



# Request for Quotations for Works

**Construction of a boundary wall at the  
NamWater head office and an Electric fence.**

## Procurement Reference No: W/RFQ/NW-001/2027

Name of Bidder		
Contact Person		
E-mail Address		
Postal Address		
Total Amount (Excl. VAT)		
Contact Phone number	Work:	Mobile:

**Documents must be posted / delivered to:**

**The Quotation/Bid Box**

**Att: Procurement Management Unit (+264 61 71 2009, [bids@namwater.com.na](mailto:bids@namwater.com.na))**

Namibia Water Corporation Ltd.

Private Bag 13389

176 Iscor Street, Aigams Building

Windhoek

**Closing Date: Thursday, 23 April 2026 at 11h00**  
**Non-Compulsory pre-Bid meeting: 15 April 2026. Location & Time: NamWater Head Offices**  
**at 10h00, Windhoek**  
**NO LATE BIDS WILL BE ACCEPTED!**

Initials.....

## **NOTICE TO BIDDERS**

- Please take note of initializing all**
- pages of the standard bidding document and initial all the supporting documents including company profiles, brochures, etc.**
- Take note to sign all relevant pages as stipulated in the bidding standard document.**
- Copies of documents not certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963) will not be accepted**



Namibia Water Corporation Ltd.  
Private Bag 13389, Windhoek, Namibia  
Tel: +264 61 71 2009  
Fax: +264 61 21 074

## Letter of Invitation

[Name and Address of Bidder \_\_\_\_\_]

[Procurement Reference Number: W/RFQ/NW-001/2027]

[1 April 2026]

Dear Bidders,

### **Request for Quotations for Construction of a boundary wall at the NamWater head office and an Electric fence.**

NamWater invites you to submit your best quote for the works described in detail hereunder.

Any resulting contract shall be subject to the terms and conditions referred to in the document.

Queries, if any, should be addressed to the Procurement Management Unit (E-mail: [bids@namwater.com.na](mailto:bids@namwater.com.na)), Private Bag 13389, Windhoek, Namibia

Please prepare and submit your quotation in accordance with the instructions given or inform the undersigned if you will not be submitting a quotation.

Yours faithfully,

Procurement Management Unit

PMU

Initials.....

## SECTION I: INSTRUCTIONS TO BIDDERS

### 1. Rights of Public Entity

NamWater reserves the right:

- (a) to split the contract as per the lowest evaluated cost per lot; and
- (b) to accept or reject any quotation or to cancel the quotation process and reject all quotations at any time prior to contract award.

### 2. Preparation of Quotations

You are requested to quote for the works mentioned in Section III, by completing, signing and returning:

- (a) the Quotation Letter in Section II with its annex for Bid Securing Declaration, where applicable;
- (b) the Priced Activity Schedule in Section IV;
- (c) the Specifications and Compliance Sheet in Section V; and
- (d) any other attachment as deemed appropriate

You are advised to carefully read the complete Request for Quotations document, including the Special Conditions of Contract in Section VII, before preparing your Quotation. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

### 3. Validity of Quotations

The quotation validity period shall be **180** days from the date of bid submission deadline.

### 4. Eligibility Criteria

To be eligible to participate in this Quotation exercise, you should:

To be eligible to participate in this Quotation exercise, you should:

- (a) Have a certified copy (certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)), of a company Registration Document.
- (b) Have an original or a certified copy (certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)), of a valid Good Standing Tax Certificate, as certified by the Commissioner of Oath. **The certificate should be valid as at the date of bid submission.**
- (c) have an original valid good Standing Social Security Certificate; **The certificate should be valid at the date of bid submission.**
- (d) have a valid certified copy of Affirmative Action Compliance Certificate, proof from Employment Equity Commissioner that bidder is not a relevant employer, or exemption issued in terms of Section 42 of the Affirmative Action Act, 1998; **The certificate should be valid at the date of bid submission.**

Initials.....

- (e) Submit signed Bid-securing Declaration.
- (f) An undertaking on the part of the Bidder that the salaries and wages payable to its personnel in respect of this proposal are compliant to the relevant laws, Remuneration Order, and Award, where applicable and that it will abide to sub-clause 4.6 of the General conditions of Contract if it is awarded the contract or part thereof; and;
- (g) Submit Company Profile (detail of experience, references, business address and insight to activities)
- (h) Submitted at least two (2) reference letter and or completion for experience in works of an equivalent nature and volume performed in the last 5 years.
- (i) Submitted a Work Delivery Schedule (i.e. time to complete work upon appointment/program of works).
- (j) Submitted a methodology for site management and safety in executing this work, taking cognizance of the heavy equipment and tools to be used
- (k) Submitted a comprehensive method statement indicating/focusing on the following areas; (Design, Site layout, construction methodology & Operational and maintenance methodology).
- (l) Submitted comprehensive CV's of the Key employees allocated to this particular project (CV with certified Qualifications). Key personnel are: Civil Foreman, Metalwork and Fabrication Artisan, Bricklaying Artisan, Safety Officer, Site Agent/Project Manager
- (m) Submitted a declaration stating that the bidder commits to submit a comprehensive Safety File upon Contract Award.
- (n) A Bidder that is under a declaration of ineligibility by the Government of Namibia in accordance with applicable laws at the date of the deadline for bid submission or thereafter, shall be disqualified.

Bids from service providers appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group shall be rejected.

Links for checking the ineligibility lists are available at:

- Republic of Namibia, Procurement Policy Unit  
<https://egp2.gov.na/forms/SearchSuspendedBidders.jsf>
- African Development Bank  
<https://www.afdb.org/en/projects-operations/debarment-and-sanctions-procedures>
- Asian Development Bank  
<http://Inadbg4.adb.org/oga0009p.nsf/sancALLPublic?OpenView&count=999>
- European Bank for Reconstruction and Development  
<http://www.ebrd.com/pages/about/integrity/list.shtml>

Initials.....

- Inter-American Development Bank Group  
<http://www.iadb.org/en/topics/transparency/integrity-at-the-idb-group/sanctioned-firms-and-individuals,1293.html>

## 5. Bid Securing Declaration

Bidders are required to submit a subscribe to a Bid Securing Declaration for this procurement process.

