PART C3: SCOPE OF WORK

PG-01.1 (EC) SCOPE OF WORKS – (GCC (2010) 2nd EDITION: 2010)

Project title:	***Land Port of Entry: Beit Bridge: Appointment of a Service Provider(s) for the Maintenance and repairs of Building, Civil, Mechanical and electrical Infrastructure and Installations for a period of 36 Months.***		
Tender no:	***H22/002AI***	**Reference no:**	6022/029/4

C3. Scope of Works

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C3.3 PARTICULAR SPECIFICATIONS

List particular sepcifications

PAA Plumbing and Drainage Installations

PFD Heating Ventilation and Air-Conditioning Systems

PFE Incinerator Installation

PJC Conventional Fire Fighting Equipment

PAM Mobile Structures

C3.4 STANDARD SPECIFICATIONS:

SA General Maintenance

SB Operating and Maintenance Manuals

SC General Decommissioning, Testing and Commissioning Procedures

SD General Training

SF General Operation

SH HIV / AIDS Requirements

SI Occupational Health and Safety

SN Implementation of Labour-intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)

The standard specifications on which this contract is based are the **South African Bureau of Standards Standardized Specifications for Civil Engineering Construction SABS 1200.** *(Note to compiler. "SABS" has been changed to "SANS"; the SABS 1200 specifications are due to be replaced in the foreseeable future by SANS 2100)*

Although not bound in nor issued with this Document, the following Sections of the Standardized Specifications of SABS 1200 shall form part of this Contract:

- A - 1986 - GENERAL / D – (etc, to be provide by compiler)
- SANS 1200 Standardised Specifications for Civil Engineering Construction*
- SANS Standard Specifications*
- PW 371- A & B -Specification of Materials and Methods to be used. Fourth revision, October 1993.**
- Guide for architects concerning drainage, water supply and stormwater drainage**
- PW343- Building specifications for Regional Offices**
- Standard Specification for the Electrical Installations and Equipment pertaining to Mechanical Services**
- Standard Electrical Specifications, January 1984, GPS 24-0367**
- SANS 10400 The application of the National Building Regulations*
- Department of Public Works - Standard Electrical Specifications**
- Standard Specification for Air Conditioning and Ventilation Installations – Issue XI, 1998.
- Standard Specification for Refrigeration Services – Issue VIII, 1998
- FPO/G61/3E Guide for Architects**
- Department of Water Affairs - Green Drop & Blue Drop Requirements (Version 1.0 - 2010)***
- Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under Expanded Public Works Programme**
- * Not issued with this document, but available at the Contractor's expense from the SA Bureau of Standards, Private Bag X191, PRETORIA, 0001.
- ** Not issued with this document but available from the Director General, Department of Public Works, Private Bag X65, PRETORIA 0001, or any office of the Regional Representative of this Department.
- *** Not issued with this document but available from the Department of Water Affairs (www.dwa.gov.za).

3.5 PROJECT SPECIFICATIONS:

Status

The Project Specification, consisting of two parts, forms an integral part of the contract and supplements the Standard Specifications.

Part1 A contains a general description of the works, the site and the requirements to be met.

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

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

3.5.1 GENERAL

PS-1 PROJECT DESCRIPTION:

Each installation requires work that may include any one or more of the activities as set out in below, i.e. decommissioning, repair, reconditioning, testing, re-commissioning during the Contract period. The consultants and the contractor will compile a set of operating and maintenance manuals. The work also includes compilation/updating of operating and maintenance manuals as well as training of User Department operators and all maintenance personnel.

NOTE: Repair work will be carried out within facilities that are occupied by User Department's personnel and associates.

PS 1 GENERAL DESCRIPTION

Each installation requires work that may include any one or more of the activities as set out in below, i.e. decommissioning, repair, reconditioning, testing, re-commissioning during the Contract period. The consultants and the contractor will compile a set of operating and maintenance manuals. The work also includes compilation/updating of operating and maintenance manuals as well as training of User Department operators and all maintenance personnel.

NOTE: Repair work will be carried out within facilities that are occupied by User Department's personnel and associates.

PS 2 DESCRIPTION OF SITE AND ACCESS

Beitbridge Port of Entry is the property of the Department of Public Works and situated near Musina in the Limpopo Province. A map of the site is part of the drawings.

The Contractor will be granted access to all the installations at the date of Site Handover. Access will also be given to completed installations that were kept in a working condition during a previous similar Contract.

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PS 3 DETAILS OF CONTRACT

All work forming part of this Contract is divided into installations. The repair and maintenance work to be performed as part of an installation under this Contract mainly consists of the following:

a. The various installations at the Port of Entry form part of an existing Repair and Maintenance Programme. As such the various installations were repaired and maintained under the contract and are in perfect working order which places the emphasis of this contract on maintenance.

b. No distinction will be made between prior to practical completion and completed installations for the purpose of maintenance.

c. The Contractor will have the opportunity at the start of the contract to point out items which are not in perfect working order which in turn will be repaired as per the relevant tendered repair rates.

d. The Contractor will further more at the start of the contract perform annual maintenance on all the installations as per the items listed in the different Technical and Particular Specifications as part of the Contractor's maintenance obligation.

e. Maintenance of each of these installations will be the responsibility of the Contractor and will be evaluated on a monthly basis by the Engineer. The remuneration for maintenance work and responsibilities will be certified accordingly.

The Contractor will have the opportunity at the start of the contract to point out items which are not in a in a perfect working order by means of an Assessment and Verification report. Typically the following installation, but not limited to, shall be assessed:

- Structural and buildings related works
- Plumbing, drainage and wet services
- Fencing, cleaning and site keeping
- Bulk water and external water reticulation and water purification works
- Wastewater treatment works
- Roads and storm water drainage
- Building electrical
- External lighting
- Standby power generators
- Medium and low voltage equipment
- Heating, ventilation and air-conditioning systems
- Kitchen Equipment
- Incinerator equipment
- Conventional fire-fighting equipment, etc.

These items will be serviced and repaired as per the relevant tendered repair rates. The detail Assessment and Verification report shall provide an overview of problem areas at the beginning of the contract period, just after site handover. This shall include the testing of all equipment (pumps, etc.) as well as all civil, electrical and mechanical services. The detail Assessment and Verification report shall include photos (presented as a photo report) with a description and orientation/location of problem areas. The final detail Assessment and Verification report must be submitted one calendar month after site handover. A penalty of R500 per day shall be imposed for late submission.

Payment for the Assessment and Verification report shall be included in the fixed preliminary and general charges.

The description of the Works given is not necessarily complete and shall not limit the work to be carried out by the Contractor' under this Contract.

PS 3.1 CORRECTIVE MAINTENANCE WORK

CIVIL REPAIR WORK

SCHEDULE NO 1: GENERAL	
SCHEDULE NO 2.1: INSTALLATION C1:	STRUCTURAL AND BUILDING RELATED WORK
SCHEDULE NO 2.2: INSTALLATION C2:	PLUMBING AND DRAINAGE RELATED WORK
SCHEDULE NO 2.3: INSTALLATION C3:	RELATED WORK
SCHEDULE NO 2.4: INSTALLATION C4:	BULK WATER SUPPLY SYSTEMS AND EXTERNAL WATER NETWORKS
SCHEDULE NO 2.5: INSTALLATION C5:	WASTEWATER TREATMENT WORKS AND SEWER NETWORKS
SCHEDULE NO 2.6: INSTALLATION C6:	ROADS AND STORM WATER RELATED WORK

CIVIL MAINTENANCE WORK

SCHEDULE NO 3:	INSTALLATION C2:	PLUMBING AND DRAINAGE
SCHEDULE NO 4:	INSTALLATION C3:	FENCING, CLEANING AND SITE KEEPING
SCHEDULE NO 5:	INSTALLATION C4:	WASTEWATER TREATMENT WORKS AND SEWER NETWORKS
SCHEDULE NO 6:	INSTALLATION C5:	BULK WATER SUPPLY AND EXTERNAL WATER NETWORKS
SCHEDULE NO 7:	INSTALLATION C6:	ROADS AND STORM WATER DRAINAGE

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ELECTRICAL REPAIR WORK

SCHEDULE NO 8:	INSTALLATION E1:	GENERAL REPAIR WORK : TOOLS & SPARES
SCHEDULE NO 9:	INSTALLATION E2:	IMMIGRATIONS AND CUSTOMS, PUBLIC TOILETS, HRM SAPS, SAPS LOGISTICS, SUBSTATION NO1 & AGRICULTURAL/ POLICE STATION BUILDINGS
SCHEDULE NO 10:	INSTALLATION E3:	CUSTOMS EXPORT RAMP, IMPORT RAMP AND OFFICES, CLEARING AGENTS, SUB NO2, PUBLIC ABLUTION BUILDINGS ELECTRICAL SERVICES
SCHEDULE NO 11:	INSTALLATION E4:	LIGHT VEHICLE INSPECTIONS, CONTROL POINT AND PUBLIC TOILETS
SCHEDULE NO 12:	INSTALLATION E5:	SAPS BARRACKS, CELLS AND ADMIN OFFICES AND BULK WATER PURIFICATION BUILDING
SCHEDULE NO 13:	INSTALLATION E6:	MAIN ENTRANCE CANOPY, LIGHT VEHICLE INSPECTION, PUBLIC INSPECTION AND PEDESTRIAN LUGGAGE SEARCH
SCHEDULE NO 14:	INSTALLATION E7:	WASTE WATER TREATMENT PLANT & WATER PUMP SCHEME
SCHEDULE NO 15:	INSTALLATION E8:	HOUSES IN TOWN: RESIDENTIAL HOUSES
SCHEDULE NO 16:	INSTALLATION E9:	STANDBY POWER SYSTEMS
SCHEDULE NO 17:	INSTALLATION E10:	EXTERNAL LIGHTING
SCHEDULE NO 18:	INSTALLATION E11:	MV AND LV INSTALLATIONS

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ELECTRICAL MAINTENANCE WORK

SCHEDULE NO 9:	INSTALLATION E2:	IMMIGRATIONS AND CUSTOMS, PUBLIC TOILETS, HRM SAPS, SAPS LOGISTICS, SUBSTATION NO1 & AGRICULTURAL/ POLICE STATION BUILDINGS
SCHEDULE NO 10:	INSTALLATION E3:	CUSTOMS EXPORT RAMP, IMPORT RAMP AND OFFICES, CLEARING AGENTS, SUB NO2, PUBLIC ABLUTION BUILDINGS ELECTRICAL SERVICES
SCHEDULE NO 11:	INSTALLATION E4:	LIGHT VEHICLE INSPECTIONS, CONTROL POINT AND PUBLIC TOILETS
SCHEDULE NO 12:	INSTALLATION E5:	SAPS BARRACKS, CELLS AND ADMIN OFFICES AND BULK WATER PURIFICATION BUILDING
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SCHEDULE NO 16:	INSTALLATION E10:	EXTERNAL LIGHTING
SCHEDULE NO 18:	INSTALLATION E11:	MV AND LV INSTALLATIONS
SCHEDULE NO 18:	INSTALLATION E11:	MV AND LV INSTALLATIONS

MECHANICAL REPAIR WORK

SCHEDULE NO 1:	INSTALLATION M1:	HVAC INSTALLATION
SCHEDULE NO 2:	INSTALLATION M2:	KITCHEN EQUIPMENT
SCHEDULE NO 3:	INSTALLATION M3:	INCINERATOR INSTALLATION
SCHEDULE NO 4:	INSTALLATION M4:	FIRE PROTECTION INSTALLATION

MECHANICAL MAINTENANCE WORK

SCHEDULE NO 1:	INSTALLATION M1:	HVAC INSTALLATION
SCHEDULE NO 2:	INSTALLATION M2:	KITCHEN EQUIPMENT
SCHEDULE NO 3:	INSTALLATION M3:	INCINERATOR INSTALLATION
SCHEDULE NO 4:	INSTALLATION M4:	FIRE PROTECTION INSTALLATION

The description of the Works given above is not necessarily complete and shall not limit the work to be carried out by the Contractor under this Contract. All work will be performed according to the relevant specifications forming part of this Contract.

Approximate quantities of each type of work are given in the Bill of Quantities.

PS 3.1.1 GENERAL ITEMS

- Compile and supply a complete site plan of Beitbridge Port of Entry Operational and Residential Area at port and in Musina.
- Compliance to OHS Act Requirements and Construction Regulations 2014
- It is required of the Contractor to thoroughly study the Additional Specification SH: HIV / AIDS
- Requirements (PW 1544) of the Department that must be read together with and is deemed to be incorporated under this Section of the Bill of Quantities. Provision for pricing of HIV/AIDS awareness is made and it is explicitly pointed out that all requirements of the aforementioned specification are deemed to be priced, as the said items represent the only method of measurement and no additional items or extras to the Contract in this regard shall be entertained.
- Preventative Pest Control when instructed.
- Provide contingency measures during festive seasons when instructed.
- Training of EPWP Workers.

NOTE: A clear distinction will be made between the repair work to be done and the maintenance responsibilities applicable to each installation.

PS 3.1.3 OPERATION OF INFRASTRUCTURE FOR THE CONTRACT PERIOD

The 36-month operation by means of routine maintenance will be as per the Port of Entry operational hours, 24 hours a day, Monday to Sunday. Unless otherwise specified.

The 36-month operation of the Bulk Water System consisting of three bore holes, concrete ground raw water reservoir, concrete ground water reservoir, concrete elevated reservoir, sedimentation tank, flash mixer, five filters and pumps at Beitbridge. Minimum of 2 trained operators to be present at the plant during operational hours.

The 36-month operation of the Waste Water Treatment Works includes an Inlet Works, Aeration ditch with fine bubble aeration, Clarifier, dry beds and two Reed Beds. Minimum of 2 trained operators to be present at the plant during operational hours.

PS 3.2 DEPARTMENT OF WATER AFFAIRS INCENTIVE BASED REGULATION MANAGEMENT AND ADMINISTRA TION

- Potable water quality tests to be performed by an approved SANAS laboratory on a monthly basis on the water delivered to the consumers for determinants specified.
- Potable water quality tests to be performed by an approved SANAS laboratory on a monthly basis on the water abstracted from boreholes for determinants specified.

- Sewage effluent compliance quality tests to be performed by an approved SANAS laboratory for determinants specified.
- Raw sewage 24 h composite sample and analysis for determinants specified.

- Special testing required by the Engineer shall include remuneration for all water and wastewater related analysis, in terms of either compliance monitoring, or required to determine risks. All operational sampling and monitoring shall be the Contractor's responsibility remunerated under Operation of an Installation.
- Full SANS 241 (Part 1) set of 34 x chemical, 8 x physical determinants and 6 x micro biological determinants for annual water quality risk assessment
- Compile and submit to the Engineer for approval a Water Safety Plan in terms of the requirements of SANS 241 (Part 2), inclusive of risk based operational - and compliance monitoring programmes. Water demand management, including loss reduction and water use efficiency business plan Compile and submit to the Engineer for approval a Wastewater Risk Abatement Plan, inclusive of risk based operational - and compliance monitoring programmes, storm/ground water ingress monitoring and control planning.
- Operation as per Technical Specification DH09 comprising Maintain spreadsheet/database with drinking water system process control and maintenance information, including but not limited to: system input volumes, individual water consumption, system pressures, compliance results, operational process control results, chemical consumption, hour meter readings, volt meter readings, ammeter readings, breakdowns, etc., for Beitbridge Port of Entry and submission to the Client in a format similar to the Department of Water Affair's incentive based regulation programmes.
- Operation as per Technical Specification EM04.08 comprising Maintain spreadsheet/database with wastewater treatment process control and maintenance information, including but not limited to: raw wastewater flow rates, effluent flow rates, irrigation rates, compliance results, operational process control results, chemical consumption, hour meter readings, volt meter readings, ammeter readings, breakdowns, etc., at Beitbridge Port of Entry, and submission to the client in a format similar to the Department of Water Affair's incentive based regulation programmes.

PS 3.3 ROUTINE MAINTENANCE WORK

Maintenance of each of the above installations will be the responsibility of the Contractor and will be evaluated on a monthly basis by the Engineer. The remuneration for maintenance work and responsibilities will be certified accordingly.

Details of the required routine- and preventative maintenance are given in the relevant technical specifications and in Additional Specification SA: General Maintenance.

PS 4 CONSTRUCTION PROGRAMME

When drawing up his construction programme, the Contractor shall take into account the time for completion for the repair work of each installation as indicated in Clause 42.1 as amended in Part 1 of the Contract Data.

If the programme submitted by the Contractor in terms of Clause 12 of the General Conditions of Contract, has to be revised because the Contractor is falling behind in his programme, he shall submit a revised programme of how he intends to regain lost time to ensure practical completion of repair work of each installation, and completion of the Works within the periods stipulated Part 1 of the Contract Data or within a granted extension of time and also to ensure that other contractors have access to the site to start their work on the dates as shown in the original programme. Proposals to increase the tempo of work must incorporate positive steps to increase production either by more labour and plant on the Site, or by using the available labour and plant in a more efficient manner.

Instructions by the Engineer to expedite progress shall not be the subject of additional compensation to the Contractor unless the instruction explicitly states that the Contractor is entitled to additional compensation and cites the amount of such compensation or the basis on which it is to be determined.

Failure on the part of the Contractor to submit or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as set out in Clause 55 of the General Conditions of Contract as amended in Part 1 of the Contract Data.

The approval by the Engineer of a programme shall have no contractual significance other than that the Engineer will be satisfied if the work is carried out according to the programme. The said approval shall not limit the right of the Engineer to instruct the Contractor to vary the programme if necessary. The Contractor is also referred to Clause PS 8 and Clause PS 12 when preparing this programme.

NOTE: For reasons of limited access, it may not be possible to carry out the repair work on some of the installations in parallel with repair work on other installations. The repair work of some of the installations shall follow sequentially as indicated in the specifications.

The Contractor shall organise his work in such a manner as to cause the minimum inconvenience to the User Department's personnel and operations.

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PS 5 SITE FACILITIES AVAILABLE

PS 5.1 CAMPSITE AND STORE ROOM

a. Campsite

A Site Establishment area is available and will be indicated to the Contractor. An area for the campsite was developed by the previous Contractor and the infrastructure and facilities can be utilised for the new Contract but must be repaired and maintained during the Contract to ensure that the facility maintains an esthetical value for the Port of Entry.

b. Store room

None of the existing service buildings may be used for storage. The Contractor must provide his own storeroom facilities for the duration of the Contract.

The existing and new facilities must comply with the South African National Building Regulations and Standards in all aspects.

PS 5.2 WATER, ELECTRICITY AND SEWERAGE

a. Water supply

The Contractor must make his own arrangements for water supply. Water will be available at specific points not necessarily adjacent to working areas. Water will be available free of charge but wastage will not be tolerated. The Contractor must supply his own standard fittings to couple up at the points where water is available.

b. Electrical power supply

Electrical power supply is available on the Site and will be free of charge. The Contractor must make his own arrangements for a connection to the electrical power supply. The Contractor will be responsible, at his own cost, for the distribution of electricity for construction and domestic use.

c. Sewerage connection

Refer to Subclause PSA 4.2 in connection with toilet requirements. Chemical toilets shall be used.

NOTE: The Employer shall not be held responsible for any losses or inconvenience due to a disruption in the supply of water and/or electricity.

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PS 5.3 PARKING FACILITIES

Parking facilities are available on the Site.

PS 6 SITE FACILITIES REQUIRED FOR THE ENGINEER

PS 6.1 GENERAL

The Contractor shall provide on the Site, for the duration of the repair phase and for the exclusive use of the Engineer and/or his Representative (as applicable), the various facilities described hereunder. The duration of the repair phase is stated in Part 1 of the Contract Data. All such facilities shall be provided promptly on the commencement of the Contract and failure on the part of the Contractor to provide any facility required in terms of this specification shall constitute grounds for the Engineer to withhold payment of the Contractor's Preliminary and General items until the facility has been provided or restored, as the case may be.

PS 6.2 OFFICE ACCOMMODATION

The Contractor shall provide on Site one (1) office for the exclusive use of the Engineer. Such office(s) shall comply with and be furnished in accordance with the requirements of Subclause 3.2 of SABS 1200 AB. The Contractor shall maintain the office(s) in accordance with the requirements of Subclause 5.2 of SABS 1200 AB.

Irrespective the type of material of which an office is constructed, the Contractor shall ensure that the temperature inside the office is always between 20ºC and 24ºC.

Such office accommodation shall be provided within the Contractor's site establishment facilities.

PS 6.3 CARPORTS

The Contractor shall provide on Site one (1) carport for the exclusive use of the Engineer, in accordance with requirements of Subclause PSAB 3.3 of the Project Specifications.

PS 6.4 SITE MEETING VENUE

The Contractor shall provide within its own site establishment facilities (or arrange the use of the Department of Public Works facilities), a suitably furnished office or other venue capable of comfortably accommodating a minimum of six (6) persons at site meetings. The Engineer shall be allowed free use of such venue for conducting any other meetings concerning the Contract at all reasonable times.

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PS 6.5 SURVEY EQUIPMENT AND ASSISTANTS

a. Survey equipment

No survey equipment is required

PS 6.6 TELEPHONE FACILITIES

The Contractor shall, in accordance with the requirements of Subclause PSAB 4.1 of the Project Specifications, provide on-site, the following telephone facilities for the use of the Engineer and his Representative:

a. Cellular telephones

- Number of cellular telephones required for a period of 36 months: two (2).
- The average call cost at business rates (over the 36-month contract period) shall not exceed R3500,00 per month.

PS 6.7 COMPUTER FACILITIES

The Contractor shall provide computer facilities together with the specified software installed, for the exclusive use of the Engineer and his staff, in accordance with the requirements of SANS 1200 AB (as amended).

PS 6.8 ELECTRICITY SUPPLY FOR THE ENGINEER

All electricity supply to the Engineer's office, whether provided by the Contractor by way of a reticulated supply from a local authority or by way of on-site generators, shall be regulated by the Contractor to within limits such as to prevent damage occurring to any electrical plant and equipment provided by the Contractor or by the Engineer, as a result of fluctuations in the electrical current supplied.

PS 6.9 HOUSING FOR ENGINEER'S REPRESENTATIVE

The Engineer will provide housing for the Engineer's representative. The housing and the relevant services and local authority rates and charges shall be paid for by the Contractor on the written instruction of the Engineer, from an amount included in Section 1200 A of the Bill of Quantities for this purpose.

The Contractor is entitled to a percentage of the value of each payment to the Engineer to cover his expenses in this regard. (See payment item PSA 8.6)

PS 7 FEATURES REQUIRING SPECIAL ATTENTION

PS 7.1 INSTALLATIONS AT FACILITIES

The installations at all facilities shall be carefully checked for damage and all damages shall be listed and discussed with the Engineer before commencement of repair and maintenance work. The Contractor shall present copies of all correspondence in this regard for discussion at the following site meeting.

PS 7.2 SECURITY

a. Restrictions on movement and limited access

The Contractor's personnel, vehicles and equipment will be restricted to areas of construction only. The Contractor shall comply with any requirements that the Engineer may have in this regard and shall take note that for security reasons the access to some areas, may be limited.

b. Prohibition on taking of photographs

The Contractor's attention is drawn to the Defence Act, 1957 (Act No 44 of 1957) and the Correctional Services Act, 1998 (Act No 111 of 1998) which clearly state that the taking of photographs is prohibited and that even the possession of a camera on Site is an offence. Permission to take photographs of damaged equipment may be arranged by the Engineer.

c. Security check on personnel

The Employer may require the Contractor to have his personnel or a certain number of them security-classified, if so required by any competent authority.

In the event of the Employer or any competent authority requiring the removal of a person or persons from the site for security reasons, the Contractor shall do so forthwith and the Contractor shall thereafter ensure that such person or persons are denied access to the site and/or to any documents or information relating to the work. In such circumstances the Contractor shall indemnify the Employer and the Engineer and shall hold the Employer and the Engineer harmless against any and all claims of whatever nature arising.

d. Access cards to security areas

The Contractor shall supply access cards (laminated cards containing colour photograph, name, surname, ID number etc.) for his security-cleared personnel and employees who work within such an area. The Contractor must comply with any regulations or instructions issued from time to time, concerning the safety of persons and property, by the Department of Public Works or SA Police services.

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PS 7.3 SITE TO BE KEPT CLEAN

During progress of the work and upon completion thereof, the Site of the Works shall be kept and left in a clean and orderly condition. The Contractor shall store materials and equipment for which he is responsible in an orderly manner, and shall keep the Site free from debris and obstructions.

All redundant materials, rubbish and waste arising from the work must be removed from the Site at the Contractor's cost and the site and buildings left clean and tidy.

PS 7.4 FACILITIES TO OTHER CONTRACTORS

In addition to the requirements of Clause 18 of the General Conditions of Contract the Contractor must make allowances for other Contractors on the Site. This may involve adapting his programme to accommodate the work of other contractors and ensuring access to their sites along prescribed routes over the Site of this Contract.

PS 7.5 SUBCONTRACTORS

In addition to the requirements of Clause 6 of the General Conditions of Contract as amended in Part 1 of the Contract Data, the Contractor shall be responsible for work carried out by subcontractors on his behalf. The Engineer will not liaise directly with such subcontractors. Problems related to payments, programming, workmanship, etc., shall be the responsibility of the Contractor and the subcontractor, and the Engineer will not become involved.

PS 7.6 SANS SPECIFICATIONS AND CODES OF PRACTICE

All reference in this document to South African National Standards specifications and codes of practice, or any other standard specifications or codes of practice, including National Building Regulations, shall be deemed to be references to the latest issues of such specifications and codes.

PS 7.7 MATERIALS

The monthly payment for materials brought onto the Site will only be applicable for repair work and not for maintenance work.

Unless otherwise instructed in writing by the Engineer, all proprietary materials are to be used, mixed, applied, fixed, etc., strictly in accordance with the manufacturer's recommendations.

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PS 7.8 BORROW PITS

There will be no designated borrow pits. The Contractor shall utilise the material on Site or import material from commercial sources.

PS 7.9 PROTECTION OF FURNITURE AND EQUIPMENT

Most of the work to be done inside buildings will be carried out in places where there is furniture and other equipment.

The Contractor shall be responsible for moving the furniture and equipment in order to provide working space for his personnel. The programme shall be drawn up in such a way as to keep the movement of furniture and equipment to the very minimum and the Contractor shall be solely responsible for any damage to furniture or equipment.

PS 7.10 TESTING AND QUALITY CONTROL

The Contractor shall engage the services of an approved independent laboratory or other institution as applicable for quality testing, to ensure that his work complies with the Specifications.

No separate payment will be made for such testing, the cost of which will be deemed to be included in the Contractor's rates bid for the items of work that require testing in accordance with the Specifications.

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced engineers, foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the Works at all times.

The cost of supervision and process control, including testing carried out by the Contractor, will be deemed to be included in the rates bid for the related items of work.

The Contractor's attention is drawn to the provisions of the various Specifications regarding the minimum frequency of testing required. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control.

On completion and submission of every part of the work to the Engineer for examination, the Contractor shall furnish the Engineer with the results of the relevant tests to indicate compliance with the Specifications.

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PS 8 CERTIFICATES OF PAYMENT

The statement to be submitted by the Contractor in terms of Clause 49 of the General Conditions of Contract shall be prepared in accordance with the standard payment certificate prescribed by the Engineer and shall comprise at least two sets of A4-size paper copies.

All costs for the preparation and submission of the statements shall be borne by the Contractor.

PS 9 CONSTRUCTION IN RESTRICTED AREAS

Working space in certain areas may be restricted. The construction method used in these restricted areas largely depends on the Contractor's Plant. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used, and that the rates and prices submitted will be deemed to include full compensation for difficulties encountered while working in restricted areas. Neither extra payment nor any claim for payment due to these difficulties will be considered.

PS 10 DRAWINGS

The Contractor will, in terms of Clause 13 of the General Condition of Contract, be provided free of charge with three paper prints of each drawing issued to him.

All information in the possession of the Contractor that is required by the Engineer's representative to complete the as-built drawings must be submitted to the Engineer's representative before a Certificate of Completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless required by the Engineer. The Engineer will provide the dimensions that may have been omitted from the Drawings.

PS 11 LEGISLATION

a. Changes in legislation

Reference in the General Conditions of Contract and in any other standard document forming part of this Contract to legislation which has been amended or superseded by other legislation since the most recent publication of such standard document, shall be deemed to be a reference to the amended or replacement legislation.

Such amended or replaced legislation shall be applicable during the Contract Period provided the amendment or replacement occurred more than 28 days before the closing date for bids in terms of Clause 46.4 of the General Conditions of Contract as amended in Part 1 of the Contract Data.

b. The Occupational Health and Safety Act

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and hazards likely to be encountered on this Contract are detailed in the Scope of Work, Pricing Data and Drawings. The Employers' health and safety specifications (subclause 4(1)) of the regulations will be issued separately.

The Contractor shall in terms of subclause 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the Employer.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the abovementioned plan or regulations.

A payment item is included in the Bill of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned Construction Regulations 2003.

PS 12 INSURANCE AMOUNTS

The amounts for which the Contractor must insure the Works in terms of Clause 35 of Part 1 of the Contract Data are stated in the Agreement.

PS 13 TIMES FOR COMPLETION

Times for completion of repair work to installations as well as the maintenance down-time for different types of breakdowns are given under Clause 42.1 of Part 1 of the Contract Data. The time for completion will start on the date of access to an installation.

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PS 14 PRACTICAL COMPLETION

a. The Contractor shall be entitled in terms of Clause 51.1 of the General Conditions of Contract to receive a Certificate of Practical Completion when the Works to be executed under the Contract have been completed to the stage where:

- all materials which are required to be replaced have been replaced and installed to the satisfaction of the Engineer; and
- all repair works have been completed.

b. The Engineer shall issue to the Contractor and the Employer a Certificate of Completion in terms of Clause 51.4 of the General Conditions of Contract except where a thirty-day commissioning period, as stated in paragraph (c) below, is applicable.

c. Where indicated at the end of this paragraph, the issuing of a Certificate of Practical Completion for a certain installation will be followed by a thirty-day commissioning period. The tasks of the Contractor during the thirty-day commissioning period are described in Additional specification SC: General Decommissioning, Testing and Commissioning Procedures. After the completion of the thirty-day commissioning period to the satisfaction of the Engineer, a certificate of completion will be issued to the Contractor as described in Clause 51.4 of the General Conditions of Contract.

PS 15 PENALTIES

Penalties in terms of Clause 43.1 of the General Conditions of Contract for late completion of repair work to different installations are given under Clause 43.1 of Part 1 of the Contract Data. Payment reductions for exceeding the maintenance down-time for different types of breakdowns are given under the applicable pay items in the Bill of Quantities for Additional specifications SA: General Maintenance. Penalties will run concurrently where applicable.

a. Penalty for failing to meet undertakings and/or conditions pertaining to Targeted Procurement for the award of points

If the bid adjudication points awarded to the Contractor are found to be based on incorrect or false information or the conditions pertaining to the award of points are not met and the Contractor fails to substantiate that such failure is due to a reason acceptable to the Employer (as being) beyond the Contractor's control, the Contractor shall be liable for and pay to the Employer, and amount determined in accordance with clause 2 and subject to clause 1 both of the Works Information, Part 2 of the Conditions of Bid.

b. Payment reduction for non-performance

If the Contractor shall fail to rectify a fatal breakdown, an emergency maintenance breakdown, an ordinary maintenance breakdown and damage breakdown within the time as stipulated in Additional Specifications SA: General Maintenance, the Contractor shall be liable to the Employer for the sum/sums stated in the Bill of Quantities for Additional Specification SA as a payment reduction for every hour/day down-time counting from the hour/day the breakdown was reported to the Contractor until the day it was repaired. These payment reductions will be cumulative and will run concurrently.

Where indicated above that the money will be recovered from the Contractor by means of payment reductions, the fixed negative amounts in the rate column of the Bill of Quantities will be used to reduce payments due to the Contractor.

The imposition of such payment reductions shall not relieve the Contractor from his obligation to complete the Works or from any of his obligations and liabilities under the Contract.

c. Application of penalties to be accumulative

The imposition of all penalties in terms of this clause shall be accumulative and shall not relieve the Contractor from his obligation to complete the Works or from any of his obligations and liabilities under the Contract.

PS 16 NON-WORKING DAYS AND HOURS

Whenever any special non-working days stated in Clause 1.6 and Clause 38 of Part 1 of the Contract Data fall within the days allowed or stipulated in the Contract in terms of Clause 1.6 of Part 1 of the Contract Data, such special non-working days shall also be excluded from the calculation of the number of working days concerned.

The Contractor shall not work on any statutory public holidays or on any public holidays declared by the Government to be statutory non-working days, except for work related to repair fatal and emergency breakdowns which influences the functionality of any of the installations.

Working hours might be limited and the Contractor shall work in close cooperation with the User Department and Engineer in this regard. Working hours for the different installations are indicated at the end of this clause where applicable.

The Engineer shall be entitled at any time during the Contract, to vary the normal working hours specified in the Bid documents, including increasing or decreasing the total number of hours per day during which the Contractor may execute the Works or specific portions thereof.

If any variation by the Engineer of the normal working hours specified in the Bid Documents should result in an increase or a decrease in the total number of hours per week during which the Contractor is permitted to execute the Works or any particular portions of Works, then the time allowed in the Contract for the completion of the respective part of the Works to which the varied normal working hours apply shall be adjusted proportionately in relation to:

a. the remaining time allowed for completion of the specific part or parts of the Works; and

b. the extent of the variation in the total normal working hours per week.

3.5.2 AMENDMENTS TO THE STANDARD AND PARTICULAR SPECIFICATION:

Insert amendments

C3.5.3 PARTICULAR SPECIFICATIONS:

PSA 1 SCOPE

REPLACE SUBCLAUSE 1.1 WITH THE FOLLOWING:

"1.1 This specification covers requirements, principles and responsibilities of a general nature that are normally applicable to all Civil Engineering Contracts, as well as the requirements for the Contractor's establishment on the Site."

PSA 2 INTERPRETATIONS

PSA 2.3 DEFINITIONS

(a) General

ADD THE FOLLOWING DEFINITIONS:

"General conditions: The General Conditions of Contract specified for use with this Contract, and the Contract Data.

Specified: As specified in the standardised and standard specifications, the Drawings or the Scope of Work.

Permanent Works: as defined in Clause 1.1.17 of the General Conditions of Contract shall for the purpose of this Contract, be regarded as the repair work and maintenance work as defined in Subclause SA 02.06 of Additional Specification SA: General Maintenance."

(c) Measurement and payment

REPLACE THE DEFINITIONS FOR "fixed charge", "time-related charge" AND "value-related charge" WITH THE FOLLOWING:

"Fixed charge: A charge that is not subject to adjustment on account of variation in the value of the Contract price or the Contract Time of Completion.

Time-related charge: A charge, the amount of which varies in accordance with the Time for Completion of the repair work, adjusted in accordance with the provisions of the Contract.

Value-related charge: A charge, the amount of which varies pro rata with the final value of the measured repair work executed and valued in accordance with the provisions of the Contract."

PSA 2.4 ABBREVIATIONS

(a) Abbreviations relating to standard documents

ADD THE FOLLOWING ABBREVIATION:

"CKS: SABS Co-ordinating Specification."

PSA 3 MATERIALS

PSA 3.1 QUALITY

ADD THE FOLLOWING:

"All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified in accordance with SABS Specifications shall bear the SABS mark, whether so specified or not."

ADD THE FOLLOWING SUBCLAUSE:

"PSA 3.3 ORDERING OF MATERIALS

The quantities set out in the Bill of Quantities have been carefully determined from calculations based on data available at the time and should therefore be considered to be approximate quantities only. Before ordering materials of any kind the Contractor shall check with the Engineer whether or not the scope of the work for which the materials are required is likely to change substantially. No liability or responsibility whatsoever shall be attached to the Employer for materials ordered by the Contractor except when ordered in accordance with written confirmation issued by the Engineer."

PSA 4 PLANT

PSA 4.2 CONTRACTOR'S OFFICES, STORES AND SERVICES

ADD THE FOLLOWING PARAGRAPH BEFORE THE FIRST PARAGRAPH:

"The Contractor's construction camp shall be fenced off and shall contain all offices, stores, workshops, testing laboratories, toilet facilities, etc. The camp shall always be kept in a neat and orderly condition.

No personnel may reside on the Site. Only one night-watchman may be on the Site after hours."

ADD THE FOLLOWING TO THE SECOND PARAGRAPH:

"One chemical toilet per 10 workmen shall be provided and must be screened from public view and its use shall be enforced.

The Contractor shall, where applicable, make the necessary arrangements for the removal of night soil."

