## BA-PHALABORWA LOCAL MUNICIPALITY



**CONTRACT NO. 14/24/25 REFURBISHMENT OF NAMAKGALE STADIUM**

C3 SCOPE OF WORK

***STATUS***

**In the event of any discrepancy between the Scope of Works and a part or parts of the COLTO 1998, SANS 1200 Standardized Specifications, the Bill of Quantities and the Drawings, the Project Specifications, shall take precedence and prevail in the Contract.**

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

**C3.1 DESCRIPTION OF THE WORKS**

Refurbishment of a sports facility.

C3.1.1 EMPLOYER'S OBJECTIVES

The Clients objective is to address the backlog of amenities and sports facilities in previously disadvantaged communities and rural areas.

The project objectives are in line with Ba-Phalaborwa Local Municipality’s objectives of service delivery, job creation, poverty alleviation, and social upliftment.

Labour-intensive works

Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of this Scope of Work.

C3.1

Labour-intensive competencies of supervisory and management staff

Contractors shall engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/Supervisors at NQF “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. The main objective of this project is to ensure that the community of Namakgale has a stadium. The scope of service covers the design and adherence to the given specifications including any by-laws governing all civil, structural, electrical, and mechanical aspects.

The objective will be to utilise the envisaged funds to an optimum in order to create a facility that will be to the benefit of the total community in the Ba-Phalaborwa Local Municipality.

C3.1.2 OVERVIEW OF THE WORKS

The Ba-Phalaborwa Local Municipality wishes to implement the project; **“REFURBISHMENT OF NAMAKGALE STADIUM”.** The project entails the Refurbishment and upgrading of Namakgale Stadium.

The work will be carried out using Labour- Intensive approach as much as possible. Labour-intensive works comprise the activities described in SANS 1921-5, Earthworks activities which are to be performed by hand, and its associated specification data. Such works shall be Constructed using local workers who are temporarily employed in terms of this Scope of Work.

C3.1.3 EXTENT OF WORKS

The scope of this project comprises the following:

* Site establishment
* Upgrading of Access Gates (Gate 1 & 2)
* Removal and re-installation of Clearvu fence at Gate 1
* Supply and installation of Handrails
* Installation of turnstiles at Gate 1
* Topsoiling and grassing as well as kerbing around the playing field
* Fencing around the Soccer Pitch
* Refurbishment of the Combo Courts
* Water pressure testing.
* Completion of Sewer reticulation.
* Supply of tanks and construction of tank stand to supplement municipal water supplies.
* Artificial surfacing of the Athletics track
* Stormwater drainage
* Widening of Access Road from Gate 2 to the Grandstand and walkways as well as related controls and stormwater management infrastructure.
* Building works
  + - Installation of Ceiling at Grandstand Ablution
    - Supply and installation of a canopy roof at the back of Grandstand
    - Grandstand ablution waterproofing
    - Installation of Doors
    - Glazing
    - Painting
    - Tiling
    - Waterproofing

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* + - Installation of ceilings
    - Ironmongery
    - Plumbing works
    - Repair work on the existing perimeter wall, which includes addressing deteriorated sections, plastering, painting, and the installation of razor wire
* Electrical and Mechanical Works.
  + - Bulk power connection
    - Lightning and earthing protection
    - Access control system for security control gates
    - Fire detection and protection system
    - Masts for floodlights
    - Perimeter lighting and pitch lighting
    - Plumbing, water heating and storage, and ventilation
* Remedial works

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

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

C3.1.4 LOCATION OF THE WORKS

The project for the refurbishment of Namakgale Stadium is located in the Mopani District of Limpopo Province within the jurisdiction of the Ba-Phalaborwa Local Municipality and the co-ordinates of the project are as follows:

23° 56' 10.90" S

31° 01' 58.80" E

C3.1.5 TEMPORARY WORKS

Temporary works will include, but are not limited to temporary traffic diversion.

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C3.1.6 LABOUR-INTENSIVE WORKS

All the relevant tasks/works shall be constructed using Labour-Intensive Construction Methods only.

C3.1.7 CONSTRUCTION PROGRAM

It is specifically brought to the Contractor's notice that time is critical on this project, and the construction period will be a major factor in the tender award.

Tenderers shall submit with their tender their preliminary weekly programme for the construction of the Works under this contract to suit their proposed method of executing the Works. The programme shall be sufficiently detailed to differentiate between the various activities so that the contract may be properly evaluated.

C3.1.8 CHANGE IN WORKS

The Engineer may, from time to time by order in writing without in any way vitiating the Contract or giving to the Contractor any claim for additional payment, require the Contractor to proceed with the execution of the works in such order as in his opinion may be necessary, and may alter the order of or suspend any part of the Works at such time and times as he may deem desirable and the Contractor shall not, after receiving such written order, proceed with work ordered to be suspended until he shall receive a written order to do so from the Engineer. Where the work must of necessity be carried out in conjunction with work of other Contractors, or with that of the Employer, it shall be coordinated and arranged in such a manner as to interfere as little as possible with the progress of such other work so as to offer every reasonable facility to other Contractors or to employees of the Employer.

C3.1.9 GENERAL INFORMATION

**C3.1.9.1 DRAWINGS**

The reduced drawings contained in the annexures that form part of the tender document shall be used for tender purposes only. Further drawings are to be provided on an ongoing basis by the engineer. The contractor shall programme his activities to be suitable in terms of his resources to complete the contract inside the stipulated time period.

C3.1.9.2 CONSTRUCTION IN CONFINED AREAS

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

C3.4

C3.2 ENGINEERING

C3.2.1 Design services and activity matrix

1. The Employer is responsible for the design of permanent Works as reflected in these contract documents unless otherwise stated.
2. The Contractor is responsible for the design of the temporary Works and compatibility with the permanent Works.
3. The Contractor shall supply all details necessary to assist the engineer in the compilation of the as built drawings

|  |  |
| --- | --- |
| **Description** | **Responsibility** |
| Design of Works | Engineer |
| Concept, feasibility and overall process | Client |
| Basic Engineering and detail layouts to tender stage | Engineer |
| Final Design of Works | Engineer |
| Final Design to be approved for construction stage | Client |
| Preparation of tender documentation & adverts | Engineer |
| Appointment of soil test / topographical surveyors | Client |
| Appointment of sub-contractors | Contractor |
| Supervision | Engineer |
| Preparation of as-built drawings | Contractor / Engineer |
| Completion certificate | Engineer / Client / Contractor |

C3.2.2 DRAWINGS

The Engineer will provide the Contractor with one full set of drawings, which will be used exclusively for the recording of as built information by the Contractor. Only dimensions, positions, levels, co-ordinates etc. that change from the original values, will be required to be entered on these drawings. These drawings, fully marked up, will be handed to the Engineer at the issue of the Certificate of completion, which will not be issued until the as-built information has been received. The following drawings are applicable to this contract:

|  |  |
| --- | --- |
| **LIST OF DRAWINGS** | |
| **REFURBISMENT OF NAMAKGALE STADIUM** | |
| **DRAWING NUMBER** | **DESCRIPTION** |
| **IPA/BPLM/NS/LM/DR01** | **LOCALITY MAP** |
| **IPA/BPLM/NS/ELP/DR02** | **EXISTING LAYOUT PLAN** |
| **IPA/BPLM/NS/GLP/DR03** | **GENERAL LAYOUT PLAN & FENCING DETAILS** |
| **IPA/BPLM/NS/SP/DR04** | **SOCCER PITCH AND ATHLETIC TRACK LAYOUT** |
| **IPA/BPLM/NS/WAT/DR05** | **SOCCER PITCH AND ATHLETIC TRACK SUB SURFACE DRAINAGE** |
| **IPA/BPLM/NS/WAT/DR06** | **SOCCER PITCH IRRIGATION SYSTEM LAYOUT** |
| **IPA/BPLM/NS/DL/DR07** | **RUNNING TRACK DRAINAGE LAYOUT** |
| **IPA/BPLM/NS/AF/DR09** | **DETAILS OF ATHLETIC FACILITIES** |
| **IPA/BPLM/NS/STR/DR10** | **ELEVATED WATER TANK LAYOUT, ELEVATIONS, SECTIONS &**  **DETAILS** |
| **IPA/BPLM/NS/RD/DR11** | **TYPICAL CROSS SECTIONS OF PARKING AREA, WALKWAY AND** |

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|  |  |
| --- | --- |
|  | **ACCESS ROAD** |
| **IPA/BPLM/NS/SM/DR12** | **STANDARD SEWER MANHOLE AND PIPE BEDDIN DETAILS** |
| **IPA/BPLM/NS/TB/DR13** | **WATER BEDDING AND THRUST BLOCK DATAILS** |
| **IPA/BPLM/NS/STR/DR14** | **STEEL PALLISADE LAYOUT SECTIONS AND DETAILS** |
| **IPA/BPLM/NS/NB/DR15** | **NAME BOARD ERECTIONS DETAILS** |
| **IPA/BPLM/NS/GSFL/DR/26** | **GRAND STAND FOUNDATION LAYOUT** |
| **IPA/BPLM/NS/GSRL/DR27** | **GRAND STAND REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/CRFRL/DR33** | **CHANGE ROOM FOUNDATION AND REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/GOFL/DR34** | **GATE ONE FOUNDATION LAYOUT** |
| **IPA/BPLM/NS/GORL/DR35** | **GATE ONE REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/GTRRL/DR36** | **GATE ONE FOUNDATION AND REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/PV/DR38** | **PAVILLION VENTILATION** |
| **IPA/BPLM/NS/ABV/DR39** | **ABLUTION BLOCK VENTILATION** |
| **IPA/BPLM/NS/GSCLL/DR42** | **GRAND STAND CANOPY LIGHTING LAYOUT** |
| **IPA/BPLM/NS/CRPTL/DR43** | **CHANGE ROOMS AND PUBLIC TOILETS DISTRIBUTION BOARD**  **LAYOUT** |
| **IPA/BPLM/NS/GSDBL/DR44** | **GRAND STAND DISTRIBUTION BOARD LAYOUT** |
| **IPA/BPLM/NS/CRPTSPL/DR47** | **CHANGE ROOM AND PUBPLIC TOILETS SMALL POWER LAYOUT** |
| **IPA/BPLM/NS/CRPTLL/DR48** | **CHANGE ROOM AND PUBLIC TOILETS LIGHTING LAYOUT** |
| **IPA/BPLM/NS/SL/DR22** | **SEWER LONG SECTIONS** |
| **IPA/BPLM/NS/SWL/DR23** | **STORMWATER LONG SECTIONS** |
| **19-001-100-MS-00** | **GRANDSTAND 01** |
| **19-001-200-MS-00** | **GRAND STAND 02** |
| **19-001-210-MS-00** | **GRAND STAND CEILING LAYOUT** |
| **19-001-300-MS-00** | **CHANGE ROOMS, GATE TWO, SCHEDULES** |
| **19-001-500-MS-00** | **GATE ONE** |
| **19-001-900-MS-00** | **FINISHES AND SIGNAGE SCHEDULES** |
| **19-001-910-MS-00** | **SANITARY SCHEDULES** |
| **19-001-000-MS-00** | **SITE PLAN** |
| **IPA/BPLM/NS/ESRL/DR08** | **ELECTRICAL SITE PLAN** |
| **IPA/BPLM/NS/PF/DR20** | **DESIGN PLATFORM** |
| **IPA/BPLM/NS/SWC/DR24** | **STORMWATER CATCHMENTS** |
| **IPA/BPLM/NS/SKP/DR25** | **SERVICES KEY PLAN** |

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C3.3 PROCUREMENT

The Tenderers notice is drawn to the fact that the awarding of this tender will be in terms of the Supply Chain Management Policy of the Ba-Phalaborwa Local Municipality and The Standard Conditions of Tender as contained in Annexure F of the September 2005 edition of the CIDB Standard for Uniformity in Construction Procurement.

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

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

C3.3.2 SUB-CONTRACTING

No work may be sub-contracted to another party unless approval is given by the Engineer in writing. The Contractor is to submit to the Engineer in writing a request for appointment of a particular sub- contractor. Accompanying this request is to be the full detail of the sub-contractor, including:

* Previous experience
* Work which will be sub-contracted to him/her
* Approximate value of the work to be sub-contracted

Before the Engineer in terms of Clause 49 hereof issues any certificate that includes any payment in respect of work done or goods supplied by any sub-contractor appointed in accordance with the provisions of Clause 6.3 of the General Conditions of Contract for Construction works (2010), he shall be entitled to call upon the Contractor to furnish reasonable proof that all payments (less retention moneys) included in previous certificates in respect of the work or goods of such sub-contractors have been made or discharged by the Contractor, in default of which, unless the Contractor:

* + Informs the Engineer in writing that he has reasonable cause for withholding or refusing such payment; and
  + Submits to the Engineer reasonable proof that he has so informed such sub-contractor in writing.

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C3.4 CONSTRUCTION

**C3.4.1 APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS**

Applicable SABS 1200 standardised specifications

The following SABS 1200 standardised specifications for civil engineering construction are applicable:

SABS 1200 A GENERAL

SABS 1200AB ENGINEERS OFFICE

SABS 1200 C SITE CLEARANCE

SABS 1200 D EARTHWORKS

SABS 1200 DB EARTHWORKS (PIPE TRENCHES)

SABS 1200DM EARTHWORKS (ROADS, SUBGRADE)

SABS 1200 G CONCRETE

SABS 1200 GA CONCRETE (SMALLWORKS)

SABS 1200 H STRUCTURAL STEELWORK

SABS 1200 HA STRUCTURAL STEELWORK (SUNDRY) SABS 1200 L MEDIUM-PRESSURE PIPELINES

SABS 1200 LB BEDDING (PIPES)

SABS 1200 LD SEWERS

SABS 1200 LE STORMWATER

SABS 1200 M ROADS

SABS 1200 ME SUB-BASE

SABS 1200 MF BASE

SABS 1200 MG BITUMINOUS SURFACE TREATMENT

SABS 1200 MK KERBING AND CHANNELLING

COLTO 2100 DRAINS

COLTO 5200 GABIONS

COLTO 5800 LANDSCAPING

The following variations to standardised specifications and additional clauses apply to this contract and are contained in the “Annexure to the Scope of Work’’.

PSA General

PSC Site Clearance

PSDB Earthworks

PSDM Earthworks (Roads, Subgrade)

PSDME Subbase

Copies of SABS 1200 Standardized Specifications are available from the Standards South Africa. The

Particular Specifications together with the Drawings and Bill of Quantities clearly indicate the sections of the Standard Specifications which apply to this contract.

Model Preambles for Trades - 2008

The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades

(2008 Edition) and the Supplementary Preambles hereunder that is applicable to all Building Works, ie. Sections 5-7 of the bills of quantities.

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These Model Preambles for Trades, and any Supplementary Preambles, shall be read in conjunction with and shall form part of the descriptions of items in the bills of quantities, applicable to building works, Sections 5-7.

Where descriptions or Supplementary Preambles in the bills of quantities differ from these Model Preambles for Trades, the descriptions or Supplementary Preambles provided herein shall take precedence. Where supplementary preambles differ from descriptions in the bills of quantities, the descriptions in the bills of quantities shall take precedence

Except where otherwise stated, all preambles contained in any individual Trade Preamble shall apply equally to any work of a similar nature in all other trades. The ‘Model Preamble for Trades’ is published by and is available from the Association of South African Quantity Surveyors, P.O. Box 3527, Halfway House, 1685. Telephone

(011) 315 4140. E-mail:

[administration@asaqs.co.za.](mailto:administration@asaqs.co.za)

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C3.5 VARIATIONS AND ADDITIONS TO THE STANDARD AND STANDARDISED SPECIFICATIONS

In certain clauses the standard, standardised and particular specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternative or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains additional specifications required for this particular contract.

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

PSA General

PSAB Engineer's Office

PSC Site Clearance

PSD Earthworks

PSDB Earthworks (Pipe Trenches)

PSGA Concrete (Small Works)

PSH Structural Steelwork

PSHA Structural Steelwork (Sundry items)

PSL Medium Pressure Pipelines

PSLB Bedding (Pipes)

PSPCB Fencing

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**SCOPE OF WORK**

**SPECIFICATIONS**

**INDEX**

**Description**

**Variation to Standardised Specification and Additional Clauses**

PSA General

PSAB Engineer's Office

PSC Site Clearance

PSD Earthworks

PSDB Earthworks (Pipe Trenches)

PSDM Earthworks (Roads, Subgrade)

PSME Subbase

PSMF Base

PSMG Bituminous Surface Treatment

PSMH Asphalt Base Treatment

PSMJ Segment Paving

PSMK Kerbing and Channelling

2100 Drains

5200 Gabions

5800 Landscaping and Planting

PSH Structural Steelwork

PSHA Structural Steelwork (Sundry items)

PSL Medium Pressure Pipelines

PSLB Bedding (Pipes)

PSPCB Fencing

**Particular Specifications**

PA Fencing

PC Building

PD Environmental Protection and Control Specifications

PE Dealing with ESKOM Services

PF Occupational Health and Safety

PH Submersible Progressive Pumps

PV Synthetic Multi-Purpose Sports Field

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**PSA GENERAL**

**PSA1 SCOPE**

**REPLACE THE CONTENTS OF SUB-CLAUSE 1.1, INCLUDING THE NOTES, WITH THE FOLLOWING**

“1.1 This specification covers requirements, and responsibilities of a general nature which are generally applicable to civil engineering construction and building works, contracts as well as the requirements for the Contractor’s establishment on the Site”

PSA 2 INTERPRETATIONS

**PSA 2.3 DEFINITIONS**

**“1.1 IN THE OPENING PHRASE BETWEEN THE WORDS “specification” AND “the**

**following” INSERT THE WORDS “the definitions given in the Conditions of Contract and”.**

1. **General**

*ADD THE FOLLOWING DEFINITIONS*

“‘General Conditions’ and ‘Conditions of Contract’: The General Conditions of Contract specified for use with this Contract, together with the Special Conditions of Contract as applicable.

‘Specified’: As specified in the Standardised Specifications, the drawings or the Project Specifications. ‘Specifications’ shall have the corresponding meaning”.

1. 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 variations in the value of the Contract Price or the time allowed in the Contract for the completion of the work.

“Time Related Charge”: A charge, the amount of which varies in accordance with the Time for completion of the works, adjusted in accordance with the provision of the Contract.

