) Prefabricated inlet and outlet structures

Add the following:

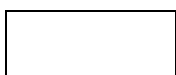
"The use of precast concrete inlets and outlets as described in clause 2212(h) shall not be allowed under any circumstances. Cast in situ concrete wingwall type inlets and outlets shall be constructed as indicated on the drawings and shall be in accordance with section 6000 of the Standard Specifications.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

B2218 MEASUREMENTS AND PAYMENT

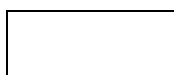
Add the following:

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

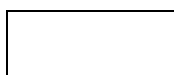
Measurement shall be as specified for pay item 22.01 of the standard specifications.
The Tendered rate shall include full compensation for carrying out the excavations by hand where circumstances prevent the use of mechanical excavators.



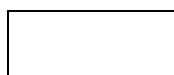
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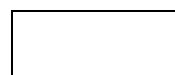
Witness 1



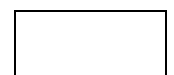
Witness 2



Employer



Witness 1



Witness 2



ITEM

UNIT

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

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

Add the following to pay item 22.08:

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

Concrete backfill shall be measured to the actual dimensions of the precast units, i.e. actual volumes between ribs and haunches shall be taken into account. For the purpose of calculating concrete backfill quantities, the horizontal dimensions of the concrete backfill on the outside of the culvert(s) (closest to excavated face), shall

B2304 CONSTRUCTION

(d) Slip form kerbing

Add the following:

"Slip-form kerbing shall under no circumstances is allowed."

(e) Cast in situ kerbs and channels

Add the following:

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

Add the following new subclauses:

(i) Construction sequence

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

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

Before commencing with the kerbing and/or channeling, the surfacing and the base, shall be accurately cut to line with a mechanical saw to a minimum depth of 75mm. After excavation the concrete shall then be cast against the cut surface without formwork.

All material outside the cut line must be carefully removed to the required thickness of concrete without damaging the edge before commencing with the casting of the concrete.

No payment shall be made for repair work as instructed by the Employer's Agent to damage caused by the cutting/excavating process of surfacing and base layers.

Any concrete spilt onto the surfacing shall immediately be removed and cleaned. Where so required by the Employer's Agent, the contractor shall, without any additional compensation, paint emulsion over the stained surface.

Add the following subclause:

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



(k) Formwork and finish

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

B2308 MATERIALS

(iii) Concrete lining for open drains

Add the following:

"Supply and install 140mm thick, (340 x 400 x 95mm) Armoflex

B2308 MEASUREMENT AND PAYMENT

ITEM	UNIT
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B2308	Supply and install 140mm thick, (340 x 400 x 95mm) Armoflex complete with galvanised fencing wire/synthetic rope
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Add the following pay items:

ITEM	UNIT
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B23.08 Concrete lining for open drains (a) Supply and install 140mm thick, (340 x 400 x 95mm) Armoflex complete with galvanised fencing wire/synthetic rope	m ²
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be taken as 100mm maximum irrespective of what type or make of precast portal is used or the actual width of the excavation.

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

Add the following new items:

ITEM	UNIT
------	------

B22.29 Tie bars for joining in situ concrete invert slabs to inlet and outlet structures, as indicated on the drawings (Type, diameter and length indicated)	Number (No.)
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The unit of measurement shall be the number of tie bars installed as specified and indicated on the drawings.

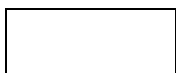
The Tendered rate shall include full compensation for supply and installation of the tie bars.

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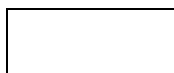
B22.30. a) Preparation and compaction of in-situ bedding material to 90% of Mod. AASHTO density (depth indicated)	cubic metre (m ³)
b) Extra over sub-item B22:30(a) for compaction to 93% of Mod. AASHTO density (depth indicate)	cubic metre (m ³)

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

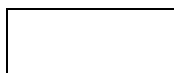
The Tendered rate shall include full compensation for the ripping of the in-situ material to the specified width and depth, wetting of the material to such an extent that the specified density can be achieved.



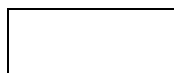
Tenderer



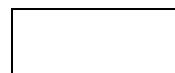
Witness 1



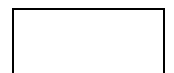
Witness 2



Employer



Witness 1



Witness 2



ITEM

UNIT

B22.31 Dewatering and keeping dry of culvert excavations

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

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

ITEM

UNIT

B22.32 Cutting of concrete pipes

a) Diameter indicated

Number (No.)