PSA 5 CONSTRUCTION

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

REPLACE THE HEADING AND THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"PSA 5.4 LOCATION AND PROTECTION OF EXISTING SERVICES

PSA 5.4.1 Location of existing services

Before underground or excavation work is carried out, the Contractor shall ascertain the presence and position of all services likely to be damaged or interfered with by his activities. He shall obtain up-to-date plans from the Engineer for this purpose, showing the position of services in the area where he intends to work. As services can often not be reliably located from such plans, the Contractor shall determine the exact position of such services by means of suitable detecting equipment and afterwards by careful hand excavation where necessary in order to expose the services at the positions of possible interference by his activities. This procedure shall also be followed in respect of services not shown on the plans but believed to be present.

All such services, the positions of which have been located at the critical points, shall be designated as 'known' services and their positions shall be indicated on a separate set of Drawings, a copy of which shall be furnished to the Engineer.

While he is occupying the Site, the Contractor shall be liable for all damage caused by him to known services as well as for consequential damage, whether caused directly by his operations or by the lack of proper protection.

PSA 5.4.2 Protection during repair and maintenance work

The Contractor shall exercise all the necessary care to prevent damage to known services during repair and maintenance work. Where applicable, major excavating equipment and other Plant shall not be operated dangerously close to these services. Where necessary, excavation in close proximity to these services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Services left exposed shall be suitably protected from damage.

PSA 5.4.3 Alterations and repairs to existing services

Unless the contrary is clearly specified or ordered, the Contractor shall not carry out alterations to existing services. When this is necessary, the Contractor shall inform the Engineer, who will either make arrangements for such work to be executed by the owner of the service, or instruct the Contractor to make such arrangements himself.

When existing services are damaged by the Contractor, he shall immediately inform the Engineer, or when this is not possible, the relevant authority, and obtain instructions as to who should carry out repairs. In urgent cases the Contractor shall take the necessary steps to minimise damage to and interruption of the service. No repairs of telecommunication cables or electric power lines and cables shall be attempted.

The Employer will accept no liability for damages due to a delay in having such alterations or repairs effected. The Contractor shall provide all reasonable opportunity, access and assistance to persons carrying out alterations or repairs of existing services."

ADD THE FOLLOWING SUBCLAUSE:

"PSA 5.9 SITE MEETINGS

The Contractor will be required to attend regular site meetings, normally held once a month to discuss general progress, quality of work, problems, claims, payments, etc., but not matters concerning the day-to-day running of the Contract."

PSA 6 TOLERANCES

ADD THE FOLLOWING SUBCLAUSE:

"PSA 6.4 GENERAL

No guarantee is given that the full specified tolerances will be available independently of each other, and the Contractor is cautioned that the liberal or full use of any one or more of the tolerances may deprive him of the full or any use of tolerances relating to other aspects of the work.

Except where the contrary is specified or when clearly not applicable, all quantities for measurement and payment shall be determined from the 'authorised' dimensions. These are specified dimensions or those shown on the Drawings or, if changed, as finally prescribed by the Engineer, without any allowance for the specified tolerances. Except if otherwise specified, all measurements for determining quantities for payment will be based on the 'authorised' dimensions.

If the work is therefore constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, quantities will be based on the 'authorised' dimensions regardless of the actual dimensions to which the work has been constructed.

When the work is not constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the Engineer may nevertheless, at his sole discretion, accept the work for payment. In such cases no payment shall be made for quantities of work or material in excess of those calculated for the 'authorised' dimensions, and where the actual dimensions are less than the 'authorised' dimensions minus the tolerance allowed, quantities for payment shall be based on the actual dimensions as constructed."

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PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1 MEASUREMENT

PSA 8.1.2 Preliminary and general items or section (for repair phase only)

PSA 8.1.2.2 Bid sums

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The Contractor's bid sums under items PSA 8.3 and PSA 8.4 shall collectively cover all charges during the repair phase for

- risks, costs and obligations in terms of the General Conditions of Contract, the Contract Data and of this Standardised Specification, except where provision is made in these Project Specifications to cover compensation for any of these items;
- head-office and site overheads and supervision;
- profit and financing costs;
- expenses of a general nature not specifically related to any item or items of permanent or temporary work;
- providing facilities on Site for the Contractor's personnel, including offices, storage facilities, workshops, ablutions, for providing services such as water, electricity, sewerage, sewage and rubbish disposal, for access roads and all other facilities required, as well as for the maintenance and removal on completion of the Works of these facilities and the cleaning-up of the camp site on completion of the Works;
- providing facilities for the Engineer and his staff as specified in SABS 1200 AB and in these Project Specifications"

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PSA 8.2 PAYMENT

PSA 8.2.1 Fixed-charge and value-related items

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Payment of fixed charges in respect of item 8.3.1 will be made as follows:

Eighty per cent (80%) of the sum bid will be paid when the facilities have been provided and approved. The remaining 20% will be paid when the repair works have been completed, the facilities have been removed and the camp site has been cleared and cleaned.

Payment for the sum bid under item 8.3.2 will be made in three separate instalments as follows:

(a) The first instalment, which is 40% of the sum, will be paid when the Contractor has fulfilled all his obligations to date under this Standardised Specification, the General Conditions of Contract and the Contract Data, and when the value of work certified for payment, excluding materials on Site and payments for preliminary and general items, is equal to not less than 5% of the total value of the repair work listed in the Bills of Quantities.

(b) The second instalment, which is 40% of the sum, will be made when the amount certified for payment, including retention monies but excluding this second instalment, exceeds 50% of the repair work.

(c) The final payment, which is 20% of the sum, will be made when the repair works have been certified as completed and the Contractor has fulfilled all his obligations to date under this Standardised Specification, the General Conditions of Contract and the Contract Data.

Should the value of the measured repair work finally completed be more or less than the Bid Sum for repair work, the sum bid under item 8.3.2 will be adjusted up or down in accordance with the provisions of Clause 50 of the General Conditions of Contract as amended in Part 1 of the Contract Data, and this adjustment will be applied to the third instalment. No adjustment will apply to item 8.3.1 in respect of variations in the value of work done or after the finally authorised Time for Completion."

Note: Payment under item 8.3.2 will only be applicable to repair work.

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PSA 8.2.2 Time-related items

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Subject to the provisions of Subclauses 8.2.3 and 8.2.4, payment under item 8.4.1 (time-related item) will be made monthly in equal amounts for each installation, calculated by dividing the sum bid for the item by the repair phase period for the installation in months, provided always that the total of the monthly amounts so paid for the item is not out of proportion with the progress of the work on the installation as a whole.

Should the Engineer grant an extension of Time for Completion of the repair works on the installation, the Contractor will be entitled to an increase in the sum bid for the time-related item, which increase shall be in the same proportion to the original sum bid as the extension of time is to the original Time for Completion of the repair works.

Payment of such increased amounts will be deemed full compensation for all additional time-related preliminary and general costs due to the circumstances pertaining to the extension of time granted for an installation. The length of the repair phase for each installation is indicated in Part 1 of the Contract Data.

In the Bills of Quantities separate provision is made for time-related items for each installation individually. Time-related payment for an installation shall only be made when the repair work on the installation is in progress and shall end when the time for completion or an extension of time granted by the Engineer expires. When repair work on more than one installation is in progress, time-related payment will be made for each installation and the conditions as stated above shall apply to each installation individually."

PSA 8.3 BILLED FIXED-CHARGE AND VALUE-RELATED ITEMS

REPLACE THE ITEMS WITH THE FOLLOWING:

"PSA 8.3.1 Fixed preliminary and general charges Unit : Sum

PSA 8.3.2 Value-related preliminary and general charges Unit : Sum

The sums bid shall include full compensation for all fixed and value-related preliminary and general charges as described in Subclause PSA 8.1.2.2. Payment will be made as described in Subclause PSA 8.2.1."

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PSA 8.4 BILLED TIME-RELATED ITEMS

REPLACE THIS ITEM WITH THE FOLLOWING:

"PSA 8.4.1 Time-related preliminary and general charges:

(a) Beitbridge Port of Entry Unit: Month

The sums bid shall include full compensation for all time-related preliminary and general charges as described in Subclause PSA 8.1.2.2. Payment will be made as described in Subclause PSA 8.2.2.

NOTE: The total amount bid for items PSA 8.3.1, PSA 8.3.2 and PSA 8.4.1 shall not exceed 15% of the total amount bid for repair work, excluding value-added tax.

PSA 8.6 PRIME COST ITEMS

REPLACE THIS ITEM WITH THE FOLLOWING:

"PSA 8.6 PRIME COST SUMS:

(a) Housing for Engineer's representative Unit: PC Sum

(b) Charge required by Contractor on subitem (a) above Unit: %

The Prime Cost Sum provided under subitem (a) in the Bill of Quantities will be expended in accordance with Clause 45.2 of the General Conditions of Contract.

The bid percentage under subitem (b) will be paid to the Contractor on the value of each payment made to the Engineer.

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PSA 8.8 TEMPORARY WORKS

REPLACE ITEM 8.8.4 WITH THE FOLLOWING:

"PSA 8.8.4 Location and protection of existing services:

PSA 8.8.4.1 Provision of detecting devices for:

(a) Water and sewer pipes — Unit : Sum

(b) Electrical and other cables — Unit : Sum

The bid sums shall cover the cost of providing and operating suitable equipment for as long as it is needed to locate all the existing services likely to be affected by the construction activities. Alternatively, an approved specialist firm may be employed to carry out the work.

PSA 8.8.4.2 Hand excavation necessary for locating and exposing existing services in all material:

(a) In roadways — Unit: m3

(b) In all other areas — Unit: m3

The rates shall cover the cost of excavating by means of hand tools within authorised dimensions, for all precautionary measures to protect the services from damage during excavation and backfilling, and for subsequent backfilling and compacting. Compaction of material in all areas except in roadways shall be to 90% of the modified AASHTO density.

The rate for hand excavation in roadways shall include compensation for compacting excavated or selected backfill material to 93% of modified AASHTO density.

The bid rates shall also include for keeping excavations safe, for dealing with surface and subsurface water, for removing surplus excavated material from the Site, for transporting all material, and for supplying adequate supervision during both excavation and backfilling operations."

ADD THE FOLLOWING ITEMS:

"PSA 8.9 ADDITIONAL TESTS:

(a) Additional tests required by the Engineer — Unit : Sum

(b) Attendance and profit — Unit : %

An amount has been allowed in the Bill of Quantities under subitem (a) to cover the cost of additional tests required by the Engineer. The Engineer will have the sole authority to spend the amount or part thereof.

The bid percentage under subitem (b) will be paid to the Contractor on the value of each payment made to the testing authority.

Note in connection with subitem (a):

The Contractor is responsible for both the cost of normal testing as described in Subclause PS 8.10 in portion 1 of the Project Specifications and for the cost of any additional test that indicates that the Specifications have not been complied with.

PSA 8.10 SECTIONAL FENCING FOR THE PROTECTION OF THE WORKFORCE **Unit : m**

The bid rate shall include full compensation for the supply, delivery, initial erection and finally removal from the site of the sectional fencing. The cost to move the fencing will not be paid for separately but shall be deemed to be included in the rate bid.

PSA 8.11 MAINTENANCE MATERIAL:

Supply and deliver maintenance material to the site:

(a) Description of type of service for which material is needed:

(i) Description of specific material — Unit: litre, m², m, number

(ii) Etc., for other types of material.

(b) Etc. for other types of service.

The unit of measurement shall be the litre, square metre, metre or number as applicable to each item ordered on the written instructions of the Engineer.

The bid rates shall include full compensation for supplying and delivering to the maintenance store(s) of the Employer on the Site of the Works each item as billed and shall include for all labour, material, waste and, transport.

A complete book keeping system with delivery notes and order "invoices" shall be kept by the Contractor and the cost thereof shall be deemed to be included in the rates bid for the various items.

The rates bid will be fixed for the full duration of the repair phases and shall be applicable to any quantity "ordered" irrespective of size, contents, volume of container or the number. The actual square metre size of the "ordered" items will be calculated to two decimal points for payment purposes. No "rounding-off" to the nearest square metre quantity will be allowed. It is expected that the maintenance material will be ordered in small quantities throughout the duration of the Contract."

PSA 8.13 COMPLIANCE WITH OHS ACT AND CONSTRUCTION REGULATIONS 2003 **Unit: sum**

The bid sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and the Construction Regulations 2003 at all times during the repair and maintenance phase, as described in PS 13 of Portion 1 of the Project Specifications. The successful bidder shall provide the Engineer with a complete breakdown of this bid sum.

This sum will be paid to the Contractor in equal monthly amounts for the entire duration of the contract period.

PSAB ENGINEER'S OFFICE

PSAB 3 MATERIALS

PSAB 3.1 NAMEBOARDS

REPLACE THE FIRST SENTENCE OF SUB-CLAUSE 3.1 OF SANS 1200AB WITH THE FOLLOWING:

"The Contractor shall supply and erect at locations approved by the Engineer, the number of contract nameboards specified in Portion 1 of the Project Specifications, which, unless otherwise specified in the Contract, shall comply with the recommendations for the standard board of the South African Association of Consulting Engineers, with regards to size, painting, decorating and detail, and the requirements described hereunder."

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PSAB 3.2 OFFICE BUILDING(S)

REPLACE THE WORDS: "as scheduled" IN PARENTHESIS IN THE FIRST LINE OF SUBCLAUSE 3.2 OF SANS 1200 AB WITH: "as specified in Portion 1 of the Project Specifications";

AND REPLACE SUBCLAUSE 3.2(j) OF SANS 1200 AB WITH THE FOLLOWING:

"(j) a heater and fan / air-conditioning unit both of such capacity that the inside of the office(s) is always at a temperature of between 20ºC and 24ºC."

ADD THE FOLLOWING SUBCLAUSE IN CLAUSE 3:

"PSAB 3.3 CAR-PORT

The Contractor shall construct the number of carports indicated in Portion 1 of the Project Specifications, for the sole use of the Engineer and his staff. Each car-port shall be constructed so that the vehicle parked under it is always protected against the direct rays of the sun. The carport area shall be at least 36 m² and the floor shall be covered with a layer of crushed stone to alleviate dusty and muddy conditions. The carport(s) shall be positioned so as to provide easy and convenient access to the Engineer's office."

PSAB 4 PLANT

PSAB 4.1 TELEPHONE

REPLACE THE WORDS: "Department of Post and Telecommunications" WITH "Telecoms Provider" AND ADD THE FOLLOWING AT THE END OF SUBCLAUSE 4.1 OF SABS 1200 AB:

ADD THE FOLLOWING NEW SUBCLAUSES TO CLAUSE 4 OF SABS 1200 AB:

"PSAB 4.2 COMPUTER EQUIPMENT

Where it is specified in Portion 1 of the Project Specifications that the Contractor shall provide computer equipment on site for the exclusive use of the Engineer and his staff, such computer hardware and software shall comply with the specifications set out in Subclauses PSAB 4.2.1 and PSAB 4.2.2 hereunder.

PSAB 4.2.1 Computer hardware

(a) Computers

Laptop shall comply with the following minimum specifications:

System Features

1x laptop with CPU - Intel® Core™ i7-12th generation (2.90 GHz, 4 MB L3 cache, 4 cores) Genuine Windows® 11 Professional 64

Mobile Intel® QM57 Express

Memory - 32 GB MEMORY

Storage - 1TB Solid State Drive

Graphics – 15 .6 LED-backlit FHD Anti-Glare 4k display

NVIDIA Quadro FX 8000M with 8 GB dedicated GDDR5 video memory

Ports - 3USB 3.0 ports,

Mobile Broadband 4G/LTE/5G wireless card

1x 32-inch 4k display monitor

(b) Printers

Printers shall, unless otherwise approved by the Engineer, be DeskJet (Black and White) or laser printers.

All computer hardware shall be provided complete with the requisite connecting cables and all inter-facing devices and software necessary for its efficient operation as an integral system.

PSAB 4.2.2 Computer software

The following software shall be properly installed on the computer, and the original licence agreements and disks shall be provided to the Engineer for safekeeping:

(a) Microsoft Windows® 11 Professional 64-bit

(b) MS-Office 2021 Professional

PSAB 4.3 TELEFAX FACILITIES

Not applicable

PSAB 4.4 SURVEY EQUIPMENT

No survey equipment is required.

PSAB 5 CONSTRUCTION

PSAB 5.4 TELEPHONE

REPLACE THE CONTENTS OF SUBCLAUSE 5.4 OF SABS 1200 AB WITH THE FOLLOWING:

"PSAB 5.4.1 Telkom telephones

The Contractor shall advise Telkom promptly of any faults which develop in the telephone service and shall, in such circumstances, arrange for the earliest possible restoration of the said service.

The Contractor shall ensure that the telephone account is promptly paid.

PSAB 5.4.2 Cellular telephones

The Contractor shall advise the cellular service provider of any faults which develop in the cellular telephone service and/or the cellular telephone handsets and shall, in such circumstances , arrange for the earliest possible restoration of the said service.

The costs of any necessary repairs and/or the replacement of components to the handsets of the cellar telephones shall be for the Contractor's account.

The Contractor shall ensure that all accounts for cellular phone calls and the respective service contracts are promptly paid."

ADD THE FOLLOWING NEW SUBCLAUSES TO CLAUSE 5 OF SABS 1200 SB:

"PSAB 5.6 COMPUTER EQUIPMENT

All computer equipment provided shall be kept fully serviceable at all times by the Contractor. The Contractor shall have any defective equipment repaired or replaced at his own cost within 12 hours after notification by the Engineer's staff.

The Contractor shall further provide at his own cost, all paper and black ink cartridges and other consumables reasonably required by the Engineer.

PSAB 5.7 TELEFAX FACILITIES

Not applicable

PSAB 5.8 SURVEY EQUIPMENT

No survey equipment is required.

C3.6 STANDARD MINIMUM REQUIREMENTS

In terms of section 5(2) of the Construction Industry Development Board Act, 2000 (Act no. 38 of 2000) (the Act), the Construction Industry Development Board is empowered to establish and promote best practice standards, Standard Requirements and Guidelines which includes the following but not limited to:

C3.61 cidb Best Practice: Green Building Certification, No. 34158 Government Gazette, 1 April 2011

C3.6.2 cidb Standard for Developing Skills through Infrastructure Contracts, No. 36760 Government Gazette, 23 August 2013

C3.6.3 cidb Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts, No 36190 Government Gazette, 25 February 2013

C3.6.4 Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017, No. 40553 Government Gazette, 20 January 2017

C3.6.5 cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts, No. 41237 Government Gazette,10 November 2017

C3.6.6 cidb Standard for Minimum Requirements for Engaging Contractors and Sub-Contractors on Construction Works Contracts, No. 41237 Government Gazette, 10 November 2017

C3.6.7 cidb Standard for Minimum Requirements for Engaging Contractors and Sub- Contractors on Construction Works Contracts, No. 42021 Government Gazette, 9 November 2018

C3.6.8 cidb Standard for Developing Skills through Infrastructure Contracts, No. 43495 Government Gazette, 3 July 2020

C3.7 CONTRACT PARTICIPATION GOALS AND CIDB BUILD PROGRAMME

The contractor shall achieve in the performance of the contract the following Contract Participation Goals (CPGs) as indicated below. Provision for pricing of compliance with the achieving the CPGs is made in the Contract Participation Goal Section of the Bills of Quantities and it is explicitly pointed out that all requirements in respect of the aforementioned are deemed to be priced thereunder and no additional claims in this regard shall be entertained:

C3.7.1 Minimum Thirty Percent (30%) Mandatory Sub-contracting Contract Participation Goal

MINIMUM THIRTY PERCENT (30%) MANDATORY SUBCONTRACTING TO SMMES: IMPLEMENTATION OF PREFERENCIAL PROCUREMENT RGULATIONS 2017

30% Mandatory subcontracting is *applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprises (SMME's) in executing this contract, irrespective whether the 30% Participation Goal is applicable or not.

The thirty percent (30%) mandatory Sub-contracting shall be achieved in the execution of the contract. in terms of in accordance with the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017 as published in the Government Gazette Notice No. 40553 of 20 January 2017.

(a) SMME's involvement of at least **30% thirty Percent** of the tender amount at the time of tender to be sourced from within **50km** radius of the project site with the intention to maximize use of local SMMEs within **MUSINA, Limpopo.**

(b) SMME's involvement of at least **30% thirty Percent** of the Tender Value to be sourced from within **100km** radius of the project site.

Bidders are cautioned not to under-price items earmarked to be executed by SMMEs as adjustment to too low rates will not be entertained by the Employer.

Bidders to sub-contract a minimum of thirty percent (30%) of the tender amount including VAT at the time of tender (All inclusive, Including VAT). to any one or more of the following categories:

a. An EME or QSE
b. An EME or QSE which is at least 51% owned by black people
c. An EME or QSE which is at least 51% owned by black people who are youth
d. An EME or QSE which is at least 51% owned by black people who are women
e. An EME or QSE which is at least 51% owned by black people with disabilities
f. An EME or QSE which is at least 51% owned by black people living in rural or underdeveloped areas or townships
g. A co-operative which is at least 51% owned by black people
h. An EME or QSE which is at least 51% owned by black people who are Military veterans
i. More than one of the categories referred to in paragraphs (a) to (h).

Bidders to refer to the CSD for a list of prospective sub-contractors provided with the tender. The bidder to refer to the CSD website should the list provided be insufficient.

Bidders must ensure that the sub-contractors conform to the following:

a. Possess relevant accreditation where applicable;
b. Be registered with relevant bodies (CIDB, various Councils, etc.) where applicable;
c. Possess necessary capabilities to deliver the sub-contracted work;
d. Meet the requirements in terms of the stipulated designated groups; and
e. Geographical located at the place where the project will be delivered. Geographical location must be determined using the following criteria:
    - Relevant Ward. If not available;
    - Relevant neighbouring Wards. If not available;
    - Relevant Local Municipality. If not available;
    - Relevant District Municipality. If not available;
    - Relevant Metro. If not available;
    - Relevant Province. If not available;
    - Relevant Neighbouring Province. And If not available;
    - Anywhere within the borders of South Africa .

It is the bidder's responsibility to source alternative SMMEs should the parties with whom agreements were entered into at the time of tendering either no longer exist or do not perform or render work of an acceptable standard, subject to the approval by the Employer. Failure to achieve the **minimum 10 percent (10%)** SMME participation based on the tender amount including VAT, will result in a **10% Ten Percent** penalty on the amount of work on which there is no compliance (Excluding VAT), unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

C3.7.2 Minimum Targeted Local Material Manufacturer Contract Participation Goal

The Minimum Targeted Local Building Material Manufacturers CPG is *applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprise Local Material Manufacturers (SMME's) in executing this contract, irrespective whether a minimum percentage Participation Goals is applicable or not.

The Minimum Targeted Local Manufacturers of Material Contract Participation Goal, in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020.

A Targeted Local Material Manufacturer is a targeted enterprise that operates or maintains a factory or establishment that produces on its premises materials or goods required by the principal contractor for the performance of the contract.
Note: Adapted from SANS 10845-7:2015, definition 2.13

Preference shall be given to the Targeted Local Material Manufacturer where feasible in **Musina, Limpopo**, and provided that:

(a) Such materials comply in all respects with the specific requirements of PW371 and SANS specifications,
(b) The non-availability of such materials shall not adversely affect the desired progress of the specific works,
(c) The use of such suppliers shall not constitute grounds for any claim for increased cost in respect thereof,
(d) Materials of at least **10% Ten Percent** of the total value of materials purchased excluding VAT to be sourced from within **50km** radius of the project site,
(e) Material of at least **10% Ten Percent** of the total value of materials purchased excluding VAT to be sourced from within **100km** radius of the project site.

Failure to achieve the minimum **10% Ten Percent** Targeted Local Material Manufacturer participation expressed as a percentage of the original tender amount, excluding allowances and VAT, will result in a **10% Ten Percent** penalty of the prorate targeted value of materials not complied with unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

C3.7.3 Minimum Targeted Local Building Material Suppliers Contract Participation Goal

The Minimum Targeted Local Building Material Suppliers CPG is *applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local Small, Micro and Medium Enterprise Local Material Suppliers (SMME's) in executing this contract, irrespective whether a minimum percentage Participation Goals is applicable or not.

The Minimum Targeted Local Manufacturers of Material Contract Participation Goal shall be achieved in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract..

A targeted supplier is a targeted enterprise that

a) owns, operates or maintains a store, warehouse or other establishment in which goods are bought, kept in stock and regularly sold to wholesalers, retailers or the public in the usual course of business; and
b) engages, as its principal business and in its own name, in the purchase and sale of goods.

Note: Adapted from SANS 10845-7:2015, definition 2.14

Preference shall be given to the local material suppliers where feasible in the **Musina, Limpopo**, and provided that:

(a) Such materials comply in all respects with the specific requirements of PW371 and SANS specifications,
(b) The none availability of such materials shall not adversely affect the desired progress of the specific works,
(c) The use of such suppliers shall not constitute grounds for any claim for increased cost in respect thereof,

(d) Materials of at least **10% Ten Percent** of the total value of materials purchased excluding VAT to be sourced from within **50km** of the project site,

(e) Material of at least **10% Ten Percent** of the total value of materials purchased excluding VAT to be sourced from within **100km** of the project site.

Failure to achieve the minimum **10% Ten Percent** Targeted Local Material Manufacturer participation expressed as a percentage of the original tender amount, excluding allowances and VAT, will result in a **10% Ten Percent** penalty of the prorate targeted value of materials not complied with, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

C3.7.4 Minimum Targeted Local Labour Skills Development Contract Participation Goal

The Minimum Targeted Local Labour Skills Development CPG is *applicable* to this project.

It is the requirement of the employer that the contractor enhances the use of local labour in executing this contract. This is required to be done through the use of both traditional building techniques and labour-intensive construction techniques careful and considered construction planning and implemented in the project irrespective whether a minimum percentage Participation Goal is applicable or not.

The Minimum Targeted Local Skills Development Contract Participation Goal shall be achieved in accordance with the cidb Standard for Contract Participation Goals for Targeting Enterprises and Labour through Construction Works Contracts as published in the Government Gazette Notice No. 41237 of 10 November 2017, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract..

Targeted labour: individuals who:

a) are employed by the principal contractor, sub-contractor or targeted enterprises in the performance of the contract;
b) are defined as the target group in the targeting data; and
c) permanently reside in the target area or who are recognized as being residents of the target area on the basis of identification and association with and recognition by the residents of the target area.

Adapted from SANS 10845-7:2015, definition 2.12

Targeting of labour by skills categories is only permissible within categories of semi-skilled and unskilled labour.

Contract participation goals for semi-skilled and unskilled labour shall be limited to on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract and in a manner that does not compromise worker health and safety. In the case of targeted labour, the certification of records shall be in accordance with SANS 10845-8.

Beneficiaries will be sourced from the **Musina, Limpopo** for the full duration of the Construction Period, employed by either the principal contractor, sub-contractors or targeted enterprises. The total number of working days to complete the Works amount to **365** working days. The minimum CPG participation for Targeted Local Labour Skills Development is **10% Ten Percent**, expressed as a percentage of the total number of working days required to complete the Works. The contractor shall attain or exceed the CPG in the performance of the contract. Failure to achieve the minimum Targeted Local Labour Skills Development CPG will result in a payment reduction of **R5 000** (Excluding VAT), per working day which training has not been provided to the workforce in attendance, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

C3.7.5 CIDB BUILD PROGRAMME: Minimum Targeted Enterprise Development Contract Participation Goal

The Minimum Targeted Enterprise Development CPG is *applicable* to this project.

The aim of this best practice standard for indirect targeting for enterprise development in accordance with the Standard for Indirect Targeting for Enterprise Development (published in Government Gazette 36190 of 25 February 2013), as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract. is to promote enterprise development by providing for a minimum contract participation goal (CPG) of **five percent (5%)** of the contract amount as defined in the Standard (Tender amount, excluding allowances and VAT on selected contracts to be undertaken by joint-venture partners or to be sub-contracted to developing contractors that are also to be beneficiaries of enterprise development support from the main contractor.

The lead partner or main contractor shall dedicate a **minimum five percent (5%)** of the tender value at the time of award, excluding allowances and VAT, to provide developmental support to targeted subcontractor or joint venture partner applicable to contracts in Grades 7 to 9, General Building and Civil Engineering contracts. Preference will be given to General Building, Electrical, Mechanical, Plumbing, etc. It could be either or any combination of all Enterprises.

The contractor shall attain or exceed the enterprise development goal in the performance of the contract. Failing to achieve the Participation Goal will result in A) a thirty percent (30%) penalty of the value not achieved, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The bidder shall submit monthly reports in terms of monthly achievement and accumulative targets achieved including audited supporting documentation to the Employer's Representative.

C3.7.5.1 Criteria

The main or lead partner of the successful bidder shall:

(a) There must be a needs analysis for indirect targeting and development or skill standard and should be development in at least any two developmental areas namely;

- Administrative and cost control systems
- construction management systems and plans
- planning, tendering and programming
- business; technical; procurement skills
- legal compliance
- credit rating/history; financial loan capacity/history
- contractual knowledge

(b) The above needs analysis shall be mutually agreed upon between contractor and targeted enterprise

(c) The contractor shall appoint an enterprise development coordinator to:

- perform needs analysis on the targeted enterprise to identify developmental goals
- develop a project specific enterprise development plan to improve the targeted enterprise/s performance in the identified developmental areas
- provide internal mentorship support to improve the targeted enterprise/s performance
- monitor and submit to the employer's representative a monthly enterprise development report thereby reporting on the progress of the agreed development areas with the targeted enterprise/s
- submit a project completion report to the Employer's representative for each targeted enterprise.

C3.7.5.2 Management

The contractor shall provide a competent person/s to provide internal mentorship to the Targeted Enterprise/s in the two agreed developmental areas.

C3.7.5.3 Competence Criteria for an Enterprise Development Co-ordinator

The enterprise development co-ordinator shall have the following competencies:

- Minimum experience of 5 years in the construction industry at Managerial level as a Site Agent, Contracts Manager, Site Manager, Construction Manager, Business Development Manager or Enterprise Development Manager.
- Minimum experience of 2 years in training and development in Building or Construction; and
- National Diploma or B Degree in the Built Environment or Business Management

C3.7.5.4 Format of Communications

The contractor shall submit to the Employer's Representative:

- *Project interim reports* in the specified format **(ED105P)** detailing interim values of the CPG that was achieved together with an assessment of the enterprise development support provided should be tabled and discussed at least monthly at progress meetings between employer's representative and the contractor;
- *Project completion report* in the specified format **(ED101P)** to the Employer's Representative for acceptance within 15 days of achieving practical completion. The report shall include the value of the CPG that was certified in accordance with the contract, cidb registration numbers of each and every targeted enterprise, and the value of the subcontracted works or of the joint venture entered into; and the participation parameter
- *Enterprise development declaration (**ED104P**).*

C3.7.5.5 The Key Personal

The contractor shall appoint an Enterprise Development Co-ordinator and a competent person/s to provide internal mentorship.

C3.7.5.6 Management Meetings

The contractor shall report to the Employer's Representative on the implementation and progress of the targeted enterprise development and CPG at monthly progress site meetings.

C3.7.5.7 Forms for contract administration

The contractor shall submit to the Employer's Representative the following proformas:

- Form ED 105P Project Interim Report
- Form ED 104P Enterprise Development Declaration
- Form ED 101P Project Completion Report

C3.7.5.8 Records

The contractor shall:

- keep records of the targeted enterprise development
- keep records of the payments made to the targeted enterprises in relation to the CPG.

- ensure all the documentation required in terms of the Standard is provided with each monthly progress payment certificate and according to a prescribed format where applicable.

C3.7.5.9 Payment Certificates

The contractor shall:

- achieve the measurable CPG and providing enterprise development support to the targeted enterprise/s as per the Standard.
- submit payment certificates to the Employer Representative at intervals determined in the Contract.

C3.7.5.10 Compliance requirements

Non-compliance with the Best Practice Project Assessment Scheme

The wording of regulation 27A of the cidb regulations makes provision for the Board to enforce the cidb code of conduct in the event of clients being found to be in breach of the best practice project assessment scheme.

- Not including the requirements of the cidb standards in the conditions of tender
- Not registering the award of contract on the cidb Register of Projects (RoP)
- Not reporting practical completion on the cidb Register of Projects (RoP)

3.7.6 **CIDB BUILD PROGRAMME: Minimum Targeted Contract Skills Development Goal (CSDG)**

The Minimum Targeted Contract Skills Development CPG is *applicable* to this project.

The contractor shall achieve or exceed in the performance of the contract the Contract Skills Development Goal (CSDG) established in the Standard for Developing Skills through Infrastructure Contracts (published in Government Gazette No 43495 of 3 July 2020, as amended in cidb Best Practice Project Assessment Scheme Notice No. 43726 of 18 September 2020 – Condition of Contract.

Failing to achieve the targeted Contract Skills Development Goal will result in A) a **thirty percent (30%)** penalty of the value of the portion not achieved, excluding VAT, and B) the issuing of completion certificates only after the completion certificate of achieving the skills development goal, counter-signed by the relevant individuals has been submitted, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

The contractor shall apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using Table 3 in the Standard and this cost will be used to determine the value in Rand and will be added to the provision for training as provided for in the Preliminary and General section in the Bill of Quantities/Pricing schedules/Activity schedule.

C3.7.6.1 Methodology

The contractor shall achieve the measurable contract skills development goal by providing opportunities to learners requiring structured workplace learning using one or a combination of any of the following in relation to work directly related to the contract or order:

Method 1: structured workplace learning opportunities for learners towards the attainment of a part or a full occupational qualification;

Method 2: structured workplace learning opportunities for apprentices or other artisan learners towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August

2012) subject to at least sixty percent (60%) of the artisan learners being holders of public TVET college qualifications;

Method 3: work integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas;

Method 4: structured workplace learning opportunities for candidates towards registration in a professional category by a statutory council listed in Table 1 above.

The contract skills participation goals, expressed in Rand, shall not be less than the contract amount multiplied by a percentage (%) factor given in Table 2 in the Standard for the applicable class of construction works.

Table 2: Contracting skills development goals for different classes of engineering and construction works contracts

Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004		**Construction skills development goal (CSDG) (%)**
Designation	**Description**	
CE	Civil Engineering	0.25
CE and GB	Civil engineering and General Building	0.375
EE	Electrical Engineering works (buildings)	0.25
EP	Electrical Engineering works (infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering works	0.25
SB	Specialist	0.25

The contractor shall apportion the learners in the different construction activities based on the scope of work. The cost of accommodating learners will be determined by using Table 3 in the Standard and this cost will be used to determine the value in Rand and will be added to the provision for training as provided for in the Preliminary and General section in the Bill of Quantities/Pricing schedules/Activity schedule.

Table 3: Notional Cost of Training per Headcount

Source: cidb Standard for Skills Development

Type of Training Opportunity	Provision for stipends (Unemployed learners only)	Provisions for mentorship	Provisions for additional costs*	Total costs	
				Unemployed learners	Employed learners
Method 1					
Occupational qualification	**R7 000**	**R0**	**R9 000**	**R16 000**	**R9 000**
Method 2					
TVET College graduates	**R14 000**	**R0**	**R9 000**	**R23 000**	**N/A**
Apprenticeship	**R14 000**	**R0**	**R12 000**	**R26 000**	**R12 000**
Method 3					
P1 and P2 learners	**R24 000**	**R20 000**	**R4 500**	**R48 500**	**N/A**
Method 4					
Candidates with a 3 year diploma	**R37 000**	**R20 000**	**R4 500**	**R61 500**	**R20 000**
Candidates with 4 year qualification	**R47 000**	**R20 000**	**R4 500**	**R71 500**	**R20 000**

Note: the required CPG will be recalculated based on the awarded tender amount and "Contract amount" once the beneficiaries have been appointed and actual costs are known. The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI. Should the rates increase after bid award or during construction the rates will be adjusted as a remeasuarble item.

(a) (a) The successful contractor may employ part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates directly or through a Skills Development Agency (SDA), (A1 - List of cidb accredited SDAs).

(b) The successful contractor must employ at least sixty percent (60%) of the learners from an FET / TVET college should the contractor select to have part/full occupational qualification learners and trade qualification learners contributing to the CSDG.

(c) The successful contractor shall employ at least **minimum five percent (5%)** from eligible part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates in the employment of the employer.

(d) The successful contractor shall ensure that no single method shall contribute more than seventy five percent (75%) of the CSDG for the contract.

(e) The successful contractor may only place thirty three percent (33%) employed employees or that of his subcontractors contributing to the CSDG.

(f) The contractor shall employ at least sixty percent (60%) of the learners from a Public FET / TVET college should the contractor select to have trade qualification learners (Method 2) contributing to the CSDG.

(g) One of the objectives of the project is to train **minimum five percent (5%)** Occupational qualifications, trade qualification, work integrated learners – P1 and P2 learners, professional candidates.

C3.7.6.2 Management

(a) The successful contractor must keep site records regarding the part/full occupational qualification learners', trade qualification learners', work integrated learners' or candidates' (delete that which is not applicable) progress, site attendance, hours worked and other relevant information as required by the Standard.