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

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**PSA** ABBREVIATIONS

1. Abbreviations relating to standard documents

*ADD THE FOLLOWING ABBREVIATION*:

“CKS: SANS Co-ordinating Specification

PSA 3 MATERIALS

PSA 3.1 Quality

Where there is a standardization mark programme for any material, all such material supplied shall bear the official standardization mark.

Alternative materials or equipment proposed by the Contractor shall be tested. The test, as well as the materials or equipment, shall be approved by the Engineer prior to any such materials or equipment being built into the Works and all costs involved in testing shall be deemed to be included in the rates tendered.

PSA- 3.2 Materials supplied by the Employer

Materials as supplied by the Employer will be kept at the stores of the Employer and the Contractor will be requested from time to time to incorporate material into the Works, on instruction of the Engineer. These material quantities must not be seen as a certainty as materials to be incorporated into the Works, but the Contractor must take note of this Clause should the Engineer instruct him to do so.

Incorporation of these materials into the Works, should it be so instructed by the Engineer, will have a direct effect on the quantities of similar materials being omitted from the Schedule of Quantities requested to be supplied by the Contractor. A list of the materials to be supplied by the Employer will be fixed within 14 days after the issue of the Letter of Acceptance.

PSA- 3.3 Ordering of Materials

The quantities set out in the schedule 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 the written confirmation issued by the engineer.

C3.14

PSA 4. PLANT

PSA 4.1 Silencing of Plant

*REPLACE THE CONTENTS OF SUB-CLAUSE 4.1 WITH THE FOLLOWING*

“The Contractor’s attention is drawn to the applicable regulations pertaining to noise and hearing conservation framed under the Occupational health and Safety Act, 1993 (Act No 85 of 19930 as amended”.

*ADD THE FOLLOWING AFTER THE SECOND SENTENCE OF SUBCLAUSE 5.1.2*

“The contractor and the engineer shall record on the said list, their concurrence or disagreement (as the case may be) regarding the completeness and accuracy of the details recorded therein.

*REPLACE THE CONTENTS OF SUB-CLAUSE 5.1.2 WITH THE FOLLOWING:*

At the end of the contract the contractor shall expose all pegs that were listed at the commencement of the construction as being in order and the contractor shall arrange with a registered land surveyor for the checking of the positions of all such pegs and the replacement of those that the land surveyor’s check reveals have become disturbed or damaged. The contractor shall as precedence to the issue of the certificate of completion, provide to the engineer, a certificate from the registered land surveyor, certifying that all the pegs listed at the commencement of construction in accordance with the provisions of this clause, have been checked and that those found to have been disturbed, damaged or destroyed have been replaced in their correct positions, all in accordance with the provisions of the said Act.

The costs of all checking, replacement and certification as aforesaid shall be entirely for the Contractor’s account. This, with the provision always that the contractor shall not be held liable for the cost of replacement of pegs which:

1. Cannot reasonably be established in their original positions by reason of the finished dimensions of permanent works, and
2. The contractor can prove beyond a reasonable doubt to the satisfaction of the engineer, were disturbed, damaged or destroyed by others beyond his control.

PSA-4.2 Contractor's Office, Stores and Services

It is not a requirement of this Contract that the Contractor provide an approved field laboratory on Site, although he may elect to do so. If no laboratory is provided, the Contractor shall nevertheless arrange to have the required quality control tests (e.g. density, concrete strength and pressure testing of pipelines) performed by an approved commercial laboratory, and his tendered rates shall include full compensation for such tests.

Before commencing any establishment on Site, the proposed layout of the Contractor's offices, stores and services shall be approved by the Engineer. The Engineer will approve the layout or otherwise request modifications within five working days after receipt of the Contractor's written proposal.

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The Contractor's camp shall be kept neat and clean at all times and all surplus or rejected material shall be removed from the site.

PSA-4.3 Restriction on Employee Accommodation (Additional sub-clause)

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site. With the exception of a night-watchman no employees may be housed or accommodated or allowed to sleep over on the site of the works.

The Contractor shall provide the necessary ablution facilities at his campsite and on the site of the works for the use of his employees. Chemical toilets only will be allowed.

PSA-4.4 Restriction on the use of plant (Additional sub-clause)

Except for the type of plant, and to the extent permitted in terms of the project specification or approved by the Engineer, the Contractor shall use only hand tools and hand equipment in the construction of the Works or portions of the Works that are required in terms of the project specification to be constructed using labour-intensive methods.

PSA-5 CONSTRUCTION

PSA-5.1 Survey

Co-ordinated reference pegs shall be preserved as specified in sub-clause 5.1.2.

PSA-5.1.1 Setting out of the Works

The Contractor shall verify at his own cost the accuracy of the pegs or benchmarks pointed out as being available for use to set out the works. Any discrepancies must be reported to the Engineer in writing.

All pegs or benchmarks which are damaged during the Contract which were not in the direct way of the construction of the works shall be replaced by a competent Surveyor (or Land Surveyor if the positions were determined by a Land Surveyor in the first place) at the Contractors own cost.

For any new work the Contractor shall establish his own reference lines from which the work can be set out.

Where labour-intensive work is specified, the Contractor shall also be responsible for the setting out of the daily tasks.

PSA 5.3 Protection of Existing Structures

*REPLACE* “Machinery and Occupational Safety Act, 1983 (Act No 6 of 1983)’’ *WITH* “Occupational Health and Safety Act, 1993 (Act No 85 of 1993), as amended,” *AND INSERT THE FOLLOWING AFTER* “(Act No. 27 of 1956)”. “as amended”.

C3.16

PSA 5.4 Protection of Overhead and Underground Services

*REPLACE THE HEADING AND THE CONTENTS OF SUB-BASE 5.4 WITH THE FOLLOWING*:

1. Any other service which ought reasonably to have been a known service in accordance with the provisions of this clause,

The contractor shall also be liable for consequential damage in regard to (a) and (b), whether caused directly by the contractor’s operations or by lack of proper protection.

No separate payment will be made to the contractor in respect of his costs of providing, holding available on the site, and utilising the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer the drawings aforesaid. These costs shall be deemed included in the contractor’s other tendered rates and prices included in the contract.

Payment to the contractor in respect of exposing services at the positions agreed by the Engineer and as described above will be made under payment items (if any) as may be provided for in the respective sections of the specifications pertaining to the type of work involved.

PSA-5.4.2 Protection during Construction

The contractor shall take all reasonable precautions and arrange its operations in such a manner as to prevent damage occurring to all known services during the period in which the contractor has occupation and/ or possession of the site.

Services left exposed shall be suitably protected from damage and in such a manner as will eliminate any danger arising therefrom to the public and/or workmen, all in accordance with the requirements of the prevailing legislation and related regulations.

Unless otherwise instructed by the engineer, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In roadways, the requirements of sub-clause 5.9 of SANS 1200DB should be observed. In other areas, compaction is to be 90% modified AASHTO density.

PSA-5.4.3 Alterations and Repairs to Existing Services

Unless the contrary is clearly specified in the contract or ordered by the engineer, the contractor shall not carry out alterations to existing services. When any such alterations become necessary, the contractor shall promptly 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.

Should damage occur to any existing services, the contractor 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 appropriate steps.

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PSA-5.5 Dealing with Water on the Works

Add the following paragraph:

“It shall be noted that any claim for extension of time or for additional compensation dealing with water on the Works will not be considered, as this payment item shall be deemed to take in account of all additional resources or costs that may be required or incurred. The Contractor shall be deemed to have acquainted himself with the site conditions during tender stage. This will include the diversion of rivers to accommodate the laying of pipes through rivers.”

PSA-5.6 Training (Additional Sub-clause)

It is a condition of this contract that on-the-job training be provided for local labour. Accredited training in accordance with Particular Specification *4.1.3 EPWP LABOUR INTENSIVE SPECIFICATION (1.2.2.2.5)* will be paid for separately as specified.

PSA-5.9 Site Meetings

The contractor or his authorised agent will be required to attend regular site meetings, which shall normally be held once a month on dates and at times determined by the engineer, but in any case, whenever necessary required by the engineer. Unless otherwise indicated in the contract or instructed by the engineer, such meetings shall be held at the contractor’s offices on the site. At such monthly meetings, matters such as general progress on the works, quality of work, problems, claims, payments and safety shall be discussed, but not matters concerning the day to day running of the contract.

PSA-6 PROVISIONAL SUMS

Provisional Sums are allowed in the Schedule of Quantities for execution on instruction by the Engineer only, and include:

PSA-6.1 Additional Tests

Any additional tests required by the Engineer on soil, concrete, any other material or workmanship by independent laboratories or specialist service providers

PSA-6.2 Training

As detailed in PSA 5.6

PSA-6.4 Soccer field artificial surface

The sum shall include for the construction of the sub-base, final surfacing and drainage by a nominated sub-contractor (or approved installer). The main Contractor shall prepare/construct the terrace/platform and sub-grade. The nominated subcontractor shall construct the sub-base, and final surface finishing’s including all necessary surface/sub-surface drainage system, markings, kerbing and fencing/railings.

C3.18

PSA-6.5 Combi-courts (Netball, Basket Ball, Volleyball and Netball)

The sum shall include for the construction of the sub-base, final surfacing and drainage by a nominated sub-contractor (or approved installer). The main Contractor shall prepare/construct the terrace/platform. The nominated subcontractor will address any issues with the sub-base, drainage, and final surface finishing, including the replacement or repair of damaged materials. Additionally, the scope covers the restoration of markings, kerbing, and fencing/railings, as well as a final inspection to ensure all work meets quality standards and rectifies previous defects.

PSA-6.6 Equipment for the Soccer/Rugby/Netball/ Basketball/Tennis/Volleyball

The sum shall include the sporting equipment for Soccer, Netball, Basketball, Tennis and Volleyball, as approved by the Engineer.

PSA-6.7 Clearview Fence

The sum shall include the supply installation of a Clearview fence around the boundary of the stadium as approved by the engineer.

PSA-6.8 Signage

The sum shall include for the supply and installation for the permanent facility signage, which shall include, but not limited to: traffic (vehicle and pedestrian), fire, services and utilities.

PSA-6.9 Identification, Removal and Relocation of Existing Services

The sum shall provide as indicated for the identification, relocation and removal of existing services by specialist subcontractor.

PSA-6.10 Landscaping

The sum includes the installation of low-maintenance dry landscaping features like decorative rocks and drought-resistant plants, along with the supply and arrangement of durable garden furniture to enhance the outdoor space's functionality and visual appeal as per the Engineer’s approval.

PSA-6.11 Refurbishment of Soccer Pitch Retaining Wall

The provisional amount for the final works and painting of the retaining wall, including approved murals, will cover surface preparation, the application of high-quality paint, and the creation of decorative murals as per the Engineer's design. This also includes the application of a protective sealant to ensure durability and longevity. A final inspection will be conducted to ensure the work meets quality standards and design approval.

PSA-6.12 Refurbishment of Perimeter Wall

The sum shall provide for the repair of deteriorated sections of the perimeter wall, plastering of the surface, painting for weather protection and aesthetics, and the installation of razor wire for enhanced security

PSA-6.13 Borehole Development

The provision includes the testing of an existing borehole pump and necessary equipment, electrical connection, pump testing, construction of a pump house, and equipping the pump house with the necessary infrastructure and safety systems by specialist Sub-Contractor in accordance with Project Specification PB and PMD.

C3.19

PSA-6.14 All Weather Seal Layers

The provision includes the surfacing and application of all-weather seal layers, followed by painting, by a specialist subcontractor.

PSA-6.15 Pipe Jacking

The sum shall be provided as indicated for jacking establishment and grouting injection of cement/ sand grout, where ordered.

PSA-6.16 Top Soiling

The sum shall be provided as indicated for watering the grass from existing reticulation.

PSA-6.17 Gate 1 (Structural and Architectural Steelwork and Art Work)

The sum shall be provided as indicated for structural and architectural steelwork and artwork for Gate 1 as per drawings to be executed by a sub-contractor

PSA-6.18 Access Gates

Provide the provisional amount for the full upgrade of Access Gates 1 and 2 as directed by the Site Engineer

PSA-6.19 Turnstiles

The provisional amount covers the supply, installation, and testing of turnstiles for Gate 1 as per the approved drawings. This includes all components, site preparation, installation by a subcontractor, and final inspection to ensure the turnstiles function according to the design specifications.

PSA-6.20 Bulk Power Connection

Provide the provisional amount as indicated for a 200kVA bulk power connection to be executed by a subcontractor.

PSA-6.21 Lightning & Earthing Protection

Provide the provisional amount as indicated for Lightning & Earthing Protection to be executed by a sub-contractor.

PSA-6.22 Access Control System for Security Control Gates

Provide the provisional amount as indicated for construction of Access Control.

PSA-6.23 Telkom Connection

Provide the provisional amount as indicated for Telkom Connection

C3.20

PSA-6.24 Student

The sum shall include allowances for a student elected by the Municipality to undergo experiential training.

PSA-6.25 PSC Member Allowances

The sum shall make provisions for six project steering committee members (excluding CLOs and Councilors), for their attendance at meetings, in compensation as follows: R200 per person per meeting.

PSA-6.26 CLO

The sum shall make provision for the monthly salary of R5000.00 for a community liaison officer as elected/appointed by the Municipality.

PSA-6.27 Provision of PPE

Allowance shall be made for the procurement of personal protective equipment (PPE) for the use of local labour.

PSA-6.28 Provision for air conditioning and ventilation

Allowance shall be made for the design (by mechanical engineer) and installation of air conditioning and ventilation system.

PSAB ENGINEER’S OFFICE

PSAB-3 **MATERIALS**

PSAB-3.1 **Contract Sign Boards**

Two (2) Contract signboards, two sides per signboard, are to be erected in the position indicated by the Engineer. A signboard shall comprise of two information boards and stand according to Drawing IPA/BPLM/NS/NB/DR15.

PSAB-3.2 **Engineers Office**

The Contractor shall provide, furnish, and equip one or more offices (as scheduled) for the use of the Engineer.

Buildings for offices shall be constructed of timber, asbestos, or other approved materials. The buildings shall have double walls filled with insulating material and lined on the inside with timber or other approved material. Ceilings shall be provided and offices shall have timber or concrete floors with edge-to-edge carpeting with foam-backed needle punch carpeting.

Office buildings shall be painted with an approved paint after erection and the paintwork shall be maintained during the contract period.

C3.21

Each door shall be provided with a lock and two keys.

The siting of all offices shall be to the Engineer's satisfaction and shall be decided upon in consultation with him and confirmed in writing before erection. All accommodation shall include the provision of a constant 220-volt A.C. electrical supply, access roads where required, fresh clean potable water, and sewerage, including septic tanks which will be considered as part and parcel of the accommodation provided and will not be paid for separately.

All accommodation shall meet with the approval of the Engineer. The offices shall comply with the following requirements:

|  |  |  |
| --- | --- | --- |
| **Dimensions** | **Type 1 Office** | **Type 2 Office** |
| Minimum floor area | 40,0m2 | 16,0m2 |
| Minimum window area | 6,0m2 | 2,4m2 |
| Minimum window area  Opening | 3,6m2 | 1,5m2 |
| Minimum clear height | 2,4m | 2,4m |

Furniture and equipment:

Each office shall be equipped with the following:

1. Office desk with a surface area of at least 1,5 m2 with at least 3 drawers, one of which can be locked.
2. General purpose steel cabinet with doors, lock, and two keys with at least 1,5 m2 shelf area and a volume of 0,7 m3.
3. Two office chairs.
4. Double 80-watt fluorescent light fittings complete with ballast and tubes (3 per Type 1 office, 1 per Type 2 office).
5. A table with a smooth flat top having an area of at least 3m2
6. 220/250-volt 15-amp power points (4 per Type 1 office, 2 per Type 2 office).
7. Windows shall be fitted with Venetian or opaque roller blinds.

In addition to the above the Type 1 office shall be equipped with the following:

1. A table large enough to accommodate ten people and have an area of at least 3 m2. This table may be the table referred to in (v), above.
2. Ten chairs suitable for meeting chairs.

The Contractor shall also provide a toilet for the exclusive use of the Engineer. The toilet shall be a chemical toilet. Provision shall be made for the washing of hands at a suitable location adjacent to the toilet.

C3.22

PSAB-3.3 **Carports (Additional Clause)**

The carport shall be so constructed that the vehicle parked under it will at all times be protected against the direct rays of the sun. A carport shall be at least 20 m2 in area and the floor shall consist of a layer of crushed stone to alleviate dusty and muddy conditions.

PSAB-4 **PLANT**

PSAB-4.1 **Telephone**

The Contractor shall provide, for the sole use of the Engineer one telephone which shall be a cell phone with an internet service, with all costs (R3000/month airtime, R500/month data bundle) paid by the Contractor.

PSAB-4.2 Survey Equipment (Additional Clause)

The Contractor shall provide the following survey equipment on site for the full duration of the Contract:

* 1. 1 automatic level and leveling staff;

1. 1 steel tape of length 30 m;
2. 1 measuring wheel.

All equipment may be shared by arrangement between the Contractor and the Engineer's representative. The Contractor shall insure the equipment against any loss, damage, or theft and he shall indemnify the Engineer against any claims in this regard.

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

Payment for survey equipment will be on a monthly basis as a time-related item under item 8.4 of SABS 1200 A.

PSAB-5 Rented Accommodation for Engineer

The Contractor shall provide and maintain a furnished two-bedroomed Flat or similar approved accommodation for the use of the engineer’s representative for the duration of the contract at a cost of R 10 000,00.

PSAB-6 **Survey Assistants**

One suitably educated Survey assistant shall be made available for the sole use of the Engineer’s Representative for the duration of the contract. The assistant may also be required to fulfil the function of Community Liaison Officer during the contract should the Engineer consider this arrangement to be in the interests of the Employer. The Survey Assistants may therefore have to be appointed from local communities. Transport shall be made available for the Survey Assistant/ Community Liaison Officer by the contractor for the duration of the contract should he be requested to do so. In such event payment will be made scheduled day works rates

C3.23

|  |  |  |
| --- | --- | --- |
| **PSC** |  | **SITE CLEARANCE** |
| PSC-4 |  | **PLANT** |
|  |  | ***Replace the contents of this Clause with the following:*** |
| PSC-4.1 |  | **Labour Intensive Construction** |
|  |  | The following provisions shall apply in respect of those portions of the Works covered by the specifications which are required in terms of the Contract, to be executed utilizing Labour Intensive Construction Methods: |
|  | (a) | The Contractor shall utilise only hand tools such as saws, picks, shovels, rakes, tampers, |

sledgehammers etc.