## 6. Works Completion Period

The completion period for works shall be **2 months (8 weeks)** after acceptance and issue of award letter. Deviation in completion period shall not be accepted.

## 7. Sealing and Marking of Quotations

Quotations should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to NamWater with the Bidder's name at the back of the envelope.

## 8. Submission of Quotations

Quotations should be deposited in the Quotation/Bid Box located at Namibia Water Corporation Ltd Head office, Private Bag 13389, 176 Iscor Street, Aigams Building, Windhoek, not later than **Thursday, 23 April 2026 at 11h00. Non- Non-Compulsory site meeting: Wednesday, 15 April 2026 at 10h00 at NamWater Head office, Windhoek.** Quotations by post or hand delivered should reach NamWater, 176 Iscor Street, Aigams Building by the same date and time at the latest. Late quotations will be rejected.

**Quotations received by e-mail will not be considered.**

## 9. Opening of Quotations

Quotations will be opened internally by NamWater immediately after the closing time referred to in section 8 above. A record of the Quotation Opening stating the name of the bidders, the amount quoted, the presence or absence of a Bid Securing Declaration, will be posted on the website of NamWater and available to any bidder on request within three working days of the Opening.

## 10. Evaluation of Quotations

NamWater shall have the right to request for clarifications in writing during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost, subject to Margin of Preference where applicable, to determine the lowest evaluated quotation.

### 10.1 Evaluation Criteria

#### 10.1. Criteria 1 - Compulsory/Mandatory Documentation

Initials.....

ITEM	REQUIREMENT	CONFORM (YES/NO)
1	Has the bidder submitted a valid certified ( <b>certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)</b> ), copy of complete company Registration Certificate;	
2	Has the bidder submitted a valid original or valid certified copy of an original, ( <b>certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)</b> ), of good Standing Tax Certificate;	
3	Has the bidder submitted a valid good Standing Social Security Certificate;	
4	Has the bidder submitted a valid certified copy ( <b>certified by a Commissioner of Oath appointed in terms of the Justices of the Peace and Commissioners of Oaths Act.1963 (Act No. 16 of 1963)</b> ), of Affirmative Action Compliance Certificate, or proof from Employment Equity Commissioner that bidder is not a relevant employer, or exemption issued in terms of Section 42 of the Affirmative Action Act, 1998;	
5	Has the bidder submitted an undertaking on the part of the Bidder that the salaries and wages payable to its personnel in respect of this proposal are compliant to the relevant laws, where applicable and that it will abide to sub-clause 6.8 of the General conditions of Contract if it is awarded the contract or part thereof.	
6	Company Profile (detail of experience, references, business address and insight to activities).	
7	Has the bidder submitted at least two (2) reference letter and or completion for experience in works of an equivalent nature and volume performed in the last 5 years.	
8	Has the bidder submitted a Work Delivery Schedule (i.e. time to complete work upon appointment/program of works).	
9	Has the bidder submitted a methodology for site management and safety in executing this work, taking cognizance of the heavy equipment and tools to be used	
10	Has the bidder submitted a comprehensive method statement indicating/focusing on the following areas; (Design, Site layout, construction methodology & Operational and maintenance methodology).	
11	Has the bidder submitted comprehensive CV's of the Key employees allocated to this particular project (CV with certified Qualifications). Key personnel are: Civil Foreman, Metalwork and Fabrication Artisan, Bricklaying Artisan, Safety Officer, Site Agent/Project Manager	
12	Has the Bidder submitted a declaration stating that the bidder commits to submit a comprehensive Safety File upon Contract Award.	

**Failure to submit all above-mentioned documents and references, the bidder shall be deemed non-compliant, therefore disqualified and excluded from further evaluation and comparison.**

Initials.....

## 10.2. Criteria 2 - Technical Evaluation Criteria

Item	Description of Criteria	Score %
<b>1</b>	Experience in works of an equivalent nature and volume performed in the last five (5) years ( <b>attach evidence of reference letter and or completion certificate with contact details and persons to be contacted</b> )	<b>10%</b>
	Three and more reference letters and or completion certificate attached	10%
	Two reference letters and or completion certificate attached	7%
	Bidder's with only one or No reference letters and or completion certificate will not be considered	
<b>2</b>	Work Delivery Schedule (i.e. time to complete work upon appointment/program of works).	<b>5%</b>
	Detailed work delivery schedule/program	5%
	Generalized work delivery schedule/program	1%
	Bidder's with No work delivery schedule/program will not be considered.	
<b>3</b>	Methodology for site safety and environmental protection in executing this work, taking cognizance of the <b>heavy</b> equipment and tools to be used.	<b>15%</b>
	Adequate site safety and environmental protection in place	15%
	Moderate site safety and environmental protection in place	5%
	Bidder's with No site safety and environmental protection in place will not be considered.	
<b>4</b>	<b>Qualification for the Site Agent/Project Manager</b>	<b>10%</b>
	National Diploma in civil engineering NQF level 6	10%
	National High certificate in civil engineering NQF level 4	8%
	National certificate in civil engineering NQF level 3	5%
	Lower than National Certificate in engineering	0%
<b>5</b>	<b>Qualification for the Civil Foreman</b>	<b>10%</b>
	Level 6 certificate in Bricklaying/Metalwork or higher	10%
	Level 4 certificate in Bricklaying and Metalwork or higher	8%
	Level 3 certificate in Bricklaying and Metalwork or higher	5%

Initials.....