(b) The successful contractor shall provide the required number of appropriately qualified mentors to the maximum number of part/full occupational qualification learners, trade qualification learners, work integrated learners in the proportion as specified in the Standard.

(c) The successful contractor shall provide a supervisor to manage the training of the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates.

(d) The successful contractor shall submit to the employer's representative a baseline training plan in the specified format (Pro-forma A2) for the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates within 30 days of start of the contract.

(e) The successful contractor shall submit to the employer's representative project interim report in the specified format (Pro-forma A3) on the progress of each of part/full occupational qualification learner, trade qualification learner, work integrated learner, candidate every three months.

(f) The successful contractor shall submit to the employer's representative the names and particulars in the specified format (Pro-forma A4) of the supervisor, mentors for the part/full occupational qualification learners, trade qualification learners, work integrated learners or within 30 days of start of the contract.

(g) The successful contractor shall keep a daily record of all the part/full occupational qualification learners, trade qualification learners, work integrated learners, candidates on site and their daily activities and shall be made available to the employer's representative on request.

(h) The successful contractor shall submit to the employer's representative the reports on the progress and status of the part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates with the monthly invoice for the payment certificate.

(i) The successful contractor shall have health and safety inductions for all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates

(j) The successful contractor shall conduct entry and exit medical tests of all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates

(k) The successful contractor shall provide personal protective equipment (PPE) to all part/full occupational qualification learners, trade qualification learners, work integrated learners or candidates at the start of their employment on site.

(l) Based on the agreed skills methods the contractor may employ part/full Occupational Qualification Learners and /or Trade Qualification Learners and/or Work Integrated Learners and/or Candidates directly or through a Skills Development Agency (SDA), training provider or skills development facilitator (Form A1 - List of cidb accredited SDAs). The contractor shall ensure that no more than one Method shall be applied to any individual concurrently in the calculation of the CSDG for the contract.

C3.7.7 NATIONAL YOUTH SERVICE TRAINING AND DEVELOPMENT PROGRAMME (NYS)

The National Youth Service Training and Development Programme is *applicable* to this project.

The programme shall be implemented in terms of the Implementation of the National Youth Service Programme under the Expanded Public Works (EPWP) and shall be priced in the CPG section of the Bills of Quantities. Monthly reports are to be submitted to the Employer's Representative.

Failure by the contractors to achieve the specified number to be trained in the NYS section of the CPG section within the Bills of quantities will result in a payment reduction as per bill of quantities per person, excluding VAT unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

C3.7.8 LABOUR-INTENSIVE WORKS

Labour Intensive Works is *applicable* to this project.

Where labour intensive work is specified in the Bill of Qualities and indicated by "LI" the contractor must price for and include in rates. Contractors are expected to use their initiative to identify additional activities that can be done labour-intensively to comply with the set minimum labour intensity target. Allowance must be made for submitting monthly reports illustrating the value of the works executed under Labour Intensive Works.

Failure by the contractor to achieve the specified value of the Labour Intensive Participation Goal as stipulated within the Bills of quantities will result in a thirty percent (30%) penalty of the value of the works not done by means of labour intensive methods, excluding VAT, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control.

Employer's objectives:
The employer's objectives are to deliver public infrastructure using labour-intensive methods in accordance with EPWP Guidelines.

Labour-intensive works:
Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of the scope of work. A **thirty percent (30%)** penalty of the value of the works will be imposed on items where unauthorised use of plant was used to carry out work which was to be done labour-intensively.

Labour-intensive competencies of supervisory and management staff:
Contractors shall only engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/ Supervisors at NQF level 4 "National Certificate: Supervision of Civil Engineering Construction Processes" and Site Agent/ Manager at NQF level 5 "Manage Labour-Intensive Construction Processes" or equivalent QCTO qualifications (See Appendix C) at NQF outlined in Table 1

C3.7.8.1 GENERIC LABOUR-INTENSIVE SPECIFICATION

Contractors are referred to the Guidelines for the Implementation of Labour-intensive Infrastructure Projects under the Expanded Publics Works Programme (EPWP) for the generic labour-intensive specification applicable to the contract.

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

- trenches having a depth of less than 1.5 metres
- stormwater drainage
- roads
- sidewalks and non-motorised transport infrastructure
- water and sanitation

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

Hand excavatable material
Hand excavatable material is:
a) granular materials:
i) whose consistency when profiled may in terms of table 2 be classified as very loose, loose, medium dense, or dense; or
ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;
b) cohesive materials:
i) whose consistency when profiled may in terms of table 2 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note

1) A boulder is material with a particle size greater than 200mm, a cobble and gravel is material between 60 and 200mm.

2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60° with respect to the horizontal) into the material being used.

Table 2: Consistency of materials when profiled

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

Trench excavation

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

Compaction of backfilling to trenches (areas not subject to traffic)

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

a) to ninety percent (90%) Mod AASHTO;

b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than ten (10%) gravel of size less than 10mm and contains no isolated boulders, or

c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All excavatable material including topsoil classified as hand excavatable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand. Any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and grubbing

Grass and bushes shall be cleared by hand.

Shaping
All shaping shall be undertaken by hand.

Loading
All loading shall be done by hand. Haulage equipment should be selected in a manner that allows loading by hand to the greatest extent possible.

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

Offloading
All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

Spreading
All material shall be spread by hand.

Compaction
Small areas may be compacted by hand provided that the specified compaction is achieved. Appropriate rollers should be used where higher (than can be achieved by hand) levels of compaction are required or for large areas.

Grassing
All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry
All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.
Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.
Grout shall be mixed and placed by hand.

Manufactured Elements
Elements manufactured or supplied by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. Where the mass of an element exceeds 55 kg, consideration should be given to the size of the element relative to its total mass related to the number of workers who would be needed to lift such mass

C3.8 Submission of Accrual Reports

The Contractor shall submit accrual reports to the client representative at the end of March and September each year for the duration of the Service Contract period from the date of appointment up to and including project closeout. This is to ensure that PMTE complies with the accounting framework GRAP, which requires that PMTE disclose all its accruals as at the end of each reporting date.

C.3.9 Submission of Monthly Local Material Utilisation Report (Local Content)

The contractors shall be responsible for record keeping, documenting and submission of monthly local material utilization report with supporting documentation to the Employer's representative within 7 working days of the beginning of the successive month, in terms of DTI&C designated industry/sector/sub-sector schedule as per the PA36 and Annexures C attached to the tender document. The final percentage achievement to be reconciled upon completion of the project and form part of the final account.

Failure by the contractors to achieve the specified percentage of local content per designated industry/sector/sub-sector as listed will result in a thirty percent thirty percent (30%) penalty of the value not achieved, excluding VAT, unless the contractor can prove to the Employer's satisfaction that

the non-achievement was beyond his/her control. Allowance must be made for submitting monthly reports illustrating the value of local material utilisation report.

Examples of calculating CPGs and related penalties

CPGs values are based on the Tender Amount at the time of the award. Determining the actual values is based either on the Tender Amount including allowances and Vat or the Tender Amount at the time of award excluding allowances and VAT, where Allowances include the following:

- Provisional amounts
- CPG allowances
- Nominated and/or selected subcontractors
- Contract price adjustment (Not provided for within the B of Q by NDPWI)
- Contingency amounts (Not provided for within the B of Q by NDPWI)

CPG values in the CPG Bill of Quantities Section will be recalculated based on the "Tender Amount" or the "Contract Amount" which ever applicable and the provisional amounts adjusted accordingly. Sanctions (penalties) are applicable to all CPGs where the contractor fails to achieve the minimum specified requirements, unless the contractor can prove to the Employer's satisfaction that the non-achievement was beyond his/her control. No penalties will be applied should the CPG value, based on the original "Tender Amount" or the "Contract Amount", has been achieved.

1.1. 30% SMME mandatory subcontracting CPG

When applicable, a minimum of 30% of the total tender amount at the time of award, including all allowances and VAT are to be subcontracted to SMMEs.

CPG calculation example:
"Tender Amount" = R150 mil
CPG 30% subcontracting value = R45 Mil

Calculation of penalty:
Percentage penalty applicable = 5% as specified in the Scope of Works (PG01.1)
CPG Achieved = R30 Mil (R15 Mil shortfall)
Penalty = R15 Mil x 5% = R750 000 Excl. VAT

1.2 Targeted Local Building Material Manufacturers CPG

When applicable, the CPG is expressed as a percentage of the "Contract Amount", i.e. the Tender Amount at the time of award excluding allowances and VAT.

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG to be achieved = 5% as specified in the Scope of Works (PG01.1)
CPG target value = R130 Mil x 5% = R 6,5 Mil (Value of material to be purchased from local manufacturers, excluding VAT)

Calculation of penalty:
Percentage penalty applicable = 10% as specified in the Scope of Works (PG01.1)
CPG target value = R6,5 Mil excluding VAT
CPG Achieved = R5,5 Mil (R1 Mil shortfall) excluding VAT
Penalty = R1 Mil x 10% = R100 000 excluding VAT

1.3 Targeted Local Building Material Suppliers CPG

When applicable, the CPG is expressed as a percentage of the "Contract Amount", i.e. the Tender Amount at the time of award excluding allowances and VAT.

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG to be achieved = 5% as specified in the Scope of Works (PG01.1)

CPG target value = R130 Mil x 5% = R 6,5 Mil (Value of material to be purchased from local suppliers, excluding VAT)

Calculation of penalty:
Percentage penalty applicable = 20% as specified in the Scope of Works (PG01.1)
CPG target value = R6,5 Mil excluding VAT
CPG Achieved = R5,5 Mil (R1 Mil shortfall) excluding VAT
Penalty = R1 Mil x 20% = R200 000 excluding VAT

1.4 Targeted Local Labour Skills Development CPG

When applicable, the CPG is expressed as a percentage of the total number working days required to complete the Works.

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
Number of working days required to complete the Works based on the construction period = 600 days
CPG percentage participation to be achieved = 30% as specified in the Scope of Works (PG01.1)
Required number of working days training to be provided = 180 days (600 x 30%)

Calculation of penalty:
Payment reduction = R 5 000 per day for not providing training as specified in the Scope of Works (PG01.1)
CPG = 600 working days x 30% = 180 working days training to be provided
CPG Achieved = 160 days (20 days shortfall where no training was provided)
Penalty = 20 days x R5 000 payment reduction per day= R100 000 excluding VAT

1.5 National Youth Service Programme (NYS) CPG

When applicable, a separate NYS Bill of Quantities will be included in the tender documentation will indicate the number of beneficiaries to be trained.

Calculation of penalty:
Payment reduction per person not trained as stipulated in the NYS Bill of Quantities = R 2 500 per person.
Total number of NYS Beneficiaries as stipulated in the NYS Bill of Quantities = 25
Total Number of NYS beneficiaries trained = 20 (shortfall of 5 beneficiaries)
Penalty = 5 x R2 500 = R12 500 Excl. VAT

1.6 Labour Intensive Works CPG

When applicable, the work to be done by way of Labour intensive methods are specified in the Bills of Quantities with a "LI".

CPG calculation example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG value = R10 Mil (Total value of labour-intensive works specified in the Bills of Quantities)

Calculation of penalty:
CPG value = R10 Mil
Percentage penalty applicable = 30% as specified in the PG01.1 Scope of Work
CPG Achieved = 9 Mil (R1 Mil shortfall)
Penalty = R1 Mil x 30% = R300 000 Excl. VAT

1.7 Cidb BUILD Programme: Enterprise Development

When applicable, the Enterprise Development CPG expressed as a percentage of the "Contract amount" = Tender amount at the time of award excluding allowances and VAT. Failure to achieve the minimum Targeted Local Labour Skills Development CPG will result in a payment reduction of an amount specified in the Scope of Works (PG01.1) per working day where training was not provided.

The monetary value of training to be provided is stipulated in the CPG BoQ section. The number of beneficiaries to be trained is dependent on the "Contract Amount" as well the number of beneficiaries appointed which will generally resort under the Grade 1 and 2 cidb categories. The provisional amount will therefore be adjusted in terms of the "contract Amount", the number of beneficiaries to be trained and the actual cost for providing the training.

Part 1: Calculation of 5% CPG example:
"Tender Amount" = R150 Mil all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
CPG percentage participation to be achieved = 5% as specified in the Scope of Works (PG01.1)
CPG value = R6,5 Mil (Value of work to be subcontracted to emerging enterprises)

Calculation of penalty
Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.1)
CPG Minimum 5% = R6,5 Mil
Achieved = R5,5 Mil (Only subcontracted work to the value of R5,5 Mil, i.e. R1 Mil shortfall)
Penalty = R1 Mil x 30% = R300 000 Excl. VAT

Part 2: Calculations in terms of training to be done:
The number of enterprises to be developed is subject to the contract amount and the apportionment of the work as per Example 1 below.
Number of enterprises to be trained = 6 x 1 GB subcontractors
Total cost for training = R 1 660 000

Calculation of penalty
Total number of enterprises to be trained = 6
Total number trained = 4 (2 Shortfall)
Training cost per beneficiary = R1 660 000 / 6 = R 276 666,67 per beneficiary
Penalty = R 276 666,67 x 2 x 30% = R166 000 Excl. VAT

B of Q Item	Description	Unit	Rate	Quantity	Amount (R)
5	**Enterprise Development**				
5.1	Enterprise Development of Targeted Enterprise or JV partners				
5.1.1	Appointment of training co-ordinator	Per Quarter	45 000	8	360 000
5.1.2	Appointment of Mentor /Training Service provider	Per Quarter	135 000	8	1 080 000
5.1.3	Needs Analysis and Enterprise Development Plan per Targeted Enterprise	No.	5 000	6	30 000
5.1.4	Monitoring and Interim reporting per targeted enterprise	Per Quarter	20 000	8	160 000
5.1.5	Project Completion report per Targeted Enterprise	No.	5 000	6	30 000
	Provisional Sum to be carried over to CPG bill of quantities				**1 660 000**
	"Contract amount" Tender amount excl. allowances and VAT,	130 000 000			
	CPG Monetary value (5%) to be subcontracted to beneficiaries for training	6 500 000			
	No of enterprises based on the CPG value	6	Grade 1 / 2 GB/CE,ETC.		
	Contract period (months)	24			
	Note: Rates to be determined by PQS and adjusted to accepted quotation amounts				

1.8 Cidb BUILD Programme: Skills Development (Principal contractor including subcontractors and consultants)

When applicable, the contract skills development participation goals, expressed in Rand, shall be no less than the "contract amount" multiplied by a percentage (%) factor for the applicable class of construction works.

The monetary value of training to be provided is stipulated in the CPG BoQ section. The number of beneficiaries to be trained is dependent on the "Contract Amount" as well the number of beneficiaries appointed which will generally resort under the Grade 1 and 2 cidb categories. The provisional amount will therefore be adjusted in terms of the "Contract Amount", the number of beneficiaries to be trained from which *Method* and the actual cost for providing the training.

CPG Calculation

Table 2: Contracting skills development goals for different classes of engineering and construction works contracts

Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020 (Page 7)

Class of construction works as identified in terms of Regulation 25 (3) of the Construction Industry Regulations 2004		Construction skills development goal (CSDG) (%)
Designation	**Description**	
CE	Civil Engineering	0.25
CE and GB	Civil engineering and General Building	0.375
EE	Electrical Engineering works (buildings)	0.25
EP	Electrical Engineering works (infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering works	0.25
SB	Specialist	0.25

"Contract amount" = Tender amount at the time of award excluding allowances and expenses, and VAT

Contractor CPG:

CPG calculation
"Contract amount" x factor from Table 3 above.

CPG calculation example:
"Tender Amount" = R150 Mil for GB, all inclusive of allowances and VAT
"Contract Amount" = R130 Mil (Tender Amount at the time of award excluding allowances and VAT)
Factor for GB = 0,5% (as per Table 2 above)
CPG in R value = R130 Mil x 0,5% = R650 000 i.e. total cost of training to amount to R650 000

Calculation of penalty:
Percentage penalty applicable = 30% as specified in the Scope of Works (PG01.1)
CPG value = R650 000
Achieved = R550 000 = R100 000 Shortfall
Penalty = R100 000 x 30% = R30 000 Excl. VAT

Calculations based on "Contract Amount" after bid award and after bid award and appointment of beneficiaries

Actual CPG training requirement value after award upon selecting method/s of training and appointment of beneficiaries = R676 000 (Table 4 below) and the provisional amount allowed for to be adjusted accordingly. The new monetary value of training required will then form the basis for determining penalties applicable. No penalties will be applied should the CPG value, based on the "Contract Amount" be achieved.

Table 4: Notional cost recalculation upon appointment of beneficiaries.

Source: cidb Standard for Developing Skills through Infrastructure Contracts as published in the Government Gazette Notice No. 43495 of 3 July 2020 (Page 10)

Skills Types	Number of learners	Notional Cost / Learner / Quarter	Notional cost / learner / year	Total Notional Cost over 12 months Contract
Method 2: Workplace learning opportunities, with unemployed TVET graduates	2	R23 000	R92 000	R184 000
Method 3: Candidacy for an unemployed learner with a 3-year qualification	2	R61 500	R246 000	R492 000
Total	4			R676 000

Note: the required CPG will be recalculated based on the awarded Tender amount and "Contract Amount" once the beneficiaries have been appointed and actual costs are known

Note: The notional cost of providing training opportunities will increase by CPI on an annual basis based on April CPI as published by Stats SA. The rates will be adjusted as an adjustment to the provisional amounts should the rates increase after bid award or during the construction period

Additional Specifications

SA	:	General Maintenance
SB	:	Operating and maintenance manuals
SC	:	General decommissioning, testing and commissioning procedures
SD	:	General training
SH	:	HIV / AIDS requirements
SI	:	Occupational Health and Safety (OHS Act)
SJ	:	COVID- 19 Occupational Health and Safety
SN	:	Implementation of EPWP

ADDITIONAL SPECIFICATION

SA GENERAL MAINTENANCE

CONTENTS

SA 01 SCOPE
SA 02 MAINTENANCE REQUIREMENTS
SA 03 MAINTENANCE CONTROL
SA 04 COMMUNICATION
SA 05 PERFORMANCE MEASUREMENT
SA 06 MEASUREMENT AND PAYMENT

SA 01 SCOPE

Maintenance of the specified systems, services and/or parts of buildings and infrastructure shall all be referred to as "Maintenance of an Installation". Maintenance of all completed installations shall ensure reliable functioning and optimum service life thereof. Monthly maintenance responsibilities for each installation including all units and components as specified shall commence with access to the Site.

Maintenance of an installation shall be performed in accordance with the Technical and Particular Specifications, the Operating and Maintenance Manuals (where applicable) and the Maintenance Control Plan.

Remuneration for maintaining "installations" (systems, services and/or buildings and parts of the infrastructure) in good functional condition is provided for in the Schedules of Quantities by means of monthly payment items.

This Additional Specification covers maintenance requirements, development of a maintenance control plan, identification of equipment, site maintenance administration, maintenance performance measurement, as well as the items for measurement of the Contractor’s service level and resulting payment.

The residential area at the Beitbridge Port of Entry form part of an existing Repair and Maintenance Programme which commenced in 13 December 2010 and ends 12 August 2016.

The operational area at the Beitbridge Port of Entry has been newly constructed and will be completed in two phases.

The various installations are in perfect working order. This places the emphasis of this Contract on maintenance.

No distinction will be made between prior to practical completion and completed installations for the purpose of maintenance.

The Contractor will have the opportunity at the start of the contract to point out items which are not in perfect working order which in turn will be serviced/repaired as per the relevant tendered rates. The Contractor must submit a written report of these items within 28 days of the date of site hand over. Failing to submit the report within the allowed time will render any and all defective items part of the Contractor maintenance responsibly as set out in the relevant Technical and Particular Specifications.

The Contractor will further more at the start of the contract perform annual maintenance on all the installations as per the items listed in the different Technical and Particular Specifications as part of the Contractor's maintenance obligation.

Maintenance of each of these installations will be the responsibility of the Contractor and will be evaluated on a monthly basis by the Engineer. The remuneration for maintenance work and responsibilities will be certified accordingly.

SA 02 MAINTENANCE REQUIREMENTS

SA 02.01 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall maintain the complete installations for the 36-month Contract period.

Maintenance implies and shall include monthly preventative maintenance, corrective maintenance, as well as breakdown maintenance on all components of the specified installations.

The maintenance control plan (specified in Clause SA 03) will be developed by the Contractor, to schedule the frequency of routine inspections and format of reports. The Contractor shall carry out inspections on the equipment as detailed in the Technical and Particular Specifications and the maintenance control plan. Each inspection, test or breakdown shall be recorded in an approved format and listed in a quarterly report (part of the maintenance control plan).

As part of repair of each installation, the Contractor shall submit a set of Operating and Maintenance Manuals where applicable. The Contractor shall ensure through training that the operating and maintenance personnel are conversant with the instructions as presented in the Operating and Maintenance Manuals. Continued training shall be included in the scope of maintenance work for the duration of the 36-month Contract, in accordance with Additional Specification SD: General Training.

The Operating and Maintenance Manuals, as approved by the Engineer, shall be used as a basis of preventative maintenance. The Contractor shall perform all preventative and corrective maintenance as described in the Operating and Maintenance Manuals. This shall be in accordance with the Technical and Particular Specifications.

The Contractor shall, as part of his maintenance responsibilities repair or replace faulty equipment upon logging of a breakdown, within the down-time as defined in Clause SA 05.02 at the Contractor's cost, except in the event of replacement being labelled as exceeding liability as specified in Clause 63 of the Project Specific Conditions of Contract, in which case the Department of Public Works and Infrastructure will bear part of the costs.

The Contractor shall rectify any faulty condition of which he becomes aware, even if it has not been logged. Such rectification shall also be logged and listed in the quarterly report.

SA 02.02 **CONDITIONS FOR EXCEEDING THE CONTRACTOR'S LIABILITY DUE TO OPERATIONAL DAMAGE BREAKDOWNS**

Irrespective the definition of operational damage given in the Oxford dictionary, it shall be defined for the purpose of this clause as being any damage caused on purpose or through negligence by the User Client's employees, suppliers, subcontractors, etc for any reason whatsoever. For the purpose of this clause, operational damage and vandalism shall have the same meaning. Where repair work is necessitated as a result of operational damage caused by User Clients or their associates, the Contractor will be requested to:

(a) perform work, using tendered rates for the supply, delivery and installation of material forming part of the repair work schedule, within the maximum down-time allowed for operational damage, where the Engineer rules that the damage has been caused by incorrect operation;

(b) submit one (1) quotation for repair and/or replacement of the damaged unit, where tendered rates are not available and where the Engineer rules that the damage has been caused by incorrect operation;

(c) perform the work on receipt of an order from the Engineer, within the time offered as part of the quotation, and

(d) notify the Engineer well in advance of completion of the repair work in order to enable inspection.

The responsibility of determining whether damage to the installation was caused by people other than employees or associates of the Contractor shall rest with the Engineer.

Damage caused by the employees, suppliers, subcontractors, etc of the Contractor, shall be repaired by the Contractor at his own cost.

SA 02.03 **CONDITIONS FOR EXCEEDING THE CONTRACTOR'S LIABILITY ABOVE MARGINAL BREAKDOWN COST**

In the event where the cost for the repair or replacement of any single component/subassembly where a breakdown has occurred due to a single failure, or where the cost for replacing a single item of equipment completely, exceeds the value of R15 000,00 (transport, accommodation and travelling cost excluded), the liability of the Contractor is limited to the value of R15 000,00. The additional cost above the value of R15 000,00 will be paid for by the Employer provided that conditions 1, 2 and 3 below have been met.

1. The defective part/component/subassembly or machine must be identifiable as a single subassembly or component and not the total of a number of small defects or breakdowns on subassemblies/components on any one or more machines.

   Examples of subassemblies/components are the following:

   (a) Should the wiring or bearings on an electric motor fail, the complete motor must be removed for repairs and the cost for the repairs on the complete motor will be regarded as repairs on a single subassembly/component.

   (b) A starter motor, for example, is a subassembly, which can be removed from the machine for repairs. The repairs on the starter motor together with the repairs on the main bearings will not be regarded as a repair on a single subassembly/component. If the complete diesel engine is replaced with its

associated subassemblies the replacement of the complete unit will be regarded as a single component.

(c) A pump as a whole is regarded as a single component. The pump and driving machine on long coupled pumps are regarded as separate subassemblies. Pumps and motors on close-coupled equipment are regarded as a single component. The pump and motor of a sump pump are therefore regarded as a single component.

(d) Control equipment for the control of a single item, with the sensing device, the controller itself and the final controlled variable are regarded as a single component of the system. The repairs on any one item on a controller have an influence on the rest of the control equipment and must after the replacement be commissioned again as a unit.

2. The Contractor shall submit a written report to the Engineer for approval. This report shall contain the following information:

(a) The make and model number of the machine serviced/inspected/ repaired/replaced;

(b) The identification number of the machine;

(c) A description or name and part number of the defective part/component or subassembly;

(d) A statement on whether the component could be repaired, together with a cost estimate;

(e) A quotation valid for a minimum period of 60 days if the component/part/subassembly has to be replaced or repaired by an outside firm. If the subassembly/machine is to be repaired or replaced by an outside company, the Contractor shall supply one (1) quotation for such parts/repairs or a quotation from any sole supplier. Only an original quotation will be accepted. The mark-up on such work shall be a percentage as tendered and shall be applicable to the total cost (VAT excluded) of repair work by outside companies;

(f) The expected urgency for the replacement or repairs, and

(g) The delivery time of a new component/subassembly/machine or delivery times on spares required to repair the defective component/ subassembly.

3. A written approval to proceed with the work must be issued by the Department. Copies of the original VAT invoices from outside companies for all repairs or spare parts supplied must be attached to the Contractor's invoice.

SA 02.04 EMERGENCY BREAKDOWN REPAIR VISIT

Whenever an emergency breakdown is logged at a site where no access has been given the Contractor, an “emergency breakdown repair visit” shall be carried out by the Contractor to attend to the repair of the emergency breakdown within 24 hours after it was logged with the Contractor.

Remuneration for the material and labour required to attend to repair of the emergency breakdown shall be deemed included in the payment item for maintenance of an installation based on a point system and measured monthly. Payment for the “emergency breakdown repair visit” will be measured separately in the schedule of quantities to cover the cost of the

call-out, in terms of travel and accommodation cost, including travel time and any other cost associated with the call-out.

The Contractor will not be remunerated for emergency breakdown repair visits once the specific installation or site has been completed (Completion Certified). The contractor will be remunerated for maintenance and attending to emergency breakdowns as per his payment item for maintenance of a completed installation based on a point system as measured monthly.

Typical examples of “emergency repair breakdown visits” would be:

- A Breakdown of any standby power generator that prevents the standby power generator from operating at its capacity and meeting the demand.

- A Breakdown of any water supply pump or any other component of the water supply or bulk water installation that affects the water supply to such an extent that it cannot meet the demand.

- A Breakdown of the water reticulation network or sewer reticulation network that affects water supply or sewer removal to such an extent that the service is disrupted to any building.

- A Breakdown of site electrical or building electrical that disrupts power supply to a building (including residential unit).

- A Breakdown of a geyser that prevents it from supplying hot water as per specification.

- Any other Breakdown that can be regarded as life threatening or having the potential to cause damage to equipment or property and is included in the scope of work to be maintained by the Contractor, as per the technical and particular specifications. The Engineer will be responsible for categorising a breakdown as an emergency.

SA 02.04 COMPONENTS INCLUDED IN MAINTENANCE SCOPE

The main sections of a facility with their subsections are as set out in the Technical Specifications and Particular Specifications where applicable and in the Schedule of Quantities and will each be deemed "an installation". Maintenance, as specified, will be applicable to all of these installations.

SA 02.04.01 BEITBRIDGE PORT OF ENTRY

Installation C1:	Beitbridge – Structural and Building Related Work
Installation C2:	Beitbridge - Plumbing and Drainage Related Work
Installation C3:	Beitbridge - Fencing, Cleaning and Site Keeping Related Work
Installation C4:	Beitbridge - Bulk Water Supply Systems and External Water Networks
Installation C5:	Beitbridge - Wastewater Treatment Works and Sewer Networks
Installation C6:	Beitbridge - Roads and Storm Water Drainage
Installation E2:	Beitbridge – Immigrations and Customs, Public Toilets, HRM SAPS, SAPS Logistics, Substation No.1 and Agricultural/Police station buildings (Installation B)
Installation E3:	Beitbridge – Customs Export Ramp, Import Ramp and Offices, Clearing Agents, Sub No. 2, Public Ablution Buildings (Installation HB)
Installation E4:	Beitbridge – Light Vehicle Inspections, Control Point and Public Toilets (Installations IB)
Installation E5:	Beitbridge – SAPS Barracks, Cells and Admin Offices and Bulk Water Purification Buildings (Installations F & D)

Installation E6:	Beitbridge – Main Entrance Canopy, Light Vehicle Inspection, Public Inspection and Pedestrian Luggage Search (Installation A)
Installation E7:	Beitbridge – Waste Water Treatment Plant and Water Pump Scheme (Installation J)
Installation E8:	Beitbridge – Houses in Town, Residential Houses and Buildings (Installation EH3, GH2 CH1 & Housing in Musina)
Installation E9:	Beitbridge – Standby Power Systems
Installation E10:	Beitbridge – External Lighting
Installation E11:	Beitbridge – MV and LV Installations
Installation M1:	Beitbridge – HVAC Installation
Installation M2:	Beitbridge – Kitchen Equipment
Installation M3:	Beitbridge – Incinerator Installation
Installation M4:	Beitbridge – fire Protection Installation

Building Structural and Building related installations are excluded from the maintenance portion of the contract. The Contractor will however be instructed during the maintenance phase to repair certain damaged structural items. The Contractor will be remunerated for the structural items repaired as per his tendered rates in the schedule of quantities No additional fixed or time related P&G may be claimed for the repair work to damaged structural items

NO	LOCATION	AREA	DESCRIPTION
1	*Office Buildings*:		
1.1	One building used by Customs, SAPS and Immigration officials.	1154m^2	No. of rooms: 76 Vinyl floor tiles, screeds and ceramic floor tiles Exterior walls are plastered and painted with face brick areas Interior walls are plastered & painted approx. 160 m^{2}windows
1.2	One building used by SARS	786m^2	No. of rooms: 24 Vinyl floor tiles, screeds and ceramic floor tiles Exterior walls are face brick Interior walls are plastered & painted approx. 120 m^2 windows
1.3	One building used by SAPS and Agriculture	172m^2	No. of rooms: 16 Vinyl floor tiles, screeds and ceramic floor tiles Exterior walls are plastered & painted with face brick areas Interior walls are plastered & painted approx. 24 m^2 windows
1.4	One building used by SAPS Vehicle Theft Unit	145m^2	No. of rooms: 13 Vinyl floor tiles, screeds and ceramic floor tiles Exterior walls are face brick Interior walls are plastered and painted Approx. 20 m^2 windows
1.5	One building used by SAPS Logistical Support	109m^2	No. of rooms: 8 Vinyl floor tiles, screeds and ceramic floor tiles

			□ Exterior walls are face brick □ Interior walls are plastered and painted □ Approx. 16 m² windows
1.6	One building used by SAPS Auxiliary	133m²	□ No. of rooms: 7 □ Vinyl floor tiles, screeds and ceramic floor tiles □ Exterior walls are face brick □ Interior walls are plastered and painted □ Approx. 19 m² windows
1.2	*Generator rooms:*		
	1) Substation 1	59 m²	□ No of rooms: 4 □ 52 m² floor screed with epoxy paint □ Exterior walls: Face Brick □ Interior walls: Plastered & painted
	2) Substation 2	28 m²	No of rooms: 1 □ 26 m² floor screed with epoxy paint □ Exterior walls: Face Brick □ Interior walls: Plastered & painted
1.3	*Ablutions:*		
	1) Commercial Ablution	20 m²	No. of rooms: 4 □ Floors include screeds and ceramic floor tiles □ Exterior walls are face brick □ Interior walls are plastered and painted □ Approx. 3 m² windows
	2) North Gate Ablution	47 m²	□ No. of rooms: 6 □ Floors include screeds and ceramic floor tiles □ Exterior walls are face brick □ Interior walls are plastered and painted □ Approx. 7 m² windows
	3) Ablution Outbound	56 m²	□ No. of rooms: 3 □ Floors include screeds and ceramic floor tiles □ Exterior walls are face brick □ Interior walls are plastered and painted □ Approx. 8 m² windows
	4) Passenger Ablution	34 m²	□ No. of rooms: 3 □ Floors include screeds and ceramic floor tiles □ Exterior walls are face brick □ Interior walls are plastered and painted □ Approx. 5 m² windows
			□ No. of rooms: 3 □ Floors include screeds and ceramic floor tiles □ Exterior walls are face brick

	5) Pool Ablution	11 m^2	□ Interior walls are plastered and Painted □ Approx. 2 m^2 windows
1.4	*Light Vehicle Inspection: Two buildings*	56m^2	□ No. of rooms: 4 □ Flooring: Vinyl and ceramic floor tiles and screed □ Exterior walls: face brick □ Interior walls: plastered, painted and tiled □ Approx. 7 m^2 windows
1.5	*Pedestrian Inspection One building*	11 m^2	□ No. of rooms: 1 □ Flooring: Screed □ face brick □ Interior walls: plastered, painted and tiled □ Approx. 10 m^2 windows
1.6	*Water works building One building*	15 m^2	□ No. of rooms: 2 □ Screed floor □ Exterior walls: face brick □ Interior walls: plastered & painted □ 2 m^2 windows
1.7	*Sewer works building One building*	24 m^2	□ No. of rooms: 2 □ Screed floor □ Exterior walls: face brick □ Interior walls: plastered & painted □ 2 m^2 windows
1.8	*Cargo release building One building*	52 m^2	□ No. of rooms: 6 □ Screed floor □ Exterior walls: face brick □ Interior walls: plastered & painted □ 8 m^2 windows
1.9	*Commercial Inspection Outbound One building*	216 m^2	□ No. of rooms: 6 □ Screed floor, carpet and vinyl floor tiles □ Exterior walls: face brick □ Interior walls: face brick with plastered & painted areas □ 8 m^2 windows
1.10	*Commercial Inspection Inbound One building*	1020 m^2	□ No. of rooms: 6 □ Screed floor, carpet and vinyl floor tiles □ Exterior walls: face brick Interior walls: face brick with plastered & painted areas □ 8 m^2 windows
1.11	*Commercial Warehouse One building*	1115 m^2	□ No. of rooms: 6 □ Screed floor, carpet and vinyl floor tiles □ Exterior walls: face brick □ Interior walls: face brick with plastered & painted areas □ 8 m^2 windows
1.12	*Gate Houses Five separate buildings*	8 m^2 each	□ No. of rooms: 1 each □ Exterior walls: face brick □ Interior walls: face brick with plastered & painted areas □ 2 m^2 windows each
1.13	*Cell Block One building*	42 m^2	□ No. of rooms: 4 □ Screed floor □ Exterior walls: face brick □ Interior walls: face brick with

			plastered & painted areas □ 6 m² windows
1.14	*Pool Building* *One building*	42 m²	□ No. of rooms: 2 □ Screed floor □ Exterior walls: plastered & painted □ Interior walls: plastered & painted □ 4 m² windows
1.15	*Bulk water Pump Room* *One building*	66 m²	□ No. of rooms: 2 □ Screed floor □ Exterior walls: plastered & painted □ Interior walls: plastered & painted □ 5 m² windows
1.16	*Barracks* *One building*	500 m²	□ No. of rooms: 9 □ Screed floor □ Exterior walls: face brick □ Interior walls: face brick with plastered & painted areas □ 72 m² windows

OPEN AREAS

1	Beitbridge Port of Entry Open areas (Site Keeping)	263 000 m²	All areas within the perimeter fence, including areas within residential fences. The areas between the vehicle and pedestrian bridges and the open area next to the Border line base.
	HOUSES ON PORT		
	All repairs and maintenance at 29 Houses on Port		All areas within the perimeter fence, including areas within residential fences.
	HOUSES IN TOWN		
	All repairs and maintenance at 39 Houses Musina Town		All areas within the perimeter fence, including areas within residential fences.

HOUSING IN MUSINA TOWN

Road Name	**House No**	**Road Name**	**House No**
Kremetart	1	Kremetart	41
Kremetart	6	Van Zyl	17
Kremetart	7	Dominee Henrico	9
Kremetart	11	Sering Singel	4
Kremetart	33	Sering Singel	5
Kremetart	39	Sering Singel	18
Kremetart	48	Sering Singel	41
Kremetart	54	Paul Mills	44
Sering Singel	3	Kremetart	6
Sering Singel	8	Kremetart	43
Sering Singel	13	Irwin	23
Sering Singel	15	Irwin	54
Sering Singel	27	Rooibos	2
Sering Singel	29	Rooibos	8
Sering Singel	31	Sering	21
Sering Singel	39	Sering	11
Kerk	12	Sekelbos	33
Kerk	16	Murphy	6
Willem Smit	1		

Willem Smit	3		
Paul Mills	40		

Note: Site Information list of areas/buildings for Scope of Work not limited to list above, other areas/ building can be included not listed.