1. The use of trucks and other motor vehicles in the disposal of the cleared materials will only be permissible in cases where the distance over which the materials are to be transported exceeds 200 meters, provided that no mechanical plant or equipment shall be utilised in the loading of such vehicles.

PSC-5 **CONSTRUCTION**

PSC-5.2.3.2 **Individual trees**

The Contractor shall pay a penalty of R 3 000-00 for each designated tree removed or damaged by him. Trees so designated will be marked with danger tape to be supplied by the Contractor. Upon completion of the Works, the tape shall be removed.

PSC-5.3 After completion of this Contract the site shall be completely cleared of all building rubble and all loose boulders, tree stumps, etc. unearthed during the construction operations on that portion of the whole of the site which was handed over to the Contractor for the purpose of execution of this Contract.

PSD EARTHWORKS

PSD-3 **MATERIALS**

PSD-3.1.2 **Classes of Excavation**

For this contract classes of excavation will be subdivided as follows:

* 1. Excavation by labor-intensive method

For the purpose of the labour-intensive contract, the excavation material will generally be classified as follows for purposes of measurement and payment:

C3.24

* + 1. Soft excavation

Soft excavation shall be excavation in material that can be efficiently removed and loaded with picks, shovels and other hand tools. Soft excavation shall include all boulders with a volume of less than 0,125 m³and a maximum dimension of 500 mm, which can still be removed by hand methods.

* + 1. Hard excavation

Hard excavation shall be excavation in material which can only be removed efficiently with mechanical equipment such as jackhammers, drilling and blasting, etc. Hard excavation shall also include boulders with a volume exceeding 0,125 m³ and the maximum dimension exceeding 500 mm, which cannot be broken down and removed by hand methods.

* 1. Normal excavation

In cases where heavy excavation equipment are allowed only two classes of excavation will be applicable, i.e. hard rock excavation and soft excavation. Hard rock excavation shall be as specified in sub clause 3.1.2 (a) (ii) and excavation in all other material will be taken as soft excavation. Boulders which require individual drilling and blasting in order to be loaded by a track-type front-end loaders or back-acting excavator, shall be classified as hard rock and will be measured individually as they are removed.

SD-5 **CONSTRUCTION**

PSD-5.2 **Methods and Procedures**

PSD-5.2.1.2 Conservation of topsoil

During excavations for the structures all topsoil and other suitable material required for later use as backfilling around the structure and reinstatement of the site after completion of the works shall be stockpiled on site at a position to be approved by the Engineer.

PSD-5.2.2.3 Disposal

All excess excavated material not used for backfilling shall be disposed of at a site to be found by the Contractor and approved by the Engineer. The spoil site shall be finished off at the completion of the works to the satisfaction of the Engineer.

PSD-5.2.5 Transport for Earthworks

PSD-5.2.5.2 Overhaul

No overhaul will be deemed payable on this Contract but a provision has been put in place.

C3.25

PSD-5.2.6 Inspection of excavations (new clause after clause 5.2.5)

All foundations for structures shall be inspected by the Engineer and/or an Engineering Geologist or Geotechnical Engineer before any backfilling with material or concrete of any kind is commenced. The Engineer shall be given at least two days’ notice by the Contractor for the necessary arrangements to be made.

PSD-6 **TOLERANCES**

PSD-6.1 Position, dimensions, levels, etc.

Degree of Accuracy II shall apply. Over-breaks where applicable shall be filled in with15 MPa concrete at Contractor's cost.

PSD-7 **TESTING**

PSD-7.2 **Taking and Testing of Samples**

The Contractor is responsible for his own quality control and shall therefore take and adequate number of samples and carry out tests to ensure that the material conform to the requirements in respect of quality, density, etc. (quality or process control).

Such test results and the positions where samples were taken must be submitted to the Engineer. The number and positions of tests shall be adequate to prove to the Engineer that the work as a whole complies with the requirements.

The Engineer may have additional or control tests carried out by an independent commercial laboratory at the Employer's cost and he will make the results available to the Contractor (acceptance control). Should these test results show that the work or the material does not comply with the specifications the Contractor shall take the necessary steps to rectify same and he will also be responsible for the cost of such testing.

Payment for additional testing will be made under PSA-6.1.

PSDB EARTHWORKS (Pipe trenches)

PSDB-3 **MATERIALS**

PSDB-3.1 **Classes of Excavation**

Add the following new sub-clause:

Classes of excavation where Labour Intensive Construction Methods are specified

The excavation of material will, in the case of work which is required in terms of the

Contract to be executed utilising Labour Intensive Construction Methods, be classified as follows for purposes of measurement and payment:

C3.26

1. Soft – (Hand excavations)

Excavation of boulders not exceeding 0,04 m3, in material that can be excavated and removed from the excavation by an average able bodies labourer or group of such labourers, at a rate of not less than 2,4 m3 per 9,25 hour working day per labourer, using only picks, shovels and similar hand tools.

1. Soft – (machine excavation)

Excavation in trenches with the use of machines where hand excavation is not possible, but material is still classified as soft excavation.

1. Intermediate

Intermediate excavations shall be excavations in material which requires ripping or loosening by mechanical means prior to removal of the loosened material utilising the methods as described in (a).

1. Hard rock Excavation

Hard rock excavation shall be excavation of under composed boulders exceeding 0,04 m3 and excavations in solid rock occurring in bulk or in banks or ledges, which requires loosening or breaking up by drilling, wedging, splitting or blasting or by other approved quarrying methods.

Class of excavation for each portion of the works is subjected to approval by the Engineers’ Representative. Places where ripping is required prior to excavation in soft or intermediate material will be indicated by the Engineers’ Representative.

PSDB-5 **CONSTRUCTION**

PSDB-5.3 **Site clearance**

Add the following to the clause:

"The Contractor shall dispose of all surplus and unsuitable material on a site to be found by him and approved by the Engineer. All costs related to the disposal of surplus material shall be deemed to be included in the tendered rates.

Where pipes are to be laid the Contractor will be allowed to clear and grub a strip 2,5 m wide along the centre-line of the trench. No vegetation outside this strip may be damaged without the written approval of the Engineer. All trees with a girth of 250 mm or a height of 2,5 m within this strip, shall be protected and may only be trimmed or removed after a written order by the Engineer."

SDB-5.6.4 Disposal of intermediate and hard rock material

Surplus and/or unsuitable excavated material must be disposed of at a site found by the Contractor and approved by the Engineer.

C3.27

PSDB-5.6.5 Deficiency in backfill material

Any deficiency in backfill material from trench excavations because of removal of excessive quantities of organic material, unsuitable parts of the trench bottom, intermediate or hard rock, shall be made up from suitable surplus material from other excavations on the site.

PSDB-5.6.8 Transport for Earthworks for Trenches

For this contract all haul will be regarded as free haul and the cost of transportation of all materials will be deemed to be included in the rates and prices tendered in the schedule of quantities.

No overhaul will be payable on this Contract.

PSDB-7 **TESTING**

PSDB-7.1 Not with standing the contents of Clause 7.1, the Contractor shall bear the cost of all quality control tests regardless of whether the tests indicate acceptable compaction or not.

The following are the minimum frequencies for the process control tests to be executed by the Contractor:

1. Normal trench backfilling: one density test on every second layer for every 200 m of pipe trench.
2. Backfilling in areas subject to vehicle loads: one test on each layer of 150 mm at each road or railway crossing.

The positions of these minimum number of density tests shall be determined randomly by the Contractor and shall be clearly documented with the results. The results of the tests shall be submitted to the Engineer and shall prove to the Engineer that the work as a whole was done satisfactorily. Additional tests, over and above the minimum tests could be ordered by the Engineer. Payment for these tests will be made under Item PSA-6.1 if the tests indicate that the density is as specified. If any tests fail, the cost of such tests shall be for the account of the Contractor.

PSDB-8 **MEASUREMENT AND PAYMENT**

PSDB-8.3 **Scheduled Items**

PSDB-8.3.2 **Excavation**

-Payment for pipeline excavation will be made in three instalments as follows:

50 % at completion of excavation, 40 % at completion of backfilling and the final 10 % after final approval which will take account of surface finishing, disposal of all unused material and approval and acceptance of all test results as specified.

C3.28

PSGA CONCRETE (SMALL WORKS)

PSGA-3 **MATERIALS**

PSGA-3.2 **Cement**

PSGA-3.2.1 **Applicable specifications**

The standard cement specifications:

SABS 471: Portland cement (ordinary, rapid-hardening and sulphate-resisting); SABS 626: Portland blastfurnace cement;

SABS 831: Portland cement 15, and rapid-hardening portland cement 15; SABS 1466: Portland fly-ash cement; and

SABS 1491: Portland cement extenders (Part 1: Ground granulated blastfurnace slag, Part 2: Fly ash, and Part 3: Condensed silica fume),have been withdrawn and are replaced by the new specifications SABS ENV-197-1:Common cements, and SABS EENV 413-1: Masonry cement. These specifications will be applicable to this contract and the descriptions and types of cements specified will be based on the designations as defined in these specifications.

PSGA-5.2 Formwork finishes shall be as shown on the Drawings or stated in the Bill of Quantities.

All corners shall have 25 mm corner fillets.

PSGA-5.47 After removal of formwork all concrete shall be protected by an approved curing compound or any other approved method of curing.

PSHA STRUCTURAL STEELWORK (SUNDRY ITEMS)

PSHA-5 **CONSTRUCTION**

PSHA-5.2 **Fabrication and assembly**

PSHA-5.2.10 Protective Treatment

Structural steel shall be treated in accordance with the requirements of SABS 1200 HC.

PSHA-6 **TOLERANCES**

PSHA-6.1 **Fabrication and assembly tolerance**

Degree II accuracy shall be applicable.

C3.29

PSHA-7 **TESTING**

PSHA-7.3 **Inspection and testing of welds**

Welding must be inspected visually. The Engineer may however order to have some of the welds tested by means of ultra-sonic methods. The costs for such tests will be covered under item PSA-6.1 unless the welds fail to pass the tests. The cost of such failed tests will be for the account of the Contractor.

PSL MEDIUM PRESSURE PIPELINES

PSL-1 **MATERIALS – WATER SUPPLY PIPELINES**

Pipes and fittings will be of the types specified in the Schedule of Quantities or the

Project Specifications, unless otherwise required in terms of the Project Specifications. All pipes and fittings shall be supplied complete with couplings and jointing material.

Pipeline materials shall be so transported, stored and handled that pipes are not over stressed or the fittings not damaged at any time. All pipes, fittings and specials delivered to Site will be thoroughly inspected by the Engineer’s Representative. Materials rejected by the Engineer shall be removed from the site within 14 days and shall be replaced by other approved materials by the Contractor at his own expense.

Pipes as specified under this clause will be provided to the Contractor by the Employer and the Contractor will be requested to use these material on instruction from the Engineer. The rate tendered for the supply of this material to site by the Contractor, must include all handling costs, transport and profits as deemed necessary by the Contractor.

PSL-2 **MATERIALS – VALVES**

1. All valves and appurtenant fittings shall be for the use in Medium Pressure Pipeline with a designed useful life of 45 years under operating conditions. Valves shall be guaranteed for a period of 5 years from the date of delivery.

All valves shall be supplied complete with flanged adaptors, bolts, nuts, gaskets, rubber rings and all fittings as indicated on the drawings for joining. Valve bodies shall be subjected to a closed-end test pressure of 1.5 times the design pressure. Test pressure shall be maintained for 5 minutes and the valve bodies shall be watertight in all respect.

1. Valves and scour valves 300 mm and smaller shall be the diameter and class indicated and shall be manufactured in accordance with SABS 664. Valves 300 mm and smaller shall be Resilient Seal Waterworks pattern of the classes indicated on the drawings and shall have non-rising spindles, clockwise closing. All valves shall be of the pattern specified to connect with AC, PVC or steel piping as applicable or flanged in accordance with the schedule of fittings.
2. All valves shall be supplied complete with hand wheels, except for scour valves.

C3.30

T-keys to be handed over to the Operating Authority or as otherwise specified.

1. Water meters shall be cast iron, dry-gear type with removable measuring mechanism complying with the specifications as given on the drawings and in the Schedule of Quantities.
2. The size of Air Valves required shall be specified in the Schedule of Quantities, or on the Drawings by the diameter of the inlet branch. Valve bodies shall be of stainless steel.

Valves shall be of the following type:

Double orifice air valves

These are required to be the double orifice type approved by the Engineer, have a large controlled orifice for the release and admission of air at low pressure during filling or emptying the pipeline and a smaller lever controlled orifice for the release or air under high pressure.

1. Valves shall be classed according to type, size and pressure requirements and shall be paid for per Item installed, including all relevant fittings.

PSL-3 **MATERIALS**

PSL-3.4 uPVC pipes, fittings and specials

PSL-3.4.1 General

* + Add the following:

Before leaving the manufacturer's workshops the pipes shall be tested hydraulically in accordance with SABS 719, and the test certificates shall be submitted to the Engineer.

PSL-3.8 **Jointing Materials**

PSL-3.8.2 **Flexible couplings**

PSL-3.8.2.1 All unflanged steel pipes used above ground shall be provided with flexible couplings as shown on the drawings.

All flexible couplings shall be "Viking Johnson" couplings without centre register, or approved similar.

Rubber rings shall be of the wedge-type and shall be manufactured from natural or synthetic rubber only. Reclaimed rubber shall not be used in the manufacture of the rubber rings.

PSL-3.8.3 **Flanges and accessories**

All flanges, not jointing to existing flanges, shall be drilled in accordance with

C3.31

SABS 1123 Table 1000/3; 1600/3 or 2500/3. The type, drilling pattern and sizes of flanges jointing to existing flanges shall match those of the existing flanges and shall be determined on Site.

PSL-3.8.4 **Loose flanges**

All bolts and nuts shall comply with the requirements of SABS 135. Only stainless steel bolts and nuts shall be used for stainless steel pipes and fittings. All other bolts and nuts shall be cadmium-coated.

PSL-3.9 **Corrosion Protection**

PSL-3.9.2 **Steel pipes**

The coating of steel pipes other than Galvanised Mild steel shall be according to paragraph b(1) and the coating shall be Carboline 891 or equivalent, applied as described in paragraph b(1) to a minimum thickness of 300 microns.

PSL-3.9.5 **Joints, Nuts, Bolts and Washers**

Only stainless steel bolts, nuts and washers shall be used for all stainless steel pipes and fittings. All other nuts, bolts and washers shall be cadmium-coated.

PSL-3.9.6 **Corrosive soil**

In this contract all steel pipes, pipe fittings and steel flanges in contact with soil shall over and above the protection as described above be protected as specified in Clause 3.9.6 with "DENSO" tape and/or mastic or approved similar. Application shall be strictly in accordance with the manufacturer's instructions. A polyethylene tape of 300 microns minimum shall be spirally wrapped over the petrolatum tape and fixed to the clean pipe ends with pressure sensitive tape.

PSL-3.9.7 Painting of pipes and fittings (Additional clause)

In addition to the corrosion protection as specified above, the valves and pipes inside the borehole pump houses shall be painted as follows:

* Steel water pipes : Calypso Orange – Plascon G127
* Valves : PWD Brown – Plascon G18

PSL-3.10 **Valves**

Valves shall comply with Particular Specification PDE.

PSL-5 **CONSTRUCTION**

PSL-5.1 **Laying**

PSL-5.1.3 **Keeping Pipelines Clean**

The interior surfaces of all pipes, specials, valves and fittings shall at all times be kept free from dust, silt, foreign matter and access by rodents, animals and birds shall be prevented. Pipes and specials shall not be used as shelters by staff or for the storage of garment tools, materials, food containers or similar goods. Particular care shall be exercised at all times to prevent faecal contamination of pipe interiors by staff, casual visitors or passers-by.

C3.32

Metal night-caps approved by the Engineer shall be used to close off the ends of each laid section of pipeline when work is stopped at the end of the day or for longer periods and shall be left on the ends of sections of completed pipework until such sections are tied-in with the remainder of the completed pipeline.

Notwithstanding the use of night-caps the Contractor shall at his own expense make good all damage to pipe linings and fittings caused by the ingress of dirty water, silt, sand, debris, vermin, insects and other foreign matter. The Contractor shall at his own expense and to the satisfaction of the Engineer clean the interior of the pipeline of such contaminants, failing which the Engineer may order the Contractor to remove the pipes from the trench and replace them with clean pipes.

PSL-5.2 **Jointing Methods**

PSL-5.2.2 **Flanges (Steel pipelines)**

All flanges shall be installed with bolt holes off-centre and symmetrically off-set from the vertical centre line of the flange. Flanges shall be installed truly square to the axis of the pipe.

The Contractor shall ensure that the correct jointing materials, i.e. gaskets, bolts and nuts are available when required. Only correct diameters and lengths of bolts and studs shall be used. Flat washers shall be used under all nuts. The length of bolts and studs shall be such that at least two threads protrude from the nut when fully tightened. The threads of bolts, studs and nuts shall be thoroughly cleaned and then coated with a graphite/grease compound immediately prior to assembly.

Flanged fittings shall be so installed that there are no stresses induced into the pipework, specials or fittings by forcing ill-fitting units into position or by bolting up flanges with faces not uniformly in contact with their gaskets over their whole faces.

PSL-5.2.3 **Welding**

Welding on site shall not be allowed without the approval of the Engineer.

PSL-7 **TESTING**

PSL-7.3 **Standard Hydraulic Pipe Test**

PSL-7.3.1 **Test pressure and time of test**

The hydraulic tests shall be carried out within 7 to 14 days after the last anchor block in the section to be tested has been cast. The field test pressure shall be 1,5 times the working pressure of the pipes in the section to be tested. The pressure is applicable to the lowest point of the section to be tested.

The pressure will be retailed for a period of one hour during which period, inspections to all joints, bends, tee-off sections, anchor blades and connections will be done.

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PSL-9 DISINFECTION OF PIPELINES

All pipes shall be disinfected prior to being put to use. The cost will be included in the supply and laying of the pipes.