	Level 2 or lower		0
<b>4</b>	<b>A comprehensive method statement indicating/focusing on the following areas:</b>		<b>30%</b>
	Site layout	10%	10%
	No site layout	0%	
	A comprehensive quality assurance plan covering all quality areas for the project	10%	10%
	A moderate quality assurance plan covering some quality areas for the project	5%	
	No quality assurance plan	0%	
	Comprehensive installation methodology covering all areas of the works	10%	10%
	Moderate installation methodology covering some areas of the works	5	
	No installation methodology	0%	
<b>5</b>	<b>Comprehensive CV's of the Key employees allocated to this particular project (Please submit short CV with certified Qualifications).</b>		<b>20%</b>
	Site Agent/ Project Manager (5 or more years' experience in civil project management/site agent work for site agent)	5%	5%
	Less than 5 years' experience	0%	
	Civil Foreman (5 or more years' experience in civil work for the foreman)	5%	5%
	Less than 5 years' experience	0%	
	Electrical Artisan (3 or more years' experience)	5%	5%
	Electrical Artisan Less than 3 years' experience	0%	
	Bricklayer (3 or more years' experience)	5%	5%
	Bricklayer Less than 3 years' experience	0%	
	<b>Total</b>		<b>100%</b>

**NB:** The total evaluation score evaluation is out of 100%. For a bidder to proceed to the next evaluation criteria (**Technical Specifications compliance**), the bidder must score a minimum 70%. Bidders who fail to achieve the required minimum score of **70%** will be deemed as “non-responsive”. Such bidders will be excluded from being considered for further evaluation.

Initials.....

### 10.3. Criteria 3 - Financial Evaluation

- a) A Bid price which is abnormally low, i.e. 10% below the Employers Cost Estimate will be deemed to be non-responsive.
- b) A Bid price that is 10% above the average of the Employers Cost Estimate will be deemed to be non-responsive.
- c) The procurement contract will be awarded to the bidder with the lowest most substantially responsive technically compliant bidder.

### 11. Technical Compliance

The Specifications and Compliance Sheet details the minimum specifications of the works to be carried out. The specifications have to be met, but no credit will be given for exceeding the specification

### 12. Prices and Currency of Payment

Prices shall be fixed in Namibian Dollars.

### 13. Margin of Preference

13.1. Bidders applying for the Margin of Preference shall submit documentary evidence as required.

13.2. The applicable margins of preference and their application methodology are as follows:

Categories of Bidders	Margin of Preference	Documentary evidence to be submitted	CRITERIA
<b>Manufacturer</b>	2%	-Certificate of registration from a registering authority -Declaration by the bidder that the manufactured goods meet the local content as determined in Annexure 6 as per the cost structure for Value Added Calculation in Annexure 1, and as certified by an Accountant.	“manufacturer” means a person or a company that is involved in the physical or chemical transformation or materials or components into new products whether or not – (a) the transformation is through work; (i) Performed by a power-driven machine or by hand; or (ii) Done in a home or factory; or (iii) The new products are sold on a wholesale or retail basis.
<b>Micro, Small and Medium Enterprise</b>	1%	-SME registration certificate -Declaration indicating the percentage of Namibian MSME ownership	A bidder who is a MSME, means an enterprise that has a valid micro, small and medium enterprise certificate issued by the Ministry responsible for trade, whose minimum equity is 51 % owned by Namibians.
<b>Women owned Enterprise</b>	1%	-IDs of all shareholders -Founding statement/company registration indicating ownership structure/shareholder certificate -declaration indicating the percentage of Namibian female ownership	A bidder who is a woman or whose minimum equity is 51% owned by Namibian women.
<b>Youth-owned enterprise</b>	2%	-IDs of all shareholders -Founding statement/company registration indicating ownership structure/shareholder certificate -declaration indicating the	A bidder who is a youth or whose minimum equity is 51% owned by Namibian youths

Initials.....

		percentage of Namibian youth ownership	
<b>Previously Disadvantaged Person owned enterprise</b>	2%	-IDs of all shareholders -Founding statement/company registration indicating ownership structure/shareholder certificates -declaration indicating the percentage of Namibian PDPs ownership	A bidder who is a PDP or whose minimum equity is 51% owned by Namibian PDPs.
<b>Suppliers providing environmental protection</b>	1%	-declaration and proof that the bidder meets the requirements set out in the bidding document	A bidder that promotes the protection of the environment, maintain ecosystems and sustainable use of natural resources as specified by the public entity in the bidding document.
<b>Suppliers providing employment to Namibian</b>	1%	-declaration that the bidder employs 50% or more Namibian citizens	A bidder who employs 50% or more Namibian citizens. Submit employees' Social Security certificates
<b>TOTAL</b>	<b>10%</b>		

Formula to calculate margins of preference:

$$A = \frac{MP \times BP}{100}$$

in which formula -

- (a) "A" represents the amount to be determined.
- (b) "MP" represents the total percentage of all margins of preferences granted in respect of the bid; and
- (c) "BP" represents the bid price.

#### **14. Award of Contract**

The Bidder having submitted the lowest evaluated responsive quotation and qualified to supply the goods/items and related services shall be selected for award of contract. Award of contract shall be by issue of a Purchase Order/Letter of Acceptance in accordance with terms and conditions contained in Section VI: Contract Agreement and General Conditions of Contract.

#### **15. Notification of Award and Debriefing**

NamWater shall after award of contract promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount and post a notice of award on its website within seven (7) days. Furthermore, NamWater shall attend to all requests for debriefing made in writing within seven (7) days of the unsuccessful bidders being informed of the award.

Initials.....

## SECTION II: QUOTATION LETTER

**(to be completed by Bidders)**

*[Complete this form with all the requested details and submit it as the first page of your quotation with the Priced Activity Schedule and documents requested above. A signature and authorisation on this form will confirm that the terms and conditions of the RFQ prevail over any attachments. **If your quotation is not authorised, it will be rejected***

Quotation addressed to: [ name of Public Entity]	<b>Namibia Water Corporation Ltd (NamWater)</b>
Procurement Reference Number:	<b>W/RFQ/NW-001/2027</b>
Subject matter of Procurement:	<b>Construction of a boundary wall at the NamWater head office and an Electric fence.</b>

We offer to execute the Works detailed in the Statement of Requirements, in accordance with the terms and conditions stated in your Request for Sealed Quotations referenced above.

We confirm that we are eligible to participate in this Quotation exercise and meet the eligibility criteria specified in Section 1: Instructions to Bidders

We undertake to abide by the Conduct of Bidders and Suppliers as provided under the Public Procurement Act during the procurement process and the execution of any resulting contract.