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SA 02.05 COMMENCEMENT OF MAINTENANCE PERIOD

Maintenance responsibilities for an installation prior to practical completion of repair work shall include maintenance of all individual units, equipment or components thereof, for which no repair work is required (as per the contract document) or for which the repair work has not yet started, and shall commence with access to the installation.

Where access to an installation with a view to commence repair work is delayed, then the maintenance responsibilities which in such cases will consist of keeping the installation in the condition it is in, shall commence immediately at the start of the Contract.

Such maintenance before access is obtained, shall consist for example of fixing leaks without replacing pipework or opening a blocked pipeline without further altering or inspecting such pipes.

The Contractor shall accept full maintenance responsibilities for each completed installation upon issue of a Certificate of Practical Completion for repair work of that installation.

The preliminary construction programme differentiates between commencement of maintenance on various installations.

SA 02.06 PREVENTATIVE MAINTENANCE: DEFINITION

This entails the rendering of services and servicing of equipment according to a predetermined maintenance control plan to:

(a) replace and service components of equipment, units or parts thereof for each installation at prescheduled moments regardless of condition;

(b) readjust, reset, clean, corrosion protect all components of equipment, units or parts thereof for each installation, and

(c) carry out all implied actions to maintain installations in their present functional condition.

Preventative maintenance shall be aimed at minimisation of breakdowns.

SA 02.07 CORRECTIVE MAINTENANCE: DEFINITION

This entails regular observation of the equipment, identifying pending breakdowns, maladjustment or anomalies of equipment, units or parts of installations and subsequent action to restore installations to the functional condition as before the breakdown. The meaning of corrective maintenance could also mean repair.

SA 02.08 BREAKDOWN MAINTENANCE: DEFINITION

This entails repair and/or replacement of defective equipment, units or parts of installations following a breakdown that leaves the installation inoperable or unsafe, and subsequent action to restore installations to their normal functional condition, within the maximum down-time allowed.

SA 02.08 OPERATIONAL DAMAGE BREAKDOWN MAINTENANCE: DEFINITION

This entails repair and/or replacement of defective or damaged equipment, units or parts of installations following a breakdown that leaves the installation inoperable or unsafe, and subsequent action to restore installations to their normal functional condition, within the maximum down-time allowed.

Typical examples of “operational damage breakdown visits” would be:

- A Breakdown of any structural items such as locks, window handles and stays, windows, doors and any other structural related items.
- A Breakdown of any plumbing, drainage or sanitary ware related items.
- A Breakdown of any electrical related items.
- Any other damaged items not caused by normal wear and tear.

SA 02.09 SITE MAINTENANCE RECORD KEEPING

The Contractor shall provide and maintain hard-cover A4 maintenance files for each installation for the duration of the Contract. All schedules, checklists, breakdown reports, preventative maintenance records, component replacement records and quarterly reports shall be filed, together with information regarding repairs exceeding the Contractor’s liability, as set out in SA 02.02 and SA 02.03.

Site maintenance records shall be submitted at each monthly meeting.

SA 02.10 SUPPLY OF LABOUR, EQUIPMENT AND MATERIAL

SA 02.10.01 Labour

Competent personnel that have been trained by the Contractor, in accordance with Additional Specification SD: General Training shall execute all maintenance work.

SA 02.10.02 Equipment

All tools and equipment required for maintenance work shall be supplied by the Contractor at his cost (except where otherwise provided).

SA 02.10.03 Material

All material, spare parts, components, equipment and appurtenances necessary for the complete maintenance of each installation shall be supplied and installed by the Contractor at his cost, to a maximum value per part/subassembly as specified in the Special Conditions of Contract for exceeding Contractor’s Liability.

Materials as provided for in the Schedule of Quantities, shall be supplied and delivered by the Contractor at the tendered rates upon order of the Engineer only, and shall be free-issued to the User Client for own use. The Contractor shall inform the Engineer of all scheduled deliveries to arrange official hand-over with the User Client.

SA 02.11 IDENTIFICATION OF EQUIPMENT

A unique identification number will be allocated only to each mechanical equipment item forming part of the installation. This identification number will be allocated and administered in collaboration with the User Client and must be described in the maintenance control plan.

Reference shall be made to identification numbers in the maintenance control plan, operating and maintenance manuals and during all maintenance activities, including the logging of breakdowns and other correspondence. Identification numbers shall also be indicated on as-built drawings.

SA 03 MAINTENANCE CONTROL

SA 03.01 SCOPE

Maintenance quality control shall be the responsibility of the Contractor. The Contractor shall introduce a maintenance control plan to assist him in ensuring that preventative, corrective and breakdown maintenance are performed as described in the operating and maintenance manuals and Technical and Particular Specifications.

SA 03.02 PRELIMINARY MAINTENANCE CONTROL PLAN

A preliminary version of the maintenance control plan shall be submitted with the programme and the framework of the preliminary version shall be as close as possible to that of the final maintenance control plan as specified in SA 03.03 below. Detail contained in this preliminary maintenance control plan shall include:

(a) Actual time that a representative of the Contractor will be present on Site for the duration of the maintenance period;

(b) the scope and frequency of routine inspections

(c) repair methodology

(d) details of training plan to be implemented in accordance with Additional Specification SD

SA 03.03 MAINTENANCE CONTROL PLAN

(a) The maintenance control plan shall be based on the Contractor's preliminary maintenance control plan, and shall be bound in a neat, A4-sized, ring-bound document with a cover page and back cover. The contents of the document shall be indexed.

In drawing up the document, the Contractor may reproduce relevant paragraphs and clauses from any of the specifications forming past of the Contract documents, but should there be any discrepancies between such clauses and paragraphs in the maintenance control plan and those in the Contract documents, those in the Contract documents shall be regarded as being correct and shall apply.

(b) To ensure that the Engineer is satisfied that the Contractor understands the purpose and advantage of carrying out maintenance work according to a maintenance control plan he shall, as an introduction to the control plan document, set out his views as to what he believes the implementation of a maintenance control plan will achieve.

(c) The maintenance control plan shall also contain the following:

(i) A summary of the repair and maintenance work to be carried out under the Contract giving details of the conditions of the various installations at the

facility(ies) affected by the activities under the Contract. The Contractor shall bear in mind that maintenance work may have to be carried out before the repair phase of the installation has been entirely completed and the summary mentioned above shall therefore differentiate between maintenance work before and after the repair phase has been completed.

(ii) Details of how the Contractor intends to carry out the various types of maintenance work especially breakdown maintenance should breakdowns occur.

(iii) Details of how the call centre works, as specified in clause SA 04 as well as all statistics of breakdowns, leakages, blockages, etc. available from the call centre for the installation and the age of the installation that has been taken into account in compiling the contents of the maintenance control plan.

(iv) A list of organisations and persons directly involved with the Contract or whose requirements have to be taken into account during the entire Contract Period such as the Department of Public Works, the User Client, the Consulting Engineer, the Contractor, the Local Authority, etc. Each person's position within his organisation as well as the applicable phone numbers shall be given.

(v) Details of monthly meetings to be hold with the Department of Public Works, the User Client, Contractor and Engineer;

(vi) Reports to be submitted after every routine inspection (all reports, checklists, breakdown records, score card results, etc. for each system of an installation shall be kept on the site in a hard cover file);

(vii) Procedures to address complaints and logged breakdowns;

(viii) Details of quarterly reports, summarising all inspections, together with inspection data such as nature of test, names of persons carrying out tests and inspection results. Detail of repairs and replacements, together with testing of repaired equipment shall also be reflected in this report, and

(ix) Assistance to be given by the Engineer with decisions regarding material, equipment and other recommendations.

(d) The codes of practice as set out in ISO 10006 and ISO 9004 for quality systems and management shall be used as a guideline for compiling a maintenance control plan. ISO accreditation is not a requirement in terms of this Contract.

(e) The maintenance control plan shall be upgraded when its contents are no longer representative of actual conditions.

(f) The Contractor shall check the contents of existing Operating and Maintenance Manuals (if available) and shall update or modify and then incorporate applicable data into his own manuals. Where no manuals exist, the Contractor shall draw up his own Operating and Maintenance Manuals.

Pertinent data contained in the Operating and Maintenance Manual may be transferred to the Maintenance control plan to make it a document which can be used as an independent handbook for maintenance work.

The Contractor is referred to the contents of paragraph (a) above regarding the reproduction of data, as this shall also be applicable to data reproduced from Operating and Maintenance Manuals.

SA 04 COMMUNICATION

The maintenance control plan (Clause SA 03) will provide, after agreement between the Contractor and the Engineer, for the following communication and complaint logging procedure:

(a) The Contractor shall establish a telephone and fax line and a cellular telephone connection to ensure that he can be reached at any time.

(b) The Contractor shall primarily be responsible for determining the items requiring preventative, corrective and breakdown maintenance, and shall communicate this information directly to his maintenance workforce.

(c) Should the Engineer or operating personnel of the User Client determine or suspect that preventative, corrective or breakdown maintenance is required, a call shall be logged through the call centre to reach the Contractor as soon as possible.

(d) Reaction times will be as described in Clause SA 05.02.

(e) All complaints of the User Client shall be reported to the Engineer via the call centre, as set out in the maintenance control plan, and the Engineer shall issue instructions to the Contractor. After the Contractor has attended to the complaint, the Engineer will provide feedback to the call centre both telephonically and via fax.

The call centre logs the details of the Engineer's call and provides feedback to the complainant.

SA 05 PERFORMANCE MEASUREMENT

The Contractor's performance shall be measured against the following parameters:

SA 05.01 SPECIAL TESTING OF AN INSTALLATION

The Engineer may at any time inspect any part of the entire installation. During Maintenance work, the Engineer shall at his discretion order special tests to be carried out on complete installations at intervals of not less than four months, to verify the satisfactory functional condition of the installation.

The Engineer reserves the right to select at random component equipment and trade practices to be tested by independent authorities for compliance with specifications as specified in this Contract document.

The Contractor shall provide all equipment, tools and instruments required for testing.

SA 05.02 MAXIMUM MAINTENANCE DOWN-TIME

After a complaint has been logged and forwarded to the Contractor, the Contractor shall be expected to minimise the maintenance down-time until the system component is fully operational to the satisfaction of the Engineer. Should the Contractor not respond within the maximum down-time, the Engineer may arrange, at the cost of the Contractor, for the necessary repair work to be done by others.

Should the actual down-time exceed the maximum down-time the Contractor shall be liable to a payment reduction for the difference between actual down-time and maximum down-time. This is reflected in the table below:

No.	REQUIRED MAINTENANCE	MAXIMUM DOWN-TIME ALLOWED	PAYMENT REDUCTION IF EXCEEDED
1.	Fatal Breakdown	1 hour	R1 000/hour
2.	Emergency Breakdown	12 hours	R2 000/day
3.	Ordinary Breakdown	7 days	R500/day
4.	Operational damage repair	7 days	R500/day

"Maximum down-time" shall mean the period of time allowed to repair a breakdown, and "actual down-time" shall mean the measured period from the instant when the breakdown was logged with the Contractor until the installation has been repaired to its functional specification.

"Immediate response repairs" shall imply breakdown maintenance repair work where no breakdowns are allowed at any time in terms of the Technical Specification.

A fatal breakdown shall imply any critical breakdown maintenance repair work that must be repaired immediately that was caused by a fire, electrical fault, etc. in order to rectify a component or unit of the installation that disables the installation from functioning at its designed maximum requirement/capacity in terms of the Technical Specification
"Emergency maintenance repairs" shall imply any breakdown maintenance repair work required to rectify a component or unit of the installation that disables the installation from functioning at its designed maximum requirement in terms of the Technical Specification.

"Ordinary maintenance repairs" shall imply all breakdown maintenance repair work required other than immediate response or emergency maintenance repairs.

"Operational damage repairs" shall imply all operational damage breakdown repair work required on any other damaged items not caused by normal wear and tear and shall also include and structural related breakdowns.

SA 05.03 PERFORMANCE-BASED PAYMENT

Remuneration for all value-related as well as all time-related preliminary and general charges shall be deemed included in the monthly maintenance payments for the various installations.

SA 05.03.01 Score-card

The Engineer shall inspect each installation monthly after Practical Completion of the repair phase of the installation. The Engineer shall use a score-card to measure the quality of preventative and corrective maintenance rendered by the Contractor during the preceding month, on all components that form part of the installation, in accordance with the maintenance specifications. The Engineer will record his inspection directly onto the score-card. The score-card shall serve to evaluate ten performance indicators each month.

SA 05.03.02 Performance indicators

Performance indicators shall be selected to measure the Contractor's service level of preventative and corrective maintenance.
The Engineer shall have the opportunity to select ten (10) performance indicators each month, which shall focus on the measurement of maintenance quality against the relevant specifications for the ensuing month. All ten (10) performance indicators are known to both the Engineer and the Contractor.

The Contractor shall aim to perform satisfactorily on all ten performance indicators. All indicators shall be selected from the scope of his normal preventative and corrective maintenance work and shall be based on the maintenance control plan and operating and maintenance manuals. The work shall either be satisfactory, or unsatisfactory, and the Contractor shall score one (1) or zero (0) respectively per indicator.

Performance indicators shall be used to focus on certain key aspects of the work and shall in no way limit the Contractor's responsibility to do all the required work.

SA 05.03.03 Satisfactory performance

The Engineer shall inspect the site on an arbitrary day to measure the quality of maintenance against the ten selected performance indicators. Should the Contractor score the maximum points (10) he shall receive his full maintenance payment for the installation. Should the quality of preventative maintenance, or components requiring persistent corrective maintenance be unsatisfactory according to the score-card, the Contractor may fail to achieve full payment due to a reduced service level. Each monthly payment for maintenance shall be subject to evaluation based on the score-card.

A copy of the score-card including a guideline for the use thereof is included in this Specification.

SA 06 MEASUREMENT AND PAYMENT

SA.01 MAINTENANCE OF A COMPLETE INSTALLATION ..... Unit: point

The unit of measurement shall be a point. Each month shall represent a maximum of ten points and a minimum of zero points, depending on the performance and quality of maintenance. Ten points per month, determined by using the tendered rate per point, shall include full compensation for all liabilities and obligations described or implied in the Contract document and deemed by the Contractor to be applicable to the maintenance phase of the Contract, for the complete monthly maintenance of an entire installation, and all appurtenant works deemed to form part thereof, as defined in the relevant Technical or Particular Specifications.

The combined tendered rate for ten points (which shall not be less than 10% of the total tendered Contract Price) shall also include full compensation for complete preventative, corrective and breakdown maintenance (as defined in this General Maintenance Specification), including full compensation for all costs related to resetting, repair, procurement, supply, delivery, replacement, protecting, furnishing, installing, testing and commissioning of all items and material required to maintain the complete installation in a perfect functional condition. The only items not to be included in the rate for monthly maintenance points are:

1. Supply, delivery, installation and testing of special equipment/materials that will be measured elsewhere, and

2. Special testing of an installation.

Different installations shall be listed in the Schedule of Quantities, in accordance with the definition of each installation.

Although ten points per month shall include full compensation for preventative, corrective and breakdown maintenance, the Contractor might fail to achieve all points applicable in the event of unsatisfactory performance, in which case he shall still perform all maintenance requirements according to specification, but at his own cost where a reduction in points awarded is insufficient to cover his cost.

SA.02 **ADDITIONAL TESTS:**

SA.02.01 **Where ordered by the Engineer**.....Unit: rand (R)

SA.02.02 **Charge required by the Contractor on subitem SA.03.01 above** ..... Unit: percentage (%)

An amount has been allowed in the Schedule of Quantities to cover the cost of additional tests required by the Engineer. The Engineer will have the sole authority to spend the amount or part thereof under subitem SA.03.01.

The tendered percentage under subitem SA.03.02 will be paid to the Contractor on the value of each payment made to the approved testing authority.

SA.03 **PAYMENT REDUCTION DUE TO EXCEEDING OF MAXIMUM ALLOWABLE DOWN-TIME DURING EMERGENCY BREAKDOWN**.....Unit: days

The unit of measurement shall be the number of days, in excess of 36 hours, during which a component of an installation was in a disfunctional condition that required emergency repairs.

The negative fixed rate shall include full compensation for the User Client's loss in productivity and, multiplied by the number of days measured, shall be deducted from the certified amount due to the Contractor.

SA.04 **PAYMENT REDUCTION DUE TO EXCEEDING OF MAXIMUM ALLOWABLE DOWN-TIME DURING ORDINARY BREAKDOWN**.....…Unit: days

The unit of measurement shall be the number of days, in excess of 7 days, during which a component of an installation was in a disfunctional condition that required ordinary repairs.

The negative fixed rate shall include full compensation for the User Client's loss in productivity and, multiplied by the number of days measured, shall be deducted from the certified amount due to the Contractor.

SA.05 **PAYMENT REDUCTION DUE TO EXCEEDING OF MAXIMUM ALLOWABLE DOWN-TIME DURING OPERATIONAL DAMAGE BREAKDOWN**.....Unit: days

The unit of measurement shall be the number of days, in excess of 7 days, during which a component of an installation was in a disfunctional condition that required ordinary repairs.

The negative fixed rate shall include full compensation for the Client's loss in productivity and, multiplied by the number of days measured, shall be deducted from the certified amount due to the Contractor.

SA.06 **CALL-OUT FOR REPAIR OF EMERGENCY BREAKDOWN (24 Hours)**.....Unit: No

The Unit of measurement shall be number. The Contractor will be remunerated for the number of call-out trips to the site, in order attend to the repair of an emergency breakdown logged (Before Access to a Site) with him by the Engineer. The tendered rate shall provide full compensation for all travel, accommodation and travel-time cost to and from the site. Remuneration for material and labour cost is deemed to be included under the “maintenance of a completed installation” payment item in the schedule of quantities, based on the points system and measured monthly.

DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE AND INFRASTRUCTURE

MAINTENACE SCORE-CARD

CONTRACT NUMBER: WCS .....

CONTRACT: .....

CONTRACTOR: .....

ENGINEER: .....

INSTALLATION: | | **MONTH**: | | | OF **36**

The following components of the installation were selected by the contractor at the Monthly Operation Meeting nr. | | | as performance indicators to be tested according to specification:

1. ENGINEER'S SELECTION	**0**	**1**
1.1		
1.2		
1.3		
1.4		
1.5		
1.6		
1.7		
1.8		
1.9		
1.10		

TOTAL SCORE: | | | |

D	D	/	M	M	/	Y	Y

Engineer's Representative ..... **Signature** ..... **Date**

GUIDELINE FOR THE USE OF THE MAINTENANCE SCORE-CARD

The score-card and performance indicators must be used as a maintenance management tool. The aim with each score-card is to ensure that:

(a) the project focuses on key aspects of maintenance per month;
(b) the Contractor receives payment for his work, and
(c) the Employer receives value for money and a sustained high level of service.

Performance indicators must be selected to measure the Contractor's service level of preventative and corrective maintenance that will be based on the Maintenance Control Plan and the Operating and Maintenance Manuals (containing information specified in the Contract documentation).

For each specific installation, different performance indicators must be defined each month based on the content of the maintenance in relation to the scope of maintenance work per installation and must be based on the Contractor's service level record on preventative and corrective maintenance.

Breakdowns must be dealt with if and when necessary by logging of the breakdown and monitoring the downtime.

The Contractor and the Engineer must agree on all performance indicators at an occasion prior to the month during which the Contractor's performance (service level of maintenance) will be measured.

ADDITIONAL SPECIFICATION

SB OPERATING AND MAINTENANCE MANUALS

CONTENTS

SB 01 SCOPE
SB 02 PROCEDURE FOR SUBMISSION OF MANUALS
SB 03 FORMAT OF OPERATING AND MAINTENANCE MANUALS
SB 04 CONTENTS
SB 05 MEASUREMENT AND PAYMENT

SB 01 SCOPE

The Contractor shall be responsible for the compilation of complete sets of Operating and Maintenance Manuals. A separate Operating and Maintenance Manual shall be supplied for each installation where required and as defined in the Additional Specification SA: General Maintenance.

SB 02 PROCEDURE FOR SUBMISSION OF MANUALS

SB 02.01 SUBMISSION OF DRAFT MANUALS

A draft copy of each Operating and Maintenance Manual shall be submitted to the Engineer prior to safety inspection of the installation. Approval of the draft Operating and Maintenance Manuals shall be a prerequisite for commencement of the safety inspection in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

The manuals will be reviewed and checked by the Engineer and returned to the Contractor with comments, where necessary. The Contractor shall make the necessary changes and amendments to the manuals to incorporate the Engineer's comments.

SB 02.02 DEVELOPMENT OF FINAL MANUALS

A final draft copy of each Operating and Maintenance Manual shall be submitted to the Engineer at least one week prior to commencement of Day 1 tests on commissioning. This set of manuals will not be accepted without the Contractor's verification of the information contained in the manuals and the professional language editing thereof. The Engineer shall return the manuals to the Contractor, who shall make the final corrections. The Engineer will, however, not be responsible for the quality control on manuals. Approval of final Operating and Maintenance Manuals shall be a prerequisite for issuing of a Certificate of Practical Completion for repair of the installation.

After the Engineer has approved the final Operating and Maintenance Manuals, the Contractor shall provide the Engineer with seven (7) sets of the manuals. Approval of the final Operating and Maintenance Manuals shall be a prerequisite for issuing of a Certificate of Completion.

SB 03 FORMAT OF OPERATING AND MAINTENANCE MANUALS

(a) Manuals shall be bound in hardcover lever-arch files with plastic coatings. The files shall be clearly labelled on the front cover, as well as on the back band, with the following information:

(i) The title "Operating and Maintenance Manuals"

(ii) Name of the installation (as defined in Additional Specification SA: General Maintenance)

(iii) Name of the contract and contract number

(iv) The Contractor's name, address and contact telephone number and fax (logo optional)

(v) Month and year in which the manuals are finally handed over to the Employer

(vi) Name of the Department.

(b) Pamphlets and bound leaflets/booklets from suppliers or manufacturers shall be placed in plastic pockets.

(c) Drawings and diagrams larger than A3 shall be folded and placed in plastic pockets to be easily removed or stored.

(d) The sections of the manuals specified below shall be clearly partitioned.

(e) Cross-referencing between drawings/diagrams and text shall be in a clear and consequent format.

(f) The Operating and Maintenance Manuals shall be supplied in English.

SB 04 CONTENTS

SB 04.01 TABLE OF CONTENTS

The table of contents shall appear on the second page and shall consist of the headings of the various sections in the manual and the relevant page numbers.

The table of contents shall essentially contain at least the following:

1. Introduction
   - 1.1 Scope of the manual
   - 1.2 General arrangement of the manual
   - 1.3 Description of installation
   - 1.4 Specifications

2. List of drawings and diagrams

3. Parts and components

4. Operating procedures

5. Maintenance

   5.1 Purpose of maintenance
   5.2 Preventative maintenance
   5.3 Trouble-shooting

6. Breakdown maintenance and repair

7. List of Appendices.

SB 04.02 INTRODUCTION

The introduction shall contain at least the following:

SB 04.02.01 Scope of the manual

A summary shall explain the scope of the contents.

SB 04.02.02 General arrangement of the manual

A brief description shall explain the way in which the manual is arranged.

SB 04.02.03 Description of installation

This section shall give a functional description of the complete installation covered by the manual, including all systems and/or functional units deemed to form part thereof, as defined in Additional Specification SA: General Maintenance.

SB 04.02.04 Specifications

A summary shall be given of the specifications applicable to the particular part of the Contract.

SB 04.03 DRAWINGS AND DIAGRAMS

SB 04.03.01 Mechanical flow diagrams (MFDs) and single line diagrams

Mechanical flow diagrams (for mechanical systems) or single line diagrams (for electrical systems) of the system and/or functional unit shall be included in the Operating and Maintenance Manuals for easy reference by the operators of the installation. Diagrams shall be drawn not only for parts of an installation that have been repaired, but also for the complete installation, including all the components.

SB 04.04 PARTS AND COMPONENTS

SB 04.04.01 Equipment data sheets

A data sheet shall be drawn up for each piece of equipment and/or machine forming part of the installation and shall contain the following information:

(a) Equipment tag number
(b) Equipment description
(c) Model/make/manufacturer
(d) Supplier/Reconditioning details
(e) Ordering details

(f) Details of fixed components
(g) Details of lubrication
(h) Maintenance references (refer to supplier/reconditioning technical manual).

SB 04.04.02 Technical equipment manuals

For each piece of equipment and/or machine forming part of the installation the following information shall be included in this section of the Operating and Maintenance Manuals:

(a) the supplier or reconditioning manual and/or standards of operating and maintenance instructions;

(b) illustrated parts breakdown and/or group assembly drawings as agreed with the Engineer;

(c) parts lists and data sheets, including all characteristic curves for machines indicating operation point, efficiency, power consumption, etc;

(d) calibration charts, and

(e) test certificates for hydraulic pressure tests, flame-proof grading, materials, non-destructive examinations, coating and lining details, etc.

Each detailed description shall be accompanied by a set of engineering drawings. From the drawings the functionality of each part or component used, as well as the special characteristics associated with the part or component shall be very clear.

SB 04.04.03 Parts and components list

A detailed description shall specify all the parts and components used for the duration of the Contract. This description shall include new parts and components, as well as existing parts and components that have either been reconditioned or used as specified in the Contract.

The description shall state at least the part or component number, part or component name, the size of the part or component, an explanatory description, the quantity used, the material of which the part or component is made, the coating (if any), date of purchase, as well as any relevant remarks as to the application thereof.

Details of the manufacturer of the part or component shall also be listed. This shall at least state the name, address, telephone number, fax number and name of a contact person.

The supplier of the part or component shall also be stated and shall include at least the name, address, telephone number, fax number, name of a contact person and an alternative supplier (if available).

SB 04.04.04 Drawings

Drawings shall contain a descriptive heading, an explanatory key and relevant comments. Drawings shall be done on a computer-aided design package approved by the Engineer.

A compound drawing for all subassemblies shall clearly indicate how and where the various parts fit in the subassembly. The compound drawing shall be linked to the equipment data sheets and parts and components list and shall clearly specify the parts or components used, their model numbers, their sizes and the quantities used. The compound drawings shall also be accompanied by a short description explaining the workings of the

subassembly, as well as the assembly of the parts or components to complete the subassembly.

SB 04.05 OPERATING PROCEDURES

The operating instructions shall be a step by step description of the manual start-up and shut-down procedure for every piece of equipment and/or process reconditioned, repaired or supplied with references to the MFDs. For automatic operation the operators shall be referred to the automatic control manual (if applicable).

The functioning of the installation shall be clearly described, using a flow diagram depicting the interrelationships among the various subassemblies. The subassemblies shall be described by descriptive drawings.

Each mechanical or process flow diagram shall contain at least a heading, relevant comments and a key.

Every subassembly shall also have its own flow diagram explaining the operation of the subassembly, as well as the application of each part and component. The application of the subassembly shall also be very clear. The flow diagram shall consist of at least a heading, relevant comments and an explanatory key.

A detailed description shall be given of all operational systems forming part of the installation, explaining the operation and functioning of the system and the number of operations personnel required for performing the operation successfully.

The preparations, which are required before the system can be operational, shall be clearly stated and explained.

The operation tasks shall be clearly explained with reference to dangerous situations that might occur. Hazardous operations shall be explained in great detail and cover all the applicable safety precautions.

SB 04.06 MAINTENANCE

SB 04.06.01 Purpose of maintenance

The maintenance process shall be explained and the main responsibilities described.

SB 04.06.02 Preventative maintenance

A preventative maintenance and lubrication schedule shall be included in this section. This schedule shall be in table format and shall include a summary of all the maintenance actions required for each different system and/or functional unit covered by this manual, in order to give a single summary of all routine preventative maintenance actions required for the complete installation.

The schedule shall indicate daily, weekly, fortnightly, monthly and yearly maintenance actions. A lubrication schedule summary shall also be included under this section.

The frequency of routine preventative maintenance actions shall be indicated very clearly.

The Contractor shall provide the maintenance requirements as prescribed by the manufacturer. The type of maintenance shall be clearly indicated. The description of the maintenance to be performed shall include at least the part name, location of the part in either the assembly or subassembly, the model number, the quantity of the particular part or

component to be maintained, the type of maintenance, and notes on the maintenance procedure.

A brief description shall accompany the maintenance schedule, indicating special tools to be used, maintenance and test equipment required for the test procedures. Any special tools necessary for maintenance shall be specified in terms of name, model, size, manufacturer, supplier (name, telephone number, fax number, contact person), coating (if any) and notes on the use of the equipment.

Remarks on the system readiness checks of each subassembly shall be explained in detail. Routine inspection and maintenance processes shall be described. It shall be very clear what needs to be done, how to perform the necessary task and any dangers that are present.

SB 04.06.03 Trouble-shooting

An explanation shall be given to assist the maintenance personnel in analysing and resolving malfunctions that might occur. Various scenarios with possible causes and rectification procedures shall be explained.

The scenarios shall be accompanied by drawings indicating the position of the part that is faulty. Each of these drawings shall have a heading, comments and an explanatory key.

SB 04.07 BREAKDOWN MAINTENANCE AND REPAIR

The Contractor shall describe the complete procedure to be followed in the event of a breakdown. It shall be very clear what the operating personnel should look for, how to eliminate any dangers due to the breakdown (eg electricity must be shut off in the event of problems with the wiring) and who should be contacted. The Contractor shall supply the names and telephone numbers of at least two contact persons who may be contacted in the event of a breakdown.

The Contractor shall refer to Additional Specification SA: General Maintenance, to determine the reaction time for the repair to the breakdown.

Repair instructions shall provide the maintenance personnel with detailed instructions for the removal and/or replacement of any item requiring replacement due to malfunctioning. Contact numbers shall also be given to assist maintenance personnel, should a breakdown occur.

The Contractor shall specify the actions expected of maintenance personnel in the event of a breakdown.

The Contractor shall also specify the testing procedures to be followed before the system can be put into operation again. Every procedure shall be described clearly and all the potential dangers pointed out, as well as the precautions that have to be taken.

The testing procedures shall be accompanied by drawings illustrating the process to be performed. Every drawing shall have a heading, comments and an explanatory key.

SB 05 MEASUREMENT AND PAYMENT

SB.01 Compile and supply a complete set of Operating and Maintenance Manuals ..... Unit : sum

The unit of measurement shall be a sum for each complete set (seven copies) of Operating and Maintenance Manuals. Operating and Maintenance Manuals for different installations shall be measured separately in the Schedule of Quantities.

The tendered sum shall include full compensation for all technical research, gathering of information, compilation of manufacturer's instructions, compilation of drawings and diagrams, and for writing of all the descriptions, instructions and functional procedures, as well as language editing, in order to provide a clear and correct set of Operating and Maintenance Manuals.

The tendered sum shall also include full compensation for all expenses such as paper, copy work, binding and printing necessary for the completion of the manuals.

The tendered sum shall also include full compensation for the compilation of draft sets of operating and maintenance manuals in accordance with the specification, and for incorporation of all comments and corrective requirements.

SB.02 **Compile and supply a complete site plan** ..... Unit : sum

The unit of measurement shall be a sum for the complete set (three A1-size copies for each plan) and electronic format of the site plan(s).

The tendered sum shall include full compensation for all expenses such as paper, copy work and printing required for the completion of the site plan.

The site plan shall include and comply with the following:

SB.02. 01 **SCOPE**

This specification provides minimum requirements for the preparation of a Site Layout Plan and is based on the specifications of the Department of Public Works.

SB.02. 02 **SPECIFICATIONS**

The Specification is based on the following specifications:

1. Civil Engineering Manual PW347/2012, Annexure A1

2. Specification of Materials and Methods to be Used PW371

3. Additional Specification SB: Operating and Maintenance Manuals.

   Compile and supply a complete Site Layout Plan:

   (a) Detail Ground Survey

   All services must be shown on a complete Site Layout Plan as required by the Engineer, including roads, fences, paving, transmission and telephone lines, etc. For sewerage reticulation and storm water drainage systems the pipe sizes, as well as invert heights must be provided. An effort must be made to trace the routes of these services.

   (b) Survey of Buildings

   The "footprint" of all the buildings and structures must be surveyed.

(c) General

All survey data shall be captured in electronic format.

SB.02. 03 **TITLE BLOCK**

The standard drawing sheet layout and title block of the Department of Public Works must be used.

Complete all the relevant fields in the title block with reference to the name of the Port of Entry in the appropriate block. The words SITE LAYOUT PLAN should form part of the drawing title.

SB.01 **Drawing Number**

The drawing number should consist of a four-part identifier:

- Port of entry designator: WCS 052500
- Group: 1
- Drawing number: Numbering will start at 1
- Revision number: Will start at 01

Typical example: WCS 052500./1/1 Rev 01

Note: The approved drawing shall be registered at the Department of Public Works. Make provision for Department of Public Works-drawing number (C-no.) in the title block.

SB.02 **Overlay Sheets/Layering Scheme (if required)**

The overlay sheet designator identifies the type of drawing (example: overlay for water reticulation) and can be added to the drawing number:

- C: Existing structures, facilities, roads, paving, fencing, etc
- CR: Storm water drainage system
- CE: Electrical power and equipment
- CF: Fire fighting equipment
- CS: Sewer network
- CT: Telephone lines
- CW: Water reticulation system

Typical example for the numbering of an overlay sheet: WCS 052500/1/**CW**/1 Rev 01

SB.02. 04 **DRAFTING CONVENTIONS**

The Site Layout Plan should be created following engineering conventions and standards in order to represent a clear drawing simplifying the huge amount of visual information.

SB.01 **Paper Prints**

Preference is given to size A1 plans, but for reporting size A3 will be used and the information should still be legible in this format.

SB.02 **Scale**

The Site Layout Plan must be drawn according to scale and the following scales can be used:

- 1:200 or
- 1:500 or
- 1:1000

SB.03 **Plan Orientation**

The Port of Entry should be rotated on the plan so that the north point arrow are pointing in the direction of either the upper left or upper right quadrants of the plan. The north point arrow to be placed in the top right hand corner of the drawing space.

SB.04 **Contours**

Contours do not form part of the Site Layout Plan.

SB.05 **Line Weight**

Line weight/width is extremely important and features such as the services should be drawn with lines that are more prominent. The following line weights (mm) can be used:

1.	0.10	5.	0.35
2.	0.15	6.	0.50
3.	0.25	7.	0.70
4.	0.30	8.	1.00

SB.06 **Line Type/Style**

The following typical standard line types that can be used:

TYPICAL LINE TYPES

LINE DESCRIPTION	LINE APPEARANCE
1. Centre Line	
2. Solid/Continuous line	
3. Short broken line	
4. Long broken line	
5. Break line	
6. Hatch lines 45°	

SB.07 **Hatching**

Hatching are angled line patterns to indicate the position of permanent structures. The spacing between lines should be consistent at 45º to the structure. Park Homes must be shown on the plan, but without hatching.

SB.08 **Surfaced Areas**

Surfaced roads should be indicated by two solid lines as well as paved areas.

Two long broken lines should be used to indicate gravel roads.

SB.09 **Non Standard Line Types**

The following lines could be used for the various services, but must be identified in the Legend as a non standard line type:

LEGEND

		Colour Code	Line Weight (mm)
W	Water pipe line	Cyan	0.50
S	Sewer pipe line	Black	0.50
EL	Electrical overhead line	Magenta	0.50
EC	Electrical cable	Magenta	0.50
T	Telephone line	Green	0.50
G	Gas pipe line	Brown	0.50
x	Fence line	Black	0.30
	Surfaced Road	Black	0.30
	Gravel Road	Black	0.30
	Railway Line	Black	0.25

SB.10 **Lettering and Font Styles**

Use the standard font style and font size for engineering drawings and do not use stylized fonts.

Create all text in upper case letters, except for certain unit designations such as km, m, mm, kVA, etc.

SB.11 **Site Layout Plan**

When the Port of Entry is too large for one sheet, divide the plan into logical sections. Add a key layout in the title block showing how the various sheets should be joined together to obtain a layout of the entire site. This key layout should form part of each sheet.

SB.12 **Facilities**

The name of the facility should be written adjacent to the facility. If the space is limited, a reference number of the facility, which refers to a description of the facility, is inserted in a table format in or close to the title block as a legend.

SB.13 **Fences and gates**

Show the position of the security fence and all other fences as well as gates. Include the height of all fences.

SB.14 **Destinations**

The destination to the nearest town with a pointing arrow should appear on all incoming and outgoing roads.

SB.02. 05 **SERVICES**

The position of the services is extremely important and should be indicated by lines that are more prominent/thicker. The description of the line types for the various services must be given in the Legend. See DIR04.09.