PSLB BEDDING (pipes)

PSLB-3 **MATERIALS**

PSLB-3.2 **Selected fill material**

Granular material shall be selected from excavations and shall be to the satisfaction of the Engineer.

PSLB-3.3 **Bedding**

Bedding for pipes shall be according to Class C as shown on Drawing LB-1 of SABS 1200 LB for rigid pipes and Drawing LB-2 for flexible pipes.

PSLB-3.4 **Selection**

Suitable selected bedding material will generally be available from trench excavations along the route and it is a requirement of this Contract that the Contractor use selective methods of excavating as described in Clause 3.7 of SABS 1200 DB and Clause 3.4.1 of SABS 1200 LB.

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PSLB-5 **CONSTRUCTION**

PSLB.5-2 **Compaction**

Compaction of bedding material shall take place at optimum density. The finished layers shall be the same density as the in-situ undisturbed surrounding material or 90 % mod AASHTO, whichever is the higher.

PSLB-6 **TOLERANCES**

PSLB-6.1 **Moisture content and density**

Degree II accuracy shall be applicable.

PSPCB FENCING

PSPCB-4 **MEASUREMENT AND PAYMENT**

Add the following item:

PSPCB-4.8 Supply and erection of fence complete with straining posts, stays

and gates as detailed on the drawings Unit : m

The tendered rate shall include full compensation for the erection of the fence complete with straining posts, stays and gates as detailed on the drawings.

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C3.6 PARTICULAR SPECIFICATIONS

PCB FENCING

PBA ROOF COVERINGS

PSFS FOUNDATIONS AND STANDS

PB EQUIPPING OF BOREHOLES

PE ELECTRICAL

PCB FENCING

PCB-1 **SCOPE**

This Specification covers the moving of existing fences where necessary, the erection of new fences, the dismantling of existing fences and the stacking of the fencing material, and the replacing or repair of existing fences where so indicated on the drawings or as directed by the Engineer. Any deviation from this Specification will be included in the Project Specifications.

PCB-2 **MATERIALS**

PCB-2.1 **Posts**

Posts, stays, standards and droppers shall comply with the requirements of CKS 82, SABS 280, SABS 457 and SABS 1372 as applicable, and shall be of the types and sizes as indicated on the drawings. Posts shall include gate posts, straining posts, corner posts and end posts.

Lengths and sizes of posts, standards and droppers as well as spacing of holes shall be as shown on the drawings.

PCB-2.2 **Bolts for stays**

All exposed steel shall be hot-dip galvanised. Bolts shall be galvanised steel bolts of the required length and shall be at least 12mm dia. All the necessary bolts and washers shall be supplied with each post.

PCB-2.3 **Wire**

All wire shall be hot-dip galvanised (Class C) with a first-class zinc coating and shall comply with the requirements of SABS 675.

1. Barbed wire shall be one of the following:
   1. High tensile grade, 2,80 mm average dia. oval, single-strand wire for use at a height of less than 500 mm above the ground.
   2. High tensile grade, 2,36 mm average dia. oval, single-strand wire for use at a height of more than 500 mm above the ground.
   3. Mild steel grade, 2 x 2,50 mm dia. double-strand, unidirectional twist wire for use at any height above the ground.

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Barbs shall be manufactured from 2,0 mm wire, spaced at a maximum spacing of 150 mm.

1. Smooth wire shall be as for equivalent thickness of the wire specified below:
   1. Fencing wire shall be high-tensile steel wire with a minimum diameter of 2,24 mm.
   2. Straining wire shall be mild-steel wire with a minimum diameter of 4,00 mm.
   3. Tying wire shall be mild-steel wire with a minimum diameter of 2,50 mm for tying fencing wire to standards and droppers and 1,6 mm for tying netting and mesh wire to fencing wire.

PCB-2.4 **Razor Wire**

(a) Welded razor mesh

Razor mesh is made of barbed tape razor wire welded into diamond-patterned apertures.

The razor mesh is supplied in 6 m lengths with heights of 1,23 m to 2,4 m as specified in the schedule of quantities.

The aperture size shall be 150 mm wide and 300 mm high.

The wires, blades and clips shall be as specified above for razor wire concertinas.

PCB-2.5 **Gates**

Gates shall be manufactured to the dimensions shown on the drawings.

Gates shall be complete in every respect including hinges, washers, bolts and locking chain to make it operative and shall be hot-dip galvanised.

PCB-3 **CONSTRUCTION**

PCB-3.1 **Clearing fence line**

The fence line shall be cleared over a width of at least 1 m on each side of the centre line of the fence as agreed with the Engineer prior to clearing, and surface irregularities shall be graded so that the fence will follow the general contour of the ground. Clearing shall include the removal of all scrub, stumps, trees, rock and other obstructions, which will interfere with proper construction of the fence.

Stumps within the cleared space shall be grubbed. No trees may be removed without the written instruction of the Engineer. The bottom of the fence shall be located a uniform distance above the ground line in accordance with the requirements shown on the drawings. All material resulting from clearing operations shall be removed from the site to authorised dumping areas.

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PCB-3.2 Installing razor wire Welded razor mesh

The welded razor mesh shall be erected as a fence on its own as in the case of weld-mesh and diamond mesh fencing. The welded razor mesh shall be secured to the fencing wire by means of 1,6 mm soft galvanised binding wire at 1,2 m centres along the top and bottom wires and at 2,4 m centres along each of the other fencing wires.

PCB-3.3 **Installing gates**

Gates shall be installed at the places indicated by the Engineer or as per drawing. The gates shall be hung on gate fittings in accordance with the requirements shown on the drawings. At pedestrian and security fences the double swing gates shall not leave a gap of more than 40 mm between them when closed and other gates shall not be further than

100 mm from the gate post when closed.

PCB-3.4 **General requirements**

The completed fence shall be plumb, taut, true to line and ground contour, with all posts, standards and stays firmly set. The height of the lower fencing wire above the ground at posts and standards shall not vary from that shown on the drawings by more than 25 mm.

Other fencing wires shall not vary by more than 10 mm from their prescribed relative vertical positions.

The following additional requirements apply to security fencing:

1. The wire mesh shall be 2,5 mm dia. with openings as detailed on the Drawings.
2. The straining wire shall be the high-tension wire equivalent or ordinary 4 mm straining wire.
3. After the straining wires have been tensioned, the excess piece of the tension boltsat the gates shall be sawn off and riveted against the nut.
4. Straining wire shall be fixed to all posts and the mesh fence shall be fixed to all straining wires at intervals of less than one metre.
5. All steel posts shall be sealed at the top.
6. The mesh shall be fixed to the outside of the security area.
7. All damaged galvanising shall be repaired in accordance with the requirements of SABS 763 at the cost of the Contractor.
8. The following minimum applications of zinc galvanising shall apply:
9. Weld mesh and diamond mesh - SABS 675 of 1971 - 75 gm/m2
10. Straining wire - SABS 935 of 1969 - 140 gm/m2
11. Binding wire - SABS 935 of 1969 - 120 gm/m²

(vi) Posts, standards and struts - SABS 763 of 1971 - 305 gm/m² (type B2)

(v) Tension bolts - SABS 763 of 1971 - 380 gm/m2 (type C1)

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BA ROOF COVERINGS CONTENTS

BA 01 SCOPE

BA 02 STANDARD SPECIFICATIONS

BA 03 VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS

BA 04 DETAIL OF REPAIR WORK

BA 05 MAINTENANCE

BA 06 MEASUREMENT AND PAYMENT

BA 01 SCOPE

This specification covers the installation of new roof coverings. This specification also covers the supply, delivery, installation and maintenance of new roof coverings for various types of buildings.

Roof coverings shall mean the installation of new roof sheeting and side wall cladding, roofing screws, purlins, flashings, rainwater goods, fascias and barge boards. This specification does not include work related to trusses, ceilings and paintwork specified elsewhere.

BA 2 STANDARD SPECIFICATIONS

**BA 2.1 GENERAL STANDARD SPECIFICATIONS**

The latest edition, including all amendments up to 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:

SABS 1200 HB - Cladding and sheeting

SABS 653 - Softwood brandering and battens

SABS ISO 1461 - Hot-dip galvanised coatings on fabricated iron and steel articles

SABS 1273 - Fasteners for sheet roof and wall coverings

BA 3.1 ADDITIONAL REQUIREMENTS FOR INSTALLATION OF PROFILED ROOF SHEETING (NON-CONCEALED AND CONCEALED FIXING)

BA 3.1.1 Roof cladding

The new roof sheeting shall be 0,6 mm thick galvanised (or Chromadek) IBR or approved equivalent for roof slopes exceeding 15 º. Concealed fixed type Chromadek roof sheeting will generally be used to cover roofs with slopes not exceeding 15 º. The sheeting must be laid in long lengths without end overlaps. The broad flutes must be turned up at the apex to form a dam, and turned down at the eaves and valley gutters to form a drip. Metal closers 0,8 mm thick galvanised (or Chromadek), complete with polyclosers set in one run of silicone sealant, are required at apexes, ridges, side and head walls, etc. All holes for fasteners shall be drilled.

Punching of holes and nailing of cladding and flashings will not be permitted. Cutting of cladding and flashings with an angle grinder may only be done by using a tungsten steel blade.

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The Contractor shall take all necessary measurements and dimensions on site prior to manufacturing and installation. Z275 galvanising spelter shall be used and the Contractor shall provide SABS certificates of compliance to the Project Manager. Various standard dark colours shall be used for Chromadek-finished roof sheeting, flashings, gutters and down pipes. To prevent unnecessary damage to galvanised or colour-coated sheets, proper measures must be taken to prevent contamination by moisture while material is still bundled or nested in stacks.

Only stages 1 and 2 “white rust” on sheets will be permitted, provided that the white rust is successfully removed in accordance with ISCOR recommendation. The Contractor shall provide a guarantee for the Chromadek materials obtained from the manufacturer. In all cases the roof sheeting must be laid strictly in accordance with the manufacturer’s specifications.

**BA 3.1.2 Main fasteners to timber purlins: Galvanised/Chromadek IBR sheeting (or approved equivalent)**

No.12 (5,5 mm) x 90 mm type 17 hexagon head (H/H) carbon steel (C/S) zinc-plated self- drilling roofing screws shall be used for timber. The roofing screws with no.12 x 25 mm diameter x 1,0 mm thick low carbon EPDM/galvanised bonded washers are used as main fixing for the roof sheeting to timber purlins. 65 mm long x no 14 H/H C/S Topspeed or Posidriv main fasteners for steel purlins with the same washers are to be used. Fasteners shall be provided at alternating ribs, excluding side lap ribs.

**BA 3.1.3 Side lap fasteners: Galvanised/Chromadek IBR sheeting (or equivalent approved)**

Stitching shall be done with Leak King plugs for IBR roof sheeting @ 600 c/c maximum. Provide an approved 8 x 3 mm thick butyl rubber sealer strip (PG Sealer Strip or approved equivalent) with nylon cord between sheets.

BA 3.1.4 Flashings

Flashings must be 0,8 mm thick Chromadek/galvanised flashings at ridge caps, side and head walls, drips, corners, etc, as described elsewhere. The minimum length of and overlap between flashings is 150 mm. Apply two runs of silicone sealant between flashings. Flashings are to be stitched together with no. 10 (4,8 mm) x 16 mm x H/H C/S zinc-plated self-drilling stitching screws. The stitching screws with no. 12 x 19 mm diameter x 1,0 mm thick low carbon EPDM/galvanised bonded washers are to be used at end laps and longitudinally @ 400 c/c maximum at ribs, etc. The Contractor shall take all necessary measurements and dimensions on site prior to manufacturing and installation.

BA 3.1.5 Sealant

Silicone sealant with an amine cure system with primer shall be used to waterproof all flashings and rainwater goods, viz gutters and down pipes. Two runs of silicone shall be provided at end overlaps.

BA 3.1.6 Pipe flashings

Dektite or equivalent approved pipe flashings shall be used to waterproof pipe protrusions through the roof sheeting. Installation shall be done strictly in accordance with the

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manufacturer’s specification and shall include the application of Dektite silicone sealant and fastening of flashing to the surface with TEKS or approved equivalent selfdrilling fasteners.

BA 3.1.7 Insulation

1. **Specification for non-visible roof insulation material:**

Super Sisalation 420 RSA or equivalent approved reinforced reflective aluminium foil (heavy grade) laid on 1,6 mm diameter galvanised (unless noted otherwise) straining wires 300 mm centres to the manufacturer’s specification. The insulation shall be laid longitudinally over the purlins and lapped 150 mm at joints.

1. Specification for visible roof insulation material:

White Alucushion (code 2906) or equivalent approved white bubble foil on aluminium foil backing laid on 1,6 mm diameter white plastic (PVC) coated straining wires at 383 mm centres to the manufacturer’s specification. The insulation shall be laid longitudinally over the purlins and lapped at joints.

**BA 3.2 ADDITIONAL REQUIREMENTS FOR INSTALLATION OF PROFILED SIDE WALL CLADDING (NON-CONCEALED AND CONCEALED FIXING)**

BA 3.2.1 Side wall cladding

The new side wall cladding shall be 0,6 mm thick galvanised (or Chromadek) IBR or approved equivalent. The sheeting must be laid in long lengths without end overlaps.

Metal closers 0,8 mm thick galvanised (or Chromadek), complete with polyclosers set in one run of silicone sealant, are required at apexes, gables, side and head walls, etc.

The Contractor shall take all necessary measurements and dimensions on site prior to manufacturing and installation. Z275 galvanising spelter shall be used and the Contractor shall provide SABS certificates of compliance to the Project Manager.

Heavy-duty profiled polycarbonate sheets shall be used for translucent sheeting.

Various standard dark colours for Chromadek finished sidewall cladding, flashings, and gutters and down pipes shall be used. In all cases the cladding must be laid strictly in accordance with the manufacturer’s specifications.

**BA 3.2.2 Main fasteners to timber girt: Galvanised/Chromadek IBR (or approved equivalent) and profiled translucent sheeting**

No. 12 (5,5 mm) x 90 mm type 17 hexagon head (H/H) carbon steel (C/S) zinc-plated self- drilling roofing screws for timber. The roofing screws with no.12 x 25 mm diameter x 1,0 mm thick low carbon EPDM/galvanised bonded washers are used as main fixing

for the roof sheeting to timber girts. 65 mm long x no 14 H/H C/S Top speed or Posidriv main fasteners for steel girts with the same washers are to be used. Fasteners shall be provided at alternating ribs, excluding side lap ribs. Correct installation procedures must be followed, especially in respect of the drilling speed and torque settings of the drill for various materials.

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**BA 3.2.3 Side lap fasteners: Galvanised/Chromadek IBR (or approved equivalent) sheeting**

Stitching shall be done with Leak King plugs for IBR roof sheeting @ 600 c/c maximum. Provide an approved 8 x 3 mm thick butyl rubber sealer strip (PG Sealer Strip or approved equivalent) with nylon cord between sheets.

BA 3.2.4 End overlaps

If unavoidable, the end overlap shall be 300 mm minimum between sheeting and sealed with two rows of silicone sealant between the sheeting. Bolt the ribs in the overlap region with the (polycarbonate) translucent sheeting with galvanised no. 14 gutter bolts, bonded washers and nuts through every alternative rib.

**BA 3.2.5 Side overlaps: Vertical profiled translucent sheeting**

Stitching shall be done with 6 mm cadmium-plated cladding bolts and nuts x 25 mm long @ ± 300 c/c with no. 12 x 19 mm diameter x 1,0 mm thick low-carbon EPDM/galvanised bonded washers.

BA 3.3 RAINWATER GOODS

BA 3.3.1 Gutters

1. **Standard size for houses:**

Gutters shall be 100 x 75 x 0,6 thick standard Chromadek/galvanised nonsupporting beaded gutter.

Galvanised brackets are to be provided at every second truss. Brackets shall be painted with water-based pure acrylic emulsion paint to Technical Specification BJ 03.01.03(g).

Alternatively, standard 140 x 127 x 83 x 0,6 mm thick Brownbuilt or similar continuous rolled approved Chromadek fascia gutter with galvanised gutter clips can be used.

1. Typical size for other buildings:

125 x 100 x 0,8 thick standard Chromadek self-supporting beaded gutter to detail.

Dark colours shall be used where indicated by the Project Manager.

The Contractor shall take all necessary measurements and dimensions on site prior to manufacturing and installation.

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BA 3.3.2 Joints in gutters, valleys, etc

150 mm overlap sealed with an approved silicone and riveted together with two rows of sealed pop rivets.

Linings to valleys and secret gutters, etc, shall have an overlap of 225 mm.

BA 3.3.3 Accessories and ancillary items

1. **End stops:**

0,6 mm thick Chromadek/galvanised finished end stop shall be joined to gutter on site and sealed as for joints in gutters. Thickness to be the same as for gutter.

1. Outlets:

0,6 mm thick Chromadek/galvanised finished outlets shall be fixed to gutter with pop rivets and sealed with an approved silicone. Outlet to slip into down pipe.

Thickness shall be the same as for gutter.

1. Fascia straps:

25 mm wide x 1,0 mm thick galvanised straps at +/- 686 mm c/c.

1. Corner joints:

Overlaps are to be neatly mitred, pop riveted together and sealed with an approved silicone.

1. Sealant:

Clear silicone sealant with amine cured system and primer shall be used to waterproof gutters and down pipes.

BA 3.3.4 Down pipes

Standard sizes:

100 x 75 x 0,6 thick Chromadek/galvanised down pipes

100 x 100 x 0,8 thick Chromadek/galvanised down pipes

Dark colours shall be used where indicated by the Project Manager.

Down pipes are to have double-seamed joints. Down pipes, shoes, offsets, etc, shall be joined together by means of 100 mm slip joints and pop riveted together.

The Contractor shall take all necessary measurements and dimensions on site prior to manufacturing and installation.

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BA 3.3.5 Down pipe accessories

1. **Brackets:**

Standard galvanised brackets shall be spaced at centres not exceeding 2,4 metres.

Brackets shall be primed and painted with water-based pure acrylic emulsion paint as specified in Technical Specification BJ 03.01.03(g).

1. Shoes, offsets and spreaders:

Shoes, offsets and spreaders must be manufactured from 0,8 mm thick Chromadek /galvanised material, cut and mitred to suit. All joints are to be sealed with an approved silicone sealant.