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

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

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

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

B2301 SCOPE

Add the following:

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

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

B2302 MATERIAL

Add the following new subclauses:

(e) Metal pipes

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

B2304 CONSTRUCTION

(d) Slip form kerbing

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Add the following:

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

(e) Cast in situ kerbs and channels

Add the following:

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

Add the following new subclauses:

(i) Construction sequence

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

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

Before commencing with the kerbing and/or channelling, the surfacing and the base, shall be accurately cut to line with a mechanical saw to a minimum depth of 75mm. After excavation the concrete shall then be cast against the cut surface without formwork.

All material outside the cut line must be carefully removed to the required thickness of concrete without damaging the edge before commencing with the casting of the concrete.

No payment shall be made for repair work as instructed by the Employer’s Agent to damage caused by the cutting/excavating process of surfacing and base layers.

Any concrete spilt onto the surfacing shall immediately be removed and cleaned. Where so required by the Employer’s Agent, the contractor shall, without any additional compensation, paint emulsion over the stained surface.

Add the following subclause:

(k) Formwork and finish

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

B2308 MATERIALS

(iii) Concrete lining for open drains

Add the following:

“Supply and install 140mm thick, (340 x 400 x 95mm) Armoflex

B2308 MEASUREMENT AND PAYMENT

ITEM	UNIT
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B2308	Supply and install 140mm thick, (340 x 400 x 95mm) Armoflex complete with galvanised fencing wire/synthetic rope
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Add the following pay items:

ITEM	UNIT
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B23.08	Concrete lining for open drains (a) Supply and install 140mm thick, (340 x 400 x 95mm)
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Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Armoflex complete with galvanised fencing wire/synthetic rope

m²

SECTION 3100: BORROW MATERIALS

B3102 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

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

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

B3103 OBTAINING BORROW MATERIALS

(a) General

Add the following:

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

(b) Use of borrow materials

Add the following to the second paragraph of this subclause:

"Compensation to owners and arrangements with owners for taking material from alternative borrow pits proposed by the contractor shall be the contractor's responsibility and entirely at his own expenses."

B3104 OPENING AND WORKING BORROW PITS AND HAUL ROADS

(c) Excess overburden

Add the following:

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

f) Protecting borrow pits

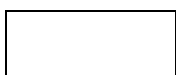
Add the following:

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

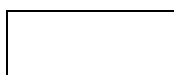
In addition to fencing, Security Guards shall be supplied on a 24 hour, 7 days a week basis, with full time communication to the Site Manager or site camp for the duration of the contract and activities at the borrow pits.

Add the following new subclause:

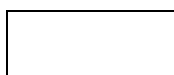
"(h) Haul roads



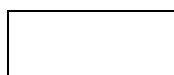
Tenderer



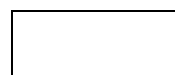
Witness 1



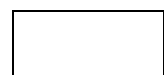
Witness 2



Employer



Witness 1



Witness 2



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

B3105 FINISHING-OFF BORROW AREAS AND HAUL ROADS

Add the following to this clause:

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

B3108 MEASUREMENT AND PAYMENT

Change item 31.01 to read as follows:

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

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

Add the following new item:

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

Measurement and payment shall be in accordance with the provisions of clause 48(2) of the general conditions of contract. Payment to the landowner shall be made within fourteen (14) days after such order has been given by the Employer's Agent. The contractor shall provide detailed proof of payment before payment shall be certified to the contractor.

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

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

B3204 BREAKING-DOWN THE MATERIAL

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

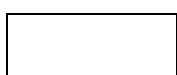
Add the following to the table in the second paragraph of this subclause:

"Pioneer layers - 500mm maximum dimension

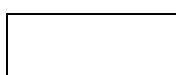
Not more than 20% of pioneer layer material shall pass through the 2,0mm sieve."