The following services, where applicable, must be shown on the Site Layout Pan for future reference:

SB.01 **Water Reticulation System**

Show the position of the water reticulation system and include the following:

- Pipe lines, pipe sizes, type of pipes, valves, meters, boreholes and tanks (include capacities). Show the direction of flow.

SB..02 **Sewerage Network**

Show the layout of the sewerage network and include the following:

- Pipe lines, pipe sizes, type of pipes, manholes, rodding eyes, septic tanks (include capacities), french drains (include volumes). Show the invert levels of all manholes as well as the position and level of the bench mark.

SB.03 **Electrical Power**

Indicate the position of electrical power lines, cables, substations, kiosks, flood lights along the perimeter as well as street lights and area lighting.

Air-conditioning units should be numbered and listed in table format including the type and size.

Give the source(s) of electrical power.

SB.04 **Telephone Lines**

Show the position of overhead telephone lines.

SB.05 **Storm water System**

Show the layout of the storm water system, culverts and sizes as well as inlet and outlet structures. Give the invert levels of all structures as well as the position and level of the bench mark.

SB.06 **Fire Fighting Equipment**

Include the pump installation, tank and capacity, fire hydrants, valves, meters, fire extinguishers and fire hose reels.

Fire extinguishers should be numbered and listed in table format including the type and size.

SB.02. 06 **ELECTRONIC FORMAT**

A complete set of electronic files shall be placed on CD(s) in a Data Exchange Format (DXF) or DWG format.

Affix a stick-on label to the CD with the following information:

- Department of Public Works and logo
- Name of Port of Entry
- WCS number
- Description: SITE LAYOUT PLAN
- Drawing number(s)
- Date issued
- Electronic format: DXF or DWG

SB.02. 07 **SUBMISSION**

The Consultant must submit A1 and A3 paper prints as well as a CD(s) of the Site Layout Plan(s) to the Project Manager before the Final Approval Certificate is signed.

The CD(s) must include the entire overlays/layering scheme and a compound drawing which includes all the services and information on one Site Layout Plan in DXF/DWG format.

During the Repair and Maintenance phase, the Project Manager will forward a request from time-to-time to the Consultants to prepare an A3 print(s) of the Site Layout Plan, which will be submitted as part of a report to Department of Public Works.

ADDITIONAL SPECIFICATION

SC GENERAL DECOMMISSIONING, TESTING AND COMMISSIONING PROCEDURES

CONTENTS

SC 01 SCOPE
SC 02 PHASED REPAIRS AND UPGRADING OF THE INSTALLATION
SC 03 DETAILED COMMISSIONING PROGRAMME
SC 04 COMMISSIONING COMMUNICATION CHANNELS
SC 05 COMMISSIONING RISK CONTROL AND PENALTIES
SC 06 DELAYS TO SCHEDULED SHUTDOWNS
SC 07 MATERIAL AND EQUIPMENT PROCUREMENT AND PROTECTION
SC 08 TESTING OF EQUIPMENT PRIOR TO RECOMMISSIONING
SC 09 TESTING OF MATERIAL AND EQUIPMENT SPECIFICATIONS AND WORKMANSHIP
SC 10 DECOMMISSIONING
SC 11 RECOMMISSIONING, COMMISSIONING AND COMPLETION OF INSTALLATIONS
SC 12 MEASUREMENT AND PAYMENT

SC 01 SCOPE

This specification encompasses all aspects of the repairs of systems and services that form part of an installation, including the factory and on-site testing, decommissioning, installation and commissioning of all equipment, instrumentation and materials reconditioned, supplied and installed as part of an installation as defined in Additional Specification SA: General Maintenance.

The specified procedures are the minimum requirements to be supplemented by various technical and particular specifications in this document. These requirements shall apply to all commissioning work scheduled as part of the initial repair work on installations, as well as commissioning work that is part of the routine preventive and corrective maintenance.

SC 02 PHASED REPAIRS AND UPGRADING OF THE INSTALLATION

When an installation consists of parallel systems or components, the complete installation and all its components shall be repaired without taking the complete installation out of commission at any time, unless otherwise specified in the Technical Specifications.

In order to schedule the repairs of an installation, all work shall be done in phases as specified in the Technical Specifications and illustrated in detail on the drawings. Repairs of each part shall terminate with the successful reconditioning of that part.
Each part of the system shall be decommissioned and recommissioned in the sequence specified in the Technical Specifications and on the drawings.

The Contractor shall install all the necessary temporary specials, spool pieces, supporting frames and brackets to provide a functional link between each repaired and upgraded part of the system and the part of the installation that has not yet been repaired and upgraded during recommissioning. Electrical and instrumentation Contractors and subcontractors shall ensure that the system remains operational as specified, using either existing or newly installed instruments, cables and controls.

Payment is based on the successful recommissioning of a specific part of the installation.

SC 03 DETAILED COMMISSIONING PROGRAMME

No work of any kind on any part of the existing installation shall take place prior to the Engineer's approval of a detailed commissioning programme. This programme shall be submitted in addition to the general programme for planning and monitoring contract progress, at least two weeks prior to any programmed shutdown. The programme shall be the coordinated product of the Engineer and the User Client. Commissioning programmes shall take all process requirements into account. The detailed commissioning programme shall indicate all actions necessary for:

(a) Decommissioning
(b) Recommissioning of parts of the installation
(c) Commissioning of the installation as a whole.

All work deemed necessary for practical completion of the installation shall be indicated on the commissioning programme.

The programme shall indicate the milestones to be achieved before shutdown and decommissioning as activities of zero duration, all of which shall be prerequisites linked to the "start" of decommissioning.

The following specific actions shall be included in the programme, clearly indicating the time allowed for:

(a) Communication, including the time for confirmation of the official shutdown;

(b) Draining parts of the installation to sumps, where available, or to other storage facilities provided by the Contractor;

(c) Installation of temporary blanked flanges or other means of isolation where necessary;

(d) Partial decommissioning and removal of existing material and equipment to perform work, including protection of pipework against hot work, cutting into pipework, loosening bolts, flanges and all other work necessary for recommissioning;

(e) Installation of temporary functional links (pipe specials) between any two parts of the installation;

(f) Each individual field weld, subject to the Engineer's approval;

(g) Non-destructive testing of materials, for manufacturing/construction quality and for producing test results;

(h) Installation of all instruments and their connection to SCADA systems;

(i) Installation and connection of all power cables;

(j) De-aeration of all pipe sections;

(k) Communication between the Contractor, the Engineer, the Employer and the Department of Public Works.

(l) Start-up of the complete system, indicating start-up procedures.

Inspection of the prefabricated installation, testing of all equipment prior to final commissioning, pressure testing and non-destructive testing shall be clearly scheduled in the project progress programme.

Day 30 tests and instruction/training sessions with the User Client shall be scheduled in the project progress programme.

SC 04 COMMISSIONING COMMUNICATION CHANNELS

The Contractor shall communicate with the User Client's operating and maintenance managers via the Engineer to finalise start-up after decommissioning in accordance with the specified procedures.

The following key parties shall be involved before and during shutdown and decommissioning of any part of the system:

Contractor: Site Agent

Engineer: Resident Engineer

Employer: Representative of Area Manager

User Client: Operating and Maintenance Manager.

SC 05 COMMISSIONING RISK CONTROL AND PENALTIES

(a) All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to.

(b) The Contractor shall not be allowed to work on any part of the installation without obtaining a commissioning check permit on the day of shutdown. A typical example of a commissioning check permit is included in this document, referring to the minimum required milestones to be achieved prior to decommissioning.

(c) Payment reductions for exceeding the maximum permissible down-time during maintenance shall apply as stipulated in the General and special Conditions of Contract. This stipulation does not include shutdowns during programmed routine preventive maintenance work.

SC 06 DELAYS OF SCHEDULED SHUTDOWNS

Specific dates on which an installation shall be shut down for decommissioning shall be finalised during coordination meetings of all the parties involved, including the Engineer, the Employer, the User Client and the Contractor.

Although a date for each shutdown will be scheduled at the coordination meetings, the actual date of the shutdown shall be determined by the process requirements and user demands, allowing for a window of seven (7) calendar days from the date of the planned shutdown.

Prospective tenderers shall make allowances in their tendered rates for the shutdown to occur at any time during this seven-day period. No additional payment shall be due if the shutdown occurs within this seven-day period.

If the Contractor fails to commence with the shutdown and decommissioning of the installation within the scheduled period, all additional costs arising from the shutdown at a later stage shall be for the Contractor's account.

SC 07 MATERIAL AND EQUIPMENT PROCUREMENT AND PROTECTION

It is the responsibility of the Contractor to ensure the functionality of all units of new equipment prior to decommissioning, before installation of any specific part of the system. If the equipment, whether free-issued or not, does not conform to the functionality specifications during pre-installation testing, the Contractor shall notify the Engineer in writing without delay.

SC 08 TESTING OF EQUIPMENT PRIOR TO RECOMMISSIONING

The equipment shall be tested for functionality after pre-installation of equipment in parts of the installation.

(a) The Contractor shall inform the Engineer well in advance of his intention to perform the first tests and start-up of equipment in order to allow a representative of the Engineer to witness the tests. The extent of all precommissioning tests and checks shall be agreed with the Engineer prior to commencement.

(b) The Contractor shall first conduct his own tests of the equipment. When he is satisfied that the equipment complies with the specifications, he shall notify the Engineer that he is ready for the official tests on completion. The Contractor shall not conduct an official test without the Engineer's presence or approval. All equipment shall conform to the specified requirements.

(c) Before starting up any part of the installation or filling the tanks and sumps with liquid, the Contractor shall clean out the tanks, pipes, fittings, equipment or structures and, if necessary, make arrangements with other Contractors to remove their building rubble form the structures, check that all safety devices and alarms have been set and activated, all nuts have been tightened correctly, that all the equipment is complete and ready for start-up, that the plant has been installed correctly, and that copies of the operating manuals have been handed to the Engineer.

(d) The Contractor shall start up each section of equipment after ensuring that oil fillings, lubrication, vibration monitoring, cable termination and so on have been correctly completed. He is also responsible for the first refilling of all lubricating oils and for adjusting the plant to operate according to the specifications. Before any equipment is started or energised, the Contractor shall ensure that it is safe in terms of the personnel and equipment on the site to do so. The Contractor's tendered rates and sums shall allow for these costs.

All equipment shall be tested according to the relevant specifications that form part of this document.

No shutdown or decommissioning of any part of the system shall take place unless all the equipment to be installed have been tested by the Contractor and approved by the Engineer.

SC 09 TESTING OF MATERIAL AND EQUIPMENT SPECIFICATIONS AND WORKMANSHIP

All results of the required non-destructive, precommissioning and manufacturing testing shall be submitted to the Engineer well in advance of testing the equipment on recommissioning. All such test results shall be submitted before Day 1 commissioning tests and no certificate of practical completion shall be issued prior to receipt of the required test results.

SC 10 DECOMMISSIONING

The decommissioning period shall commence on the instant of the entire system shutdown. The recommissioning period shall start in parallel with decommissioning.

Shutdown and decommissioning shall not proceed without compliance with all the milestones in the detailed commissioning programme. The list of milestones in this document is not complete but indicates the minimum requirements. Milestones to be achieved prior to shutdown and decommissioning may be added to the programme at the Engineer's discretion.

The Contractor is responsible for the safe decommissioning of all material, equipment, components and instrumentation to avoid damage to parts or components of the installation.

SC 11 RECOMMISSIONING, COMMISSIONING AND COMPLETION OF INSTALLATIONS

SC 11.01 RE-COMMISSIONING

Re-commissioning means the commissioning of all sections or systems that form part of the installation to meet the required functional specifications for the individual section or system prior to commissioning of the repaired and upgraded installation.

The Contractor is responsible for the recommissioning of all parts of the system and he shall perform the tasks listed below.

(a) Prior notice shall be given to and proper arrangements shall be made for recommissioning with the Employer, the Engineer, the Department of Public Works and the suppliers of equipment that is affected by recommissioning and testing.

(b) If plant and equipment supplied by others are to be commissioned, the supplier's specific permission together with all requirements related to commissioning shall be obtained prior to recommissioning without in any way altering the Special Conditions of Contract with reference to the Contractor's liability in terms of defects.

(c) The new and reconditioned parts of the installation shall be thoroughly inspected by a responsible representative of the Contractor to ensure that manufacture/construction and installation work have been completed according to the specifications.

SC 11.02 COMMISSIONING AND COMPLETION OF REPAIRS AND UPGRADING WORK

Commissioning means commissioning of the repaired and upgraded installation as a whole to perform in perfect working order.

(a) The commissioning period for each installation as a whole:

(i) Commences with the Day 1 tests of the complete repaired and upgraded installation;

(ii) Includes commissioning of all sections and systems that have been recommissioned prior to the Day 1 tests;

(iii) Includes training of the User Client's operating personnel and the maintenance teams;

(iv) Terminates with a Day 30 test in compliance with the commissioning report.

(b) The purpose of the Day 1 tests is to ensure that:

(i) The electronic, electrical and mechanical equipment and materials are functional and in perfect working order with respect to each other and the installation as a whole;

(ii) The commissioning period, including training, commences on successful completion of the Day 1 tests;

(iii) The Contractor is entitled to a certificate of practical completion for the repairs and upgrading of the installation on successful completion of the Day 1 tests;

(iv) The Contractor becomes responsible for maintenance of the installation and is entitled to performance-based payments in compliance with the Special Conditions of Contract and Additional Specification SA: General Maintenance.

(c) Commissioning shall be undertaken over a trouble-free period up to Day 30. During this period the Contractor shall train the User Client's operators and his maintenance team for operating and maintaining the installation. This training shall allow for all possible operational conditions, including emergency conditions, the correct servicing of every part, the type of oil or grease to be used, and similar tasks. The training shall take place by means of demonstrations, and the operating and maintenance manuals shall be referred to for this purpose.

(d) Day 30 commissioning tests shall be performed thirty calendar days after the successful completion of the Day 1 tests. The commissioning period of the installation terminates upon the successful completion of the Day 30 tests.

(e) The Contractor shall conduct all the tests required to satisfy the Engineer that the installation is performing according to specification, and shall make allowance for these tests in his tendered rates and prices. These tests shall be conducted to certify that the installation, as repaired, upgraded and installed, is in perfect working order in terms of the specified functional requirements. The Contractor shall note that all equipment is to be tested as part of an installation, where appropriate, and will not be passed if all protection devices, interlocking with other equipment, etc, are not fully functional.

(f) The Engineer shall provide commissioning sheets to the Contractor at least three weeks before the commissioning period commences, for all the equipment supplied, reconditioned and installed by the Contractor. The Contractor shall complete the commissioning sheets during the commissioning period and all items listed shall be entered. No completion certificate will be issued for an installation of which the equipment has incomplete commissioning reports. Information that is not available or applicable, or instances where certain tests have not been carried out, are subject to the Engineer's decision.

(g) Commissioning of the plant (which includes the thirty days between the Day 1 and Day 30 tests) includes operating under conditions that adequately prove that all the specifications have been met. All safety devices, standby plant, automatic controls and protection devices shall be adequately tested for reliability and correct functioning. The Contractor may be called upon to repeat testing during the maintenance period if the performance of the equipment is suspected to be substandard. Costs related to such tests shall be for the Contractor's account and shall comply with the specified requirements. Copies of updated commissioning reports shall be provided to the Engineer within two days after a test has been performed.

(h) The Contractor is responsible for providing all labour and materials (including testing equipment) during the commissioning period and shall carry out all the servicing and adjustments to ensure that the installation operates as specified. Valid calibration certificates shall be available for all testing equipment on the site during the commissioning period.

(i) Programmes for the Day 1 tests, Day 30 tests and instruction/training sessions with the User Client's operators and maintenance team shall be prepared by the Contractor and submitted to the Engineer at least two weeks before the commissioning period commences. The Contractor shall provide weekly updates of these schedules for the duration of the commissioning period.

(j) The Contractor shall note that if any equipment fails during the commissioning period, the equipment shall be repaired or replaced by the Contractor, and testing and commissioning shall commence from scratch.

(k) Successful commissioning of an installation entitles the Contractor to a certificate of completion for the installation.

SC 12 MEASUREMENT AND PAYMENT

SC.01 **Decommissioning and removing parts of the installation**.....Unit: sum

The unit of measurement shall be a sum.

The tendered sum shall include full compensation for all actions and labour required for shutdown and decommissioning of the entire installation as specified to enable decommissioning and removal of parts of the installation as listed in the Schedule of Quantities.

The tendered sum shall include full compensation for the decommissioning and removal of the parts and components of an installation as listed individually in the Schedule of Quantities, including actions and/or costs resulting from such work, to enable the recommissioning of parts of the repaired and/or upgraded installation.

The tendered sum shall include full compensation for final dismantling of decommissioned materials and equipment and the removal of all such items to stores on site, as directed by the Engineer.

SC.02 **Commissioning and testing of parts of the installation**.....Unit: sum

The unit of measurement shall be a sum.

The tendered sum shall include full compensation for commissioning and testing parts of the installation to be operational while still incomplete in relation to the entire repaired and/or upgraded system or installation.

Separate payment items shall be scheduled for separate parts of the system.

SC.03 **Commissioning and testing of the installation**.....Unit: sum

The unit of measurement shall be a sum.

The tendered sum shall include full compensation for commissioning the upgraded installation as a whole and for all costs and expenses related to labour, removal, repair, reinstallation and testing of material and equipment during the commissioning period for each part of the installation. The tendered sum shall include full compensation for the final commissioning and testing, including Day 1 and Day 30 tests, of all parts and components of the installation to the specified functional condition.

Payment shall be based on successful completion of the Day 30 tests.

SC.04 **Provision for safety and hot work requirements during shutdown** ..... Unit: number

The unit of measurement shall be the number of shutdowns during which all the required safety and hot work requirements are provided.

The tendered rates shall include full compensation for all the required safety and hot work requirements and arrangements in accordance with the specifications during a shutdown period, including all labour, personnel, equipment, materials and consumables required.

ADDITIONAL SPECIFICATION

SD GENERAL TRAINING

CONTENTS

SD 01 SCOPE
SD 02 BASIC METHOD REQUIREMENT
SD 03 TRAINING OF USER CLIENT PERSONNEL
SD 04 TRAINING OF MAINTENANCE PERSONNEL

SD 01 SCOPE

The Contractor shall be responsible for providing diverse training to various groups, including operating and maintenance personnel. The Contractor shall develop and facilitate initial training sessions for all parties, as well as training sessions at specified intervals to revive and supplement the initial training. An accredited trainer shall present all training sessions.

This specification includes all requirements for methods to be employed, the syllabus required by the User Client, the syllabus required for maintenance managers and workers and the method of measurement and payment.

SD 02 BASIC METHOD REQUIREMENT

The Contractor shall be responsible for conducting a complete investigation of the groups that have to be trained in order to compile a proper training plan.

The investigation shall cover at least the following aspects:

(a) Assess likelihood of conformance to task-specific requirements *(status quo)* of capabilities.

(b) Identify minimum pre-qualification criteria in terms of existing knowledge and skill levels in relation to reaching target requirements.

(c) Evaluate personnel in terms of pre-qualification criteria and tasks to be performed (skills profile).

(d) Identify training needs.

(e) Develop appropriate and accredited training courses and material in terms of task-specific activities and identified training needs, and compile the training syllabus per installation.

The Contractor shall identify an accredited trainer to assist in the above investigation and finalise the compilation of a training plan and syllabus. Approval of the syllabus shall be a condition for issue of a Certificate of Practical Completion for repair of an installation. Once the training plan and syllabus have been approved the Contractor shall liaise with the Engineer to establish a date and appropriate training venue that would be conductive to learning to perform training.

The training shall be revived within one month after initial training to determine its effectiveness. Further regular training sessions shall be scheduled according to the effectiveness of initial training.

The Engineer will be responsible for recording all training sessions and shall keep an attendance register. The Engineer will also examine the trainees officially with each training session and issue certificates of trainees' acquired skills on satisfactory completion of the training.

SD 03 TRAINING OF USER DEPARTMENT PERSONNEL

The Contractor's training shall include training of the User Client's operators on biannual basis to acquaint them with operating of installations (especially electrical and mechanical systems). The training sessions shall comprise lectures and on-site (hands-on) demonstrations, and shall be conducted over two-day periods. The Contractor shall liaise with the Engineer to prepare for the correct number of trainee operators.

The content of training courses for operators shall include the essential features of operating the installation, as also described in the Operating and Maintenance Manuals.

Completion of an installation shall, in terms of the Special Conditions of Contract, be subject to successful completion of training. The training course shall also be based on the Operating and Maintenance Manuals. No training shall commence without the Engineer's approval of the final draft Operating and Maintenance Manual for the particular installation.

SD 04 TRAINING OF MAINTENANCE PERSONNEL

The Contractor shall train either his own employees, or local labourers, with regard to maintenance of the installation.

The training of maintenance managers shall include the following aspects:

(a) All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to.

(b) functioning of the installation, including all its systems, services, parts of buildings and infrastructure;

(c) all specific tasks related to routine preventative maintenance;

(d) interpretation and understanding of Operating and Maintenance Manuals with specific reference to requirements in cases of corrective and breakdown maintenance, and

(e) repair/reconditioning and installation/construction of equipment and materials forming part of an installation.

SD 05 MEASUREMENT AND PAYMENT

SD.01 **Development of a syllabus for training of operators** ..... Unit: sum

The unit of measurement shall be the lump sum for the compilation of a training syllabus for each installation that shall be measured separately in the Schedule of Quantities.

The tendered sum shall include full compensation for identification of pre-qualification criteria and training needs, staff assessment and evaluation prior to training, all technical research, development and compilation of an accredited training course and course material, and all other actions necessary for commencement of official training sessions in accordance with the specification.

The tendered sum shall also include full compensation for the compilation of a draft syllabus and for incorporation of all the Engineer's comments and corrective requirements.

SD.02 **Presenting a training course for operators** ..... Unit: number

The unit of measurement shall be the number of training courses presented based on the approved syllabus.

The tendered rate shall include full compensation for presenting a two-day training course, including lectures, demonstrations, on-site training and hands-on development and improvement of operators' skills to enable the operators to operate installations safely and efficiently.

The tendered rate shall include full compensation for the Contractor's time, appointment of the accredited trainer for the course, and for all material expenses such as paper hand-outs and slides for the whole group of trainees, the number of which shall be determined during development of the training course.

SD.03 **Presenting a training course for maintenance personnel** ..... Unit: number

The unit of measurement shall be the number of training courses presented.

The tendered rate shall include full compensation for presenting a two-day training course, including lectures, demonstrations, on-site training and hands-on development, and improvement of maintenance personnel's skills to enable them to maintain and repair installations safely and efficiently at the satisfactory functional condition specified.

The tendered rate shall include full compensation for the Contractor's time, appointment of the accredited trainer for the course, and for all material expenses such as paper hand-outs and slides for the whole group of trainees, the number of which shall be determined during development of the training course.

ADDITIONAL SPECIFICATION

SF GENERAL OPERATION

CONTENTS

SF 01 SCOPE
SF 02 OPERATION REQUIREMENTS
SF 03 OPERATION CONTROL
SF 04 COMMUNICATION
SF 05 PERFORMANCE MEASUREMENT
SF 06 MEASUREMENT AND PAYMENT

SF 01 SCOPE

Operation of the specified systems, services or equipment shall all be referred to as "Operation of an Installation". Operation of an installation shall ensure effective functioning and optimum operational condition thereof. Monthly operation responsibilities for each installation including all units and components as specified shall commence with access to the installation.

Operation of an installation shall be performed in accordance with the Technical and Particular Specifications and the Operating and Maintenance Manuals.

Remuneration for operating "installations" (systems, services and equipment) is provided for in the Bills of Quantities by means of monthly payment items, depending on the score achieved by the operators.

This Additional Specification covers operation requirements, site operation administration, communication operation performance measurement, as well as the items for measurement of the Contractor’s service level and resulting payment.

SF 02 OPERATION REQUIREMENTS

SF 02.01 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall operate the complete installation for the 36-month Contract period.

Operation implies and shall include hourly operation, daily operation (night and day), weekly as well as monthly operation on all components of the specified installations, *including* public holidays and non working days.

The Contractor shall operate the equipment as detailed in the Technical and Particular Specifications and the operation and maintenance manuals. Each operational function, task, test or action shall be recorded in an approved format and listed in a quarterly report by the Contractor.

As part of the repair of each installation, the Contractor shall submit a set of Operating and Maintenance Manuals where applicable. The Contractor shall ensure through training that the operating and maintenance personnel are conversant with the instructions as presented in the Operating and Maintenance Manuals. Continued training shall be

included in the scope of operation work for the duration of the 36-month Contract, in accordance with Additional Specification SD: General Training.

The Operating and Maintenance Manuals, as approved by the Engineer, shall be used as a basis of hourly, daily, weekly and monthly operations. The Contractor shall perform all operational tasks as described in the Operating and Maintenance Manuals.

SF 02.04 COMPONENTS INCLUDED IN OPERATION SCOPE

The main sections of a facility with their subsections are as set out in the Technical Specifications and Particular Specifications where applicable and in the Bill of Quantities and will each be deemed "an installation". Operation, as specified, will be applicable to all of the installations listed in the Bill of Quantities under the “OPERATION” section

SF 02.05 COMMENCEMENT OF OPERATION PERIOD

Operation responsibilities for an installation shall include operation of all individual units, equipment or components thereof, and shall commence with access to the installation.

SF 02.09 SITE OPERATION RECORD KEEPING

The Contractor shall provide and maintain hard-cover A4 Operation files for each installation that needs to be operated for the duration of the Contract. All schedules, checklists, actions, tasks, reports, hourly, daily and monthly operational records and quarterly reports shall be filed.

Site operation records shall be submitted to the Engineer at each monthly meeting.

These files will become the property of the Department of Public Works after the completion of the 36 months contract.

SF 02.10 SUPPLY OF LABOUR, EQUIPMENT AND MATERIAL

SF 02.10.01 Labour (qualified where necessary)

Competent personnel (qualified where necessary) that have been trained by the Contractor or external training authority, in accordance with Additional Specification SD: General Training shall execute all operational work.

SF 02.10.02 Equipment

All tools and equipment required for operation work shall be supplied by the Contractor at his cost (except where otherwise provided).

SF 02.10.03 Material

All material, equipment, testing equipment, protective clothing and appurtenances necessary for the complete operation of each installation shall be supplied and installed by the Contractor at his cost. Remuneration for *maintenance* actions and material shall be measured elsewhere in this document.

The technical specification of each specific installation to be operated, shall indicate whether the Contractor should supply other consumables (such as chemicals or coal) as part of his operation requirements.

SF 03 OPERATION CONTROL

Operation quality control shall be the responsibility of the Contractor. The Contractor shall introduce his own quality assurance system to assist him in ensuring that hourly, daily and monthly operational tasks are performed as described in the operating and maintenance manuals and Technical and Particular Specifications.

SF 04 COMMUNCATION

The Contractor shall communicate in writing to the Engineer the following operational results on a monthly basis:

(a) The quantity of ground water or surface water extracted and the total recorded as at the last day of each month.

(b) The quality of waste water irrigated or discharged into the environment and the total recorded weekly (compiled monthly).

(c) The quantity of the waste water by grab sampling, at the point at which the waste water enters the effluent disposal system.

(d) Record keeping of activities as specified shall be up to date on a daily basis and available to the Engineer on inspection.

(e) The quality of domestic waste water discharged into the environment.

(f) Details of failures and malfunctions and details of measures taken to avoid environmental pollution.

SF 05 PERFORMANCE MEASUREMENT

The Contractor's performance shall be measured against the following parameters:

SF 05.03 PERFORMANCE-BASED PAYMENT

Remuneration for all value-related as well as all time-related preliminary and general charges shall be deemed included in the monthly operation payments for the various installations.

SF 05.03.01 Score-card

The Engineer shall inspect each installation monthly after access to the installation has been granted. The Engineer shall use a score-card to measure the quality of operational tasks rendered by the Contractor during the preceding month, on all components that form part of the installation, in accordance with the Operation specifications. The Engineer will record his inspection directly onto the score-card. The score-card shall serve to evaluate ten performance indicators each month in the manner set out below.

The Contractor shall always have the opportunity to score the maximum points, provided that his operation work complies with the Specifications. The Employer shall be protected against a reduced or unsatisfactory operational level and may refuse payment on such points.

SF 05.03.02 Performance indicators

Performance indicators shall be selected to measure the Contractor's service level of operation.

The Engineer shall select ten (10) performance indicators each month, which shall focus on the measurement of operation quality against the relevant specifications for the ensuing month. All ten (10) performance indicators are known to both the Engineer and the Contractor.

The Contractor shall aim to perform satisfactorily on all ten performance indicators. All indicators shall be selected from the scope of his normal hourly, daily and monthly operation work and shall be based on the operation control plan and operating and maintenance manuals. The work shall either be satisfactory, or unsatisfactory, and the Contractor shall score one (1) or zero (0) respectively per indicator.

Performance indicators shall be used to focus on certain key aspects of the work and shall in no way limit the Contractor's responsibility to do all the required work.

SF 05.03.03 Satisfactory performance

The Engineer shall inspect the site on an arbitrary day to measure the quality of operation against the ten selected performance indicators. Should the Contractor score the maximum points (10) he shall receive his full operation payment for the installation. Should the quality of operation be unsatisfactory according to the score-card, the Contractor may fail to achieve full payment due to a reduced service level. Each monthly payment for operation shall be subject to evaluation based on the score-card.

A copy of the score-card including a guideline for the use thereof is included in this Specification.

SF 06 MEASUREMENT AND PAYMENT

SF.01 OPERATION OF AN INSTALLATION..... Unit: point

The unit of measurement shall be a point. Each month shall represent a maximum of ten points and a minimum of zero points, depending on the performance and quality of operation. Ten points per month, determined by using the tendered rate per point, shall include full compensation for all liabilities and obligations described or implied in the Contract documents and deemed by the Contractor to be applicable to the operation of an entire installation, and all appurtenant works deemed to form part thereof, as defined in the relevant Technical or Particular Specifications.

The combined bid rate for ten points shall also include full compensation for complete hourly, daily, weekly and monthly operation.

Although ten points per month shall include full compensation for hourly, daily and monthly operation, the Contractor might fail to achieve all points applicable in the event of unsatisfactory performance, in which case he shall still perform all operation requirements according to specification, but at his own cost where a reduction in points awarded is insufficient to cover his cost.

Remuneration for all value-related as well as all time-related preliminary and general charges shall be deemed included in the monthly operation payments for the various installations.

SF.02 **APPOINT MANDATORY CLASS I AND CLASS II PROCESS CONTROLLERS** ..... Unit: point

The unit of measurement shall be each month the stipulated number of process controllers has performed the duties as prescribed in the Contract and Technical Specifications. Each month shall represent 16 hours per day for 7 days per week. The rate tendered for the process controllers shall include all duties as required by the process controllers in terms of the Contract and Technical Specifications.

The item shall not limit the Contractor to the amount of personnel required to operate the works but shall be deemed the minimum requirement for the operation of the works as required in the Contract and Technical Specifications.

Any additional labour or process controllers required to perform any preventative or breakdown operation work shall be included in the Contractor's rate tendered for the ten operation scoring points per month.

The item shall be deemed mandatory and the Contractor shall be liable in terms of the ten operation scoring points per month to ensure that the required process controllers are appointed.

Remuneration for all value-related as well as all time-related preliminary and general charges shall be deemed included in the monthly operation payments for the various installations.

SF.03 **APPOINT MANDATORY CLASS III AND CLASS IV PROCESS CONTROLLERS** ..... Unit: point

The unit of measurement shall be each month the stipulated number of process controllers has performed the duties as prescribed in the Contract and Technical Specifications. Each month shall represent 8 hours per day for 5 days per week. The rate tendered for the process controllers shall include all duties as required by the process controllers in terms of the Contract and Technical Specifications.

The item shall not limit the Contractor to the amount of personnel required to operate the works but shall be deemed the minimum requirement for the operation of the works as required in the Contract and Technical Specifications.

Any additional labour or process controllers required to perform any preventative or breakdown operation work shall be included in the Contractor's rate tendered for the ten operation scoring points per month.

The item shall be deemed mandatory and the Contractor shall be liable in terms of the ten operation scoring points per month to ensure that the required process controllers are appointed.

Remuneration for all value-related as well as all time-related preliminary and general charges shall be deemed included in the monthly operation payments for the various installations.

DEPARTMENT OF PUBLIC WORKS

MAINTENACE SCORE-CARD

CONTRACT NUMBER: WCS .....

CONTRACT: .....

CONTRACTOR: .....

ENGINEER: .....

INSTALLATION: _____ **MONTH**: ____ OF **36**

The following components of the installation were selected by the contractor at the Monthly Operation Meeting nr. ____ as performance indicators to be tested according to specification:

1. ENGINEER'S SELECTION	**0**	**1**
1.1		
1.2		
1.3		
1.4		
1.5		
1.6		
1.7		
1.8		
1.9		
1.10		

TOTAL SCORE: | | |

.... D D / M M / Y Y

Engineer's Representative **Signature** **Date**

GUIDELINE FOR THE USE OF THE OPERATION SCORE-CARD

The score-card and performance indicators must be used as an Operation management tool. The aim with each score-card is to ensure that:

(a) the project focuses on key aspects of Operation per month;
(b) the Contractor receives payment for his work, and
(c) the Employer receives value for money and a sustained high level of service.

Performance indicators must be selected to measure the Contractor's service level of operation that will be based on the Operating and Maintenance Manuals (containing information specified in the Contract documentation).

For each specific installation, different performance indicators must be defined each month based on the content of the Operation in relation to the scope of Operation work per installation and must be based on the Contractor's service level record on operation.

The Contractor and the Engineer must agree on all performance indicators at an occasion prior to the month during which the Contractor's performance (service level of Operation) will be measured.

ADDITIONAL SPECIFICATION

SH HIV/AIDS REQUIREMENTS

CONTENTS

SH 01 SCOPE
SH 02 MAINTENANCE REQUIREMENTS
SH 03 MAINTENANCE CONTROL
SH 04 COMMUNICATION
SH 05 PERFORMANCE MEASUREMENT
SH 06 MEASUREMENT AND PAYMENT

SH 01 SCOPE

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers
- Informing Workers of their rights with regard to HIV/AIDS in the workplace
- Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices

SH 02 DEFINITIONS AND ABBREVIATIONS

SH 02.01 DEFINITIONS

Service Provider: The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes.

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent.

Worker: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in total.

SH 02.02 ABBREVIATIONS

HIV	:	Human Immunodeficiency Virus
AIDS	:	Acquired Immune Deficiency Syndrome
STI	:	Sexually Transmitted Infection

SH 03 BASIC METHOD REQUIREMENT

The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers

The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- Number of Workers and Sub-contractors on site
- When new Workers or Sub-contractors will join the construction project
- Duration of Workers and Sub-contractors on site
- How the maximum number of Workers can be targeted with workshops
- How the Contractor prefers workshops to be scheduled, *e.g.* three hourly sessions per Worker, or one 2.5 hour workshop per Worker
- Profile of Workers, including educational level, age and gender (if available)
- Preferred time of day or month to conduct workshops
- A Gantt chart reflecting the construction programme, for scheduling of workshops
- Suitable venues for workshops

The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training.

The Service Provider Workshop Plan shall address, but will not be limited to the following:

- The nature of the disease;
- How it is transmitted;
- Safe sexual behaviour;
- Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- Attitudes towards other people with HIV/AIDS;
- Rights of the Worker in the workplace;
- How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
- How the Service Provider will support the Awareness Champion;

- Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- How the workshops will be presented, including frequency and duration;
- How the workshops will fit in with the construction programme;
- How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- How the video will be used;
- How the Service Provider will elicit maximum participation from the Workers;
- A questions and answers slot (interactive session)
- The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated

SH 04 HIV/ AIDS AWARENESS EDUCATION AND TRAINING

SH 04.01 WORKSHOPS

The Contractor shall ensure that all Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the Department of Public Works, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

SH 04.02 RECOMMENDED PRACTICE

SH 04.02.01 WORKSHOP SCHEDULE

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session.

SH 04.02.02 SERVICE PROVIDERS

A database of recommended Service Providers is available from all Regional Offices of the Department of Public Works

SH 04.02.03 HIV/AIDS SPECIFIC LEARNING OUTCOMES AND ASSESSMENT CRITERIA

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met.

04.02.03.01 UNIT 1: THE NATURE OF HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:
1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

04.02.03.02 UNIT 2: TRANSMISSION OF THE HI VIRUS

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

Assessment Criteria:
1. Record in what bodily fluids the HI virus can be found
2. Describe how HIV/AIDS can be transmitted
3. Demonstrate the ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS

04.02.03.03 UNIT 3: HIV/AIDS PREVENTATIVE MEASURES

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus from entering the bloodstream.