BA 3.4 GENERAL

The Contractor shall be responsible to ensure the stability of the supporting structure during and after the removal of existing roof cladding and sheeting. SABS 1200 HB: Cladding and Sheeting shall be applicable for the erection of all new

roofs.

The Contractor shall submit a 3-year guarantee for the water tightness of the roofs and for workmanship.

**The Contractor shall make arrangements with the manufacturer to inspect the workmanship at regular intervals during the construction period. On completion of the work the manufacturer shall issue a certificate of acceptance and compliance with specifications to the Employer**.

BA 4 DETAIL OF REPAIR WORK

The detail of the work is described in the Schedule of Quantities.

BA 5 MAINTENANCE

[Note: No maintenance work beyond defects liability period for roof coverings will be required on this Contract.]

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BA 6 MEASUREMENT AND PAYMENT BA 6.1 MEASUREMENT AND RATES

BA 6.1.1 General inclusion of costs and specific specifications Notes:

Where applicable, standard SABS 1200 measurement and payment items shall be used for

Structural Steelwork (1200 H) and Cladding and Sheeting (1200 HB).

All sheeting, cladding and accessories are to be supplied by a South African based

`manufacturer and the work carried out is subject to a three year written guarantee for water tightness and workmanship.

All new material used in construction work shall be of approved equal quality, colours, profiles, thickness, etc. and shall in all cases match the existing materials and shall be fixed to new material or surfaces.

All construction work shall be done carefully as to not damage any adjacent or other material or work. Any damage to other or adjacent materials or areas caused by the negligence of the Contractor shall be repaired by him free of charge.

Installation work shall also include all cutting, grinding, cutting into, welding, bending, strengthening, drilling, etc., necessary to complete the installation.

All new work is measured net and shall include all cutting, lapping, waste, bending, fixing, corners, mitres, fixing screws, pop rivets, nails, adhesive, grout, putty, etc., as well as cleaning and preparation of surfaces not already prepared as part of removed items,

etc.

BA 6.2 DETAILS OF MATERIAL TO BE USED

For detail descriptions of materials, thicknesses, dimensions and ancillary items to be used, as specified in the various payment items of roof sheeting, cladding, flashings, etc., refer to the scheduled list below:

BA 6.3 SCHEDULED ITEMS

Standard measurement and payment items shall be used for Structural Steelwork (1200 H) and Cladding and Sheeting (1200 HB)

Rainwater goods

BA.01 Supply and install rainwater goods:

BA.01.01 Description of material to be used:

BA.01.01.01 Description of item Unit: m, No

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The unit of measurement for rainwater goods installed shall be metre or number.

Sundry items such as stop-ends, bends, shoes, etc., are deemed to be included in the tendered rates per metre.

Separate items will be scheduled for each type, finish, shape, and when relevant, profile of rainwater goods. The rates shall cover the cost of supplying, delivery, storing on Site,handling, moving installing and fixing the goods complete with all necessary fasteners,

etc. as specified in BA.03.03 (all complete and subject to a three year written guarantee on water tightness and workmanship). The rates shall also cover the cost of cutting, notching and waste, and of all scaffolding, temporary supports, hoisting facilities and safety precautions (see Sub clause 8.1.1 of SABS 1200 HB).

Alteration work

BA.2 Alterations and repairs to existing structures:

BA.2.1 Indication of repairs, alterations, removal or sealing, etc:

BA.2.1.0 Description of work to be repaired, altered, removed, sealed, etc

. Unit: As scheduled

The unit of measurement for alteration or repair work shall be as scheduled.

The tendered rates shall include full compensation for providing all labour, material and equipment required to carry out the work, for all preparatory work, for all additional costs to repair, refix, remove, cutting into, realign, taking off, temporary store etc as specified in the Standard and Technical Specifications and for carrying out the work scheduled in a workmanlike manner to leave the work as new to match all existing work and/or finishing-off and cleaning up when the work has been completed. Refer also to the general inclusion of costs in BA 6.1

PB EQUIPPING OF BOREHOLES

**PB1 SCOPE**

This sub-section includes all work related to the installation of borehole equipment including but not limited to the following:

* 1. Hand pumps
  2. Windmills
  3. Diesel driven engines
  4. Positive displacement pumps
  5. Submersible pumps and associated electrical work

The service to be rendered is the provision, installation, erection, and commissioning of all the borehole equipment and appurtenant works.

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PB2 GENERAL

Depending on borehole test results, the borehole will be equipped upon the Engineer's site instruction. The pump set shall comprise one complete borehole pump, including all pipe work to couple to main pipeline, electric or diesel driven, pulleys, driving belts, etc.

PB4. DESIGN, MEASUREMENTS AND RECORDS

PB4.1 Prior to the ordering of any materials to be used for the equipping of boreholes, the Engineer shall issue a selection lists to the Contractor, specifying the equipment to be installed at each borehole.

The Contractor must proceed with the immediate ordering and/or installation of the specified equipment after reception of these lists.

PB4.2 Prior to equipping of each borehole, the Contractor shall measure and record the diameter of the borehole at natural ground level, the static water level ( in metres below ground level), the depth of the casing and the total depth (in metres below ground level). These measurements shall be verified with the Engineer prior to equipping of such borehole.

PB8. BOREHOLE PUMPS

Supply and delivery of all components required:

1. Pumps shall be of the type specified and be self-priming, positive displacement rotary type, vertical spindle borehole pump, suitable for pumping potable water to a concrete reservoir or elevated tanks.
2. Borehole column specifications
   1. Columns with a dia less than 55 mm must be manufactured from medium galvanise tubing according to SABS 62 spec.
   2. Columns with a dia more than 65 mm must be manufactured from heavy wall tubing with a 4,85 mm min wall thickness according to SABS 62 spec.
   3. Bell-mouth columns are not acceptable.
   4. Columns must include sockets, shafts, bobbin bearings, etc.
   5. A sufficient quantity of lubricant, as prescribed by manufacturer, shall be included.
   6. All threads shall be parallel truncated.
   7. Sockets shall be precision machined from seamless heavy wall tube.
   8. Standard galvanised sockets for sizes above 25 mm dia are not acceptable.
   9. Stag sealer to be used on column threads.
3. Column shall be according to specification. Column stabilisers shall be fitted to at least every fourth column pipe to secure a neat fit against the borehole perimeter. During assembly of pipe columns, the pipe thread area and each socket shall be covered with a protective sealer, following securing of the socketed joint. All accordance to specification (stag).
4. The inlet of the pump unit shall be fitted with a suitable strainer.

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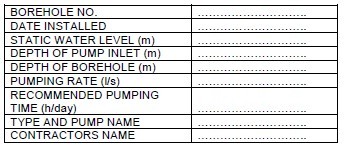
1. The discharge head shall incorporate the pulley housing and shall be mechanically safeguarded against incorrect direction of rotation. The discharge head shall be provided with a cast iron or fabricated steel bed plate fixed to a concrete foundation block of adequate size by means of suitable anchor bolts.

Pump and electrical/diesel driven shall be accurately aligned on an integral steel frame according to installation instructions of the pump manufacturer and shall allow adjustment in any direction on the horizontal plane for both engine and pump. Length of V-belts shall be as recommended by the pump manufacturer. A detachable steel plate guard, painted red, shall cover the entire V-belt drive. Provision to be made for adjustment of the guard to suit occasional V-belt tension adjustments. See Drawing No. 131 159/99 ME and 131 160/99 ME.

1. After installation, the contractor must check the horizontal alignment in both directions of the complete pump installation before starting and commissioning of the pump installations.
2. Centrifugal clutches will be provided where pumps are driven by diesel engines.
3. Name plates:

Two name plates required:

10 mm punched letters. To be installed as follows:

* One nameplate inside the pumphouse.
* One nameplate outside the pumphouse. (Pumphouse door - outside position) Information required on each nameplate:

PB9. SUBMERSIBLE CENTRIFUGAL PUMPS

**PB9.1** Complete submersible pump price assemblies for various depths and heads shall comprise of:

Detail of submission must be submitted by tenderer.

1. Pump and motor

Non-return value must be installed at the discharge of the pump.

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1. Pipe and pump coupling
2. HDPE pipe
3. Pipe and baseplate coupling
4. Baseplate
5. Term joint kit (electrical connection)
6. Starter and control panel

Motor protection should be sufficient to open the circuit within 10 seconds of the occurrence of locked rotor or single phasing or dry running.

1. Mef bend - galvanised
2. Barrel nipple - galvanised
3. Brass gate valve
4. Brass check valve
5. Valve and pipe coupling
6. 20 NB HDPE Type IV Class 6 for water level measurement strapped to columns with heavy duty cable-ties
7. Submersible cable

The cable sizes must be based on the distance between the supply entry point (starter and control panel) and the motor.

1. Earth cable

Size of earth cable must be larger than the drop nylon rope and must be connected to the MOV surge arrestors.

1. Nylon rope
2. Nameplate

The borehole nameplate must be installed and support with a suitable bracket

1. Installation

The borehole pumps must not be installed deeper than 5 metre from the bottom of the borehole or sediment area.

**PB9.2** Refer to PB12 and PD1-PD7 for electrical specifications and requirements.

**PB9.3** Submersible centrifugal pumps shall be suitable for either 220 volt or three phase 380 volts.

PB10. ANCILLARY PIPEWORK

Ancillary pipework to be supplied and installed according to specification.

PB11. EQUIPMENT

Equipment to be supplied and installed all in accordance with the applicable specification.

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**PE1 ELECTRICAL (PART 1) PE1. GENERAL**

**PE2. SITE LOCATION AND DETAILS PE3. DETAILS OF CONTRACT**

**PE4. INSPECTION OF SITE PE5. SITE FACILITIES**

**PE6. CONSTRUCTION PROGRAMME**

**PE7. STANDARD SPECIFICATIONS, REGULATIONS AND CODES PE8. DELAYS AND OVERTIME**

**PE9. SECURITY OF MATERIALS AND EQUIPMENT PE10.STORAGE**

**PE11.QUALITY OF MATERIALS**

**PE12.COMPETENCE OF PERSONNEL, WORKMANSHIP AND STAFF PE13.FINISHING AND TIDYING**

**PE14.PROTECTION OF OTHER SERVICES AND STRUCTURES PE15.SHOP DRAWINGS**

**PE16.INSPECTIONS**

**PE17.SITE TESTS AND COMMISSIONING**

**PE18.AS-BUILT / OPERATING AND MAINTENANCE MANUALS**

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PE1. GENERAL

* 1. The work to be carried out under this subcontract comprises of the electrical services installation for the new sports complex in Namakgale, Limpopo Province.
  2. The Project Specification shall be read in conjunction with the schedule of quantities and the drawings contained in this document. Where contradictions occur between the documents, the most stringent requirement shall rule, unless otherwise stated by the Engineer.
  3. Only equipment based on proven technology and of high reliability shall be considered for use.
  4. All schedules included in the project documentation shall be completed in full and submitted with the tender. Failure to comply with the above will result in the tender being disqualified.
  5. All relevant technical information regarding each component or item offered shall be included either in the forms to be completed by the tenderer or as an appendix to the tender in order that the Engineer can make a true evaluation of the offer.
  6. Where the Contractor chooses to offer items imported from other countries, these shall be offered as an alternative offer. Complete technical details of all alternative equipment shall be Included in the Bid document and the Contractor shall prove that all the requirements of the specification have been complied with.

PE2. SITE LOCATION AND DETAILS

* 1. The site is situated in Namakgale, Limpopo Province.
  2. The site is subject to the following prevailing conditions.
     + Maximum Temperature : 37 ⁰C
     + Minimum Temperature : -3 ⁰C
     + Altitude : ±1230 above sea level
  3. The system conditions are as follows**:**
     + Supply voltage : 400 V 3 phase
     + Rated frequency : 50 Hz

PE3. DETAILS OF CONTRACT

The work to be carried out under this sub-contract consists mainly of electrical services installation for the new sports complex in Namakgale, Limpopo Province.

PE4. INSPECTION OF SITE

Tenderers are required to visit the site to thoroughly acquaint themselves with the nature and extent of the work to be done, and to make allowance for items obviously intended and necessary for the proper completion of the work although not specifically specified in this document. Claims due to lack of knowledge will not be entertained. All uncertainties shall be cleared out with the Engineer before the tender closing date.

PE5. SITE FACILITIES

The Electrical Sub-Contractor may negotiate with the Main Contractor for establishment of stores/yard and site office on the premises.

PE6. CONSTRUCTION PROGRAMME

* 1. A detailed construction programme shall be submitted within fourteen days after acceptance of

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the tender. This programme shall be finalised in liaison with the Main Contractor and shall have to be approved by the Engineer.

* 1. The Main Contractor’s programme shall be co-ordinated with the programme of all his Subcontractors and shall include allowance for builders holidays and public holidays as specified in the Standard Conditions of Contract.

PE7. STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender of all the applicable SABS specifications, publications and codes of practice including Manufacturers’ specifications and installation instructions, shall be read in conjunction with this specification and shall be deemed to form part thereof.

PE8. DELAYS AND OVERTIME

* 1. If the Electrical Sub-Contractor’s work should cause any delay to the late completion of the works, he will be held responsible for any claims arising out of such delays in accordance with the stipulations of the Principal Contract.
  2. Payments for overtime will only be considered if formally instructed by the Engineer and no payment will be made for overtime to maintain progress in accordance with the programme or to make good lack of progress by the Electrical Sub-Contractor.

PE9. SECURITY OF MATERIALS AND EQUIPMENT

* 1. The Electrical Sub-Contractor shall provide and maintain, at his own cost, all lights, guards, barriers, fencing and safeguarding as may be required for his works, installations, materials, equipment and public safety, until all works have been completed in full. Any materials damaged or stolen from site prior to final handover of the whole project shall be replaced by the Electrical Sub-Contractor with no cost to the Client**.**
  2. All materials and equipment e.g. distribution kiosks, distribution boards, light fittings, etc supplied as part of this Subcontract shall be well protected against damage during transportation, off-loading, storage and building operations.

PE10. STORAGE

The Sub-Contractor shall be responsible for provision of an adequate and safe storage for all his materials. All materials shall be stored or stacked in positions that will not interfere with other work in progress in the area, or the safe and unhindered movement of the public in the area.

PE11. QUALITY OF MATERIALS

* 1. All materials supplied by the Electrical Sub-Contractor under this Subcontract Works shall be new and unused. Only materials of first class quality shall be utilised. Samples of all materials e.g. luminaires, outlets, cable support systems, etc, shall be subject to approval by the

Engineer before the procurement process commences.

* 1. All materials shall comply with the relevant specifications as listed in Section 7 above.

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* 1. Factory tests

The Contractor shall arrange factory inspections and tests by the Engineer of equipment manufactured and supplied as part of this Contract e.g. distribution boards, kiosks, etc.

PE12. COMPETENCE OF PERSONNEL, WORKMANSHIP AND STAFF

* 1. The Sub-Contractor shall ensure that all safety regulations and measures are applied and enforced during construction work on existing live cabling, wiring, distribution boards, luminaires, power points, fixed appliances, etc.
  2. Only suitably qualified Artisans shall be permitted to carry out work. The Electrical Sub- Contractor shall provide proof of current Artisan qualifications and experience on request.
  3. Work shall at all times be subject to full time supervision by qualified and experienced Artisans.

These representatives must be authorised and competent to receive instructions on behalf of the Sub- Contractor.

* 1. The Sub-Contractor shall at all times have an adequate number of employees, plant and equipment available during the construction period to ensure that the electrical work does no delay the construction programme.

PE13. FINISHING AND TIDYING

* 1. In view of the concentration of construction and other activities likely to be experienced during the Contract period, progressive and systematic finishing and tidying will form an essential part of this Subcontract. On no account will soil, rubble, materials, equipment or unfinished operations be allowed to accumulate in such a manner as to unnecessarily impede the activities of others.
  2. Finishing and tidying shall therefore not be left to the end of the Contract, but shall be a continuous operation.

PE14. PROTECTION OF OTHER SERVICES AND STRUCTURES

* 1. The Sub-Contractor shall take all the necessary precautions to protect finishes, structures and existing services during the execution of the Contract.
  2. The Sub-Contractor shall be responsible for obtaining information regarding services and existing works which may be affected by the new works. Before the Sub-Contractor commences with any work on site, he must discuss with and have the approval of the Engineer regarding the method he proposes to use for safeguarding any services and existing works he may encounter during construction.
  3. The cost of all precautionary measures which may be necessary to ensure the safety of such services and existing works, as well as the protection for all persons, shall be borne by the

Electrical Sub-Contractor. Any alteration to services which may be required shall be carried out by the Authority concerned at the expense of the Sub-Contractor. The Electrical Sub- Contractor shall be held responsible for any damage, injury or accident caused as a result of his failure to take the necessary precautionary measures.

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* 1. The Electrical Sub-Contractor shall, during the execution of this contract, suitably protect the working area and his staff and shall indemnify the Owner in respect of all claims arising out of injury or deaths of any persons lawfully on the premises, whose injury or death is caused by the execution of this Sub- Contract.
  2. The Sub-Contractor shall also exercise extreme care when and where excavations are made to avoid damage to existing or newly installed services. Any damage to other services shall be rectified forthwith and the cost for the rectification will be recovered from the Sub-Contractor.

PE16. INSPECTIONS

* 1. The Engineer will inspect the installation at any time. All inferior, unsuitable, unacceptable or rejected work shall, if indicated by the inspecting officers, be removed and shall be rectified by the Sub- Contractor at his own expense. Under no circumstances will these inspections relieve the Sub- Contractor of his obligations in terms of the document nor will these inspections be regarded as final approval of the works or portions thereof.
  2. Where inspections are requested by the Engineer, the Engineer’s inspection shall only be carried out after the Sub-Contractor has carried out his own preliminary inspection to ensure that the works are completed and comply with the documents. The Engineer's inspection shall therefore not be regarded as supervision, fault listing, quality assurance or site management.

PE17. SITE TESTS AND COMMISSIONING

* 1. It is the responsibility of the Electrical Sub-Contractor to provide all labour, accessories and properly calibrated and certified measuring instruments necessary for all the tests required under this

Sub-Contract.

* 1. Prior to beginning any aspect of commissioning, the Sub-Contractor shall present for the Engineer’s review/approval, two copies of a complete commissioning procedures manual including checklists. The relevant checklists shall be utilised and formally signed off as part of the commissioning phase.