(b) Further breaking-down of pavement material

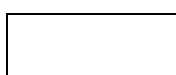
Add the following:



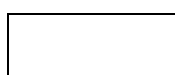
Tenderer



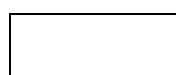
Witness 1



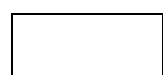
Witness 2



Employer



Witness 1



Witness 2



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

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

Add the following new subclause:

(d) Pioneer layer

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

SECTION 3300: MASS EARTHWORKS

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

Add the following to the third paragraph:

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

(c) Preparing and compacting the roadbed

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

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

B3307 FILLS

(c) Constructing a pioneer layer

Add the following to the first paragraph:

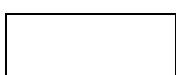
"For the purpose of this contract, pioneer layers shall be completed by means of eight-pass roller compaction using vibratory rollers as specified in subclause 3304(b) of the standard specifications."

(d) Benching

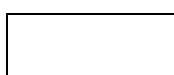
Add the following:

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

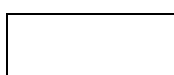
It is a requirement that benching shall always be started at the bottom of the existing fill progressing to the top of the formation. The dimensions and details of benching are shown on the drawings."



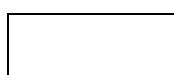
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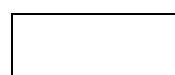
Witness 1



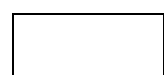
Witness 2



Employer



Witness 1



Witness 2



B3308 **FINISHING THE SLOPES**
(d) **General**

Add the following:

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

B3312 **MEASUREMENT AND PAYMENT**

Add the following sub-item to item 33.10:

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

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

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

Only material bladed on the instruction of the Employer's Agent for exposing the underlying roadbed material for treatment will be measured and paid for as described above."

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 **MATERIALS**

(a) **General**

Add to Clause 3402(a) the following:

The road consists of the following pavement as follows:

Basecourse	80mm S/A Paver block
Sub-base	125mm C4 Natural Gravel
Selected layers	150mm G7 Natural Gravel
Roadbed	150mm G9 Natural Gravel

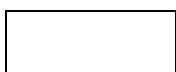
All layers shall comply with the requirements of Tables 3402/1, 3402/2, 3402/4 and 3402/5 of the Standard Specification. The requirements of Section 3500 : Stabilization shall also apply to the relevant layers.

(b) **Compaction Requirements**

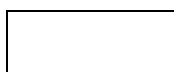
Add to Clause 3402(b) the following:

The compaction requirements of the pavement layers shall be:

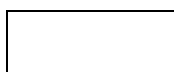
Basecourse	98% of Modified AASHTO density
Sub base	95% of Modified AASHTO density
Selected layers	95% of modified AASHTO density
Roadbed	93% of modified AASHTO density



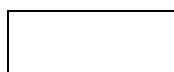
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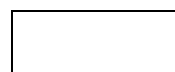
Witness 1



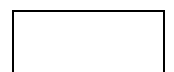
Witness 2



Employer



Witness 1



Witness 2



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

There shall be no measurement of Intermediate class excavation. All excavation that is not Hard shall be deemed as Soft.

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Add to Clause 3406 the following:

Test results and re-measurements shall be assessed in accordance with the provisions of Section 8200: Quality Control (Scheme 1) of the standard specifications, as amended in these project specifications.

B3407 MEASUREMENT AND PAYMENT

Delete the note at the start of the measurement and payment clause dealing with work in restricted areas. On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Schedule of Quantities.

SECTION 3500: STABILISATION

B3502 MATERIALS

(a) Chemical stabilizing agents

Add to Sub-clause 3502(a) the following:

The new SABS ENV 197-1 standard specifications will be applicable to this Contract (Refer to Clause B1229 in the Project Specification). According to these specifications the following cements are prescribed:

- (ii) Ordinary Portland cement: CEM 1
- (iii) Portland blast-furnace cement: CEM III/A, III/B AND III/C
- (iv) Ground granulated blast-furnace cement: As specified in 3502(a)(iv)
- (v) Portland fly-ash cement: CEM II/A-V, CEM II/B-V, CEM II/A-W, CEM II/B-W

B3503 CHEMICAL STABILIZATION

(i) Construction limitations

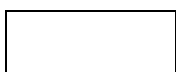
Add to Sub-clause 3503(i) the following:

Cement stabilization shall not be carried out during falling temperatures when the ambient air temperature falls below 7°C or during rising temperatures when the ambient temperature is below 3°C.

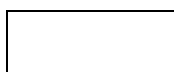
The surface temperature of a compacted stabilized layer shall not be allowed to fall below 1°C during the first three (3) days after stabilization. The Contractor shall be responsible for taking all measures necessary in this regard and shall especially refrain from stabilizing when such night temperatures are probable.