We have read and understood the content of the Bid Securing Declaration (BSD) attached hereto and subscribe fully to the terms and conditions contained therein. We further understand that this subscription could disqualification on the grounds mentioned in the BDS]

The validity period of our Quotation is \_\_\_\_\_ days [insert number of days] from the date of the bid submission deadline.

We confirm that the prices quoted in the Priced Activity Schedule are fixed and firm and will not be subject to revision or variation, if we are awarded the contract **prior to the expiry** date of the quotation validity.

Works will commence within \_\_\_\_\_ [insert number] days from date of issue of Purchase Order/ Letter of Acceptance.

Works will be completed within \_\_\_\_\_ [insert number] days from date of issue of Purchase Order/ Letter of acceptance.

### Quotation Authorised by:

Name of Bidder		Company's Address and seal	
Contact Person			
Name of Person Authorising the Quotation:		Position:	Signature:
Date		Phone No./E-mail	

Initials.....

**Appendix to Quotation Letter**

**BID SECURING DECLARATION  
(Section 45 of Act)  
(Regulation 37(1) (b) and 37(5))**

**Date:** *[Day / month / year]*

**Procurement Ref No.:** .....

**To:** .....*[insert complete name of Public Entity and address]*.....

I/We\* understand that in terms of section 45 of the Act a public entity must include in the bidding document the requirement for a declaration as an alternative form of bid security.

I/We\* accept that under section 45 of the Act, I/we\* may be suspended or disqualified in the event of

- (a) **a modification or withdrawal of a bid after the deadline for submission of bids during the period of validity;**
- (b) **refusal by a bidder to accept a correction of an error appearing on the face of a bid;**
- (c) **failure to sign a procurement contract in accordance with the terms and conditions set forth in the bidding document, should I/We\* be successful bidder; or**
- (d) **failure to provide security for the performance of the procurement contract if required to do so by the bidding document.**

I/We\* understand this bid securing declaration ceases to be valid if I am/We are\* not the successful Bidder

Signed: .....  
*[insert signature of person whose name and capacity are shown]*

Capacity of:  
*[indicate legal capacity of person(s) signing the Bid Securing Declaration]*

Name: .....  
*[insert complete name of person signing the Bid Securing Declaration]*

Duly authorized to sign the bid for and on behalf of: *[insert complete name of Bidder]*

Dated on \_\_\_\_\_ day of \_\_\_\_\_  
*[insert date of signing]*

Corporate Seal (where appropriate)

*[Note\*: In case of a joint venture, the bid securing declaration must be in the name of all partners to the joint venture that submits the bid.]*

***\*delete if not applicable / appropriate***

Initials.....



**Republic Of Namibia**

**Ministry of Labour, Industrial Relations and Employment Creation**

**Written undertaking in terms of section 138 of the Labour Act, 2015 and section 50(2)(D) of the Public Procurement Act, 2015**

**1. EMPLOYERS DETAILS**

Company Trade Name:.....

Registration Number :.....

Vat Number: .....

Industry/Sector: .....

Place of Business:.....

Physical Address:.....

Tell No.:.....

Fax No.:.....

Email Address:.....

Postal Address:.....

Full name of Owner/Accounting Officer:.....

.....

Email Address:.....

**2. PROCUREMENT DETAILS**

Initials.....

Procurement Reference No.:.....

Procurement Description: .....

.....

.....

Anticipated Contract Duration: .....

Location where work will be done, good/services will be delivered: .....

.....

**3. UNDERTAKING**

I .....[insert full name], owner/representative

of .....[insert full name of company]

hereby undertake in writing that my company will at all relevant times comply fully with the relevant provisions of the Labour Act and the Terms and Conditions of Collective Agreements as applicable.

I am fully aware that failure to abide to such shall lead to the action as stipulated in section 138 of the labour Act, 2007, which include but not limited to the cancellation of the contract/licence/grant/permit or concession.

**Signature:** .....

**Date:** .....

**Seal:**.....

*Please take note:*

1. *A labour inspector may conduct unannounced inspections to assess the level of compliance*
2. *This undertaking must be displayed at the workplace where it will be readily accessible and visible by the employees rendering service(s) in relations to the goods and services being procured under this contract.*

Initials.....

## **SECTION III: STATEMENT OF REQUIREMENTS**

### **A. SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS**

#### **1. Scope**

These project specifications consist of two Portions.

PORTION 1 contains a general description of the Works, the site, the requirements to be met, and the Standardised and Particular Specifications applicable to this contract.

PORTION 2 contains the variations and additions to the Standardised and Particular Specifications applicable to this contract and that are listed in portion 1.

##### **i. Status**

PORTION 2 of the Project Specifications supplements the Standardised and Particular Specifications and forms an integral part of the Contract.

Should any requirement of any portion of the Project Specifications conflict with any requirement of the Standardized or Particular Specifications (listed in Portion 1 of the Project Specification), the requirement of the Project Specification shall prevail.

If there is any discrepancy between the project specifications and any part of the SANS 1200 standardised specifications, drawings or the schedule of quantities, the order of precedence shall be:

1. Letter of Acceptance
2. Special Conditions of Contract
3. General Conditions of Contract
4. Project Specification
5. SANS 1200
6. Drawings
7. Schedule of Quantities

Initials.....

## **PORTION 1: PROJECT SPECIFICATIONS THE WORKS (CIVIL & STRUCTURAL)**

### **PS 1 GENERAL DESCRIPTION OF THE WORK**

#### **1. General**

The works for this Request for Quotation entail the construction of a boundary wall at the NamWater head office, including the removal of the old fence and an Electric fence to be installed on top of the new boundary wall.

#### **1.2 Excavation**

Foundation excavated in all types of material. Care shall be taken not to damage existing services where excavation for the slab is done.

#### **2. Inspections**

NamWater will inspect the works during the construction phase to ensure the quality of the work. The onus thus rests with the contractor to ensure that all items purchased and sourced are to specifications. Payment will only be made if all the works are completed and to specifications.