PE18. AS-BUILT / OPERATING AND MAINTENANCE MANUALS

* 1. The Contractor shall prepare as-built drawings for the complete installation and any other equipment installed as part of this Sub-Contract.
  2. One copy of the Operating and Maintenance Manuals shall be submitted to the Engineer for approval at least four weeks prior to commissioning of the works.
  3. Approved “as-built” drawings and documents shall be bound in hard cover dossiers, fully indexed. The same information shall also be submitted on compact disc.
  4. Hard copies of the test sheets and certificates, Guarantees and Warranties shall also be submitted.
  5. Three copies of CD and hard copies of all items listed in 18.2 to 18.4 above must be submitted. The Contract will be regarded as incomplete until this requirement has been complied with

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**PE ELECTRICAL (PART 2) PE1. GENERAL**

**PE2. SCOPE OF WORKS**

**PE3. STANDARDS AND CODES OF PRACTICE PE4. POWER SUPPLY TO SITE**

**PE5. WORK PROVIDED BY OTHERS**

**PE6. LOW VOLTAGE CABLE INSTALLATION PE7. DISTRIBUTION BOARDS AND KIOSKS**

**PE8. CONDUITS, POWERSKIRTING, CABLE TRAYS AND CABLE DUCTS PE9. LIGHTING INSTALLATION**

**PE10.POWER INSTALLATION PE11.WIRING**

**PE12.TELEPHONE AND DATA INSTALLATION PE13.CABLE SLEEVES AND MANHOLES PE14.EARTHING AND BONDING PE15.LIGHTNING PROTECTION**

**PE16.AREA AND SPORTFIELD LIGHTING PE17.BALANCING OF LOADS**

**PE18.SITE TESTS AND COMMISSIONING PE19.MAINTENANCE PERIOD PE20.SCHEDULE OF DRAWINGS PE21.TECHNICAL DATA SCHEDULE**

**PE1. GENERAL**

* 1. This specification comprises all aspects regarding the electrical services installation for the new sports complex in Namakgale, Limpopo Province.
  2. The work shall also include the bulk supply to site by the supply authority, new building electrical services installation for the clubhouse, ablutions and guardhouse; area and all sports field lighting including external LV cable reticulation and distribution kiosks.
  3. Extreme care shall be taken when working on live electrical installations on site. Only qualified electricians shall be expected to work on live installations e.g. distribution boards, cabling, etc.
  4. The Detail Specification shall be read in conjunction with the Standard Specifications listed in section 3 below, schedule of quantities, drawings and the Conditions of Contract for the Main

Contract. Where contradictions occur between the documents, the most stringent requirement shall rule, unless otherwise stated by the Engineer.

* 1. All work shall be scheduled in liaison with the Main Contractor to suit his master programme.

PE2. SCOPE OF WORKS

The scope of the installation shall comprise of the supply, delivery, off-loading, installation, commissioning, testing and guarantee of the following material and equipment associated with the above-mentioned works:

* 1. Compilation of shop drawings, manufacture and installation of new distribution boards and kiosks
  2. Internal and external lighting installation for the clubhouse, ablutions and guardhouse
  3. Power installation
  4. Wireways and conduits to lights, socket outlets, power outlets and all electrical equipment and or plant
  5. Wiring of lighting and power points with PVC insulated conductors and bare copper earth wire

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* 1. Earthing and bonding of metal structures and sanitary ware accessories
  2. High mast installation
  3. Area and sports field light poles including luminaires
  4. Excavation, backfilling and compaction of cable trenches
  5. Low voltage cable reticulation from kiosks to all buildings on site including area and sports field lighting and proposed borehole
  6. Sleeve and manhole installation, where required
  7. Lightning protection system
  8. Site supervision and quality management
  9. Commissioning, testing and handing over of complete electrical installation detailed above and to provide "as-built" drawings these aspects should be seen only as a brief summary of the scope of work and not as a complete record. Quantities and volume of work shall be read or obtained from the drawings and the text of the specification.

**All components, mounting brackets, draw boxes, junction boxes, cabling, wiring and all other electrical, mechanical and civil works required to complete the works in accordance with the specification, prior to handover, shall be deemed to be included in the tendered rates and prices even though some items may not be mentioned separately.**

PE3. STANDARDS AND CODES OF PRACTICE

* 1. The electrical work shall be carried out strictly in accordance with:-
     + SANS Code of Practice - 10142-1:2012: “The Wiring of Premises”
     + SANS Code of Practice - 10313-2012: “Protection against Lightning – Physical Damage to Structures & Life Hazard”
     + Occupational Health and Safety Act 85/1993. the Municipal By-Laws and any Local Authority Regulations which may be in force the Local Fire Office Regulations.
  2. Manufacturers’ specifications and installation instructions.

PE4. POWER SUPPLY TO SITE

* 1. There is currently a power supply to the site
  2. It will be the responsibility of the Electrical Sub- Contractor in the distribution of power from the main distribution kiosk to all buildings, equipment and installations on site.
  3. The electrical subcontractor shall make all the necessary arrangements with the municipal authority regarding registration of work to be done, testing and certificate on completion. Proof of registration shall be submitted to the engineer within 14 days of the contract being awarded. All regulations and requirements of the local supply authority shall be strictly complied with.

PE5. WORK PROVIDED BY OTHERS

The following work shall be provided by others:

* 1. Power supply

Provision of bulk power supply to site.

* 1. Mechanical services

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* + 1. Air conditioning equipment and ventilation fans if required, shall be supplied and installed by the Mechanical Sub-contractor.

The electrical subcontractor shall be responsible for provision of the necessary outlet points and isolators. The final connection from the isolator to the equipment shall be done by the

Electrical Sub-contractor.

* 1. Water supply and distribution
     1. Geysers shall be supplied and installed by the plumbing subcontractor. The Electrical Subcontractor shall be responsible for providing the local isolator adjacent to each geyser.

The final sprague connection from the isolator to the geyser shall be done as part of this Sub- Contract.

* + 1. Equipment for the domestic water pump system if required, shall be supplied and installed by others. The Electrical Sub-contractor shall be responsible for provision of supply cables to

local isolators and/or distribution boards as may be required. The final connection from the isolator and/or distribution board to the equipment shall be done by others.

* 1. Communication systems

Wiring for telephone services shall be done by others. The Electrical Subcontractor shall be responsible for provision of all communication cable sleeves and manholes, conduit, data and telephone outlets including steel draw wires in all communication cable sleeves and conduit

PE6. LOW VOLTAGE CABLE INSTALLATION

* 1. The tender price shall include the supply, delivery, installation, testing and commissioning of all the cables specified including the marking off and connections at both ends.
  2. All cables shall have stranded copper conductors and shall be of the PVC/SWA/PVC type, 600/1000V Grade and shall comply with SANS 1507. Cables with aluminium conductors are not acceptable.
  3. All terminations shall be done with lugs, glands and shrouds as specified. Shrouds shall cover the gland completely.
  4. All cables shall be labelled at both ends. The cables shall be labelled by means of “Grafoplast” or approved type cable markers. The cable labels shall indicate the full name of both distribution boards. Thus if DB A2 feeds DB B2, the label at each cable end shall read “DB A2/DB B2”.
  5. Copper earth continuity conductors shall be installed with all low voltage cables, and shall be strapped to the cable at 1500mm intervals.
  6. Cables in which the phase conductors are colour coded by means of a coloured stripe along the insulation will not be accepted. The entire conductor PVC insulation shall be fully colour coded in red, white, blue or black. The conductors of cables used for single phase loads or connections shall be red

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and black. Cables with red, white and blue conductors will not be accepted for use on single phase loads or connections.

* 1. All cables shall be tested after installation in accordance with SABS 1507 by means of a 600V megger. In addition, all cables shall be phased out to ensure correct phase rotation.
  2. All test results shall be submitted to the Engineer in writing, before the final commissioning of the equipment and cables take place.
  3. It shall be the responsibility of the Electrical Sub-contractor to determine the correct lengths of cable required on site, before placing an order. The Sub-Contractor shall not be reimbursed for any surplus or shortfall of cable.
  4. Cable reticulation outside the buildings shall be by means of underground cables installed in uPVC sleeves where cables cross paved areas or run underneath the sports ground. Where sleeves are not specified, cables shall be laid directly in the ground. Minimum laying depths shall be 650 mm below final ground level unless otherwise specified, and routes shall be as indicated on the drawings.
  5. All trenching, including excavations, bedding layers, shoring and prevention of waterlogging, drainage of excavations, backfilling and compaction of trenches form part of this contract. Trenches shall be compacted to a minimum of 93% of modified AASHTO density during backfilling.
  6. The Sub-Contractor shall take cognisance of the fact that other services might be installed along the same routes as the cables. The Sub-Contractor shall, before commencing with any excavations, peg out the proposed cable route and confirm it with the Engineer.
  7. Positions of cable markers shall be pegged on site in collaboration with the Engineer. The wording of the labels shall be provided by the Engineer.
  8. Joints will not be permitted in any of the low voltage cables.
  9. Cables Installed on Cable trays
     1. Cables shall be fixed to the cable trays by means of stainless-steel strapping at 600mm spacing.
     2. The Contractor shall plan cable runs prior to installation of cables as crossing of cables will not be accepted unless it is impossible to avoid.
  10. Cables Installed on Cable trays
      1. Cables shall be fixed to the cable trays by means of stainless-steel strapping at 600mm spacing.
      2. The Contractor shall plan cable runs prior to installation of cables as crossing of cables will not be accepted unless it is impossible to avoid.

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PE7. DISTRIBUTION BOARDS AND KIOSKS

* 1. General

Extreme care shall be taken when working on existing live electrical installations. Only qualified electricians shall be expected to work on live distribution boards and kiosks.

* 1. Manufacture

1. Electrical Sub-Contractor is advised to order all new distribution boards and kiosks from a reputable manufacturer as inferior equipment will not be accepted.
2. The Electrical Sub-Contractor to note that manufacturer of the distribution boards and kiosks shall only commence after approval of the factory drawings by the Engineer.
3. Distribution boards shall be of the recessed type with pad lockable doors.
4. Distribution kiosks shall be of the free-standing type with pad lockable doors. The kiosks shall be supported on concrete plinth to be supplied as part of this subcontract.
5. All equipment in distribution boards and kiosks shall be mounted behind removable panels.
6. The front panel of the board shall be secured by means of the Perano or Procast type knurled edge catches. Catches with slots or square key facilities will not be acceptable. Each front panel shall also be fitted with 2 approved D type handles top and bottom, to assist removal and replacement.
7. Door hinges shall be of the “Procast” or similar type. All panels shall be supplied with handles.
8. Equipment
   1. All equipment in distribution board and kiosks shall bear the SABS mark of approval and be of Merlin Gerin manufacture or similar approved equal.
   2. All phase, neutral and earth bars shall be adequately sized to accommodate the specified circuits as well as allowance for 40% future circuits.
   3. Circuit breakers shall be used in the cascade arrangement and only cascade arrangements proven by SABS tests shall be utilised throughout.
   4. All circuit breakers shall be rated for a fault level as indicated on the relevant distribution board schematic diagram.
9. Drawings
   1. Three sets of manufacturers’ drawings of each new distribution board shall be submitted for approval by the Engineer before manufacture of the distribution board may commence.
   2. It shall be noted that late approval of drawings and distribution boards due to noncompliance

with the specification will not relieve the Sub-Contractor from his obligations to complete the installation according to programme. No claims for delays or for extension of time in this regard will be entertained.

1. Schedule of distribution boards

Distribution Boards shall be installed at the positions indicated on the drawings and according to the detailed schematic diagrams forming part of this specification.

1. Schedule of distribution kiosks

Distribution kiosks shall be installed at the positions indicated on the drawings and according to the detailed schematic diagrams forming part of this specification.

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PE8. CONDUITS, POWERSKIRTING, CABLE TRAYS AND CABLE DUCTS

* 1. Conduits
     1. All conduits and accessories shall bear the SABS mark of approval.
     2. PVC conduit and accessories may be used for indoor installation unless specified otherwise.
     3. External draw box covers shall be sealed with white silicone after the installation is completed.
     4. Conduit installation on masonry wall surfaces shall **not** be permitted inside and outside the building.
     5. All chasing work where approved, shall be carried out by means of power-driven machinery using abrasive cutting discs. Chasing by means of hammer and chisel will not be accepted.
     6. Conduit work under open roof structures and inside accessible ceilings shall be done in rectangular grid pattern. All conduit offsets shall be neat and at equal angles. Steel saddles installed at 1500mm intervals shall be used inside ceilings. Caddy clamps shall be used on roof purlins, maximum spacing of saddles and clamps shall be 750 mm.
     7. All steel conduits and cable supports shall be securely bonded to earth.
     8. Bushes fitted to steel conduits shall be brass only. Other materials are unacceptable.
     9. All conduits installed for services provided by others shall be fitted with 2,5 mm ø galvanised draw wire if the wiring is not installed as part of this subcontract.
  2. Cable trays
     1. Cable trays if required shall be the perforated, heavy-duty, 2.5 mm thickness hot dipped galvanised steel type. The cable tray width shall be as specified on the relevant drawings or in the bills of quantities.
     2. Only purpose-made accessories, e.g. splices, risers, offsets and bends shall be used.
     3. Trays shall be fastened onto 500 mm lengths of P2000 unistrut. Each unistrut section shall be fixed to the roof, wall or floor with galvanized 10 mm x 50mm Ø Fisher anchors. Unistrut spacing shall be 600 mm maximum. Only purpose-made accessories shall be used.
  3. Cable ladders
     1. Cable ladders if required, shall be hot dipped galvanized and all members shall be 2 mm thick, with 76 mm side rails and cross rungs at 375 centres. Cable ladders shall be supported at maximum 800 mm intervals with approved galvanized suspension brackets or P2000 unistrut nor 10 mm galvanized threaded rod hangers.
     2. The width shall be as specified and only purpose-made accessories shall be used.
  4. Trunking

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* + 1. Steel trunking, where required, shall be the hot dip galvanised type with 0,8 thickness complete with elbows, tees and covers. The width shall be as specified.
    2. Where sleeves are not indicated on drawing, any surface-mounted distribution boards not installed behind a cupboard shall be linked to openings in ceilings or floors by means of 127 mm wide, hot dip galvanised steel trunking supplied complete with distribution outlets and covers. The trunking shall be powder coated and the colour shall match the DB exterior colour.

PE9. LIGHTING INSTALLATION

* 1. General
     1. The Electrical Sub-Contractor shall allow for the supply and installation of the complete new internal lighting system as indicated on the relevant drawings.
     2. Samples of luminaires shall be submitted to the engineer for approval before ordering commences.
     3. All light fittings shall be delivered to site new and unused and in boxes as packed by the manufacturer. When the work is handed over, all light fittings shall be in a working condition.
     4. The permanent light fittings intended for installation shall not be used for temporary lighting during construction. The certificate of completion for the installation will not be finalised, unless all light fittings and lamps are in working order.
     5. All linear fluorescent type luminaires shall be equipped with high efficiency 16 mm diameter tubes (T5), generally 600 and 1200 mm long and with a colour temperature of 4 300 k (cool white) and minimum colour rendering index (Ra) of 64 unless otherwise stated. The engineer will reject unmarked lamps. All costs to replace these lamps with marked lamps will be for the contactor’s account.
     6. All PL type lamps shall be colour 41, with a temperature of 2 700 k. Lamps not marked thus will not be accepted, as stipulated above.
     7. Wiring for the lighting installation shall generally be installed inside conduits.
     8. Special care shall be taken to ensure that conduit connections do not violate the IP rating of luminaires. This applies specifically to the exterior luminaires. Mounting holes and conduit entries shall be sealed with black silicone after connection.
     9. No luminaires shall be fitted to masonry wall with fasteners smaller than 3,5 mm diameter and a wall plug smaller than 8 mm diameter. Galvanised 30 mm ø fender washers shall be used with each fastener.
     10. Tenderers to note that recessed type fluorescent luminaires shall be installed in all office areas and corridors. Wiring to the recessed fluorescent fittings shall consist of 20 mm conduits and standard 100 x 50 mm draw boxes above the ceiling. In close vicinity of the luminaire positions, 1 x 6A unswitched socket outlet shall be provided, fixed to the conduits for support,

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for power supply to luminaires. All indoor fluorescent luminaires shall therefore be supplied with 3 m electrical cord fitted with a 6 Amp plug.

* 1. Light Switches
     1. Tenderers to note the 16A current rating of light switches.
     2. 100 x 50 x 50 mm drawboxes shall be provided for light switches.
     3. Light switches shall be the 16A, of Crabtree or Clipsal manufacture or similar approved equal, supplied complete with white cover plates.
     4. Photocell shall be accommodated inside IP 65 bulkhead luminaires. No direct switching of lighting circuits via photocell contacts shall be accepted.
  2. Luminaire mounting position
     1. Internal and external light fittings shall be installed at positions shown on the relevant lighting drawings.
     2. Mounting heights for wall mounted light fittings shall be as shown on the relevant drawings.
  3. Schedule of Luminaires
     1. All luminaires shall bear the SABS mark of approval. Luminaires shall be provided complete with lamps and control gear.
     2. The following luminaire types are to be installed in the positions indicated on the drawing:

PE10. POWER INSTALLATION

* 1. General
     1. The Electrical Sub-Contractor shall allow for the supply and installation of the complete new small power installation as indicated on the relevant drawings.
     2. Samples of all outlets shall be submitted to the engineer for approval before ordering commences.
     3. All outlets shall be delivered to site new and unused and in boxes as packed by the manufacturer.
  2. Single phase socket outlets in wall

Normal socket outlets shall be the 16 Amp, flush mounted single or double 3-pin switched socket with white cover plates.

10.2 Isolators

* + 1. Local isolators shall consist of normal 20A recessed double pole complete with outlet box, white cover plate and “cord grip” grommet to accommodate the hand dryer cable; final position shall be agreed on site.

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* + 1. Isolators for geysers where required in ceiling void shall consist of 20A surface mounted double pole complete with outlet box and cover plate. Final position shall be agreed on site.