All stabilized layers which have been damaged by frost or by the formation of ice in the layer shall be removed and replaced by the Contractor at his expense unless agreed otherwise by the Employer's Agent. The Contractor shall make due allowance for these requirements in his construction programme, and no claims in this regard will be considered.

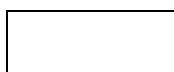
B3509 QUALITY OF MATERIALS AND WORKMANSHIP



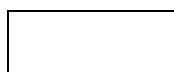
Tenderer



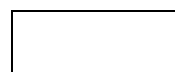
Witness 1



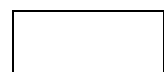
Witness 2



Employer



Witness 1



Witness 2



Add to Clause 3509 the following:

Test results and re-measurements shall be assessed in accordance with the provisions of Section 8200: Quality Control (Scheme 1) of the standard specifications, as amended in these project specifications.

The Contractor shall advise the Employer's Agent at least 24 hours in advance of any stabilization work to enable him to organise and conduct his own control tests.

Where the stabilising agent is to be spread by hand, the pockets of stabilising agent shall be placed on the layer at regular intervals. However, spreading shall not be carried out before the Employer's Agent is satisfied that the correct quantity of stabilising agent can be spread.

Stabilised layers shall be covered for curing within 24 hours, as specified. If the stabilised layer is found to have failed, the cover material shall be removed and the layer rectified if instructed by the Employer's Agent. No additional payment shall be made for such removal and remedial work.'

B3510 MEASUREMENT AND PAYMENT

Delete the note at the start of the measurement and payment clause dealing with work in restricted areas. On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Bill of Quantities.

Payment Item B35.02 Chemical stabilising agent

Add the following note to this payment item:

The notation used for Portland cement and Portland blast-furnace cement corresponds with the notation specified in SABS ENV 197-1.

SECTION 5100: PITCHING STONework AND PROTECTION AGAINST EROSION

B5101 MATERIALS

- a) Stone

Add the following:

"This section shall include obtain freely available stones as well as stores obtained from commercial sources and that bought locally including from areas owned by authorities".

B5104 CONCRETE PITCHING AND BLOCK PAVING

Add the following:

- d) Supply and install Segmented block paving, 80 mm thick interlocking, 25MPa, including sand bedding. Installation of paving block shall be labour intensive.

Add the following:

"This section shall include obtain freely available stones as well as stores obtained from commercial sources and that bought locally including from areas owned by authorities".

B5100 MEASUREMENT AND PAYMENT

"ITEM

UNIT

B51.01 L Stone Pitching

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



- | | |
|---|----------------|
| a) Plain pitching: | |
| i) Method 1 | m ² |
| ii) Method 2 | m ² |
| b) Grouted pitching | m ² |
| c) Grouted stone pitching on a concrete bed | |
| i) 50mm thickness | m ² |
| ii) 100mm thickness | m ² |
| iii) 200mm thickness | m ² |
| d) Wired – and – grouted stone pitching | m ² |

“ITEM	UNIT
--------------	-------------

B51.04 L Concrete pitching and block paving

d) Segmented block paving:

- | | |
|-------------|----------------|
| 1. Method 1 | m ² |
|-------------|----------------|

B51.07 L Foundation trenches	m²
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5600: ROAD SIGNS

B5601 SCOPE

“This section also covers the supply and erection of permanent danger plates at culverts and bridges at the locations indicated on the drawings or as directed by the Employer’s Agent.”

B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS

(a) Road signboards

Add the following:

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

(a) (ii) Steel profile road signboards

Add the following:

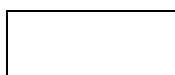
“Where the letter or legends cross the horizontal joints of the sign panels, the letter shall be cut on the joint and both ends folded around the radius.

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

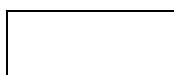
B5604 ROAD SIGN FACES AND PAINTING

Add the following new subclause:

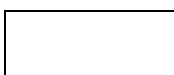
“(e) Application of retro-reflective material



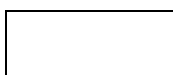
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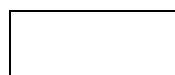
Witness 1



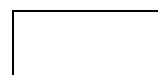
Witness 2



Employer



Witness 1



Witness 2



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

Where applied to Chromadek sections, retro-reflective material shall be applied as specified for aluminium section in Clause 5603(d) of the Standard Specification, and of Clause B5603 (a) (ii) of this project Specification."