#### **3. Defect notification period and retention.**

During the guarantee period, an authorised agent capable of replacing the offered items must be located in Namibia and must be able to replace failed offered items to NamWater Head office within 30 working days of receipt of the request for such items or defect. However, 10% retention will be kept, and the defect period is for 6 months

### **PS 2 DESCRIPTION OF SITE AND ACCESS**

#### **PS 2.1 Site Location**

NamWater head office.

### **PS 3 TOPOGRAPHY AND CLIMATE**

#### ***PS3.1 Topography***

The project site topography is generally flat with few to remove vegetation.

#### ***PS3.2 Climate***

Precipitation (mm/a)	0-50
Variation in annual rainfall (%)	>100
Average annual evaporation (mm/a)	2800-3000
Water deficit (mm/a)	1901-2100
Temperature (°C)	18-19

Initials.....

## **PS 4 NATURE OF THE GROUND AND SUBSOIL CONDITIONS**

### ***PS 4.1 Geotechnical Investigation***

There is no detailed geotechnical investigation carried out for the project area. However, it is observed from the site inspection that the area is dominated by a loose sand layer. Hence, it is recommended that the bidders inspect the project site and make allowance for all the required excavation machinery and equipment.

Generally, no hard rock excavations are expected, except for few rock outcrops. However, should it be encountered, blasting shall be done by a qualified and registered blaster with a license suitable for the specified blasting conditions.

The above-mentioned information is a general guideline and will not relieve the Contractor of his responsibilities in terms of the General Conditions of Contract to satisfy himself with the conditions on site.

## **PS 5: DESCRIPTION OF CONTRACT**

This clause will provide a more detailed description of the work required under the contract. The Contractor will be responsible for the construction of all the civil works required.

### ***PS5.1 Site Preparation***

Site preparation such as clearing, grubbing, the removal of large trees will be done according to the provisions of SANS 1200 C.

### ***PS5.2 Construction of the building***

Boundary wall and electric fence on top.

## **PS 6: CONSTRUCTION PROGRAM**

Within two weeks of bid acceptance, the Contractor shall submit a detailed program in the form of a Gantt Chart, outlining labor and plant resources, the proposed rate of progress, and an estimated cash flow. The critical path must be clearly defined, and the program shall be prepared with sufficient detail.

The Time for Completion of the works in terms of Clause 1.1 (v) of the Conditions of Contract will be **Two (2) calendar months**. The Commencement Date will be within **14 days** after the Contractor receives the Letter of Acceptance, and the performance guarantee has been provided to the Project Manager

The Contractor shall be responsible for liquidated damages in the event that the project schedule is delayed due to an error on their part. The calculation of liquidated damages shall be in accordance with the provisions outlined in the Conditions of Contract.

The Contractor himself is responsible for liaison and arrangements with the local authority in connection with the finalisation and approval of the construction programme.

Initials.....

A Certificate of Completion, will only be issued upon the satisfactory completion of all testing and commissioning of the works.

**Bidders shall submit, together with their bids, a detailed programme showing the dates for the completion of the major activities of the works.** This program shall form the basis of the detailed program required of the Contractor in terms of **clause 25** of the GCC, which shall be submitted to the Project Manager within the period stated in the SCC.

The bidder will not receive additional payment for re-programming of the works and/or any delays that may be caused because of bad co-ordination, unless otherwise agreed by the Project Manager.

The separate detailed programme shall clearly show:

- a) the proposed rate of progress to complete the Works within the required time stated in the Appendix to Bid, stating the various activities and its duration for each element of the Works in sufficient detail to gauge the construction progress,
- b) the critical path activities and other float times available,
- c) key dates in respect of work to be carried out, or information, etc. to be provided, by others,
- d) A projected cash flow that relates to projected progress on site.

When drawing up his programme, the Contractor shall make allowance for at least the following:

- expected weather conditions and its effects,
- known physical conditions or artificial obstructions,
- reasonable requirements of other parties (**communities**), regarding access,
- searching for, dealing with and carrying out alterations to existing services,
- accommodation and safeguarding of traffic,
- selection of materials
- design, testing and approval of concrete mixes,

Continued failure on the part of the Contractor to work according to the programme or revised programmes shall be sufficient reason for the Project Manager to take steps as provided for in the General Condition of Contract and Special Condition of Contract.

If any changes to the critical path occur or become necessary during the Contract Period, the Contractor shall promptly notify the Project Manager in writing.

## **PS 7: SITE FACILITIES AVAILABLE**

### ***PS7.1 Contractor's Site Camp***

The contractor will have to make his own arrangements for his construction yard and camp. It shall be the Contractor's responsibility to find a suitable site which shall carry the approval of the Employer & Project Manager, the Contractor shall be required to fence in his construction camp with a minimum 1.8m high security fence with lockable double leaf gate and shall employ a full-time watchman or watchmen to guard his equipment and materials in the camp.

No housing will be provided for the Contractor's employees, and the Contractor is responsible for arranging accommodations and transportation to the site. The Contractor shall avoid unnecessary removal of large trees and must maintain a neat and tidy camp at all times. The camp and storage

Initials.....

of materials shall be confined to designated areas. Upon completion of the construction works, the Contractor shall restore the utilized areas to their original condition at their own expense, to the satisfaction of the Project Manager. Pollution and littering of any kind will not be tolerated. All costs associated with the accommodation of the Contractor's activities on the site must be allowed for in the schedule of quantities.

The Contractor may not unnecessarily remove any trees and he shall keep his camp and yard neat and tidy at all times and on completion of the works, shall restore same to its original condition at his own expense and to the Project Manager's satisfaction. No pollution or littering of any kind will be tolerated and the camp terrain shall be to the approval of the health authority.

### ***PS7.2 Services***

Potable water and power supply are available near the project area. It is the Contractor's responsibility to apply for connections to the existing water supply network and power distribution with NamWater and the City of Windhoek, respectively. Upon receiving approval from the relevant service authorities, the Contractor shall arrange for the installation of water and power at the site camp and bear the cost of these installations, as well as the payment for water and power consumed. To this end, the Contractor shall install appropriate lockable meters as required by the supply authorities.