Assessment Criteria:
1. Report on how to minimise the risk of HIV/AIDS infection
2. Report on precautions that can be taken to prevent HIV/AIDS infection
3. Explain or demonstrate how to use a male and female condom
4. List the factors that could jeopardize the safety of condoms provided against HIV/AIDS transmission

04.02.03.04 UNIT 4: VOLUNTARY HIV/AIDS COUNSELLING AND TESTING

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling

Assessment Criteria:
1. Describe methods of testing for HIV/AIDS infection
2. Report on why voluntary testing is important
3. Report on why pre- and post-test counselling is important

04.02.03.05 UNIT 5: LIVING WITH HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria
1. List and describe ways to manage HIV/AIDS
2. Describe nutritional needs of people living with HIV/AIDS
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS
4. Explain the need for counselling and support to people living with HIV/AIDS

04.02.03.06 UNIT 6: TREATMENT OPTIONS FOR PEOPLE WITH HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people

Assessment Criteria
1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS
4. Describe post exposure prophylactics

04.02.03.07 UNIT 7: THE RIGHTS AND RESPONSIBILITIES OF WORKERS IN THE WORKPLACE WITH REGARD TO HIV/AIDS

After studying and understanding this unit, the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way

Assessment Criteria:
1. Discuss the rights of a person living with HIV/AIDS in the workplace
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important

SH 04.03 DISPLAYING OF PLASTIC LAMINATED POSTERS AND DISTRIBUTION OF INFORMATION BOOKLETS

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from all Regional Offices of the Department of Public Works.

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds

The posters on display must always be intact, clear and readable

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site

SH 05 PROVIDING WORKERS WITH ACCESS TO CONDOMS

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SANS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health.

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover.

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

SH 06 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers

SH 07 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner

The Awareness Champion shall be responsible for:

7.1 Liasing with the Service Provider on organising awareness workshops;
7.2 Filling condom dispensers and monitoring condom distribution;
7.3 Handing out information booklets;
7.4 Placing and maintaining posters

SH 08 MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent

The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent

The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager, through the Representative/Agent

The attached CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C), a close out programme report, shall be completed by the Contractor at the end of the contract

SCHEDULE A

HIV/AIDS PROGRAMME: SITE CHECKLIST

When did construction commence _____

Name of Departmental Project Manager _____

Please refer to HIV/AIDS Programme activities during the reporting period

Tick the block if Contractor satisfactorily complied with specifications																												
DATE	**PI**				**PI**				**PI**				**PI**				**PI**				**PI**				**PI**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Programme implemented within 14 days of site handover																												
Awareness champion on site																												
HIV/AIDS awareness service provider report																												
Male condom dispenser																												
Sufficient male condoms available																												
Male condom dispenser in a highly trafficked area																												
Female condom dispenser																												
Sufficient female condoms available																												
Female condom dispenser in a highly trafficked area																												
All four types of posters displayed																												
Posters in a good condition																												
Posters in a highly trafficked area																												
Posters displayed on local support services: clinic & VCT centre																												

Tick the block if Contractor satisfactorily complied with specifications																												
DATE	**PI**				**PI**				**PI**				**PI**				**PI**				**PI**				**PI**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Support service poster/s in highly trafficked area																												
Support service poster/s in a good condition																												
Please indicate the applicable number for the reporting period																												
Workers on payroll (at PI)																												
Sub-Contractors who will be on site for longer than 30 days (at PI)																												
Workshop attendees																												
Number of workshops held																												
Scheduled workshops according to approved workshop plan																												
Booklets distributed																												
Male condoms distributed																												
Female condoms distributed																												
_____ Representative/Agent																												
_____ Contractor																												

SCHEDULE A

Date of progress inspection (dd/mm/yy) _____

Reporting period: (dd/mm/yy)_____ to (dd/mm/yy) _____

Deviations from HIV/AIDS awareness programme plan:

Corrective actions

_____ _____

Representative/Agent Departmental Project Manager

_____ _____

Date Date

SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: SERVICE PROVIDER REPORT

Reporting period: (dd/mm/yy)_____ to (dd/mm/yy) _____

Number of workshops conducted in reporting period _____

Number of scheduled workshops according to approved workshop plan _____

Deviations from workshop plan:

State reasons for deviating from workshop plan:

Corrective actions:

_____ _____

Service Provider Contractor

_____ _____

Date Date

SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: WORKSHOP CONTENT ADDRESSED

Fill in the applicable information with regard to each workshop conducted																												
DATE	**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**			
	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
Content of workshop: *(Mark the content included)*																												
SLO1																												
SLO2																												
SLO3																												
SLO4																												
SLO5																												
SLO6																												
SLO7																												
HIV/AIDS in construction video																												
Indicate the duration of the workshop in hours																												
Total number of Workers																												
Indicate workshop venue																												

SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

Fill in your name and indicate attendance by ticking the appropriate date																													
DATE		**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**				**W/S**			
		D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M	D	D	M	M
No	**NAMES**																												

SCHEDULE C

CONTRACTOR HIV/AIDS PROGRAMME REPORT

Project name _____

Project Location _____

Contract value of project (R) _____

Department of Public Works Project Manager _____

HIV/AIDS Programme duration: (dd/mm/yy) _____ to (dd/mm/yy) _____

AWARENESS MATERIAL

Describe location of posters displayed during the programme _____

_____

Comments on posters _____

_____

Indicate total number of booklets distributed _____

Comments on booklets _____

_____

CONDOMS

Indicate total number of male condoms distributed _____

Indicate total number of female condoms distributed _____

Describe where male condom dispenser was placed _____

Describe where female condom dispenser was placed _____

HIV/AIDS WORKSHOPS

Indicate the total number of HIV/AIDS workshops conducted _____

Indicate the duration of workshops _____

Indicate the total number of Workers that participated in the HIV/AIDS workshops _____

Indicate the total number of Workers that were exposed to the video on HIV/AIDS in the Construction Industry

_____

Comments on HIV/AIDS workshops on site _____

_____

GENERAL

Briefly describe programme activities and satisfaction with outcome _____

_____

_____

Additional comments, suggestions or needs with regard to the HIV/AIDS awareness programmes on site

_____

_____

_____

Please indicate if your company has a formal HIV/AIDS policy focussing on HIV/AIDS awareness raising and care and support of HIV/AIDS Workers	Yes	No	Currently developing one

Please indicate if, to your knowledge, you have lost any workers during the duration of the project to HIV/AIDS related sicknesses. One or more of the following might indicate an HIV/AIDS related death:

Excessive weight loss	Coughing or chest pain	Vomiting
Reactive TB	Pain when swallowing	Meningitis
Hair loss	Persistent fever	Memory loss
Severe tiredness	Diarrhoea	Pneumonia

Number of HIV/AIDS-related deaths _____

_____ _____

Contractor **Date**

_____ _____

Departmental Project Manager **Date**

ADDITIONAL SPECIFICATION

SI OCCUPATIONAL HEALTH AND SAFETY

CONTENTS

SI 01 APPLICABLE LEGISLATION AND REGULATIONS
SI 02 SCOPE OF WORK
SI 03 THE PRINCIPLE CONTRACTOR'S GENERAL DUTIES
SI 04 THE PRINCIPLE CONTRACTOR'S SPECIFIC DUTIES
SI 05 THE PRINCIPLE CONTRACTOR'S SPECIFIC DUTIES WITH REGARD TO HAZARDOUS WORK OR ACTIVITIES

SI 01 APPLICABLE LEGISLATION AND REGULATIONS

This document was prepared to guide the Agent in the compilation of a Health and Safety Specification in terms of Sub-regulation 4(1)a of the Construction Regulation as published under Government Notice R.2003 of 18 July 2003. The content of this document or the fact it was made available for the use of the Agent will not relieve the Agent of any of his obligations in terms of the act.

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to. .

SI 02 SCOPE OF WORK

All work forming part of this Contract is divided into installations.

Schedule 2: Corrective Maintenance Related Work

1. Structural And Building
2. Plumbing And Drainage
3. Building And Site Electrical
4. Fencing, Cleaning And Site Keeping
5. Bulk Water Supply Systems And External Water Networks
6. Wastewater Treatment Works And Sewer Networks
7. Roads And Storm Water
8. Heating, Ventilation And Air Conditioning
9. Conventional Fire Fighting Equipment
10. Incinerator

Maintenance will be preformed on following installations:

Beitbridge Port of Entry

- Installation A1: Beitbridge – Structural and Building Related Work
- Installation A2: Beitbridge - Operational Buildings: Plumbing And Drainage
- Installation A2: Beitbridge - Residential Buildings: Plumbing And Drainage
- Installation A3: Beitbridge - Operational Buildings: Building Electrical
- Installation A3: Beitbridge - Residential Buildings: Building Electrical
- Installation A4: Beitbridge - Fencing, Cleaning Of Buildings And Site Keeping
- Installation A5: Beitbridge - Bulk Water Supply Systems And External Water Networks
- Installation A6: Beitbridge - Wastewater Treatment Works And Sewer Networks
- Installation A7: Beitbridge - Roads And Storm Water Drainage
- Installation A8: Beitbridge - Standby Power Installations
- Installation A9: Beitbridge - External Lighting
- Installation A10: Beitbridge - Medium And Low Voltage
- Installation A11: Beitbridge - Heating, Ventilation And Air Conditioning Systems
- Installation A12: Beitbridge - Conventional Fire Fighting Equipment
- Installation A13: Beitbridge - Incinerator

Operation work will be performed on the following installations:

- Installation B1: Beitbridge - Bulk Water Supply System
- Installation B2: Beitbridge - Wastewater Treatment Works

The repair work to be performed as part of the installations under this Contract mainly consists of the following:

Structural and Building Works

- General structural repair due to operation damage, wear and tear work such as paintwork, replacement of damaged items, e.g. doors, locks, windows, etc. on all buildings
- Apply varnish to all exterior timber doors
- Painting of roof timbers and facia boards
- Repair work to two face brick houses.

Plumbing and Drainage

- Replacement of missing or damaged toilette seats
- Replacement of damaged toilette pans
- Service of Cisterns and flush masters
- Servicing of all taps, valves, etc.
- Servicing and cleaning of geysers due to hardness salt precipitation
- Replacement of geyser due to hardness salt precipitation
- Repair work to two face brick houses.

Building and Site Electrical

- Supply and install a cable to the chlorinator
- Power supply to the borehole pump
- Power supply to the pumps and equipment at the WWTW
- Service the HV Switchgear and transformers
- Replace the distribution kiosks at the park homes
- Lamp replacements

- Service distribution boards
- Replacement of faulty/damaged lights, light switches and socket outlets.

Fencing, Cleaning and Site Keeping

- Installation of ablution block equipment
- Damage repair to fences
- Cleaning of fire break areas at perimeter fences.

Bulk Water & External Water Reticulation

- Pressure cleaning the three existing boreholes that were drilled during the construction Contract.
- Test 4 boreholes.
- Connect one borehole for additional water supply and allow for repair of borehole pumps if required to ensure the recommend flow.
- Installation of a motor control centre for the army base borehole.
- Recondition existing motor control centres when required.
- Borehole pipe connections for four boreholes that will be utilised.
- Servicing of all type of valves.
- Replace all types of valves when required.
- Once off cleaning out of manholes in borehole pump line.
- Service manhole covers opening mechanisms on pumping main valve chambers.
- Supply, deliver and install new enclosure complete with roof and floor at the army base borehole as per drawing.
- Supply, deliver and install new enclosure complete with roof and floor at the reservoir as per drawing.
- Supply and Delivery of a Chlorination System.
- Compile operating and maintenance manuals to supply a complete set of operating and maintenance manuals.
- Repair of pipe lines when required, valves, sprinklers and manholes.

Wastewater Treatment Works and Sewer Networks

- Repair (When necessary) two sludge removal pumps in order to accommodate gravity sludge removal and to ensure a 100mm diameter solid passing through the pump
- Recondition existing motor control centres when required.
- Clean at raw sewer pump station
- Service motor control centre if required
- Servicing of existing flow measuring equipment
- Service existing pumps and motors when so required
- Cleaning out of rotating biological contactor
- Repair a leak in the biological contactor chamber.
- Service motor control centre if required
- Cleaning out of chlorination channel
- Service chlorinator
- Servicing of all types of valves if required
- Update existing operating and maintenance manual
- Commissioning and testing of the installation.

Roads and Storm water Drainage

- Road marking and maintenance of road signs
- Replacement of damaged paving at residential area
- Repair exiting bitumen road surface at the residential area.

Standby Power

- General servicing of the existing Standby Generators
- Provide diesel for the standby generators for the duration of the contract.

External Lighting

- Servicing of the existing perimeter, street and area lights
- Bulk Lamp replacement.

Heating, Ventilation and Air-Conditioning Systems

- Servicing of all the existing air conditioners in the various buildings and residential units
- Replacement of air conditioners that are at the end of their life cycle at the park homes.

Conventional Fire-Fighting Equipment

- Servicing of all fire fighting equipment
- Compile fire plans for operational buildings.

Incinerator

- Servicing of burners and equipment of Incinerator
- Provide diesel for the Incinerator for the duration of the contract.

SI 03 THE PRINCIPAL CONTRACTOR'S GENERAL DUTIES

The Principal Contractor's general duties in terms of this Health and Safety Specification are, but not limited to, the following:

1. Every Principal Contractor shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees and other contractors.

2. Without derogating from the generality of a Principal Contractor's duties under subsection (1), the matters to which those duties refer include in particular –

    a. the provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;

    b. taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees and other contractors, before resorting to personal protective equipment;

    c. making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;

    d. establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or

machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;

e. providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees and other contractors;

f. not permitting any employee or contractor to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;

g. taking all necessary measures to ensure that the requirements of this Health and Safety Specification are complied with by every person in his employment or on premises under his control where plant or machinery is used;

h. enforcing such measures as may be necessary in the interest of health and safety;

i. ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and

j. causing all employees and other contractors to be informed regarding the scope of their authority as contemplated in section 37(1)(b) of the Act.

SI 04 THE PRINCIPAL CONTRACTOR'S SPECIFIC DUTIES

The Principal Contractor's specific duties in terms of this Health and Safety Specification are specified in the Construction Regulation as published under Government Notice R. 2003 of 18 July 2003. (Hereinafter referred to as "Construction Regulation, 2003").

The Principal Contractor is specifically referred to the following sub-regulations of the Construction Regulation, 2003:

Subject	**Applicable sub-regulation of the Construction Regulation, 2003.**
Definitions	1
Scope of application	2
Notification of construction work	3
Principal Contractor and Contractor	5
Supervision of construction work	6
Risk assessment	7
Approved inspection authorities	29
Offences and penalties	30
Withdrawal of regulations	31
Short title	32

The Principal Contractor will acquaint himself with these duties and will make provision in his Contract price for the implementation and supervision of these duties.

SI 05 THE PRINCIPAL CONTRACTOR'S SPECIFIC DUTIES WITH REGARD TO HAZARDOUS WORK OR ACTIVITIES

The following hazardous work or activities were identified in terms of the Construction Regulation, 2003, and it is the duty of the Principal Contractor to ensure that the said work and activities are performed or

carried out in terms of the relevant sub regulations of the Construction Regulation, 2003 and other applicable Regulations.

Hazardous work or activity	**Applicable sub-regulation of the Construction Regulation, 2003.**	**Other applicable Regulations**
Fall protection	8	
Structures	9	
Formwork and support work	10	
Excavation	11	Precautionary measure as stipulated for confined spaces under the All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to.
Demolition work	12	Asbestos related work will be conducted in accordance with the Asbestos Regulations published under Government Notice R. 155 of 10 February 2002 as amended. Lead related work will be conducted in accordance with the Lead Regulations published under Government Notice R. 236 of 28 February 2002 as amended.
Scaffolding	14	Section 44 of the Act.
Suspended scaffolds	15	Section 44 of the Act.
Boatswains chairs	16	
Material hoists	17	
Explosive powered tools	19	
Cranes	20	Applicable provisions of the Driven Machinery Regulations as published under Government Notice R.533 of 16 March 1990, as amended.
Construction vehicles	21	
Electrical installations and machinery on construction sites.	22	Applicable provisions in the Electrical Installation Regulations published under Government notice R.2920 of 23 October 1992 and the Electrical Machinery Regulations published under Government Notice R.1953 of

Hazardous work or activity	Applicable sub-regulation of the Construction Regulation, 2003.	Other applicable Regulations
		12 August 1988 respectively as amended.
Use and temporary storage of flammable liquids on construction sites.	23	Applicable provisions as stipulated in the General Safety Regulations published under All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003 shall be adhered to.
Water environments	24	
Housekeeping on construction sites.	25	Applicable provisions as stipulated in the Environmental Regulations for Works places published under Government Notice R.2281 of 16 October 1987, as amended.
Stacking and storage on construction sites.	26	Applicable provisions as stipulated in the General Safety Regulations published under Government Notice R.1031 of 30 May 1986, as amended.
Fire precautions on construction sites.	27	Applicable provisions as stipulated in the Environmental Regulations for Works places published under Government Notice R.2281 of 16 October 1987, as amended.
Construction Welfare facilities	28	Applicable provisions as stipulated in the Facilities Regulations under Government Notice R.1593 of 12 August 1988, as amended.

SI 06 PERFORMANCE MEASUREMENT

The Contractors compliance to the Occupational Health and Safety Act shall be measured against pre-set parameters relating to compliance to the Act.

SI 06.01 INSPECTIONS BY THE APPOINTED OHSA OFFICER

The OHSA Officer shall inspect the construction site at any time during the construction and repair work period. The Officer shall complete a score card consisting of the following parameters to ensure that the Principal Contractor provide and maintain as far as reasonable a working environment that is safe and without risk to the health of his employees and other persons:

- Safety Management
- Appointments
- Registers
- Facilities
- Incident Management
- Signs
- Contractors (Sub-Contractors)
- Activity / Conditions
- Personal Protective Equipment
- Electrical
- Housekeeping
- Site Establishment
- Records

SI 06.02 EVALUATION SCORE CARD

The OHSA Officer shall inspect each of the above indicated compliance criteria relating to construction and repair work for each type of installation.

The Officer will use a score card to measure compliance under the 13 Sections culminating in a total of 82 possible inspection items, depending on construction activities being executed.

The Officer will record his inspection findings directly onto the Score Card. Items that are not applicable to the site or construction work will not be relevant on the score card and each will have a maximum score of 100%. The Contractor shall always have to comply 100% to each section in order to receive payment for the point associated with that particular section.

SI 06.03 PERFORMANCE SCORE CARD

The thirteen performance indicators shall be recorded on the Performance Score Card and will be used to measure the Contractors remuneration for compliance to the Occupational Health and Safety Act.

The Contractor shall aim to perform satisfactory on all 13 indicators. Compliance shall either be satisfactory (full compliance) or unsatisfactory(less than 100% per indicator) and the Contractor shall score one (1) or zero (0) respectively per indicator.

A copy of the OHSA Evaluation Score Card and Performance Score Card is included in this specification.

I 07 MEASUREMENT AND PAYMENT

SI. 01 COMPLAINCE TO OHSA REQUIREMENTS AND CONSTRUCTION REGULATIONS 2003..... Points

The unit of measurement shall be a point. Each month shall represent a maximum of thirteen points and a minimum of zero points depending on the compliance to the OHSA.

Thirteen points per month shall mean full compensation for OHSA compliance for work.

DEPARTMENT OF PUBLIC WORKS **OHSA**
PERFORMANCE SCORE CARD

CONTRACT NUMBER: WCS _____

CONTRACT:

CONTRACTOR:

ENGINEER:

INSTALLATION: **MONTH:** 0 0 OF **36**

OHSA Performance Indicators

1. ITEMS	**0**	**1**
1.1 SAFETY MANAGEMENT		
1.2 APPOINTMENTS		
1.3 REGISTERS		
1.4 FACILITIES		
1.5 INCIDENT MANAGEMENT		
1.6 SIGNS		
1.7 CONTRACTORS (SUB CONTRACTORS)		
1.8 ACTIVITY / CONDITIONS		
1.9 PERSONAL PROTECTIVE EQUIPMENT		
1.10 ELECTRICAL		
1.11 HOUSEKEEPING		
1.12 SITE ESTABLISHMENT		
1.13 RECORDS		
TOTAL:		

Engineer's Representative **Signature** **Date**

Construction, Repair and Maintenance							
ADDITIONAL SPECIFICATION. SI OCCUPATIONAL HEALTH SAFETY EVALUATION SCORE CARD							
ITEM	**DESCRIPTION**					**ACTION**	
NO	**ITEM**	**POSSIBLE POINTS**	**POINTS AWARDED**	**NO**	**ITEM**	**POSSIBLE POINTS**	**POINTS AWARDED**
1	**SAFETY MANAGEMENT**			**7**	**CONTRACTORS (SUB CONTRACTORS)**		
1.1	Client SHE (SI) Specifications available on site?	1		7.1	Updated list of Sub Contractors available?	1	
1.2	Principal Contractors SHE Plan available?	1		7.2	Mandatory Agreements with all Sub Contractors on file?	1	
1.3	Adequate Risk Assessments available?	1		7.3	Safety File complete (appointments, risk assessments, safe work procedures, registers)?	1	
1.4	Safe Work Procedures available?	1		7.4	Sub Contractor's First Aider on site or alternatively	1	
1.5	Safe Work Procedures approved by Engineer?	1			First Aid Agreement in place with Contractor?		
1.6	Fall Protection Plan available?	1					
1.7	Notification of Construction Work available?	1					
2	**APPOINTMENTS**						
2.1	Contractor to confirm if there are any new appointments to be minuted	1		**8**	**ACTIVITY / CONDITIONS**		
2.2	Are all the appointments recorded and available in the Health and Safety File ?	1		8.1	Correct use of Scaffolding?	1	
3	**REGISTERS**			8.2	Correct use of Support Work?	1	
3.1	Fire Extinguisher (stores, site office etc.)	1		8.3	Workers working safely at Elevated Positions?	1	
3.2	Ladders	1		8.4	Safe Operations?	1	
3.3	Scaffolding	1		8.5	Barricading?	1	
3.4	Excavations	1		8.6	Roof work: Harnesses & Lifelines?	1	
3.5	Form / Support Work	1		8.7	Excavation: Shoring & Batter?	1	
3.6	Portable Electrical Tools	1		8.8	Manholes: Demarcated?	1	
3.7	Hand tool Inspection	1		8.9	Ladders Conditions?	1	
3.8	Personal Protective Equipment & Clothing (PPE & C)	1		8.10	Construction Vehicle Condition?	1	
3.9	Explosive Powered Tools	1		8.11	Haz. Chem. Substances Applications?	1	
3.10	Crane	1		8.12	Hand tools properly used and in good condition?	1	
3.11	Lifting Machines	1		**9**	**PERSONAL PROTECTIVE EQUIPMENT**		
3.12	Lifting Tackle	1		9.1	Correctly issued (documented in file)?	1	
3.13	Construction Vehicles	1		9.2	Used correctly?	1	
3.14	Material/ Man Hoist	1		**10**	**ELECTRICAL**		
3.15	Hazardous Chemical Register	1		10.1	DB's & COC's?	1	
4	**FACILITIES**			10.2	Good Plugs / Earth Wire?	1	
4.1	Hygiene Inspection performed?	1		10.3	Electrical Leads / Condition?	1	
4.2	Toilets adequate and clean for	1		10.4	Portable Electrical Tools?	1	

	workers?						
4.3	Change Area available?	1		**11**	**HOUSEKEEPING**		
4.4	Eating Area available for workers?	1		11.1	Good Stacking & storage?	1	
4.5	Washing Area available for workers?	1		11.2	Cement spillage control?	1	
5	**INCIDENT MANAGEMENT**			11.3	Dust control?	1	
5.1	First Aid Box adequate and available?	1		11.4	Placing of Sand / Stone / Bricks/ materials?	1	
5.2	First Aider on site & valid First Aid Certificate in place?	1		**12**	**SITE ESTABLISHMENT**		
5.3	Any incidents to report; (Annexure 1 report; recur/investigation; record to FEM)?	1		12.1	Office	1	
6	**SIGNS**			12.2	Stores	1	
6.1	"No Unauthorized Entry" Signs?	1		12.3	Fencing / Hoarding	1	
6.2	"Danger Construction Work" signs?	1		12.4	Access Control	1	
6.3	"Danger Lifting Operations' sign?	1		**13**	**RECORDS**		
6.4	"Hard Hats" sign?	1		13.1	OHS Act; OHS spec; Construction Regulations	1	
6.5	"Dust Mask" sign?	1		13.2	SANS 10085 (Scaffolding)	1	
6.6	"Ear Protection" sign?	1		13.3	Safety Rep. Inspections	1	
6.7	"Eye Protection" sign?	1		13.4	Safety Meetings (Toolbox Talks and/ or Safety Committee)	1	
6.8	"Safety Harness' sign?	1		13.5	Employees Induction	1	
6.9	"No Smoking" sign?	1		13.6	Visitors Inductions	1	
6.10	Scaffold use: "Safe" or "Unsafe" signs?	1		13.7	Job Assessments	1	
6.11	"Emergency Assembly Point" sign?	1		13.8	Medical Certificates	1	
				13.9	Training Certificates (*Crane, Lifting Machines,* Vehicles, Scaffold, Safety Rep., TLB, Water Cart, Grader, Excavator, Roller, Front Loader, Mobile Crane, Bob-Cat, Bomag, Wacker and Tipper Trucks)	1	
				TOTAL POINTS TO BE AWARDED		**82**	
				TOTAL POINTS AWARDED		**0**	
				PERCENTAGE (%)		**0.00%**	
The Principal Contractor's Score Achieved is:		**0.00%**	.				
Compliance with Construction Regulations 2003 is SATISFACTORY / UNSATISFACTORY (delete which is N/A)							

ADDITIONAL SPECIFICATION

SJ COVID-19 GUIDELINES FOR MANAGEMENT OF RISK ON CONSTRUCTION SITES

CONTENTS

SJ 01 SCOPE

SJ 02 SPECIFICATIONS, ACTS AND REGULATIONS

SJ 03 GENERAL REQUIREMENTS

SJ 04 DEGREE OF RISK PER SITE TYPE

SJ 05 RISK MITIGATION PLAN

SJ 06 MEASUREMENT AND PAYMENT

SJ 01 SCOPE

This specification covers guidelines and requirements to reduce the risk of a COVID-19 outbreak in the workplace and the possible impact on workers and the public.

SJ 02 SPECIFICATIONS, ACTS AND REGULATIONS

SJ 02.01 GENERAL STANDARD SPECIFICATIONS

The latest edition, including all amendments up to the date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

CODE	DESCRIPTION
SH	HIV/AIDS Requirements
SI	OHS Act: Health and Safety
SANS 1200	Standard Specifications. A. General.

SJ 02.02 ACTS AND REGULATIONS

All regulations and statutory requirements as laid down in the latest edition of the following Acts and Regulations shall be adhered to:

ACT	DESCRIPTION
Act No. 85 of 1993	Occupational Health and Safety Act
	Construction Regulations, 2014
	Hazardous Biological Agents Regulation, 2000
Act No. 57 of 2002	Disaster Management Act
	COVID-19 Occupational Health and Safety Measures in Workplaces Covid-19 (C19 OHS), 2020
	Section 27(2) Regulations, 29 April 2020

SJ 02.03 MANUFACTURERS' SPECIFICATIONS, CODES OF PRACTICE AND INSTALLATION INSTRUCTIONS

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

SJ 02.04 MUNICIPAL REGULATIONS, LAWS AND BY-LAWS

All municipal regulations, laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

SJ 03 GENERAL REQUIREMENTS

SJ 03.01 IMPLEMENTING WORKPLACE CONTROLS

The legislation governing workplaces in relation to COVID-19 is the Occupational Health and Safety Act (Act 85 of 1993) as amended, in conjunction with the Hazardous Biological Agents Regulation.

A COVID-19 specific risk assessment together with a written policy concerning the health and safety of all employees, clients, suppliers and sub-contractors who are associated with the Contractor, shall be drawn up and communicated to all the relevant parties, along with mitigation measures which need to be monitored and adjusted should the need arise.

SJ 03.01.01 WORKPLACE CONTROLS

- All offices (including site offices) will be sanitised before opening for business each day.
- Place posters that encourage staying home when sick, cough and sneeze-etiquette, and hand hygiene at the entrances of offices and sites.
- On-site induction with special emphasis on COVID-19 will be done with all employees upon return to work.
- Provide tissues and waste bins lined with a plastic bag so that they can be emptied without contact with the contents.
- Instruct employees to clean their hands frequently using soap and water, for at least 20 seconds or with an alcohol-based hand sanitiser that contains at least 70% alcohol.
- Continue routine environmental cleaning, which includes tools and equipment.
- Increase ventilation in offices by natural or mechanical means.
- Provide soap and water and/or alcohol-based hand sanitiser (at least 70%) in the workplace in multiple locations and in common areas to encourage hand hygiene.
- Practice social distancing (2m) as far as possible (no handshakes, hugs, kissing, horseplay or touching each other). Keep distance from each other while working on site. Supervisors will monitor this throughout the day.
- While queuing at the gate to enter the site, employees must stand in a line, with at least 2m between them.

- Desks for employees working in the office (site office) will be spaced at least 1.5m apart or where this is not possible, protective barriers will be erected between desks.
- It is compulsory to wear face masks at all times. Each employee will be issued with two cloth face masks to wear at work and while commuting, with appropriate training on the use of these masks. Arrangements will be made for the washing, drying and ironing of cloth masks.
- Temperature testing will be done on all employees every morning upon arrival to site, and also randomly during the day. All readings will be recorded, monitored and sent to the SHEQ department. The testing will be conducted by the site safety officer. On sites where a full-time safety officer is not available, the responsibility will fall onto the supervisor.
- During the temperature screening, employees will be screened for any additional symptoms such as body aches, loss of smell or taste, nausea, vomiting, diarrhoea, fatigue, weakness or tiredness. The results will be recorded in the Social Distancing Control Sheet and send to the SHEQ department. If an employee displays any of the symptoms, he will not be permitted to enter the site/offices.
- In addition to posters, brief employees and sub-contractors that anyone with a mild cough or low-grade fever (37.3 or more) needs to stay at home and take sick leave.
- Any employee who develops flu-like symptoms (i.e. cough, shortness of breath, fever) or any of the additional symptoms should inform his supervisor immediately.
- Where practical, the minimum number of employees will be allowed on site, and rotation, staggered working hours and shift work may be implemented. Promote working from home for employees who are able to do so.
- All visitors to site will undergo induction and temperature screening and must be in possession of the appropriate PPE (i.e. face mask) prior to being allowed access to site. No access will be granted to visitors not complying.
- All visitors will be required to sanitize their hands before entering the site as well as when they leave.
- Sub-contractors shall ensure that all of their employees are issued with face masks and any other necessary PPE, and that hand sanitiser and soap is available for their employees.
- Temperature testing will be done by the sub-contractor and records kept. Failure to do so will result in the sub-contractor’s employee/s being put off-site until compliant.
- A copy of the Essential Service Permit must be available on site at all times. All sub-contractors to provide a copy of their Permit prior to being granted permission to work.
- All employees are obliged to comply with measures introduced in the workplace.

SJ 03.01.02 WHAT TO DO WHEN AN EMPLOYEE ON SITE BECOMES ILL WITH COVID-19

If someone becomes ill in the workplace and there is reason to suspect they may have contracted or come into contact with someone who has contracted the COVID-19 virus, the person must be isolated immediately, provided with a **FFP1 surgical mask**, and transport arranged for the employee to go home to be self-isolated or for medical examination. Ensure testing is done at an identified testing site.

The Department of Health and Department of Labour will be informed of any employees testing positive for COVID-19, whereafter an investigation will be conducted to establish the cause, including any control failures. The risk assessment will be reviewed to ensure necessary controls and PPE is in place.The risk of transmission will be assessed, the employees working area disinfected.

If an employee is confirmed to have COVID-19, his/her fellow employees will be informed of their possible exposure to COVID-19 in the workplace and referred for screening, but confidentiality must be maintained at all times, and no discrimination must be shown toward an employee who tested positive for COVID-19.

If evidence exist that the employee contracted COVID-19 as a result of Occupation Exposure, a Claim for Compensation will be lodged in terms of the Compensation of Occupational Injuries and Diseases Act 1993 (Act No. 130 of 1993) in accordance with Notice 193 published on 3 March 2020.

Once an employee was positively diagnosed with COVID-19 and isolated in accordance with the Department of Health Guidelines, the employee may only return to work after he has undergone a medical evaluation confirming the employee has tested negative for COVID-19. The employee will be required to wear a face mask, maintain social distancing and adhere to cough and sneeze-etiquette. The employee will also be monitored for symptoms upon his/her return to work.

SJ 03.01.03 <u>TRANSPORT</u>

- Where transport is provided, occupancy of the vehicle should be reduced in line with social distancing practice.
- All passengers must wear face masks or respirators.
- All passengers to sanitise their hands before getting into the transport, as well as when disembarking.
- Transport vehicles should be sanitised before and after each trip.
- Employees making use of public transport to ensure they wear face masks and sanitise their hands regularly (before getting into the transport and when disembarking) and attempt not to touch any surfaces unless absolutely necessary.

SJ 03.01.04 <u>MEETINGS</u>

Wherever possible, meetings are to be held via tele or video conference in order to maintain social distancing and prevent the possible spread of COVID-19.

Toolbox talk meetings, inductions and briefing sessions should be done in open areas with social distancing in place.

Progress meetings and technical meetings will be held in the site meeting building specified as 14 meter x 5 meter = 70m² to accommodate 12 persons. The conference table will accommodate 12 attendees, 2 meters apart. The room shall be well ventilated at a maximum temperature of 22°C.