B5605 STORAGE AND HANDLING

Add the following:

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

Drilling of holes, except for the fastening of overlays

Application of any form of adhesive

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

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

B5606 ERECTING ROAD SIGNS

(b) Erection

Add the following:

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

All vegetation obstructing the new or replaced sign board shall be removed and disposed of as instructed by the Employer's Agent."

B5608 DISMANTLING, STORING AND RE-ERECTING EXISTING ROAD SIGNS

Add the following:

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

Dismantling shall include sign panels and ground mounted sign supports.

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

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

5700: ROAD MARKINGS

B5706 SETTING OUT THE ROAD MARKINGS

Add the following:

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



"Where road markings are to be replaced after milling/overlay seal, it is essential that all existing barrier lines and other road marking lines be accurately referenced before commencement of milling or other operations which will obliterate the existing road markings. The position of barrier lines shall be reassessed on site by the Employer's Agent before the Contractor commences with the road marking."

B5707 APPLYING THE PAINT

Add the following:

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

B5711 GENERAL

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

“, bituminous emulsion, slurry”

Add the following to the last paragraph:

"Where black paint is used, it shall be matt."

Add the following new clause:

B5714 MEASUREMENT AND PAYMENT

ITEM

UNIT

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

Add the following:

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

ITEM

UNIT

B57.05 Roadstuds

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

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

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

B5902 FINISHING THE ROAD AND ROAD RESERVE

Add the following to the first paragraph:

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

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



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

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

SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

8101 SCOPE

During the progress of the work tests shall be conducted on materials and workmanship to ensure compliance with the requirements of the specifications.

8102 TESTING METHODS

All tests shall be conducted in accordance with the standard methods specified in the following, in order to precedence:

- (a) Standards methods for testing road construction materials (TMH 1 and TMH 6) and for calibration (TMH 2), compiled by the Committee of State Road Authorities (CSRA) and published by the department of transport as part of the series Technical Methods for Highways.
- (b) South African bureau of Standard Specifications, test methods, codes of practice and co-ordinating specifications.
- (c) British Standards Institute Specifications (BS)
- (d) The specifications of the American Society for Testing and Materials (ASTM)
- (e) The specifications of the American Association of State Highway and Transportation Officials (AASHTO).
- (f) The standard methods of testing of the South African Bitumen and Tar Association (SABITA)

4.2 Site Establishment

Site establishment

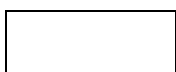
The Contractor is responsible for Site Establishment. The construction yard will not be serviced and the Contractor shall make arrangements to connect all necessary services to specific points. The Contractor shall bring to the Site all his necessary construction equipment and install all stationary construction equipment and plant at locations and in the manner accepted by the Engineer. The Contractor shall submit sufficiently detailed plans showing the proposed locations of such stationary equipment and other pertinent data. No installation of such stationary equipment shall be undertaken unless the corresponding plans have been accepted by the Engineer.

Services and facilities provided by the Employer

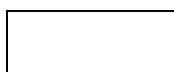
Source of water supply

The Contractor shall make his own arrangements for the supply of water for construction and testing purposes. The Contractor will be required to supply, install, operate and maintain at his cost, such temporary pipework and storage facilities as may be necessary to ensure sufficient supply. The supply shall be metered. The Contractor will also be required to pay all connection fees, cost of water drawn from the water supply authority's system at the ruling tariffs in force at the time as well as include all such requirements throughout the duration of the Contract.

Source of power supply



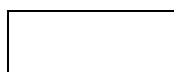
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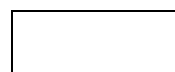
Witness 1



Witness 2



Employer



Witness 1



Witness 2



The Contractor shall make his own arrangements temporary power supply for construction purposes. The Contractor will be required to make his own arrangements with, and pay all the requisite connection and consumption charges for whatever temporary power supplies he may require for his use on the site as well as include all such requirements throughout the duration of the Contract.

Facilities provided by the Contractor

Contractor's camp

On this Site, the Contractor shall be responsible in establishing the final grade for his site establishment requirements including; construction offices, storage areas, warehouse, machine and repair shops, fuel tanks, storage tanks, power and water distribution lines and provide such related facilities and sanitary conveniences that are necessary for maintaining health, peace and order, and safety in the work areas. The positions of all buildings constructed by the Contractor for his own use will be subject to the acceptance of the Engineer. Temporary and permanent fencing around the Contractor's Site establishment areas and electrical and mechanical apparatus connected to the electrical supply shall be erected by the Contractor where needed. On completion of work on Site, buildings constructed by the Contractor for his own use shall be completely demolished, including foundations, and the ground reinstated. Underground services to these buildings shall be removed.