PE11. WIRING

* 1. All internal wiring shall generally comprise of PVC insulated stranded copper conductors and bare stranded copper earth continuity conductors.
  2. Only new wiring shall be used under this Sub-contract.
  3. Wiring shall not be drawn into conduit until the conduit installation has been completed, fitted with bushes and all moisture and debris has been removed.
  4. No joints of any kind shall be permitted in wiring.
  5. No more than 1 single or 1 three phase circuit may be drawn into any conduit.
  6. No “surfix”/“twin & earth” wiring will be accepted.
  7. The following minimum conductor sizes shall be used:

PE12. TELEPHONE AND DATA INSTALLATION

* 1. The supply, delivery and installation of the telephone distribution boards, conduit, draw boxes, outlets and cover plates, external sleeves and manholes shall form part of this contract.
  2. Telephone points shall be flush mounted 100 x 50 x 50 mm draw boxes complete with cover plate.
  3. 2,5mm diameter galvanised draw wire shall be installed in all telephone and data conduits. All information and communication outlet points shall be interlinked by means of 25mm diameter conduit which shall terminate in the telephone distribution boards supplied and installed as part of this Sub-Contract.
  4. Telephone outlets shall be the RJ45.

PE13. CABLE SLEEVES AND MANHOLES

* 1. All sleeves and manholes shown on the drawings shall be supplied and installed as part of this Sub-Contract.
  2. The sleeves shall be the flexible type installed at a minimum depth of 650mm below final ground level.
  3. Crossings of all sleeves must be at 90º with the communication sleeves on the top.
  4. All spare sleeves including electronic and communication sleeves shall be fitted with 4 mm ø galvanised draw wire.
  5. On completion of the project, the end of all unused sleeves shall be sealed with paper and weak

cement mixture.

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PE14. EARTHING AND BONDING

* 1. General
     1. The Electrical Sub-Contractor is to ensure that the installations covered in this document are effectively earthed and bonded in accordance with the requirements of SABS 0142.
     2. All hot and cold water and waste metal pipes are to be effectively bonded by means of 12,5 Mm x 1,6 mm solid or perforated copper tape (not wire), clamped by means of brass bolts and

nuts. The tape is to be fixed to walls by means of rounded brass screws at intervals not exceeding 150 mm.

* + 1. Metal cable supports and others structures e.g. aerials shall be bonded by means of green insulated copper earth conductor of 16mm2 minimum size.

PE15. LIGHTNING PROTECTION

Provisional sum has been allowed in the bills of quantities for supply and installation of an earthing and lightning protection system by a Specialist Sub-Contractor.

PE16. AREA AND SPORTFIELD LIGHTING

* 1. Area Lighting
     1. Area and security lighting around the site shall be provided as part of this Sub-Contract.
     2. Lighting shall be provided by means of pole mounted light fittings installed at positions shown on the relevant drawing.
     3. Light poles shall be the 76mm diameter, 4m high (mounting height) manufactured from hot deep galvanised steel. The light poles shall be painted and architect shall advise

on colour. Mounting brackets shall also be hot dipped galvanised.

* + 1. Light fitting for the area lighting shall be 57W post top luminaire: BEKA: BEKARAY 57W CFL or similar approved equal
  1. Sports field Lighting
     1. High mast lighting shall be provided for general lighting of the athletics track. The mast shall be hot dip galvanised to SANS 121 ISO 1461 and shall be 25m in height.
     2. Lighting shall be provided for the combi courts. The light poles shall be hot dip galvanised to SANS 121 ISO 1461 and shall be 12m in height (mounting).

1. Each mast shall be installed over a concrete foundation and shall be properly earthed.
2. Each mast shall be supplied complete with an internal IP30 glass fibre DB, IP 65 splitterbox and 5-core x 4mm2 trailing cable.
3. All luminaires, associated equipment and control gear shall be new and unused and shall be complete with lamp control gear, visors, refractor bowls as applicable, mounting brackets and all other accessories to make the luminaires fully operative. The luminaires shall be delivered to site in protective covering.
4. All luminaires shall be equipped with an earth terminal and shall be earthed.

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PE17. BALANCING OF LOADS

The Electrical Sub-Contractor shall be responsible for the measurement, testing and balancing of load between all the phases of busbars to the satisfaction of the Engineer. Distribution board equipment shall be connected in such an order that the load is balanced across all three phases.

PE18. SITE TESTS AND COMMISSIONING

* 1. It shall be the responsibility of the Electrical Sub-Contractor to provide all labour, accessories and properly calibrated and certified measuring instruments necessary for all the tests required under this contract.
  2. Prior to beginning any aspect of commissioning, the contractor shall present for the Engineer’s review/approval, two copies of a complete commissioning procedures manual including checklists. The relevant checklists shall be utilised and formally signed off as part of the commissioning phase.
  3. Preparation of commissioning report shall include, but not necessarily limited to:
     1. Manufacturer’s operating, servicing and maintenance manuals for each and every individual item of plant installed.
     2. Inventory for the items of mechanical/electrical plant(s) and or equipment that shall be for installation in the project.

PE19. MAINTENANCE PERIOD

* 1. The equipment and installation supplied under this Sub-Contract shall be guaranteed for a period of twelve months from date of completion of the whole project of the Contract Works. The tender price shall include for the above.
  2. The maintenance period will be for a period of twelve months, calculated from the date the complete installation has been taken over by the Client. Payment of the full amount of the retention money will be effected after the lapse of the maintenance period, provided the installation has been in satisfactory working order during this period. The Electrical Sub- Contractor shall be responsible for the replacement of all faulty electrical equipment supplied and installed as part of this Sub-Contract, including blown or faulty lamps during the maintenance period.

PE21. SCHEDULE OF DRAWINGS (DRAWINGS AVAILABLE TO TENDERER UPON REQUEST)

|  |  |
| --- | --- |
| **LIST OF DRAWINGS** | |
| **REFURBISMENT OF NAMAKGALE STADIUM** | |
| **DRAWING NUMBER** | **DESCRIPTION** |
| **IPA/BPLM/NS/LM/DR01** | **LOCALITY MAP** |
| **IPA/BPLM/NS/ELP/DR02** | **EXISTING LAYOUT PLAN** |
| **IPA/BPLM/NS/GLP/DR03** | **GENERAL LAYOUT PLAN & FENCING DETAILS** |
| **IPA/BPLM/NS/SP/DR04** | **SOCCER PITCH AND ATHLETIC TRACK LAYOUT** |
| **IPA/BPLM/NS/WAT/DR05** | **SOCCER PITCH AND ATHLETIC TRACK SUB SURFACE DRAINAGE** |
| **IPA/BPLM/NS/WAT/DR06** | **SOCCER PITCH IRRIGATION SYSTEM LAYOUT** |
| **IPA/BPLM/NS/DL/DR07** | **RUNNING TRACK DRAINAGE LAYOUT** |

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|  |  |
| --- | --- |
| **IPA/BPLM/NS/AF/DR09** | **DETAILS OF ATHLETIC FACILITIES** |
| **IPA/BPLM/NS/STR/DR10** | **ELEVATED WATER TANK LAYOUT, ELEVATIONS, SECTIONS &**  **DETAILS** |
| **IPA/BPLM/NS/RD/DR11** | **TYPICAL CROSS SECTIONS OF PARKING AREA, WALKWAY AND**  **ACCESS ROAD** |
| **IPA/BPLM/NS/SM/DR12** | **STANDARD SEWER MANHOLE AND PIPE BEDDIN DETAILS** |
| **IPA/BPLM/NS/TB/DR13** | **WATER BEDDING AND THRUST BLOCK DATAILS** |
| **IPA/BPLM/NS/STR/DR14** | **STEEL PALLISADE LAYOUT SECTIONS AND DETAILS** |
| **IPA/BPLM/NS/NB/DR15** | **NAME BOARD ERECTIONS DETAILS** |
| **IPA/BPLM/NS/GSFL/DR/26** | **GRAND STAND FOUNDATION LAYOUT** |
| **IPA/BPLM/NS/GSRL/DR27** | **GRAND STAND REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/CRFRL/DR33** | **CHANGE ROOM FOUNDATION AND REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/GOFL/DR34** | **GATE ONE FOUNDATION LAYOUT** |
| **IPA/BPLM/NS/GORL/DR35** | **GATE ONE REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/GTRRL/DR36** | **GATE ONE FOUNDATION AND REINFORCEMENT LAYOUT** |
| **IPA/BPLM/NS/PV/DR38** | **PAVILLION VENTILATION** |
| **IPA/BPLM/NS/ABV/DR39** | **ABLUTION BLOCK VENTILATION** |
| **IPA/BPLM/NS/GSCLL/DR42** | **GRAND STAND CANOPY LIGHTING LAYOUT** |
| **IPA/BPLM/NS/CRPTL/DR43** | **CHANGE ROOMS AND PUBLIC TOILETS DISTRIBUTION BOARD**  **LAYOUT** |
| **IPA/BPLM/NS/GSDBL/DR44** | **GRAND STAND DISTRIBUTION BOARD LAYOUT** |
| **IPA/BPLM/NS/CRPTSPL/DR47** | **CHANGE ROOM AND PUBPLIC TOILETS SMALL POWER LAYOUT** |
| **IPA/BPLM/NS/CRPTLL/DR48** | **CHANGE ROOM AND PUBLIC TOILETS LIGHTING LAYOUT** |
| **IPA/BPLM/NS/SL/DR22** | **SEWER LONG SECTIONS** |
| **IPA/BPLM/NS/SWL/DR23** | **STORMWATER LONG SECTIONS** |
| **19-001-100-MS-00** | **GRANDSTAND 01** |
| **19-001-200-MS-00** | **GRAND STAND 02** |
| **19-001-210-MS-00** | **GRAND STAND CEILING LAYOUT** |
| **19-001-300-MS-00** | **CHANGE ROOMS, GATE TWO, SCHEDULES** |
| **19-001-500-MS-00** | **GATE ONE** |
| **19-001-900-MS-00** | **FINISHES AND SIGNAGE SCHEDULES** |
| **19-001-910-MS-00** | **SANITARY SCHEDULES** |
| **19-001-000-MS-00** | **SITE PLAN** |
| **IPA/BPLM/NS/ESRL/DR08** | **ELECTRICAL SITE PLAN** |
| **IPA/BPLM/NS/PF/DR20** | **DESIGN PLATFORM** |
| **IPA/BPLM/NS/SWC/DR24** | **STORMWATER CATCHMENTS** |
| **IPA/BPLM/NS/SKP/DR25** | **SERVICES KEY PLAN** |

PE22. TECHNICAL DATA SCHEDULE

The trade name and/or catalogue numbers of all equipment forming part of the tender offer must be submitted. This information schedule must be fully completed by the Contractor.

* + 1. Cables

1. Manufacturer : ....................................................

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1. Type : ....................................................
2. Complies with SABS 1507 : (Yes/No)
   * 1. Labeling system for cables
3. Manufacturer : ....................................................
4. Type : ....................................................
   * 1. Cable trays
5. Manufacturer : ....................................................
6. Type : ....................................................
   * 1. Cable ladders
7. Manufacturer : ....................................................
8. Type : ....................................................
   * 1. Cable trunking
9. Manufacturer : ....................................................
10. Type : ....................................................
    * 1. Wall-mounted isolators
         1. Flush-mounted double pole
11. Manufacturer : ....................................................
12. Type (No of pins) : ....................................................
13. IP rating : ....................................................
    * + 1. Flush-mounted triple pole
14. Manufacturer : ....................................................
15. Type (No of pins) : ....................................................
16. IP rating : ....................................................
    * + 1. Surface mounted double pole
17. Manufacturer : ....................................................
18. Type (No of pins) : ....................................................
19. IP rating : ....................................................
    * + 1. Surface mounted triple pole
20. Manufacturer : ....................................................
21. Type (No of pins) : ....................................................
22. IP rating : ....................................................
    * 1. Light switches
23. Manufacturer : ....................................................
24. Range / Type : ....................................................
25. Current rating : ....................................................
26. Industrial type: manufacturer : ....................................................
27. Industrial type: current rating : ....................................................
28. Industrial type: IP rating : ....................................................

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* + 1. Switched socket outlets

1. Manufacturer : ....................................................
2. Range / Type : ....................................................
3. Current rating : ....................................................
   * 1. Telephone outlets
4. Manufacturer : ....................................................
5. Range / Type : ....................................................
6. To spec : (yes/no)
   * 1. Data outlets
7. Manufacturer : .................................................
8. Range / Type : ....................................................
9. To spec : (yes/no)
   * 1. Luminaires
        1. Type A : 2 x 28W open channel fluorescent luminaire
10. Manufacturer : ....................................................
11. Type : ....................................................
12. Complies with Spec? : (Yes/No)
    * + 1. Type A1 : 2 x 28W open channel emergency fluorescent luminaire with 1Hr battery unit @ 20%
13. Manufacturer : ....................................................
14. Type : ....................................................
15. Battery back-up time : ....................................................
16. Complies with Spec? : (Yes/No)
    * + 1. Type B : 2 x 54W open channel fluorescent luminaire
17. Manufacturer : ....................................................
18. Type : ....................................................
19. Complies with Spec? : (Yes/No)
    * + 1. Type B1 : 2 x 54W open channel emergency fluorescent luminaire with 1Hr battery unit @ 20%
20. Manufacturer : ....................................................
21. Type : ....................................................
22. Battery back-up time : ....................................................
23. Complies with Spec? : (Yes/No)
    * + 1. Type C : 2 x 28W dimmable open channel fluorescent luminaire
24. Manufacturer : ....................................................
25. Type : ....................................................
26. Complies with Spec? : (Yes/No)
    * + 1. Type D : 2 x 18W fluorescent downlight luminaire
27. Manufacturer : ....................................................
28. Type : ....................................................
29. Complies with Spec? : (Yes/No)

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* + - 1. Type D1 : 2 x 18W emergency fluorescent downlight luminaire

1. Manufacturer : ....................................................
2. Type : ....................................................
3. Complies with Spec? : (Yes/No)
   * + 1. Type E : LED emergency signage luminaire 1hr battery unit
4. Manufacturer :. ...................................................
5. Type :. ...................................................
6. Battery back-up time : ....................................................
7. Complies with Spec? : (Yes/No)
   * + 1. Type F : 2 x 18W IP65 fluorescent luminaire
8. Manufacturer : ....................................................
9. Type : ....................................................
10. IP rating : ....................................................
11. Complies with Spec? : (Yes/No)
    * + 1. Type F1 : 2 x 18W IP65 emergency fluorescent luminaire
12. Manufacturer : ....................................................
13. Type : ....................................................
14. IP rating : ....................................................
15. Complies with Spec? : (Yes/No)
    * + 1. Type G : 2 x 54W moisture proof fluorescent luminaire
16. Manufacturer : ....................................................
17. Type : ....................................................
18. IP rating : ....................................................
19. Complies with Spec? : (Yes/No)
    * + 1. Type G1 : 2 x 54W moisture proof emergency fluorescent luminaire
20. Manufacturer : ....................................................
21. Type : ....................................................
22. IP rating : ....................................................
23. Complies with Spec? : (Yes/No)
    * + 1. Type H : 57W post top luminaire
24. Manufacturer : ....................................................
25. Type : ....................................................
26. Complies with Spec? : (Yes/No)
    * + 1. Type J: 2 x 54W megabay fluorescent luminaire
27. Manufacturer : ....................................................
28. Type : ....................................................
29. Complies with Spec? : (Yes/No)
    * + 1. Type J1 : 3 x 54W megabay emergency fluorescent luminaire with 1Hr battery unit @ 20%
30. Manufacturer : ....................................................

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1. Type : ....................................................
2. Battery back-up time : ....................................................
3. Complies with Spec? : (Yes/No)
   * + 1. Type K: 1000W M/H floodlight for combi court
4. Manufacturer : ....................................................
5. Type : ....................................................
6. Type of light beam : ....................................................
7. Complies with Spec? : (Yes/No)
   * + 1. Type L: 400W M/H floodlight
8. Manufacturer : ....................................................
9. Type : ....................................................
10. Type of light beam :. ...................................................
11. Complies with Spec? : (Yes/No)
    * + 1. Type M: 1000W M/H floodlight for athletics track
12. Manufacturer : ....................................................
13. Type : ....................................................
14. Type of light beam : ....................................................
15. Complies with Spec? : (Yes/No)
    * 1. Photocell

(a) Manufacturer : ....................................................

b) Installation method : ....................................................

(c) Type and IP rating of enclosure : .........................................................

* + 1. Occupancy sensor

1. Manufacturer : ....................................................
2. Type : ....................................................
3. Installation method : ....................................................
4. Coverage : ....................................................
   * 1. Wiring
5. Manufacturer : ....................................................
6. Type : ....................................................
7. Complies with Spec : (Yes/No)
   * 1. Labeling system for wiring
8. Manufacturer : ....................................................
9. Type : ....................................................
   * 1. Distribution boards
        1. Recessed distribution boards
10. Manufacturer : ....................................................
11. Enclosure type : ....................................................
12. Current density of busbars : A/mm
    * + 1. Circuit breakers
13. Manufacturer : ....................................................
14. Trade name : ....................................................

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1. Port of delivery : ....................................................
2. Minimum fault level : kA
   * + 1. Isolators
3. Manufacturer : ....................................................
4. Trade name : ....................................................
5. Minimum fault level : kA
   * + 1. Earth leakage units
6. Manufacturer : ....................................................
7. Sensitivity rating : ....................................................
8. Minimum fault level : kA
   * + 1. Contactors
9. Manufacturer : ....................................................
10. Type : ....................................................
11. Current rating reference : (e.g. AC3)
12. Control voltage : ....................................................
    * 1. High Mast poles
13. Manufacturer : ...................................................
14. Type : ....................................................
15. Material : ....................................................
16. Height : ....................................................
17. Type of DB : ....................................................
18. To spec? : yes/no
    * 1. Combi court scourt light poles
19. Manufacturer : ....................................................
20. Material : ....................................................
21. Mounting height : ....................................................
22. Pole diameter : ...................................................

(d) To spec? : yes/no

* + 1. Area lighting light poles

1. Manufacturer : ....................................................
2. Material : ....................................................
3. Mounting height : ....................................................
4. Pole diameter : ....................................................

(d) To spec? : yes/no

C3.7 EPWP LABOUR INTENSIVE SPECIFICATION

* + 1. Labour intensive competencies of supervisory and management staff

Contractors having a CIDB contractor grading designation of 7CE and higher shall only engage supervisory and management staff in labour intensive works who have either completed are registered for training towards, the skills programme outlined in Table 1.