SJ 03.01.05 TRACKING RECORD LOG

Example:

Tracking Record log (Employees/Visitors)

DATE	NAME	ID NUMBER	AGE	TEMPERATURE IN	SIGNATURE	TEMPERATURE OUT	SIGNATURE	SECURITY CONTROL SIGNATURE

SJ 03.01.05 TRAINING ATTENDANCE REGISTER

Example:

Training Attendance Register			
Training Description:			**Session No**
Date of training			
Time training started		**Time training ended**	
Duration of training			
Instructor name and signature			
Training provided (Tick applicable box)			
Read only	Class Room	Practical Demonstration	Communicated Changes

Employee number	**Employee name**	**Employee signature** *(Signature indicates acknowledgement that training was understood)*	**Type of training received**

SJ 04 DEGREE OF RISK PER SITE TYPE

<table>
<tr><th>BUILDING AND PROJECT TYPE</th><th>SITE SET-UP AND STAFF WELFARE</th><th>CONSTRUCTION STAGE</th></tr>
<tr><td>Lower Risk</td><td>For most, but not all project construction stage risk may be as follows:</td><td>For most but not all sites, set-up risk may be as follows:</td></tr>
<tr><td>Industrial, Logistical, Roads and Bridge Construction</td><td>Lower Risk</td><td>Lower Risk</td></tr>
<tr><td>Medium Risk</td><td>• Excavation and groundworks
• Foundations and Piling</td><td>• Large Sites</td></tr>
<tr><td>Residential Accommodation</td><td>Medium Risk</td><td>Medium Risk</td></tr>
<tr><td>High Risk</td><td rowspan="4">• Basement and Substructure
• Structural Frame
• Roofing
• Interior First Fix
• Interior Second Fix</td><td>• Site and management offices</td></tr>
<tr><td rowspan="3">Healthcare facilities, Correctional Centers, Military Bases, Police Stations, Magistrates Offices</td><td>High Risk</td></tr>
<tr><td rowspan="2">• Scaffolding
• Travel to and from site and access to site
• Horizontal walkways and vertical access
• Staff changing and locker rooms
• Showers and toilets
• Confined Spaces
• Confined Sites</td></tr>
<tr><td>• Cladding and Glazing
• M+E and Lifts
• Interior First Fix
• Interior Second Fix</td></tr>
<tr><td></td><td><u>GUIDLINE</u>
For each construction contract there will be different levels of risk and it will be critical to evaluate the specific risks of each individual project.</td><td><u>GUIDLINE</u>
For each construction site there will be different levels of risk and it will be critical to evaluate the specific risk of each individual project.</td></tr>
</table>

SJ 05 RISK MITIGATION PLAN

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Demographics of Labour: • Inadequate procedures in place to identify potential infected employees and workers • Manage the exposure to COVID-19 on the project, including visitors and suppliers	Contractor is to maintain a register of all employees and workers on the project, including Sub-Contractors (inclusive of employees and workers) and Professional Team, keeping records of the following information as a minimum (Note: the NIOH document that is currently available): • Name • Age of employee/visitor • Contact Details • Health status • Socio-economic status/unskilled labour (work force) • Accommodation arrangements (work force)	**CONTRACTOR**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Origin of labour and transportation Need to minimize the risk of exposure to virus whilst in transport	• **<u>On site transportation</u>**: Where on site transportation is done, a policy needs to be available for how such transportation will be made safe and limit any opportunity for cross infection. If possible, the Principal Contractor should provide their own transportation of work force. (Where not possible, use of public transport can be considered to comply to transport limitations) • **<u>Parking areas</u>**: Private and public vehicles are required to park outside of the construction site • Support staff for professional service providers are to work from office location or from home • **<u>Education and information</u>**: Information boards are required at entrance of sites and within Site Offices with information on the virus and precautions to be taken during working hours and traveling. • **<u>Social Distancing</u>**: 0 **<u>On site</u>**: As far as possible, work activities must be so arranged that social distance is kept to a minimum of 2 metre. 0 **<u>Site office</u>**: seating arrangements must be of such that social distancing for roll players is kept to a minimum of 1 metre, ie; '**<u>ONE CHAIR, SKIP CHAIR, ONE CHAIR, SKIP CHAIR</u>**'. 0 Roll players must be limited to Professional Team and principal contractor. 0 Facial Masks must be worn at all times by all roll players. 0 Contractor work force when on site and transportation to and from site, where hand gloves can be used, they should be worn at all times to minimize touching of possible contaminated surfaces and injury.	**CONTRACTOR AND PROFESSIONAL TEAM**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Public transportation across boarders/towns/cities Where a return to work will necessitate travel between Provinces and cities for employees and workers to return to the project, The Principal Contractor and Sub-Contractors are to have in place procedures for or provision of transport for the return of workers to minimize the risk of exposure to the virus whilst in transit.	**The contractor to source/recommend a transport service provider that complies with all travel restrictions and requirements as gazetted by the government, inter alia:** • Maximum occupancy of vehicles to allow for social distancing • Vehicles sanitized before passengers board • Passengers provided with Face Masks and hand sanitizers provided within vehicles for passengers sanitization before boarding and after returning from vehicles for comfort breaks • Regular testing of body temperature • Adequate number of vehicles to be provided to comply with the maximum occupancy • Principal Contractor to put in place procedures for sanitization of personal belongings and luggage of work force on arrival at final destination • Permits to be provided per vehicle and per passenger from Authorising Authority	**CONTRACTOR**
Social Distancing: Construction site and facilities not set up in such a way that it will be possible as far as is practicable to maintain the required social distancing of 2 metres between persons when at work **Risk:** Manual labour for physical tasks and tasks that will not allow for social distancing;	**<u>Tasks that require more than 1 person to complete</u>:** • Providing adequate supplies of suitable PPE such as face masks, task specific gloves, safety glasses, disposable/additional coveralls; • PPE used during multi-person activities to be exchanged immediately after the task is completed; • Sealed bins to be provided for disposable PPE such as masks, disposable coveralls, disposable gloves, etc.; • Sealable bags provided to each person for keeping PPE requiring laundering, such as gloves and coveralls, and • Sanitizing/washing facilities provided for immediate sanitizing of hard hats, safety glasses, shoes, safety harnesses etc, on completion of multi-person tasks	**CONTRACTOR**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Site access by non-employees/security access Inadequate access control measures in places	• Stop all non-essential visitors • All employees and non-employees to be screened with non-contact thermometers (Thermal Thermometers); • Body temperature checks with thermometer upon employee's arrival and departure; • Introduce staggered start and finish times to reduce congestion and contact at all times; • Take body temperatures of anybody stepping on or off site; • Monitor site access points to enable social distancing; • Number of access points to be reduced to enable controlled monitoring; • Ensure disinfectants are in place for disinfecting of shoes on entering/leaving the site; • Provide hand sanitizer for all entering the site to sanitize hands; • Allow social distancing of 2 metres in ques for all entering the site; • Regular cleaning of common contact surfaces areas, e.g.; desks, telephones handsets, site office door handles, chairs, etc.; • Drivers of suppliers of materials and goods and services must remain with their vehicles if load will allow it, if not, drivers are to wash hands before unloading goods and materials	**CONTRACTOR**
Alcohol and Drug Testing Lack of safe testing procedures in place for alcohol and drug testing	• Alcohol testing may only be done using single use test units, and must be disposed of in the appropriate contaminated waste bins provided on site; • Drug testing will only be done by an occupational health facility either using urine or blood sampling; • A protocol will be drawn up by the Principal Contractor to manage this with the occupational health service being used.	**CONTRACTOR**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Medical Surveillance No methodology in place as part of the normal requirements for pre-placement, periodic and exit medicals that includes factors related to COVID-19	• The normal requirements of pre-placement, periodic and exit medicals will remain, with the Occupational health service providing a methodology of how they will be including factors relating to Covid-19. No lung functions or peak flows will be done until deemed safe to do so by the South African Thoracic Society. • It is preferable that occupational health service providers use a cloud-based record keeping service to ensure easy tracking and tracing. Free apps such as Square 1 is such an example. • Any person who contracts the virus may need to be reported to the Compensation Commissioner as an occupational disease where their work is to monitor and in contact with others. Such details are provided in the Compensation for Injuries and Diseases Act (COIDA). • Isolation of workers who have a temperature or any symptoms, and removal to the closest facility for testing and treatment, through the numbers provided. The PC is to ensure their policy on this includes such information. • Workers will be required to complete COVID-19 questionnaires prior to returning to site. Any worker with any symptoms is not to return to work, or notify the PC of same.	**CONTRACTOR**
Ablution Facilities on Site Unhygienic ablution facilities leading to poor hygiene	• Restrict the number of people using toilet facilities at any one time. e.g. use a welfare attendant; • Hand washing facilities (soap and water, paper towel) to be available where possible, and if not, to provide hand sanitizer. Wash hands before and after using the facilities • Induction training to educate to ensure all users are hand washing correctly; • Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush handle. Flush toilets preferably 1:15 ratio unless increased cleaning regime present; • Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently. Portable toilets to be provided at a 1:10 ratio; • Provide suitable and enough rubbish bins for hand towels with regular removal and disposal be cleaned and emptied more frequently; • Introduce staggered start and finish times to reduce congestion and contact at all times; • Consider increasing the number or size of facilities available on site if possible.	**CONTRACTOR AND EMPLOYEES**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Waste Management for Covid-19 Waste Outdated waste management arrangements in place that leads to an increased risk of the spread of Covid-19	Waste management arrangements to be updated to include provision for the disposal of additional waste generated due to preventative measures implemented. All waste to be managed as hazardous waste. **a. Disposal of any gloves, masks** The contractor shall dispose of all used gloves and masks as hazardous waste and provide sealable bags and containers for the safe disposal of this waste. **b. Paper towels** The contractor shall provide adequate supplies of paper towels on site. At points where these towels are provided lined waste bins to be placed in order to collect all used towels and then to be disposed of in hazardous waste. **c. Disinfectant solution** The contractor to provide adequate supplies of disinfectant on site where the use of water and soap for cleaning is not practical. If disinfectant dispensers are not refilled it should be disposed with other hazardous waste. **d. Wastewater** Wastewater at washing points, toilets, and bathrooms to be contained in a drainage system that prevent surface spills. If wastewater is contained in waste buckets it must be sealed when removed and disinfected after it is cleaned.	**CONTRACTOR**
Site Meetings Not limiting the number of employees at all activities to the minimum required to do the work in a safe manner.	Only necessary meeting participants should attend. • Attendees should be two metres apart from each other. • Rooms should be well ventilated / windows opened to allow fresh air circulation. • Consider holding meetings in open areas where possible. • Technological alternatives to be exploited for meeting • Attendance if possible (Zoom, Skype, MS Teams). • Training and awareness to address procedures and the importance of social distancing. • Toolbox talks to be conducted outdoors when possible in order for persons to maintain social distancing. Where inclement weather does not allow for this, toolbox talks to be conducted with smaller groupings of workers in a sheltered area large enough to maintain social distancing.	**CONTRACTOR**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Signage Conflicting messages/notices displayed on the site in contravention with current requirements to respond to Covid-19	The Principal Contractor is to review all current signs and notices displayed on site. The PC is to avoid conflicting messages/notices that have been in place prior to lockdown and review accordingly. **a. Access rules** The contractor shall install additional signage with site rules specific to the prevention of spreading the COVID-19 virus at the access control points of the site. **b. Notices/Posters with protocols** Notices and posters shall be placed and installed to raise awareness and regarding protocols to be followed on site. These notices and posters shall be placed conspicuously at various points on the site including the following places: • Entrance • Site notice board • Site Office • Eating areas • Next to toilets and bathrooms • Hand washing stations • Storerooms	**CONTRACTOR**
Emergency Planning Emergency plan not completed and undated in line with current Regulations of the National Disaster Management Act	An updated emergency plan is to be completed that is in line with the current Regulations of the National Disaster Management Act. **a. First aid** Extra gloves, and disinfectants are to be available, first aiders are to be issued with at least FFP2 masks should they be required to respond **b. Evacuation plans** Evacuation plans should consider social distancing. **c. Isolation of potentially infected workers** The emergency plan is to consider how anyone who arrives on site and displays any of the symptoms, or has a raised temperature.	**CONTRACTOR**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Welfare facilities Lack of procedures and arrangements for the provision of welfare facilities to prevent the spread of Covid-19 between employees on site	The Principal Contractor shall adapt arrangements regarding the provision of welfare facilities to be in line with Government guidelines and requirements. **a. Clean, storage for food and personal belongings** The Principal Contractor to provide lockable storage for all employees on site, which shall be disinfected daily. Training and awareness to address procedures and the importance of good hygiene practice. **b. No personal belongings to be kept on site** Apart from extra clean personal clothing no other personal belongings allowed on site accept if kept in locker provided by the Principal Contractor. **c. No communal drinking facilities (shared cups etc.)** The Principal Contractor to provide adequate supplies of bottled water to all employees on site. Empty bottles to be disposed of as normal waste. Training and awareness to address procedures and the importance of good hygiene practice. **d. Eating areas** The Principal Contractor is to limit the number of employees at all activities to the minimum. Stagger lunchbreaks and resting periods for work teams. Training and awareness to address procedures and the importance of good hygiene practice and social distancing. • Workers are required to stay on site once they have entered it and not use local shops. • Dedicated eating areas should be identified on site to reduce food waste and contamination. Where catering is provided on site, it should provide pre-prepared and wrapped food only; • Payments should be taken by contactless card wherever possible; • Crockery, eating utensils, cups etc. should be disposable if supplied; • Drinking water should be provided with enhanced cleaning measures of the tap mechanism introduced; • Tables should be cleaned and disinfected between each use; • All rubbish should be put straight in the bin and not left for someone else to clear up; • All areas used for eating must be thoroughly cleaned at the end of each break and shift, including chairs, door handles, vending machines and payment devices.	**CONTRACTOR AND EMPLOYEES**

RISK DESCRIPTION	MITIGATION PLAN/ACTION	RESPONSIBILITY
Consequence Management Inadequate processes and procedures in place for consequence management	• When non-compliance activities are noted, that activity will be stopped. Should the remedial actions not take place the site will be shut down till the corrective actions have been implemented. • Employees that do not work according to the SSHSS and SSHSP must be disciplined according to the company's disciplinary codes and practices. • Supervisory employees on site must ensure compliance, and when non conformances are noted disciplinary actions should also be followed. • Principal Contractor's should note that they could be fined and even according to the Disaster Management Act, arrested.	**CONTRACTOR**

SJ 06 MEASUREMENT AND PAYMENT

SJ 06.01 **APPOINTMENT OF A COVID-19 AWARENESS CHAMPION**…….....Unit: Month

The unit of measurement shall be for the number of months the Awareness Champion is employed.

The tender rate shall include the training of the person on basic COVID-19 information and regulations and to ensure that the person has the necessary skills to handle questions and apply correct procedures regarding the COVID-19 regulations.

SJ 06.02 **ARRANGING AWARENESS WORKSHOP**…….....Unit: Number

The unit of measurement shall be for the number of events arranged.

The tender rate shall include the cost of the service provider, suitable venue and all tuition material and performing assessment procedures.

SJ 06.03 **PROVIDING PERSONAL PROTECTIVE EQUIPMENT (PPE)**.....Unit: Month

The unit of measurement shall be for the number of months the Contractor must provide PPE to all workers on site.

The tender rate shall include for face masks, gloves, tissues, towels etc. for all workers for the full construction period of 24 months.

SJ 06.04 **PROVIDING SANITIZING/WASHING FACILITIES**…….....Unit: Month

The unit of measurement shall be for the number of months the Contractor must provide sanitizing and washing facilities on site for the total 24 month contract period.

The tender rate shall include for providing sanitizing and washing facilities for all construction workers at all the different construction sites for all PPE equipment as specified.

SJ 06.05 **ADDITIONAL ABLUTION FACILITIES**…….....Unit: Number

The unit of measurement shall be for the number of facilities on the different construction sites.

The tender rate shall include for the construction of sanitizing and washing facilities consisting of a concrete floor area min 3 x 3 meter with 3 hand wash basins and IBR roof covering, including 5000ℓ water tank on stand, as well as soak away for grey water. The facilities to be maintained for the duration of construction at each site.

SJ 06.06 **SITE MEETING VENUE**…….....Unit: Sum

The unit of measurement shall be for the additional cost relating to the site meeting venue building as specified in SANS 1200 and PS 5.4.

The additional rate shall include for the additional m² size of the building and furniture which will consist of a separate chair and an 800mm x 600mm table desk for each of the 12 places.

SJ 06.07 **PROVIDE NOTICES AND POSTERS**……..….....Unit: Month

The unit of measurement shall be for the posters and information notices and booklets to raise awareness and to share information about COVID-19.

The posters and notices must be maintained at places as indicated in Item 1.10.7 at all the different construction sites for the duration of construction.

SJ 06.08 **PROVIDE SCREENING FACILITY**…….....Unit: Month

The unit of measurement shall be for the provision of a screening facility to accommodate workers daily at the start of every working day, including provision of infrared forehead thermometers and the maintenance of the equipment for the duration of the 24 month contract period.

PART C4: SITE INFORMATION

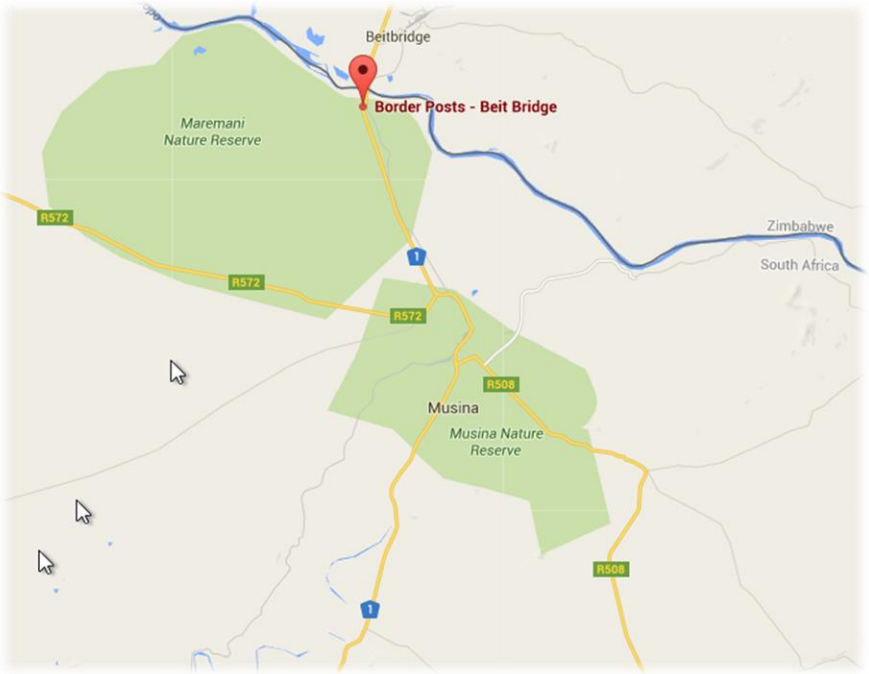
PG-03.1 (EC) SITE INFORMATION – GCC (2010) 2nd Edition 2010

Project title:	Land Port of Entry: Beit Bridge: Appointment of a Service Provider(s) for the Maintenance and repairs of Building, Civil, Mechanical and electrical Infrastructure and Installations for a period of 36 Months.				
Tender no:	*H22/002AI*	**WCS no:**	*055247*	**Reference no**:	6022/029/4

C4 Site Information

The location of each facility is briefly below:

- Beitbridge Port of Entry is located at the border between Zimbabwe and South Africa next to the Limpopo River and in the Limpopo Province approximately 15 kilometres from Musina, in the far northern region of the Limpopo Province.

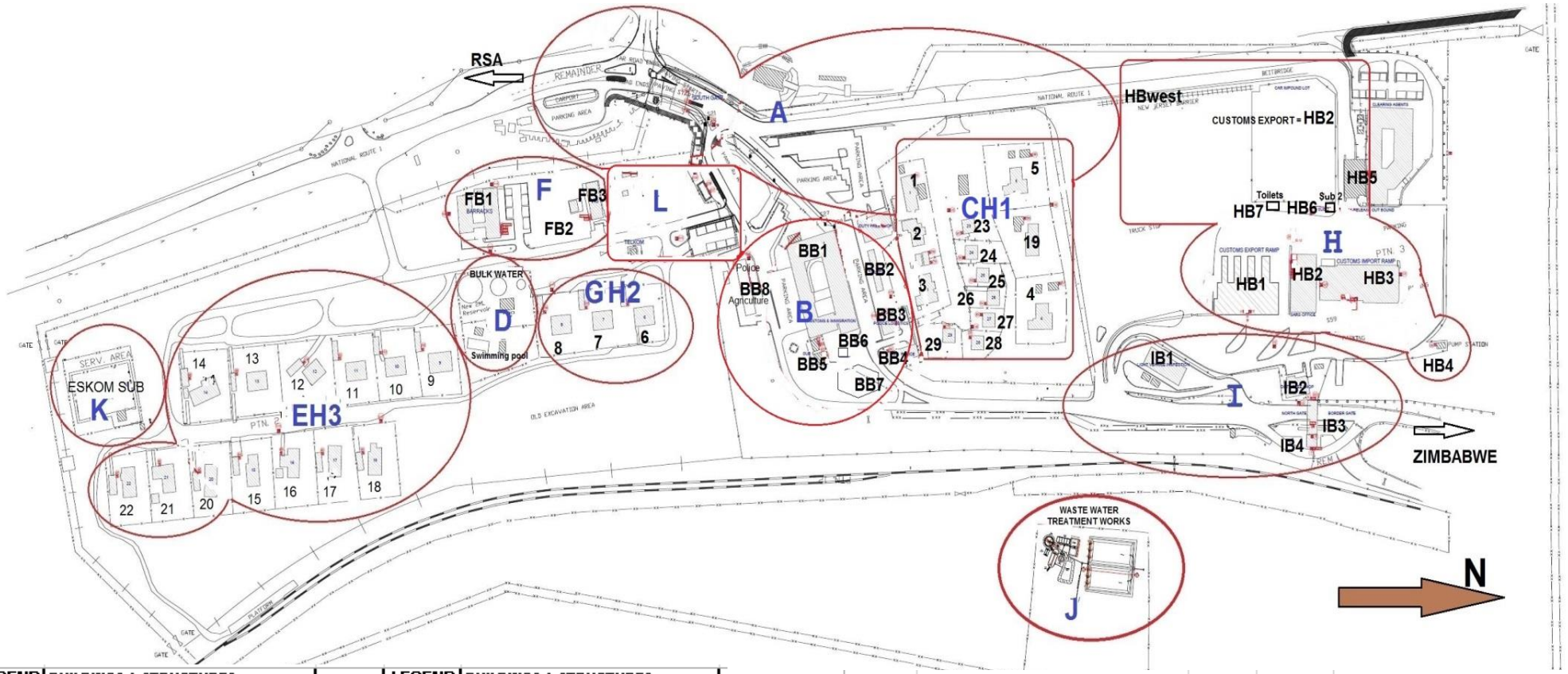


- Operational Area of the Beitbridge Port of Entry (See table and drawing below)

ITEM	DESCRIPTION	BUILDING TYPE
1	South Gate/ control post	Control point
2	SAPS investigation Building	Office
3	Temporary holding cells	Holding cells
4	SAPS Barracks Parking	Parking (Covered)
5	SAPS Barracks	Residence (Communal)
6	South gate departure	Control point building
7	Public ablutions Southgate	Ablutions
8	Vehicle Inspection	Inspection office
9	Staff Parking South Gate	Parking (Covered)
10	SAPS charge Office	Office building
11	Transition kiosk	Impermanent structure
12	Bus Passenger Public Ablutions	Ablutions
13	Customs & Immigration Building	Office building
14	Transformer Building	Power distribution
15	Genset 01	Power distribution
16	Incinerator	Incinerator
17	Immigration Arrival/departure Park home	Temporary structure
18	SAPS Logistic Building	Office building
19	SAPS support building	Office building
20	Public toilets-Outbound	Ablutions
21	Retail Outlet	Retail facility
22	Wastewater Treatment Plant	Residence
23	Export release building	Inspection/ commercial
24	Radiation scan facility	Scanning/Commercial
25	Commercial Public Ablution Outbound	Ablutions
26	Substation 02	Substation/ Power distribution
27	Port Health 01	Park home
28	Port Health 02	Park home
29	Manica Bypass Park homes x 2	Park home
30	Commercial building inspection Inbound	Inspection/ commercial
31	Commercial Office Building	Offices
32	Commercial Inspection Building-Outbound	Inspection/ commercial

33	Sewer Pump Station	Sewer Pump Station
34	Duty free International Retail Outlet	Retail facility
35	Light Vehicle Inspection (Outbound)	Inspection Area
36	Light Vehicle Inspection Office	Office
37	Queuing Shelter	Transition space
38	North Gate	Control Point
39	North Gate Public Ablutions	Ablutions
40	Manica Bypass Building	Office building

*Note: Operational Buildings is not limited to the above-mentioned list



LEGEND	BUILDINGS & STRUCTURES
A	Entrance from RSA – Canopy, Gate office.
AB1	Light Vehicle Inspection
AB2	Public toilets
BB1	Immigration & Customs
BB2	Public toilets
BB3	HRM Police
BB4	Police Logistics
BB5	Substation No 1
BB6	Incinerator
BB7	Temporary tent offices
BB8	Agriculture & Police station

LEGEND	BUILDINGS & STRUCTURES
CH1-1	Houses 1
CH1-2	Houses 2
CH1-3	Houses 3
CH1-4	Houses 4
CH1-5	Houses 5
CH1-19	Houses 19
CH1-23	Houses 23
CH1-24	Houses 24
CH1-25	Houses 25
CH1-26	Houses 26
CH1-27	Houses 27
CH1-28	Houses 28
CH1-29	Houses 29

LEGEND	BUILDINGS & STRUCTURES
D	Bulk water and water treatment
EH3-9	Houses 9
EH3-10	Houses 10
EH3-11	Houses 11
EH3-12	Houses 12
EH3-13	Houses 13
EH3-14	Houses 14
EH3-15	Houses 15
EH3-16	Houses 16
EH3-17	Houses 17
EH3-18	Houses 18
EH3-20	Houses 20
EH3-21	Houses 21
EH3-22	Houses 22

LEGEND	BUILDINGS & STRUCTURES
FB1	Police Barracks
FB2	Old jail
FB3	Vehicle Inspection Section
GH2-6	Houses 6
GH2-7	Houses 7
GH2-8	Houses 8
HB1	Customs Export Ramp
HB2	Customs Export Offices
HB3	Customs Import Ramp
HB4	Sewerage Pump Station
HB5	Clearing Agents Truck release outbound
HB6	Substation 2
HB7	Public Toilets
IB1	Light Vehicle inspection
IB2	Control Point (Zimbabwe)
IB3	Public Toilets
J	Waste Water Treatment Works
Z	Buildings on site

Housing Areas of the Beitbridge Port of Entry consist of the following (See table and drawing below)

- Residences Beitbridge at the Border (54 Building Structures)
  See page 4 of 9, for location at the Border

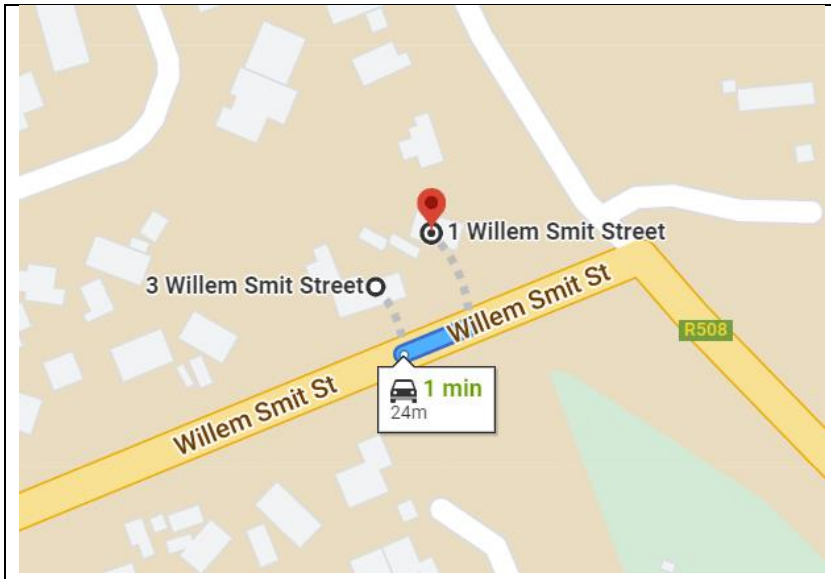
ITEM	DESCRIPTION		ITEM	DESCRIPTION
1	House 1		27	House 12
2	House 1 Outbuilding		28	House 12 Outbuilding
3	House 01		29	House 13
4	House 01 Outbuilding		30	House 13 Outbuilding
5	House 02		31	House 14
6	House 02 Outbuilding		32	House 14 Outbuilding
7	House 03		33	House 14 Carport
8	House 03 Outbuilding		34	House 18
9	House 04		35	House 18 Outbuilding
10	House 04 Outbuilding		36	House 17
11	House 04 Garage		37	House 17 Outbuilding
12	House 05		38	House 16
13	House 05 Outbuilding		39	House 16 Outbuilding
14	House 05 Garage		40	House 15
15	House 06		41	House 15 Outbuilding
16	House 06 Outbuilding		42	House 20
17	House 07		43	House 20 Outbuilding
18	House 07 Outbuilding		44	House 21
19	House 08		45	House 21 Outbuilding
20	House 08 Outbuilding		46	House 22
21	House 09		47	House 22 Outbuilding
22	House 09 Outbuilding		48	House 23
23	House 10		49	House 24
24	House 10 Outbuilding		50	House 25
25	House 11		51	House 26
26	House 11 Outbuilding		52	House 27
			53	House 28
			54	House 29

*Note: Residential Buildings is not limited to the above-mentioned list

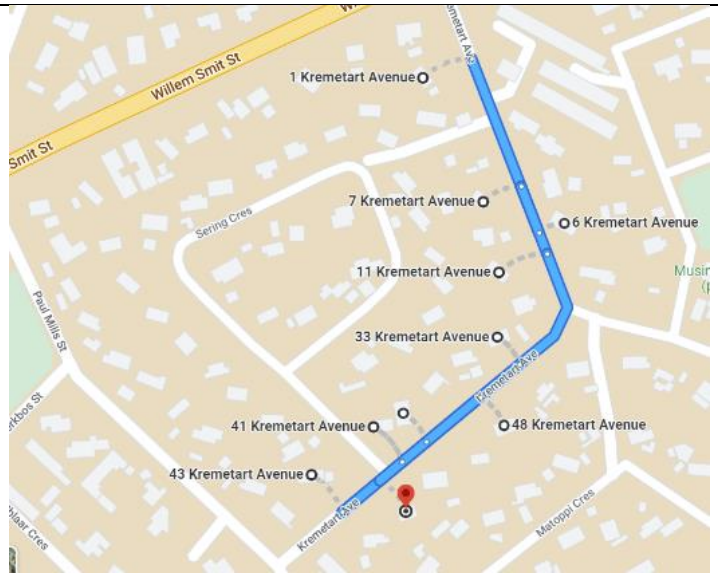
- Residences in Musina Town (76 Building Structures)
  See pages 7 to 9 for location in Town

ITEM	DESCRIPTION		ITEM	DESCRIPTION
1	1 Willem Smit		39	18 Sering Crescent
2	1 Willem Smit Outbuilding		40	18 Sering Crescent Outbuilding
3	3 Willem Smit		41	21 Sering Crescent
4	3 Willem Smit Outbuilding		42	21 Sering Crescent Outbuilding
5	1 Kremetart		43	27 Sering Crescent
6	1 Kremetart Outbuilding		44	27 Sering Crescent Outbuilding
7	6 Kremetart		45	29 Sering Crescent
8	6 Kremetart Outbuilding		46	29 Sering Crescent Outbuilding
9	7 Kremetart		47	31 Sering Crescent
10	7 Kremetart Outbuilding		48	31 Sering Crescent Outbuilding
11	11 Kremetart		49	39 Sering Crescent
12	11 Kremetart Outbuilding		50	39 Sering Crescent Outbuilding
13	33 Kremetart		51	41 Sering Crescent
14	33 Kremetart Outbuilding		52	41 Sering Crescent Outbuilding
15	39 Kremetart		53	12 Kerk
16	39 Kremetart Outbuilding		54	12 Kerk Outbuilding
17	41 Kremetart		55	16 Kerk
18	41 Kremetart Outbuilding		56	16 Kerk Outbuilding
19	43 Kremetart		57	17 Van Zyl
20	43 Kremetart Outbuilding		58	17 Van Zyl Outbuilding
21	48 Kremetart		59	40 Paul Mills
22	48 Kremetart Outbuilding		60	40 Paul Mills Outbuilding
23	54 Kremetart		61	44 Paul Mills
24	54 Kremetart Outbuilding		62	44 Paul Mills Outbuilding
25	3 Sering Crescent		63	9 Ds Henrico
26	3 Sering Crescent Outbuilding		64	9 Ds Henrico Outbuilding
27	4 Sering Crescent		65	23 Irwin Street
28	4 Sering Crescent Outbuilding		66	23 Irwin Street Outbuilding
29	5 Sering Crescent		67	54 Irwin Street
30	5 Sering Crescent Outbuilding		68	54 Irwin Street Outbuilding
31	8 Sering Crescent		69	2 Rooibos Crescent
32	8 Sering Crescent Outbuilding		70	2 Rooibos Crescent Outbuilding
33	11 Sering Crescent		71	8 Rooibos Crescent
34	11 Sering Crescent Outbuilding		72	8 Rooibos Crescent Outbuilding
35	13 Sering Crescent		73	33 Sekelbos Crescent
36	13 Sering Crescent Outbuilding		74	33 Sekelbos Crescent Outbuilding
37	15 Sering Crescent		75	6 Murphy Street
38	15 Sering Crescent Outbuilding		76	6 Murphy Street Outbuilding

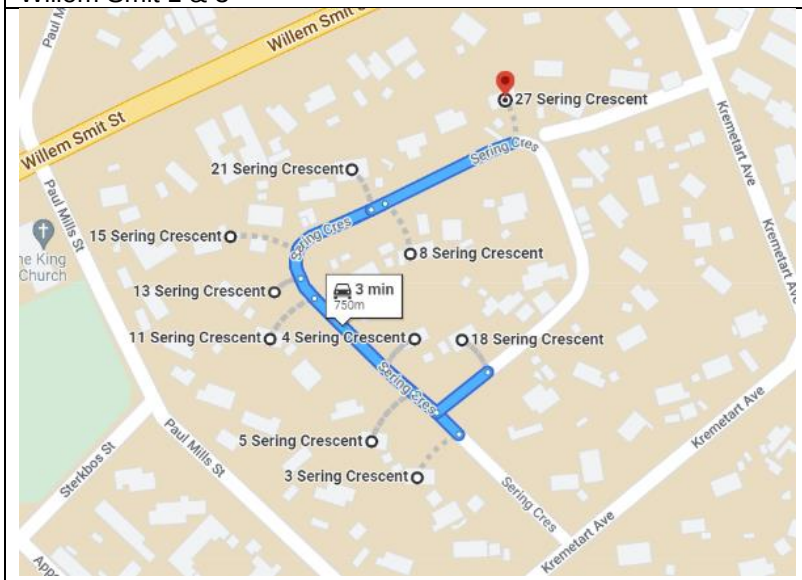
*Note: Residential Buildings is not limited to the above-mentioned list



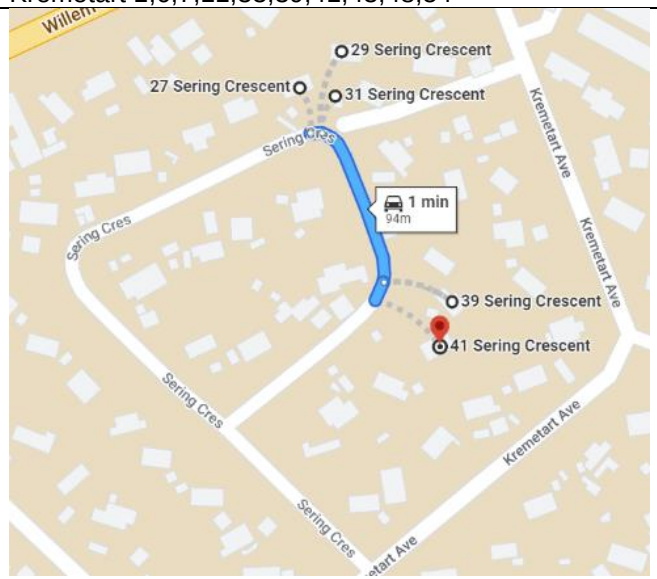
Willem Smit 1 & 3



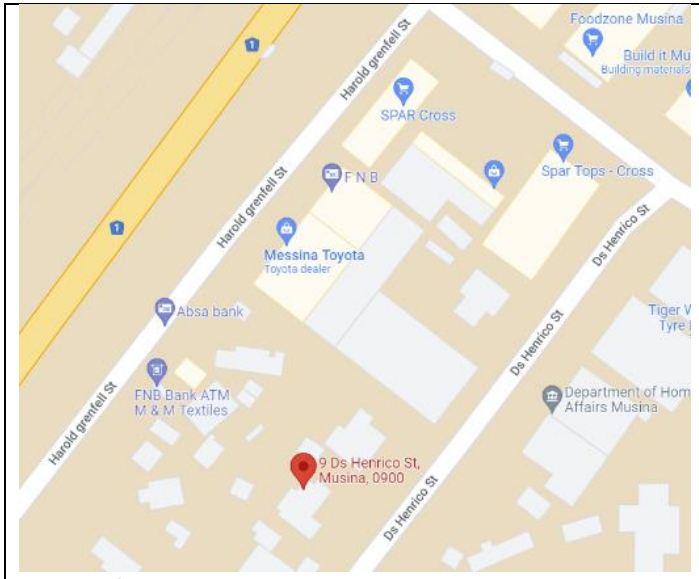
Kremetart 1,6,7,11,33,39,41,43,48,54



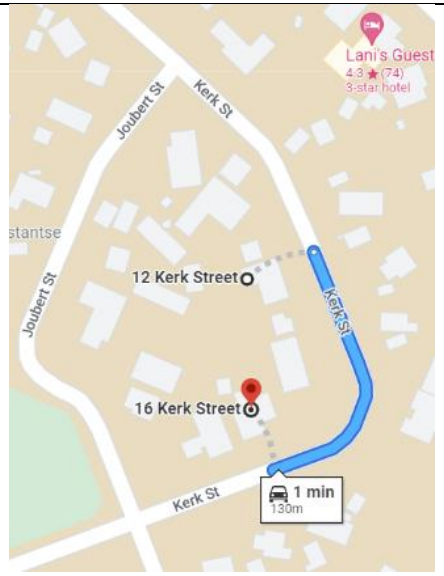
Sering Crescent 3,4,5,8,11,13,15,18,21,27