The Contractor shall be responsible for all temporary services required by him both for the site establishment area, camp site and for construction purposes, including water, electricity, sewage, and communication facilities.

Covered accommodation for perishable or corrodible materials, fittings and the like shall be adequate and suitable for their purpose and, particularly in the case of cement stores, shall be well ventilated, weatherproof and waterproof with floors raised off the ground, so as to keep the materials perfectly dry and freely aerated. All such accommodation shall be subject to the approval of the Engineer who shall have free access to the premises at all times.

In addition to the above, the Contractor shall provide one toilet per 10 workmen. Portable toilet facilities shall be made available to workers of both male and female genders, the number provided to be in proportion to the ration of the sexes. The toilets shall be located in the vicinity of the work site, shall be screened from public view and the use thereof shall be enforced. The Contractor shall, where applicable, make the necessary arrangements for the regular removal of night soil. The Contractor is to ensure portable toilet facilities are cleaned on a regular basis.

Storage and laboratory facilities

The Contractor shall provide all storage and laboratory facilities required for the proper execution of the works. The test of layer work and material should be done by a SANAS accredited laboratory. The contractor to include it in its rate for the activities.

Other services and facilities

The requirements of the Engineer's Site establishment are detailed in Project Specification PSA and PSAB.

Disposal of refuse

The Contractor shall be responsible for the disposal of refuse and waste generated by his staff on a daily basis. The site is to be kept clean, neat and tidy, to the Employer's satisfaction.

Telephone facilities

The Contractor is to provide his own telephone facilities as well as facilities for the use of the Engineer, or his representative for the duration of the Contract.

Housing facilities

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The Contractor will not be required to provide housing facilities for the Engineer's staff. No accommodation for the Contractor's employees will be permitted on site.

Notice boards

The Contractor will be permitted to display two notice boards advertising his Contract on or near the Site or access points to the project area. The notices shall be of a form and in a position accepted by the Engineer and shall include details of other parties involved (including the Employer) as well as the Contractor. No advertisement shall be displayed without the acceptance of the Engineer.

Site usage

Working with road reserves, Eskom servitudes, etc.

The Contractor is to confine his activities strictly to the indicated working areas and to the spoil sites and the direct access roads to these. He shall not work outside his designated working areas except with the prior approval of the Employer, in writing. It is advised that the Contractor takes note of damaged structures or parts thereof and report these to the Engineer in writing before work starts at or near an existing structure to prevent possible disputes with the occupant or owner.

Site safety and precautions against nuisance

The Works is to be conducted within residential areas with pedestrian and vehicular traffic. The watching, barricading, lighting and traffic control on site shall be carried out where required in strict compliance with these specifications. The Contractor shall ensure that all safety measures are strictly adhered to.

Plant used on the Works shall be as efficiently silenced as possible and noisy operations will be permitted between the hours of 07:00 and 17:00 only. Any work outside normal working hours requires written approval by the Engineer 24 hrs in advance.

Dust suppression is required for all earthworks activities prone to form excessive dust. Any rock or debris falling from trucks on any haul road shall be removed immediately. Precautions shall be taken to prevent fouling of the site and public roads by trucks. The Engineer may instruct the Contractor to clean roads where any material or debris deposited by any construction vehicle may constitute a danger to the public.

The Contractor is solely responsible for the security of his camp, plant and materials. The Contractor is to familiarise himself with the locality of the proposed site and allow sufficient security measures in order to protect the works. The Employer will not be held responsible for any damages, theft or

Permits and wayleaves

The Employer will make the arrangements for all security access permits and wayleaves necessary within the Works.

Alterations, additions, extensions and modifications to existing works

Interfaces with existing works are indicated on the relevant drawings as far as possible. The Contractor shall take note of these and make appropriate allowances for dealing with, and where necessary, making modifications or tying into these services.

Inspection of adjoining properties

The Contractor will be required to inspect all properties within 50m radius of any excavation on site before and after completion of the works. A detailed written and photographic record of the inspections is to be submitted to the Engineer and Client prior to excavation activities commence.