The Contractor will be held responsible for any damages to meters and supply lines and fittings for the duration of the contract. Any extension of time due to delays resulting from these facilities will not be granted.

The Contractor shall make his own arrangements for the disposal of wastewater and sewerage effluent. He shall be required to construct septic tanks and French drains of an approved design and size in positions to be approved by the Project Manager. Under no circumstances will the discharge of wastewater to the surface be permitted.

The Contractor shall make himself thoroughly acquainted with the regulations relating to the use of water and electricity and shall take adequate measures to prevent the wastage of water.

The Employer accepts no responsibility for the shortage of water due to any cause whatsoever, nor additional costs incurred by the Contractor as a result of such shortage thereof.

The Contractor shall take note that no direct payment will be made for costs incurred for the provision of a water and electricity supply point to the project area. Payment for the aforementioned shall be deemed to be covered by the rates and prices tendered and paid for under the specific items of the P&G's in the Schedule of Quantities.

At the end of the project the Contractor to ensure that the local authority is paid in full for the utilities used for the construction works before vacating site and proof of this is to be provided to the Project Manager.

### ***PS7.3 Survey Beacons, Benchmarks and Reference Pegs***

The Contractor is responsible for the setting out of the required works and no separate payment will be made therefore as the cost involved for the setting out of the Works is deemed to be included in the tendered sum.

Initials.....

The Contractor shall also ensure that no survey beacons, erf pegs and benchmarks are covered up or disturbed. It is his responsibility to protect the boundary pegs, beacons and benchmarks which may be encountered during the course of the work.

It is the responsibility of the Contractor to inform the Project Manager within 14 days of establishment should the Contractor not be satisfied with the provided pegs and benchmarks. Should no communication be received within 14 days it will be assumed that the Contractor is satisfied with the pegs and benchmarks and no additional payments will be made and no additional extension of time will be granted should the Contractor not be satisfied at a later date.

Erf pegs and benchmarks may not be replaced by the Contractor. Control benchmarks may be provided by the Contractor for setting out the works.

***PS7.4 Dump Site***

The Contractor will make his own arrangements with the local authorities regarding the disposal of any building rubble and other surplus building material.

Various old borrow pits exist in the area which may be used by the Contractor as dump sites. However, the onus rests on the Contractor to dispose the material as suggested in the Environmental Management Plan and engage with the relative authorities regarding permits or permission to do so.

***PS7.5 Water for Compaction and Manufacturing of Concrete***

Potable water is available at the NamWater offices' Head Office, but the Contractor shall make his own arrangements with the NamWater Operations Manager in Central for the connection of these services and for laying the water to his yard. He shall also be responsible for the costs of these services and the laying of these services and shall ensure that water is not wasted.

The Contractor shall make his own arrangements for the disposal of wastewater and sewerage effluent. Under no circumstances will the discharge of wastewater to the surface be permitted or the construction of septic tanks and French drains.

**PS 8: SITE FACILITIES REQUIRED**

***PS8.1 Site Offices***

The contractor will have to make his own arrangements for his construction yard and camp. It shall be the Contractor's responsibility to find a suitable site that shall carry the approval of City of Windhoek & Engineer. The Contractor shall be required to fence in his construction camp with a minimum of 1.8m high security fence with a lockable double leaf gate and shall employ a full-time watchman or watchmen to guard his equipment and materials in the camp.

A site office will not be required by the Engineer. However, the Contractor must provide adequate office facilities for site meetings. The site office shall be dust-proof with sufficient room to accommodate at least eight (8) people, seated at a suitable table. All contract-related documentation and drawings shall be kept available in this office.

Initials.....

### ***PS8.2 Laboratory Facilities***

The Contractor shall make use of the services of a recognised and suitably qualified independent laboratory capable of carrying out the required tests as listed below for Quality Acceptance Control purposes for the tests submitted to the Project Manager.

All testing methods and frequency shall be strictly in accordance with the methods specified in the applicable SANS 1200 standard specifications. No additional payments will be made towards the testing of work and the Contractor should allow for the required testing in his Tender.

The Project Manager shall (from time to time and as deemed necessary), within the provisions of the Contract, carry out acceptance control testing to verify the testing certificates produced by the approved independent laboratory as well as the materials produced by the Contractor for the incorporation into the works.

The Project Manager and his site staff shall have unrestricted access to the laboratory at all times for the purpose of controlling testing procedures and/or carrying out his own tests should the need arise.

The laboratory shall be equipped with the equipment required to conduct the following tests:

- Sieve analysis of gravel, sand and soil samples.
- Determination of Atterberg Limits (Liquid Limit, Plastic Limit, Plasticity Index, Linear Shrinkage).
- Determination of maximum dry density and optimum moisture content of gravel, soil and sand.
- Determination of the in-place dry density of soil or gravel by the sand replacement method.
- Determination of the in-place density and moisture content of soils and gravels by nuclear methods.
- Determination of the California Bearing Ratio (CBR)
- Determination of the fineness modulus of fine aggregate.
- Making, curing and compressive strength determination of concrete test cubes.
- Determination of the slump of freshly made concrete.

Notwithstanding the equipment requirements for the above tests, the Contractor shall ensure that the following equipment is kept on site:

- Sufficient concrete cube moulds (150mm x 150 mm) to comply with the minimum frequency of sampling specified in Clause 7.1.2 of SANS 1200G and the requirements of the number of cubes per test as set out in Clause PSG 7.1.2.2 of Portion 2 of the Project Specifications.
- Cube curing baths capable of holding the number of cubes accumulated over 28 days.
- An adequate number of 50 Kg sample bags

The Contractor shall provide for the proper maintenance and cleaning of the laboratory, fittings and equipment during the contract period.

**Note:** A provisional sum has been provided in the Schedules of Quantities for any tests directed by the Project Manager

Initials.....

One copy of the results of all tests carried out shall be send to the Project Manager and one copy shall be kept on site at all times.

### ***PS8.3 Sanitary Facility***

The Contractor shall provide and maintain adequate and appropriate latrines for his site personnel. As the nature of the project will affect remote site areas, adequate portable toilet facilities in close proximity to the project area shall be provided. At least 1 latrine will be provided per 10 people.