C3.71

Table 1: Skills programme for supervisory and management staff

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Personnel** | **NQF Level** | **Unit standard titles** | **Skills programme**  **description** | |
| Team leader / supervisor | 1 | Apply Labour-Intensive Construction Systems and  Techniques to Work Activities | This unit standard must be  completed, and | |
| Use Labour-Intensive Construction Methods to Construct  and Maintain Roads and  Stormwater Drainage | any one of these 3 unit standards | |
| Use Labour-Intensive Construction  Methods to Construct and Maintain  Water and Sanitation Services |
| Use Labour-Intensive Construction  Methods to Construct, Repair and  Maintain Structures |
| Foreman/ supervisor | 4 | Implement Labour-Intensive  Construction Systems and Techniques |  | This unit standard must be  completed, and |
| Use Labour-Intensive Construction  Methods to Construct and  Maintain |  | any one of these 3 unit standards |
| Roads and Stormwater Drainage Use Labour-Intensive Construction  Methods to Construct and  Maintain |
| Water and Sanitation Services Use Labour-Intensive Construction  Methods to Construct, Repair and  Maintain Structures |
| Site Agent / Manager (i.e the contractor’s most  senior representative that is resident on  the site) | 5 | Manage Labour-Intensive Construction Processes | Skills Programme against this  single unit standard | |

C3.72

* + 1. Employment of unskilled and semi-skilled workers in labour-intensive works – According to SANS 1914-5.
       1. **Requirements for the sourcing and engagement of labour.**

1. Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.
2. The rate of pay set for the EPWP per task or per day is as legislated in latest publication.
3. Tasks established by the contractor must be such that:
   1. the average worker completes 5 tasks per week in 40 hours or less; and
   2. the weakest worker completes 5 tasks per week in 55 hours or less.
4. The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 3.
5. The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
   1. where the head of the household has less than a primary school education;
   2. that has less than one full time person earning an income;
   3. where subsistence agriculture is the source of income.
   4. those that are not in receipt of any social security pension income
6. The Contractor shall endeavours to ensure that the expenditure on the employment of temporary workers is in the following proportions:
   * + 1. Specific provisions pertaining to SANS 1914-5
          1. **Definitions**

**Targeted labour:** Unemployed persons who are employed as local labour on the project

* + - * 1. Contract participation goals

The target participation goal for this Contract shall be a minimum of:

The contract participation goal shall be measured to these requirements.

The wages and allowances used to calculate the contract participation goal shall, with respect

to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

* + - * 1. Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

C3.73

* + - * 1. Variations to SANS 1914-5

The definition for net amount shall be amended as follows:

Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted

labour.

* + - * 1. Training of targeted labour

The contractor shall provide all the necessary on-the-job training to targeted labour to enable

such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

The cost of the formal training of targeted labour will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible.The contractor, must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.

A copy of this training request made by the contractor to the DOL provincial office must also

be faxed to the EPWP Training Director in the Department of Public Works– Cinderella Makunike, Fax Number 012 328 6820 or email [cinderella.makunike@dpw.gov.za](mailto:cinderella.makunike@dpw.gov.za) Tel: 083 677 4026.

The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal

training if he/she is employed for 3 months or less and a minimum of ten (10) days if he she is employed for 4 months or more.

The contractor shall do nothing to dissuade targeted labour from participating in training programmes.

An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training above.

Proof of compliance with the requirements must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

* + 1. Certification by recognized bodies – N/A.
    2. **Plant and materials provided by the employer**

No material will be supplied by the employer. The contractor must supply all materials and plant. All materials and plant shall be made available by the Contractor for the execution of the works.

All materials used in the Works shall, where such mark has been awarded for a specific type of material, bear the SABS mark.

C3.74

* + 1. Construction Equipment

No equipment will be supplied by the employer. The contractor must supply all equipment and as far as possible, hire equipment from the local community.

The contractor’s equipment for construction shall be adequate for the purpose required, of modern design and in good condition to carry out the works expeditiously. Should the Engineer be of the opinion that the equipment in use is in any way unsuitable for carrying out the works in a manner or at a rate commensurate with the requirements of the contract, he shall have the right to call on the Contractor at any time during

the progress of the works to provide such additional or improved equipment as may be necessary to meet these requirements.

The Employer makes no provision in this contract for financial assistance to the Contractor for the acquisition of plant, machinery and equipment.

* + 1. Existing Services

A number of existing underground services are on the site, and prior to any excavation work being commenced, it shall be the responsibility of the Contractor to make all the necessary enquiries with the Local Authority to satisfy himself as to the existence or not of any services on the site and to obtain permission to open up any existing services. Any damage to underground or visual overhead services that are shown on the drawings or that have been pointed out by the Engineer or authority in charge of such services, shall be repaired at the contractor’s cost. The contractor shall also be liable for any compensations claimed resulting from damage to services that were pointed out to him.

1. Care of Existing Services

It is to be noted that construction work will be done adjacent to or traversing existing services. Prior to commencement of any constructional work in the aforesaid affected area, the Contractor shall satisfy the Engineer that all necessary precautions with respect to setting out procedures have been taken by the Contractor to evade the existing services.

The Contractor shall, before starting any excavations, carefully search and probe the terrain for any existing services or indications of the presence of such services. A payment item is included in the Schedule of Quantities for excavations by hand to locate known and unknown services. If other methods are to be used, the cost thereof is to be included in the Preliminary and General payment items.

In addition if the proposed new service(s) crosses underneath overhead power lines belonging to Eskom as well as underground pipelines and communication cables belonging to Telkom, the Contractor shall have to comply with all the requirements laid down by the relevant authorities when working in the vicinity thereof. The Contractor shall be responsible for checking the locations of all such services with representative of the relevant authorities to ensure that no damage is caused by construction operations.

Work executed within the road reserve of provincial or local roads shall be carried out strictly in accordance with the requirements laid down by the relevant provincial or local authorities. These include the use of traffic signs, flagmen and other requirements as applicable.

As the above work entails working in or close to an already developed enclosure, special care must be taken so as not to disturb the functioning of the existing facilities.

1. Connection to Existing Services

C3.75

Prior to connection of new services to existing services, the Contractor shall ensure that the constructed services are clean and free of foreign matter and shall subsequently request the Engineer, in writing, to inspect such Works. Only upon written approval of the Engineer, may connections to existing services be made.

1. Contractor to Notify Relevant Authority and the Engineer of Damaged Service

In the event of any service being damaged or accidentally disconnected for any reason, the Contractor shall immediately contact the relevant authority for instructions and shall report the occurrence to the Engineer in writing. The report shall include the reasons for the occurrence of the incident. When instructed the damage is to be repaired as soon as possible to the approval of the Engineer and Authority. The Contractor will be held responsible for paying all costs incurred by the Service owner or himself as result of each incident where the relevant service was clearly identified beforehand.

* + 1. Site Establishment

1. Contractor’s Camp site

The contractor shall provide a suitable site for his camp. The choice of the site for the establishment of the camp, offices and the layout thereof, shall be approved.

The camp site shall be cleared and grubbed and properly fenced with a security fence around the perimeter. The Contractor is to provide his own security at the camp or on the site if required, at his own expense.

After completion of the contract, the Contractor shall remove all his temporary buildings, plant and equipment. The site shall be made good and be left in a neat and tidy condition before a certificate of completion shall be issued.

1. Water Supply

The Contractor shall make his own arrangement for potable and construction water. See Item 4.10 below.

1. Power Supply

The Contractor shall make his own arrangements. The Contractor shall make his own arrangements far the supply of electric power to suit his own and the Engineer's requirements and operations. The cost of providing connections any transformer sub-stations and switch gear, generators fuel and/or overhead power lines or underground cables required to supply the electric power shall be included in the rates entered in the Schedule.

1. Ablution Facilities

The Contractor shall, at each construction area, provide sufficient portable chemical latrine units. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the engineer. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates billed for the contractor’s time-related obligations.

C3.76

1. Cellular Telephone – See PSAB

It is a requirement of the contract that the contractor shall equip his site agent(s) with a cellular telephone to allow for effective communication between the contractor’s supervisory personnel and the engineer’s supervisory staff. All costs associated with the provision of cellular telephones for the contractor’s personnel shall be deemed to be included in rates billed for time-related charges.

1. Site Facilities required by the Engineer – See PSAB

Type 1 Office requirements as per PSAB, one site office of approximately 20m² complete with sufficient lighting and power points. Two desks, ten chairs, one conference table and two steel filing cabinets. Two carports for his exclusive use, a net shade cover will suffice. An ablution unit for his exclusive use.

The engineer does not require housing for personnel or laboratory facilities.

* + 1. Site Usage

The Employer expects the contractor, his staff or agents to maintain good public relations with landowners, other contractors and members of the public at all time.

Access to the site will be arranged by the Employer with the contractor. The Contractor shall submit a list of all his staff to the Employer for the purpose of access control.

* + 1. Permits and Wayleaves

No way leaves are required on the project. The Contractor’s staff will require access permits to enter the Site.The Contractor shall give 7 days advance notice to both the Engineer and the property owner of his intention to commence work in a servitude. The Contractor shall not permit his workmen and labourers to use the servitude as a temporary right-of-way and shall carry out the work expeditiously and with minimum inconvenience to the occupiers and to owners of adjacent property.

The Contractor shall take all necessary precautions for the protection of persons livestock, buildings and property. The soil shall be kept segregated and all gardens, fences, paths etc. shall be reinstated to their former condition.

Where acquisition of a servitude has not been finalised It may not be possible to obtain continuity of the work. The Contractor will be required temporarily to omit such sections until instructed that the work may proceed.

No extra payment will be made to the Contractor should it be necessary to omit sections and return to them later. It IS not intended, however, that the Contractor should be called upon to return to the Site after all other sections of the Contract have been completed and the Contractor has removed his plant and equipment.

Trees removed in a servitude shall remain the property of the stand owners if required by them.

C3.77

* + 1. Water for Construction Purposes

The Contractor shall make provision in his rates for the purchasing of water from local or other sources.

Should water be drawn from a Municipal source, the current tariffs shall be applicable. The Contractor can only draw water from points specified by the Municipality only after written authority has been granted. When permission is granted the water must be drawn through a metered standpipe issued by the Water & Sanitation Division.

The Contractor shall cease to operate until other arrangements have been made for the supply of water. No claims for delays so caused will be considered.

4.11 Survey Control and Setting Out of the Works –

The Contractor shall verify at his own cost the accuracy of the pegs or benchmarks pointed out as being available for use to set out the works. Any discrepancies must be reported to the Engineer in writing.

All pegs or benchmarks which are damaged during the Contract which were not in the direct way of the construction of the works shall be replaced by a competent Surveyor (or Land Surveyor if the positions were determined by a Land Surveyor in the first place) at the Contractors own cost.

**4.12 Plant and equipment - See Section 4.1.2 – Project Specifications and for the purpose of Labour Intensive approach, are indicated in the SOQ, identified as ‘Li’**

C3.8 MANAGEMENT

1. Applicable SANS 1921 standards

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

* 1. SANS 1921 – 1
  2. SANS 1921 – 5
  3. SANS 1921 – 6

The abovementioned South African National Standards make several references to the Specification Data for data, provisions and variations that make these standards applicable to this contract. The Specification Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and these standards.

Each item of Specification Data given below is cross-referenced to the clause in the standard to which it mainly applies. The associated Specification Data is as follows:

1. Recording of weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in a book. Such book shall be handed to the employer’s representative for his signature no later than 12 days after rain that is considered to justify an extension of time occurs according to Standard Condition of Contract Clause 45(3)(b), as follows:

C3.78

“(b) Abnormal climatic conditions, with the understanding that no extension of the time for completion shall be granted on the grounds of normal rainfall conditions, but extension of time in terms of clause 45.(2) of the General Conditions of Contract, on the grounds of abnormal rainfall or wet conditions, shall be calculated separately for each calendar month or part thereof, according to the following formula: When the value of *V* for any month exceeds the number of days in the particular month, *V* will be the number of days in the month. When *V* is negative and its absolute value exceeds *Nn*, then *V* shall be taken as equal to the negative of *Nn*.

The symbols shall have the following meanings:

*V* = Extension of time in calendar days for the calendar month under consideration.

*Nw* = Actual number of days in the calendar month on which a rainfall of *Y* mm or more were recorded.

*Nn* = Average number of days, derived from existing rainfall records, on which a rainfall of *Y* mm or more were recorded for the calendar month.

*Rw* = Actual rainfall in mm recorded on the Site in an approved rain gauge for the calendar month under consideration.

*Rn* = Average rainfall in mm for the calendar month, derived from existing rainfall records.

*Y* = Daily rainfall base value in mm. (Refer to PS 12).

*X* = Average number of days per year with daily rainfall exceeding *Y* mm.

(Refer to PS 12).

For the purposes of the contract *Nn*, *Rn*, *X* and *Y* shall have the values stipulated in the Project Specifications.

The total extension of time is the algebraic sum of the monthly totals for the period concerned. Extension of time for parts of a month shall be calculated by using pro rata values of *Nn* and *Rn*. If the algebraic sum of the monthly totals is negative, no reduction of the time for completion as a result of rainfall shall be applicable.

This formula does not take into consideration any delays as a result of flood damage which may cause further or simultaneous delays, and flood damage shall be treated separately for the

purposes of extension of time for completion. The factor (*Nw - Nn*) is considered as a fair allowance for deviations from the normal for the number of days on which the rainfall exceeds Y mm. The factor (*Rw - Rn*)*/X* is considered as a fair allowance for deviation from the normal for the number of days on which the rainfall does not exceed *Y* mm, but on which wet conditions will hamper or disrupt work.

1. Unauthorized persons

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

The Contractor to keep a “Site Visitor’s Register’ and steps to be taken to ensure that all visitors (all persons who is not Contractor’s regular employee) register before entering the site. Sign to be provided to direct all visitors to Site Office.

C3.79

1. Management meetings

There will be scheduled monthly site progress meetings, which all parties to Contract must attend. The meeting will be conducted by the Engineer. The Contractor will be required to submit his progress and forecast progress for the project during this meeting as well as his achievements of the preferential project goals. The Project Labour, Plant and equipment, all site incidents and events to be reported. The Community to be represented by Project Steering Committee (PSC) and the Community Liaison Office (CLO).

1. Electronic payments

The Contractor to provide all his banking details when requested for the purpose of Electronic payments when as when necessary.

1. Daily records

Daily records of resources (equipment and people employed) must be kept and must be available on site at all times. These records will include i.e. site instruction book, site diary, site visit register, contractual documentation and minutes of all project meetings. Labour information should be kept updated at all times.

1. Payment certificates

Monthly progress payment certificate shall be submitted to the Engineer’s Representative on site on the last day of the calendar month in which the work was done to allow for reconciliation of all quantities, rates,extensions and additions in the certificate. Upon approval by the Engineer’s Representative, the certificate shall be submitted in typed Form to the Engineer before or on the 20th of each month following the month of measurement, together with the required number of copies, for certification. It will be assumed that the Contractor has made adequate provision in the prices tendered for manufacture/supply, delivery, assembly and commissioning all necessary aids required to execute the contract.

The certificates shall be according to the standard format included in the annexure to these specifications.

Where day works have been instructed by the Engineer, the Contractor shall submit the returns to the Engineer for signature and approval within twenty-four (24) hours of the end of the working day on which the work was executed. Day work returns shall be submitted on forms included in the annexure to the Specifications.

1. Permits – N/A
2. **Proof of compliance with the law**

The Contractor shall, in performance of the Contract, comply with all applicable laws, regulations and statutory provisions and agreements, and shall in particular, on the request of the Engineer, provide proof that he has complied therewith with regard to amongst others:

* Wages and conditions of work; and
* Safety

C3.80

C3.9 HEALTH AND SAFETY

* Health & Safety Issues

All work is to be carried out in accordance with the Occupational Health and Safety Act and Regulations (Act 85 of 1993) (a copy of which must be kept on site), the Explosive Material Act of (Act 26 of 1956), the Minerals Act of 1991, and the Factories Machinery and Building Work Act (No 22 of 1941).

The Contractor’s notice is drawn to the stipulations of the Construction Regulations 2003, a regulation of the Health and Safety Act 1993 (Gov Notice No R1010 of 18 July 2003). The construction regulation will be applied vigorously on the project.

The Contractor to be appointed must have made provision for the cost of health and safety measures during the construction process. The contractor must have the necessary skills, competencies and resources to carry out the work safely. A proper Safety Plan is to be submitted by the Contractor and a copy thereof is to be made available to all applicable appointed labourers and permanent workers on this project.

The Contractor is to ensure that the legal compliance for the Health and Safety issues are in place. Audits will be carried out to ensure that the Contractor is registered and in good standing with the Workmen’s Compensation fund and that the Contractor has affected insurance indemnifying the Employer against penalties levied upon the Employer due to the acts of omissions of the Contractor in failing to comply with the provisions of the OHS regulations 2003. A compliance audit will also be carried out to ensure that the Contractor has appointed a full-time competent person in writing to deal with the issues of the OHS and that a risk assessment has been conducted and a copy of the Safety plan is on site before any work commences.

Operational audits will be carried out on the following important issues:

* + That the Safety Plan is on site at all times
  + That the Contractor’s Safety file is on site at all times
  + That the Safety Officer is on site at all times
  + That Safety meetings are conducted as per the Safety Plan
  + That employees are working under safe conditions
  + That the public is not placed in danger
  + That there is no harm to the environment
* Accommodation of traffic

It is expected of the Contractor to ensure that the free flow of traffic is possible throughout the construction period.

The Contractor is to provide all necessary barricades, signs and lighting in accordance with the stipulations of the South African Road Signs Traffic Manual, and the Protective Services of the Ba-Phalaborwa Local Municipality. All work is to be to the satisfaction of the Engineer.

* Reporting of accidents

C3.81

In addition to any statutory regulations, the Contractor shall, as soon as practicable, report to the Engineer every occurrence on the Works or the site causing damage to property of injury of death of persons. If required by the Engineer, the Contractor will submit a report in writing to the Engineer within 48 hours of such requirement setting out full details of the occurrence. The Engineer shall have the right to make any enquiries either on the site or elsewhere as to the cause and results any such occurrence and the Contractor shall make available to the Engineer the necessary facilities for carrying out such enquiries.

C3.82