Water for construction purposes

The Contractor is required to construct and maintain standpipes for construction water.

Survey control and setting out of works

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Employer

Witness 1

Witness 2



Before commencing the operations, the Contractor shall locate and mark all survey pegs and beacons and shall immediately submit a written report in duplicate of any missing or damaged pegs and beacons to the Engineer's Representative, who shall verify the facts and return a countersigned copy of the report to the Contractor. Other than in the case of setting out pegs, the Contractor will be held responsible for the replacement by a registered land surveyor of all beacons or pegs found damaged or missing on completion of the Works which were not reported as such by the Contractor before commencing operations.

Survey records of beacons, bench marks, etc., replaced shall be submitted to the Engineer. Attention in this regard is drawn to Sections 35(1) and (2) of the Land Survey Act of 1927 which lays down the penalties applicable to those who are responsible for interfering with permanent survey beacons, bench marks, reference marks or trigonometric stations

4.3 Plant & Materials

Materials supplied by the Employer

No materials will be supplied by the Employer. The construction yard will not be serviced and the Contractor shall make arrangements to connect all necessary services.

Materials, samples and shop drawings

All materials required for incorporation into the permanent works are to be supplied by the Contractor. Where possible, these materials shall be sourced from within the area, taking into account availability of supply, price and continuity of supply. In-situ material can be used where suitable. Spoiling and spreading of material will not be permitted on site and suitable temporary stockpile areas must be identified by the Contractor and approved by the Engineer prior to stockpiling.

4.4 Construction Equipment

The Contractor shall provide all construction equipment and plant necessary to complete the works.

Requirements for equipment

All construction equipment shall be used for the purpose that it was designed for, should be in good working condition and shall be used in a safe manner and shall comply with all relevant legal and roadworthy aspects.

Equipment provided by the Employer

The Employer will not provide any plant and equipment required for construction purposes. All equipment and plant required shall be provided by the Contractor.

4.5. Existing Services

Known services

The position of the known existing services is indicated on the layout drawings as far as reasonably possible. The Contractor shall, however, take note of the fact that this is a developed site which is adjoined and crossed by many services. The Contractor must therefore make provision for suitable means of locating and accommodating all services, including those not known or shown on the drawings. This, however, does not relieve the Contractor from responsibility of verifying if any additional services are present in the area by searching and probing the terrain in question for any existing services or indications of the presence of such services. The Contractor shall at all times exercise the utmost care when working in their vicinity and shall take all necessary steps to protect any existing services whatsoever against damage which may arise as a result of his operations on site. The Contractor shall bear the cost of the repair of damage to any service the possible existence of which could reasonably have been ascertained by him in good time. All cables and pipes shall be considered "live" unless confirmed otherwise by the relevant service authority.

Treatment of existing services

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Work will be carried out in the vicinity of existing services and all such services shall remain in operation at all times, except where arrangements have been made for the interruption of the service for the purposes of carrying out the Works under this Contract.

Existing overhead and underground services may be indicated on drawings held by the respective service providers. Should the Contractor find evidence of possible buried services, he shall notify the Engineer immediately thereof. The Engineer will assess the situation and instruct the Contractor on an appropriate course of action to be taken.

The Contractor shall be responsible for checking the locations of all services and to ensure that no damage is caused by construction operations.

The Contractor, before starting any excavations or where indicated in the scope of work or site information that underground services either cross or are located adjacent to the Works that is to be constructed, such services shall be exposed by hand ahead of trenching operations to enable any changes that might be needed in the design of the pipelines to be made timeously. Care shall be taken in exposing such services to avoid damaging them. An item has been allowed for in the Bill of Quantities for hand excavation or other methods to search for existing services.

All cables and pipes shall be considered "live" unless confirmed otherwise by the relevant service authority.

Use of detection equipment for the location of underground services

The Contractor shall be allowed to use non-intrusive equipment for the location of existing services if so agreed. Should excavation be required to identify and or expose any services this shall be for the account of the contractor and shall only proceed once the relevant permits or approvals have been issued by the Employer.

Damage to services

Should any existing services be damaged by the Contractor, the Engineer shall be informed immediately. The Contractor shall repair the damaged service if so, instructed by the Engineer or shall assist in the repair of the service as instructed by the Engineer at the Contractor's own cost.

Alterations, additions, extensions and modification to existing works

The Contractor must satisfy himself that the dimensions accuracy, alignment, levels and setting out of the existing road, structures or components thereof are compatible with the proposed Works and must notify the Engineer where this is not the case.