Latrines shall be effectively screened from view and maintained in a clean and sanitary condition to the satisfaction of the Project Manager or Council's Health & Safety Officer. The Contractor shall make all the necessary arrangements for the regular removal and emptying of the sanitary pails. The cost of establishing and maintaining of portable toilets is provided for in the Bill of Quantities.

If at any time the Contractor fails to observe the abovementioned conditions and after being notified by the Project Manager, fails to rectify conditions, the Project Manager shall have the right to appoint any workmen as may see fit, to maintain clean and hygienic conditions. All related costs will be covered by the Contractor.

### ***PS8.4 Telephone Facilities***

The Contractor is not required to provide a site telephone and fax machine. It is however be required that the Contractor can be reached via email or cellular phone.

### ***PS8.5 Contract Name Board***

One (1) standard nameboard similar in size to that of the Association of Consulting Project Managers of Namibia shall be provided under this contract.

The name board shall be erected within **three (3) weeks** of the award of the contract. It shall be maintained in good order for the duration of the contract and shall be removed by the Contractor at the end of the retention period. The Project Manager's representative will determine the location of these boards.

The details of the layout and wording on the name board will be given by the Project Manager to the Contractor with the award of the Contract.

### ***PS8.6 Survey Equipment and Assistants***

The Contractor is required to have on site at all times a level with tripod, a single second tachometer with tripod, two 4-meter-long measuring staffs graduated in centimetres and 5m steel measuring tape, which shall be shared with the Project Manager.

The Contractor shall also avail to the Project Manager when required two (2) experienced survey assistants.

Initials.....

***PS8.7 Drawing Records***

As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the drawings as issued to the Contractor at the start of the contract.

The completion certificate shall only be issued after the Project Manager has received a properly completed set of “**record**” drawings from the Contractor. No separate payment shall be made for this service as all costs related thereto shall be deemed to be included in the relevant items.

***PS8.8 Site Instruction Book***

A triplicate site instructions book for site instruction purposes shall be supplied free of charge by the Contractor and shall at all times be kept on the Site and accessible to the Project Manager during normal working hours. Only instructions received from the Project Manager shall be considered formal and binding.

***PS8.9 Visitors Register***

A visitor’s register must be kept on site and signed by anyone visiting the site. The register should make provision for comments and date.

***PS8.10 Site Diary Book***

A site diary book shall be availed by the Project Manager to record the day-to-day events on site. It is in the Contractor’s best interest to keep the site diary book up to date.

***PS8.11 Request for Approval of Works Book***

A template for request for approval of works shall be provided by the Project Manager to the Contractor to record and request formal inspections of the completed work. No formal inspections of the completed works shall be conducted prior to the completion of the form.

***PS8.12 Request for Information System (RFI)***

A template for request for information pertaining to the works shall be provided by the Project Manager to the Contractor to request critical information pertaining to the works. Formal replies shall be recorded in this system and followed with written site instruction (if required).

***PS8.13 Rain gauge***

Rainfall during the construction period shall be measured on site by the Contractor from a representative point. All equipment necessary is to be supplied, installed, maintained and removed at the completion of the contract by the Contractor at his own expense and access to such a point must be restricted.

***PS8.14 Permits and Wayleaves***

Wayleave for working close to or in the proximity of any existing services shall be applied for by the Contractor. The existing services must be indicated by the relevant authority and stamped and

Initials.....

signed off before any excavation may commence. If the above is not complied with and services are damaged, then all resulting costs will be for the Contractor's account.

***PS8.15 Alteration, Addition, Extension and Modification to existing works***

The Contractor must familiarise himself of the position of all existing services and structures and report any discrepancies or services not shown on the drawing to the Project Manager

The Contractor must verify the list of benchmarks shown on the drawings for the setting out of the works and confirm the accuracy.

Sufficient photos of existing structures, walls and areas that have to be crossed must be taken by the Contractor and handed over to the Project Manager before such operations commence. No payment will be made in this regard and it shall be deemed to be covered in the preliminary and general items.

***PS8.16 As-built Drawings***

As the work progresses, the Contractor **shall keep full records of all amendments to and deviations from the drawings as issued to the Contractor at the start of the contract.** This information must be submitted monthly by the Contractor with his payment certificate to the Project Manager

The completion certificate shall only be issued after the Project Manager has received a properly completed set of "as built" drawings from the Contractor. No separate payment shall be made for this service as all costs related thereto shall be deemed to be included in the related items.

**PS 9: SECURITY AND SAFETY**

It shall be the responsibility of the Contractor to control access to the site during the execution of the Contract to prevent any unauthorised persons from entering the site. The Contractor shall provide security guards for this Contract as he deems fit. However, it is recommended that at least one security guard must be on duty 24 hours a day at the campsite.

It shall be the responsibility of the Contractor to control access to the site during the execution of the Contract to prevent any unauthorised persons from entering the site.

The drawings and other construction details are confidential and shall not be disclosed to any third party.

Since the construction occurs in an area where there is an existing bulk water infrastructure, the Contractor must take the safety of the existing infrastructure into account during the planning and execution of the works. All open trenches, services, material and machines must be protected and clearly marked.

Notice of Commencement must be completed and submitted to the Ministry of Justice and Labour Relations before commencement of work. A proof of such submission must be submitted to the Health, Safety, and Security office.

Initials.....

The Contractor shall appoint a responsible person as well as an assistant for him and their names shall be forwarded to the Project Manager in writing before any work may commence. The responsible person shall legally be responsible for all safety aspects on site. No work may be executed on site if neither of these two persons is on site. The Contractor will be held liable should any incidents occur where safety personnel are not present.

The Contractor will be responsible for the safety of his personnel and the site in general at all times. All laws, rules and regulations shall be strictly followed in this regard and all the necessary precautions and measures shall be taken to ensure the safety of personnel, the public and equipment.

The Contractor shall apply suitable proven methods for construction complying with the relevant Acts, as well as with the Occupational Health and Safety Specifications Plan so that his activities will not constitute a hazard to his work force, the public or any adjacent property.