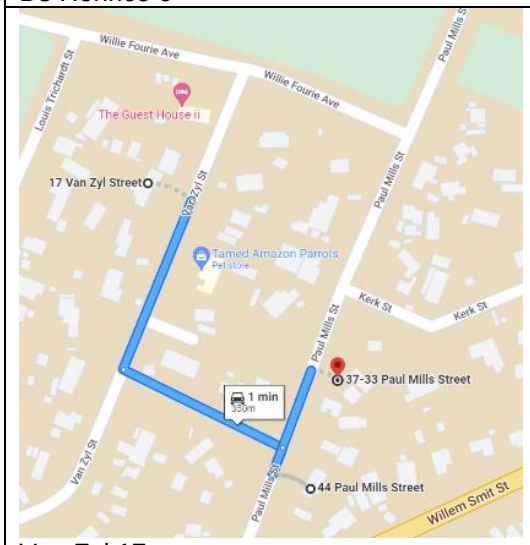
Sering Crescent 27,29,31,39,41



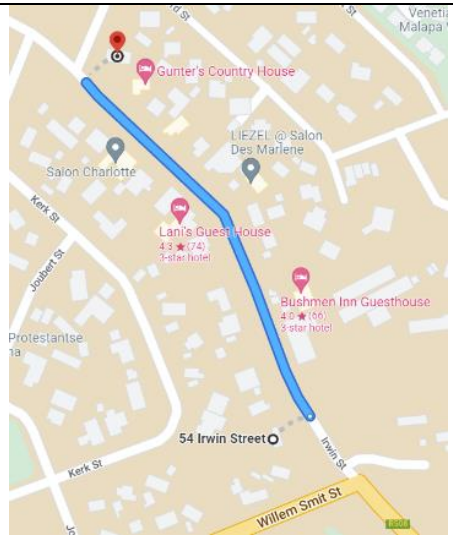
Ds Henrico 9



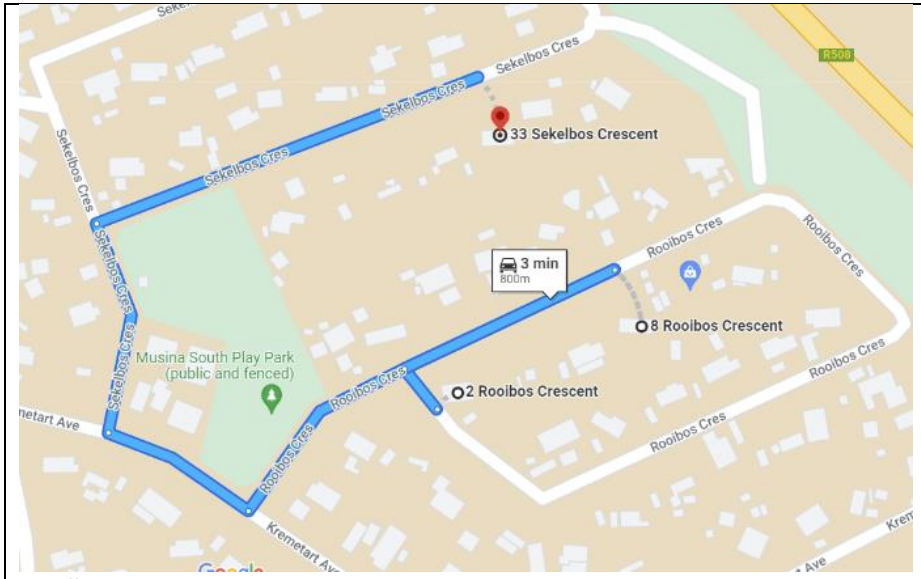
Kerk 12 & 16



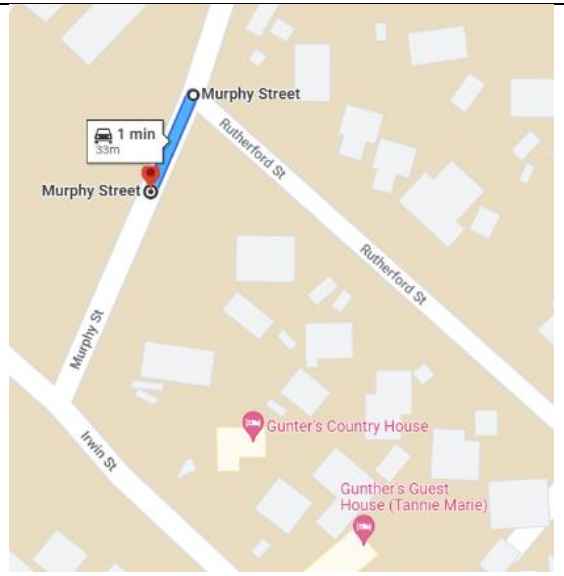
Van Zyl 17
Paul Mills 40 & 44



Irwin Street 23 & 54



Rooibos Crescent 2 & 8
Sekelbos Crescent 33



Murphy Street 6

C4.2 Additional info:

Additional drawings can be attained from client.

public works & infrastructure
Department:
Public Works and Infrastructure
REPUBLIC OF SOUTH AFRICA

DRAWING REGISTER

WCS NO :		**055247**				
REF N0		6022/029/4				
PROJECT DESCRIPTION:		Land Port of Entry: Beit Bridge: Appointment of a Service Provider(s) for the Maintenance and repairs of Building, Civil, Mechanical and electrical Infrastructure and Installations for a period of 36 Months.				
Date issued	**DRAWING No**	**No**	**REVISION No**	**DRAWING TITLE**	**NUMBER OF COPIES**	**TYPE (size & format)**
08/01/2019	C5849/00	1	0	Drawing Register	1	A3
08/01/2019	C5849/01	2	0	Site and fencing layout	1	A3
08/01/2019	C5849/02	3	0	Water reticulation layout	1	A3
08/01/2019	C5849/03	4	0	Sewer layout	1	A3
08/01/2019	EE10715/00	5	0	Electrical layout	1	A3
08/01/2019	ME304104/00	6	0	Fire layout	1	A3

DRAWING REGISTER

PROFTEAM
Professional Project Management and Engineering Services

CLIENT:	DEPARTMENT OF PUBLIC WORKS
PROJECT MANAGER:	G K LUKHELE
TENDER NO:	H16/022
WCS No:	WCS 052500
PROJECT TITEL:	BEITBRIDGE PORT OF ENTRY: 36 MONTHS MAINTENANCE; SERVICING AND REPAIR OF BUILDINGS; CIVIL; MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

ISSUE DATE			
08/01/2019			

DRAWING TITLE	DRAWING No:	REVISION NUMBER			
BEITBRIDGE PORT OF ENTRY: DRAWING REGISTER	C5849/00	0			
BEITBRIDGE PORT OF ENTRY: SITE & FENCE LAYOUT PLAN	C5849/01	0			
BEITBRIDGE PORT OF ENTRY: WATER RETICULATION SITE LAYOUT PLAN	C5849/02	0			
BEITBRIDGE PORT OF ENTRY: SEWER NETWORK SITE LAYOUT PLAN	C5849/03	0			
BEITBRIDGE PORT OF ENTRY: ELECTRICAL NETWORK SITE LAYOUT PLAN	EE10715/00	0			
BEITBRIDGE PORT OF ENTRY: FIRE LAYOUT PLAN	ME304104/00	0			

0 0.5 1 2 4m

No.	DATE	AMENDMENT	D.P.W.

as-built drawings

certified as-built drawings as per Centralised Drawing Archive AS-BUILT DRAWING REQUIREMENTS

name: J. H. MÖLLER

date: 08 FEBRUARY 2019

professional registration no.: 20100124

cad file name: C5849/00

page type: A 1

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
Adv SAM VUKELA

consultant

PROFTEAM
Professional Project Management and Engineering Services

discipline: CIVIL AND STRUCTURAL ENGINEERING

service: BEITBRIDGE – PORT OF ENTRY: 36 MONTHS MAINTENANCE: SERVICING AND REPAIR OF BUILDINGS: CIVIL, MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

WCS number: WCS 052500

drawing title: BEITBRIDGE PORT OF ENTRY: DRAWING REGISTER

ref.no.: – –

designed: J. H. MÖLLER

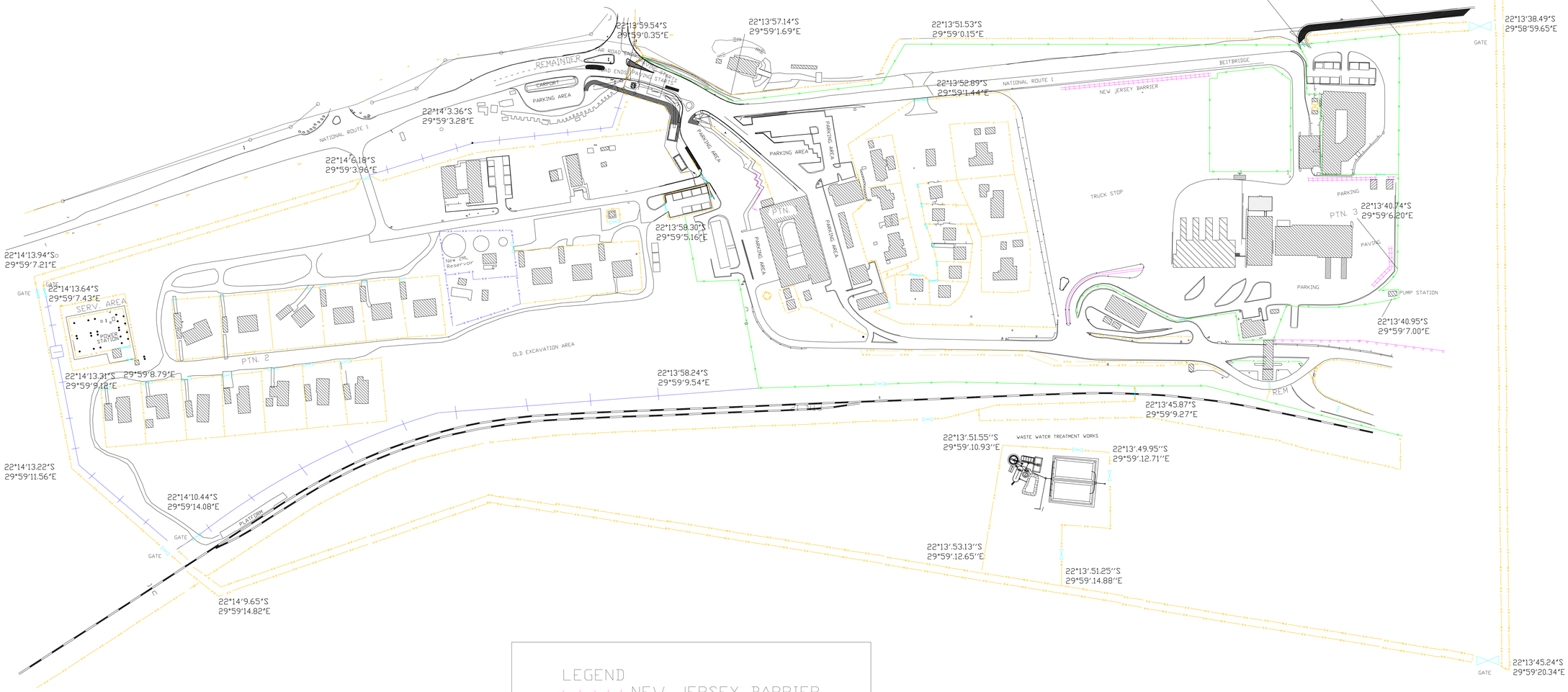
scale: NTS

drawn: J. CAMPHER

date: 08 FEBRUARY 2019

checked: J. H. MÖLLER

DPW drawing number: C5849/00



LEGEND

- NEW JERSEY BARRIER
- 1.8m High diamond mesh
- 3.0m High Steel Palesade
- 3m High diamond mesh
- 2.4m High diamond mesh
- 1.2m High diamond mesh
- 2.0m High concrete palesade
- S1-S72 Sleeves in manholes with 110 mm dia pvc pipes
- GATES
- Diamond mesh (3000x25x25x3.15)
- 3m High Beta security fence panels

0 0.5 1 2 4m

No.	DATE	AMENDMENT	D.P.W.

as-built drawings

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name: J. H. MÖLLER

date: 08 FEBRUARY 2019

professional registration no.: 20100124

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page type: A 1

public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
Adv SAM VUKELA

consultant

PROFTEAM
Professional Project Management and Engineering Services

discipline: CIVIL AND STRUCTURAL ENGINEERING

service

BEITBRIDGE – PORT OF ENTRY: 36 MONTHS MAINTENANCE: SERVICING AND REPAIR OF BUILDINGS: CIVIL, MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

WCS number: WCS 052500

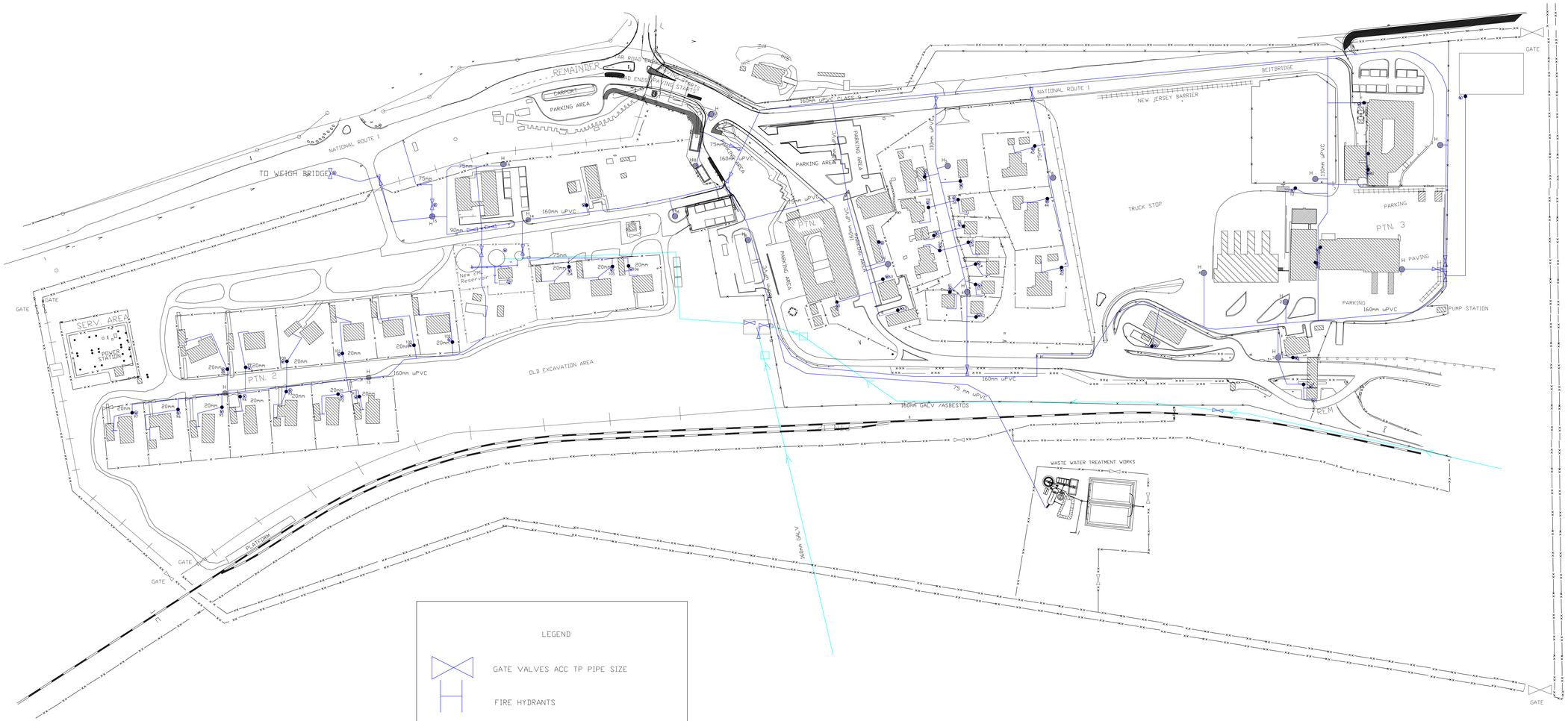
drawing title

BEITBRIDGE PORT OF ENTRY: SITE & FENCE LAYOUT PLAN

ref.no. __ __	designed J. H. MÖLLER
scale 1:2000	drawn J. CAMPHER
date 08 FEBRUARY 2019	checked J. H. MÖLLER

DPW drawing number

C5849/01



LEGEND

- GATE VALVES ACC TP PIPE SIZE
- FIRE HYDRANTS
- 20 mm dia SHUT OFF VALVES
- WATER FLOW FROM RESERVOIR
- u PVC WATER PIPES CLASS 9 dia AS INDICATED
- WATER FLOW TO BULK WATER WORKS
- W — WATER METERS

N

0 0.5 1 2 4m

No.	DATE	AMENDMENT	D.P.W.

as-built drawings

certified as-built drawings as per Centralised Drawing Archive AS-BUILT DRAWING REQUIREMENTS

name: J. H. MÖLLER

date: 08 FEBRUARY 2019

professional registration no.: 20100124

cad file name: C5849/02

page type: A 1

public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
Adv SAM VUKELA

consultant

PROFTEAM
Professional Project Management and Engineering Services

discipline: CIVIL AND STRUCTURAL ENGINEERING

service

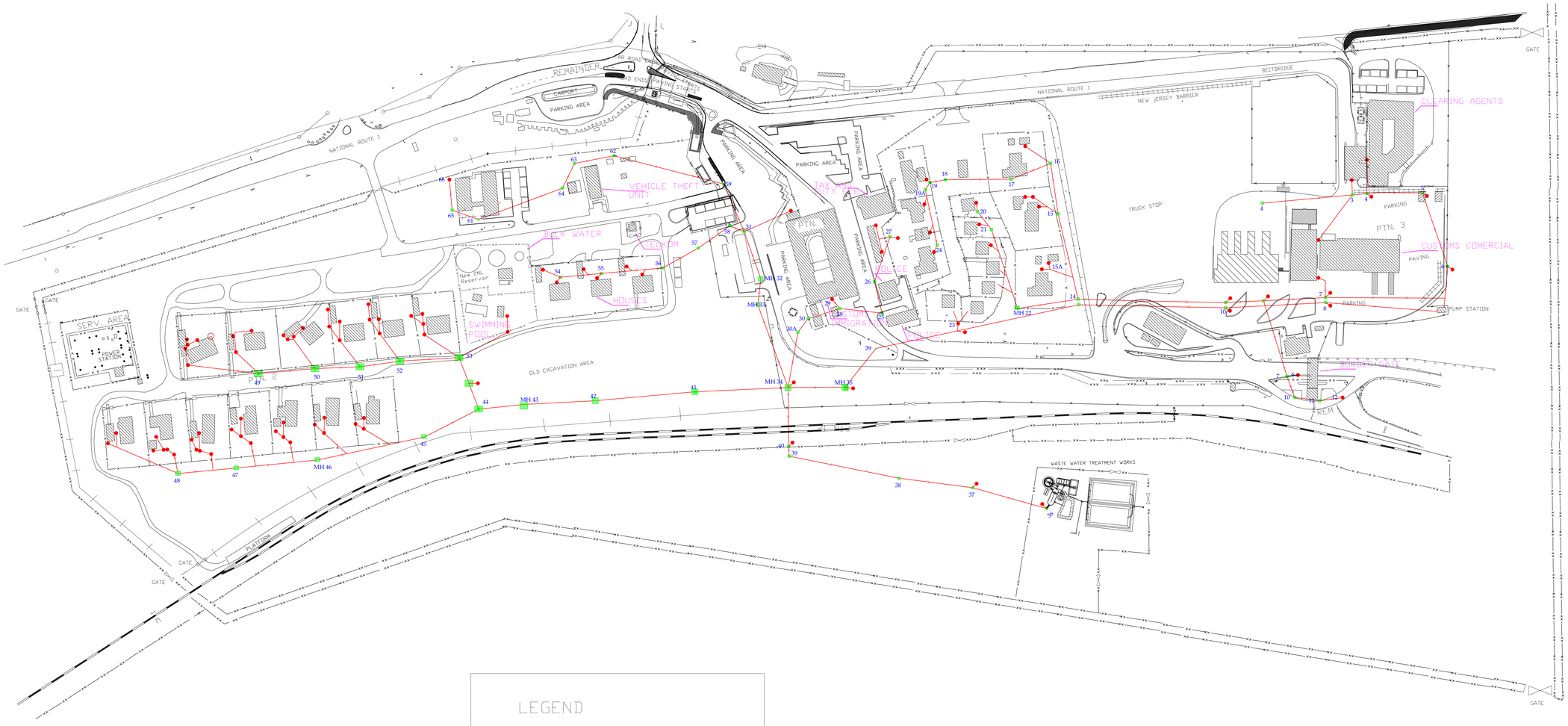
BEITBRIDGE – PORT OF ENTRY: 36 MONTHS MAINTENANCE: SERVICING AND REPAIR OF BUILDINGS: CIVIL, MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

WCS number: WCS 052500

drawing title: BEITBRIDGE PORT OF ENTRY: WATER RETICULATION SITE LAYOUT PLAN

ref.no. --	designed J. H. MÖLLER
scale 1:2000	drawn J. CAMPHER
date 08 FEBRUARY 2019	checked J. H. MÖLLER

DPW drawing number: C5849/02



LEGEND

INSPECTION EYES

MAN HOLES

INVERT LEVELS:

MH 22	3.6 m DEEP
MH 32	1.4 m DEEP
MH 33	1.7 m DEEP
MH 34	1.4 m DEEP
MH 35	1.1 m DEEP
MH 43	1.4 m DEEP
MH 46	0.6 m DEEP

N

0 0.5 1 2 4m

No.	DATE	AMENDMENT	D.P.W.

as-built drawings

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name: J. H. MÖLLER

date: 08 FEBRUARY 2019

professional registration no.: 20100124

cad file name: C5849/03

page type: A 1

public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
Adv SAM VUKELA

consultant

PROFTEAM
Professional Project Management and Engineering Services

discipline: CIVIL AND STRUCTURAL ENGINEERING

service

BEITBRIDGE – PORT OF ENTRY: 36 MONTHS MAINTENANCE: SERVICING AND REPAIR OF BUILDINGS: CIVIL, MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

WCS number: WCS 052500

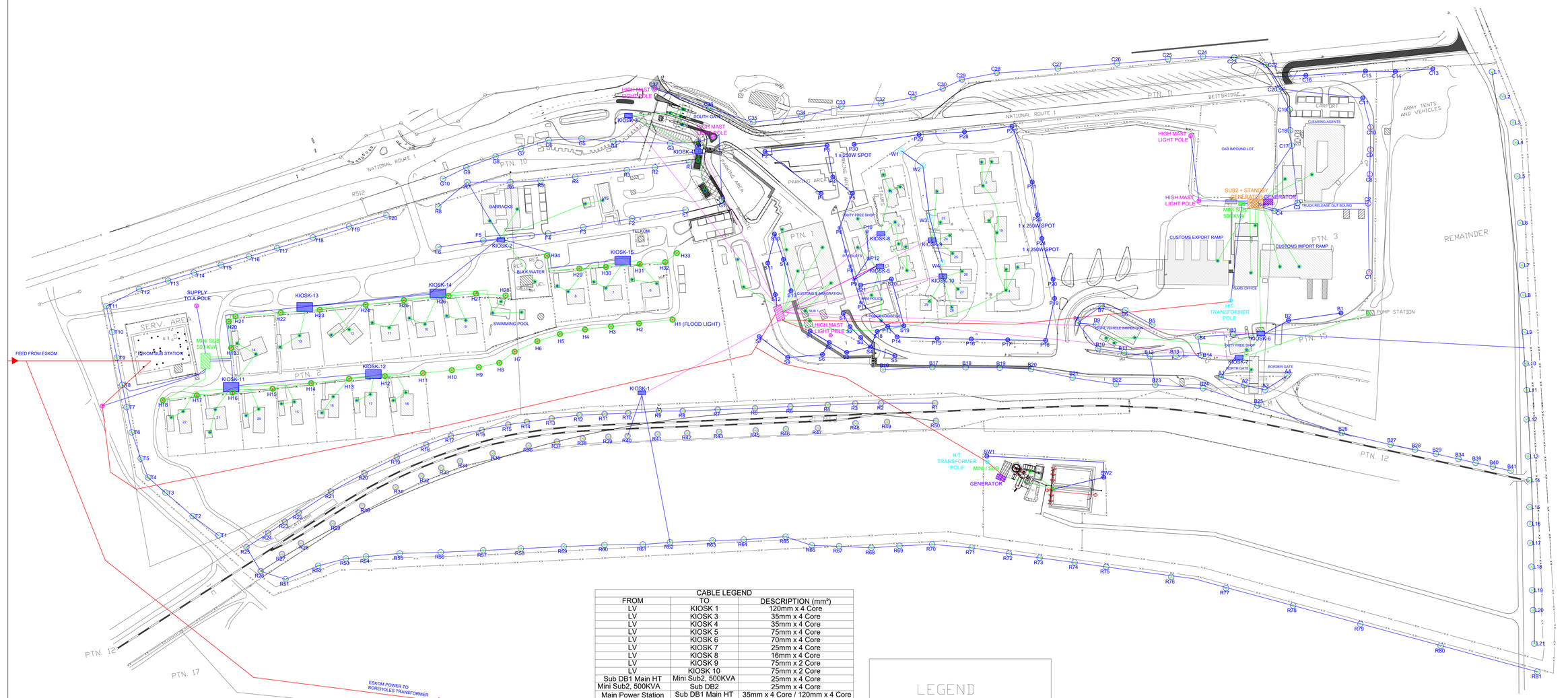
drawing title: BEITBRIDGE PORT OF ENTRY: SEWER NETWORK SITE LAYOUT PLAN

ref.no. __ | designed J. H. MÖLLER

scale 1:2000 | drawn J. CAMPHER

date 08 FEBRUARY 2019 | checked J. H. MÖLLER

DPW drawing number: C5849/03



CABLE LEGEND		
FROM	TO	DESCRIPTION (mm²)
LV	KIOSK 1	120mm x 4 Core
LV	KIOSK 3	35mm x 4 Core
LV	KIOSK 4	35mm x 4 Core
LV	KIOSK 5	75mm x 4 Core
LV	KIOSK 6	70mm x 4 Core
LV	KIOSK 7	25mm x 4 Core
LV	KIOSK 8	16mm x 4 Core
LV	KIOSK 9	75mm x 2 Core
LV	KIOSK 10	75mm x 2 Core
Sub DB1 Main HT	Mini Sub2, 500KVA	25mm x 4 Core
Mini Sub2, 500KVA	Sub DB2	25mm x 4 Core
Main Power Station	Sub DB1 Main HT	35mm x 4 Core / 120mm x 4 Core
Sub DB1 Main HT	Mini Sub	35mm x 4 Core
KIOSK 1	R10 to R25	16mm x 4 Core
KIOSK 1	R9 to R1	6mm x 4 Core
KIOSK 1	R50 to R21	16mm x 4 Core
KIOSK 1	R62 to R80	16mm x 4 Core
KIOSK 2	Barracks	35mm x 4 Core
KIOSK 2	Barracks	10mm x 3 Core
KIOSK 2	Vehicle Theft	25mm x 4 Core
F6	F1	6mm x 3 Core
R8	R1	6mm x 3 Core
KIOSK 7	North Gate	10mm x 3 Core
KIOSK 7	Duty Free Shop	10mm x 3 Core
KIOSK 7	A1	10mm x 4 Core
KIOSK 6	B1 to B3	10mm x 4 Core
KIOSK 6	B4 to B14	10mm x 4 Core
KIOSK 7	Pump station	25mm x 4 Core
KIOSK 6	LVI	16mm x 4 Core
KIOSK 6	L10	16mm x 4 Core
L1	L21	16mm x 4 Core
Army	Sub 2	25mm x 4 Core
Sub 2	Customs Export	35mm x 4 Core
Sub 2	Sars Office	35mm x 4 Core
Sub 2	Customs Inport	35mm x 4 Core
Sub 2	Clearing Agent	70mm x 4 Core
Sub 2	C18	16mm x 4 Core
C18	C24	16mm x 4 Core
C24	C27	16mm x 4 Core
C27	C36	10mm x 4 Core
C4	C9	4mm x 4 Core
C1	C3	10mm x 4 Core
P1	P30	16mm x 4 Core
G10	G4	10mm x 4 Core
R1	R8	6mm x 4 Core
T20	T1	10mm x 4 Core
Mini Sub1, 500KVA	Supply To A Pole	70mm x 4 Core
Mini Sub1, 500KVA	KIOSK 2	185mm / 70mm BCEW
Mini Sub1, 500KVA	T8	16mm x 4 Core
Mini Sub1, 500KVA	KIOSK 11/12/13/14	50mm x 4 Core
KIOSK 2	KIOSK 5	35mm x 4 Core
KIOSK 2	Bulk Water (WTW)	25mm x 4 Core
KIOSK 11	House 14/20/21/22	16mm x 2 Core
KIOSK 12	House 16/17/18	16mm x 2 Core
KIOSK 13	House 12/13	16mm x 2 Core
KIOSK 14	House 9/10/11	16mm x 2 Core
KIOSK 14	Swimming Pool	16mm x 2 Core
Mini Sub1, 500KVA	T8	16mm x 4 Core
T8	T1 - T20	10mm x 3 Core
Mini Sub1, 500KVA	H1 - H18	6mm x 4 Core
Mini Sub1, 500KVA	H19 - H28	6mm x 4 Core
KIOSK 5	H29 - H34	6mm x 4 Core
Sub DB2	Manica Parkhomes	16mm x 4 Core

LEGEND

- W1 TO W2 = 1 x 125w SPOTS
- G1 TO RG10 = 1 x 250w SPOTS
- R1 TO R8 = 1 x 250w SPOTS
- F1 TO F6 = 1 x 250w SPOTS
- T1 TO T20 = 1 x 250w SPOTS
- B1 TO B29 = 1 x 250w SPOTS
- A1 TO A4 = 1 x 250w SPOTS
- C27 TO C22 = 1 x 250w SPOTS
- C31 TO C28 = 2 x 250w SPOTS
- C37 TO C32 = 1 x 250w SPOTS
- C3 TO C2 = 1 x 50w SPOTS
- C2 TO C1 = 4 x 400w SPOTS
- C21 TO C18 = 1 x 250w SPOTS
- C5 TO C9 = 1 x 250w SPOTS
- L1 TO L21 = 1 x 250w SPOTS
- R1 TO R25 = 2 x 250w SPOTS
- R26 TO R50 = 2 x 250w SPOTS
- R51 TO R80 = 1 x 250w SPOTS
- T1 TO T20 = 1 x 250w SPOTS
- H1 TO H34 = 70W HPS POST TOP

OVER HEAD HT LINES
UNDER GROUND CABLE
L.T ROUTES
KIOSK 1 TO 15
MINI SUB
DB / BOARDS
SUB DB 2 + STANDBY GENERATOR
OVER HEAD LINE WITH LIGHT ON POLE
H1 TO H21 = 1 x 70w SPOTS
HIGH MAST LIGHT POLE
HT SUB & TRANSFORMER
GENERATOR

0 0.5 1 2 4m

No.	DATE	AMENDMENT	D.P.W.

as-built drawings

certified as-built drawings as per Centralised Drawing Archive AS-BUILT DRAWING REQUIREMENTS

name: J. H. MÖLLER
date: 08 FEBRUARY 2019
professional registration no.: 20100124

cad file name: EE10715/00
page type: A 1

public works
Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
Adv SAM VUKELA

consultant

PROFTEAM
Professional Project Management and Engineering Services

discipline: ELECTRICAL ENGINEERING
service

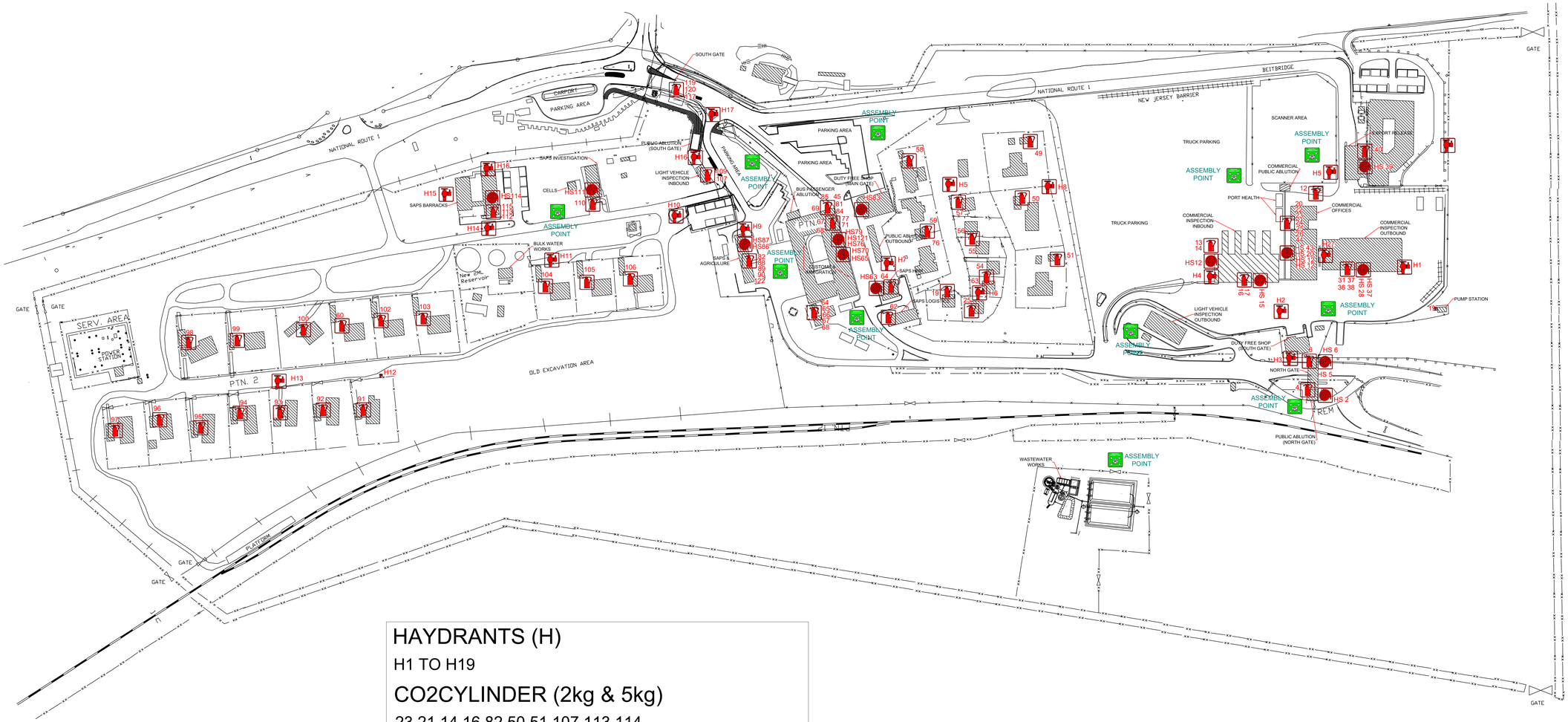
BEITBRIDGE – PORT OF ENTRY: 36 MONTHS MAINTENANCE: SERVICING AND REPAIR OF BUILDINGS: CIVIL, MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

WCS number: WCS 052500
drawing title: BEITBRIDGE PORT OF ENTRY: ELECTRICAL NETWORK SITE LAYOUT PLAN

ref.no. _ _
designed J. H. MÖLLER
scale 1:2000
drawn J. CAMPHER
date 08 FEBRUARY 2019
checked J. H. MÖLLER
DPW drawing number: EE10715/00

LEGEND

- HYDRANT (H)
- EXTINGUISHER
- HOSE REEL (HS)
- EMERGENCY ASSEMBLY POINT



HAYDRANTS (H)

H1 TO H19

CO2CYLINDER (2kg & 5kg)

23,21,14,16,82,50,51,107,113,114

9kg CYLINDER

3,4,5,6,10,11,13,17,18,20,25,26,29,30,31,32,33,
34,35,36,38,40,41,42,44,47,62,64,71,84,87,91,94,95,96,
97,98,99,100,101,102,103,104,105,106,110,117,119,

4.5kg CYLINDER

1,2,19,22,24,49,52,53,54,55,56,57,58,59,60,
61,67,68,69,77,50,51,80,85,89,92,93,108,

HOSE REELS (HS)

7,8,9,12,15,26,27,28,37,39,43,45,48,63,65,66,69,
70,76,78,79,83,86,88,90,109,111,112,115,116,120,
121,

0 0.5 1 2 4m

No.	DATE	AMENDMENT	D.P.W.

as-built drawings

certified as-built drawings as per Centralised Drawing Archive AS-BUILT DRAWING REQUIREMENTS

name: J. H. MÖLLER

date: 08 FEBRUARY 2019

professional registration no.: 20100124

cad file name: ME304104/00

page type: A 1

public works

Department:
Public Works
REPUBLIC OF SOUTH AFRICA

DIRECTOR-GENERAL
Adv SAM VUKELA

consultant

PROFTEAM
Professional Project Management and Engineering Services

discipline: MECHANICAL ENGINEERING

service

BEITBRIDGE – PORT OF ENTRY: 36 MONTHS MAINTENANCE: SERVICING AND REPAIR OF BUILDINGS: CIVIL, MECHANICAL AND ELECTRICAL INFRASTRUCTURE AND INSTALLATIONS

WCS number: WCS 052500

drawing title: BEITBRIDGE PORT OF ENTRY: FIRE LAYOUT PLAN

ref.no. _ _

scale: 1:2000

date: 08 FEBRUARY 2019

designed: J. H. MÖLLER

drawn: J. CAMPHER

checked: J. H. MÖLLER

DPW drawing number: ME304104/00