Inspection of adjoining properties

The Contractor together with property owners must inspect all adjacent properties for defects, cracks etc. before commencing with the works that may have a potential to damage surrounding buildings and properties. Notes and photographs must be taken to record any existing defects prior to the commencement of the works. The contractor shall keep the photos and give the ER one copy of such photos.

Water for construction purposes, power supply and other services

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

Survey control and setting out of the works

The Contractor must check all survey control beacons indicated on the drawings before commencing with the works and must notify the Engineer of any discrepancy.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Construction in confined areas

It will be necessary for the Contractor to work within confined areas. No additional payment will be made for work done in restricted areas unless allowed in the schedule of quantities. In certain places the width of the fill material and pavement layers may reduce to as little as zero and the working space may be confined. The method of construction in these confined areas will depend largely on the Contractor's constructional plant. However, the Contractor shall note that measurement and payment will be in accordance with the specified cross-sections and dimensions irrespective of the method used to achieve these cross-sections and dimensions that the bid rates and amounts shall be deemed to include full compensation for any special equipment and construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at/or around obstructions, and that no extra payment will be made nor will any claim for additional payment be considered in such cases.

Overhaul

The contractor is to price for overhaul of material as indicated on schedule of items

Training

The contractor shall conduct on the job training where possible for local labour. There will be no additional payment for training that is done exceeding Provisional Sum amount allowed for in the schedule of quantities.

Use of local sub-contractors and resources

One of the specific objectives of this Contract is to use local emerging sub-contractors who are CIDB 1CE, 2CE or 3CE so that at the end of the contract they will be eligible to upgrade to a higher CIDB grading to a higher grading. It is required that local sub-contractors, local labour and the use of local resources should be prioritized. The contractor and his/her sub-contractors should adopt labour-Intensive Construction (LIC) methods of construction. No activity shall be executed using machines when it is practically possible to use labour.

Labour-optimising construction activities

a) General

The portions of the Works listed in Sub-clause (b) below shall, unless otherwise instructed by the Engineer, be constructed under this Contract using Sub-contractors and Labour-Intensive Construction (LIC) methods only. Sub-contractors appointed shall also use LIC methods. Unskilled labour is to be drawn from the local wards. In respect of those portions of the Works which are not listed in Sub-clause (b), the construction methods adopted and plant used shall be at the discretion of the Contractor, provided always that the construction methods adopted and plant used by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

b) Operations to be executed using Sub-contractors & LIC methods The following portions of the Works shall be executed using Sub-contractors and LIC methods:

- | | |
|-------------------------------------|------------------|
| i) Installation of paving bricks | : Sub-contractor |
| ii) Installation of Kerbs | : Sub-contractor |
| iii) Road markings | : Sub-contractor |
| iv) Constructing all masonry work | : LIC method |
| v) Backfilling of storm water pipes | : LIC method |
| vi) Removal of oversize material | : LIC method |

Tenderer

Witness 1

Witness 2

Employer

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Witness 2



Restrictions on the use of personnel in the permanent employment of the contractor

a) The Contractor shall limit the use on the Works of his permanently employed personnel to that of key personnel only (as defined in Part E of the Construction Specifications) and shall, subject to the further provisions of the following parts of the Construction Specifications –

i) Part E - Provision of the temporary workforce,

ii) Part F - Provision of structured training,

Execute and complete the Works using a temporary workforce employed directly by the Contractor and/or by Subcontractors.

b) The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor and where he deems the circumstances to warrant, authorize in writing that the Contractor may use in the execution of the Works, workers not being his key personnel but who are in his permanent employ. Without limiting the generality of application of this sub-clause, circumstances which may be considered by the Engineer to warrant the authorization of the use of the Contractor's permanent employees not being key personnel, include:

i) The unavailability of sufficient numbers of temporary workers and/or Subcontractors to execute the Works, provided always that the Contractor has proven that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient numbers of temporary workers and Subcontractors and has exhausted all reasonable recruitment options

ii) The unavailability within the temporary worker pool and/or Subcontractor sources available to the Contractor in terms of the Contract, of sufficient of the required knowledge and skills necessary for the execution of the Works or specific portions thereof, in cases where the time for completion allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of training as contemplated in this Contract

Any other circumstances which the Engineer may deem as constituting a warrant

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2