All excavations shall be suitably safeguarded and barricaded especially during night-time, weekends or holidays and any other day of inactivity by the Contractor. The Contractor shall also ensure that excavations are shored or otherwise made safe. The camp and construction site will be locked after hours to ensure the safety of passers-by. No additional payment will be made to the Contractor for complying with these requirements.

The Contractor shall take every precaution to ensure safety and to protect the works and temporary works from theft and vandalism. The Contractor will be responsible for the safety and security of their personnel, materials on site and the works in general at all times.

### **PS 10: SITE INSPECTION**

The bidder shall inspect and examine the Site and its surroundings and shall take full account of the form and nature of the Site, its surroundings, the ground and sub-soil (so far as is practical) and the access to the Site in preparation of his Bid.

An official Pre-Bid Meeting and Site Visit will be held by the Project Manager on the date and time indicated in the Bid advertisement. The venue for the Pre-Bid Meeting will be announced prior to the meeting.

### **PS 11: SOURCES OF NATURAL MATERIALS**

#### ***PS11.1 Gravel***

Borrow materials for earthworks, layer works and bedding material can be obtained from existing licensed borrow pits. The borrow pit should have an Environmental Clearance Certificate (ECC).

In the event, that royalties have to be paid, the cost therefore shall be deemed to be covered by the rates for various items of work for which these materials are used and no additional payment will be made in this regard.

Initials.....

The contractor is to make his own investigations and arrangements with the owners of the borrow pits to obtain the specified material.

The Project Manager reserves the right to direct the use of and/or to reserve the available material in the borrow pits. The Contractor shall comply with the Project Manager's instructions in this regard even if it means adapting his construction programme.

The Contractor shall be aware that the Project Manager may decide to use a better-quality material than the minimum specified in the Contract Documents.

Alternative or additional sources proposed by the Contractor shall produce material with properties after completion of construction at least equivalent to those of material designated by the Project Manager.

### ***PS11.2 Stockpiling***

Stockpiles of excess overburden, unsuitable material and approved gravel shall be kept separately in such a manner that they do not obstruct the further exploitation of the borrow source.

No payment will be made for the stockpiling operations specified above, nor will any claim be considered which may arise from the Contractor's failure to comply with the requirements of this Clause.

No sites for temporary stockpiling have been identified. The Contractor shall be responsible for proposing, for approval by the Engineer after consultation with the relevant authorities and communities, the location and size of any areas required for the temporary stockpiling of materials.

### ***PS11.3 Spoil sites***

No formal spoil sites have been identified for this project. Spoil sites shall be planned and agreed by the Contractor and the project Manager well in advance of the earthwork's operations takes place, considering:

- The type and volume of material to be spoiled
- Cost considerations
- Environmental and community considerations
- Any authority approvals required.

It is anticipated that the following areas will be used as spoil areas:

- Previously worked out borrow areas
- Existing erosion areas/dongas
- New borrow and quarry excavations and areas
- Areas to be levelled for community facilities (sports fields etc) as agreed with the community.

Initials.....

***PS11.4 Aggregate for Concrete and Surfacing***

Aggregate and sand for concrete and surfacing can be obtained from commercial sources or crushing and screening of suitable sources which need to be approved by the Project Manager. No separate payment will be made for this work.

***PS11.5 Water for Construction Purpose***

The Contractor shall be responsible for obtaining all the water required for the contract.

All water proposed for construction purposes has to be tested for the presence of undesirable minerals and impurities.

Any temporary pipelines supplied and laid by the Contractor shall be removed before or at the end of the construction period.

***PS11.6 Disclaimer***

The information regarding the subsurface conditions, materials and groundwater potential on the site is provided in good faith for the Contractor's convenience as an indication of the conditions likely to be encountered. No responsibility will be accepted for, and there is no guarantee of, the information being representative of the whole area of the Works or of the various materials encountered.

The provision of such information shall not be regarded as in any way limiting, or detracting from, the Contractor's responsibilities in terms of the General Conditions of Contract or the Specifications.

The Contractor will be held to have satisfied himself as to the subsurface conditions to be encountered on the Site and to have allowed accordingly in his tendered rates.

**PS 12: LIAISON WITH LOCAL AUHORITIES AND LANDOWNERS**

The Contractor shall at all times liaise closely with the Local and Regional Authorities regarding the execution of the Contract. In particular the Contractor shall not enter any land or touch any service without first contacting the owner and/or service provider.

The Project Manager also contacted the relevant authorities and has details of the relevant contact persons at the relevant government department, local authority and service provider.

Nevertheless, the Contractor must be sensitive to the residents' concepts of ownership. This will be particularly relevant if crops have been planted on land for which compensation has already been paid. Resolving any land issues which arise shall be a team effort involving the Contractor, the Project Manager and, if necessary, the Employer.

Special attention shall be given to the section of pipeline in the vicinity of the existing water and electrical infrastructures. A formal correspondence of the Contractor's intention to commence

Initials.....

with works in the area shall be submitted to the Project Manager **three (3) weeks** prior to the commencement of works in the area.

### **PS 13: ALTERNATIVE DESIGNS OF MATERIALS**

#### ***PS13.1 General***

Generally, offers for materials, designs or methods other than shown on this drawing, specified or mentioned in the Schedule of Quantities will be considered. However, alternatives will be considered only if all items of the original Schedule of Quantities have been priced to the original specification and the other requirements of the tender documents been met.

#### ***PS13.2 Particulars***

Any such alternatives will only be considered, if detailed particulars are submitted at the time of tendering and provided that, in the option of the Project Engineer, a detailed and efficient design has been made. Generally, offers for materials, designs or methods other than shown on this drawing, specified or mentioned in the Schedule of Quantities will be considered. However, alternatives will be considered only if all items of the original Schedule of Quantities have been priced to the original specification and the other requirements of the tender documents been met.

#### ***PS13.3 Responsibility***

The responsibility and the extent of the work required of any Bidder offering an alternative shall be the same as implied in the Specification of these Documents.

#### ***PS13.4 Schedule of Quantities***

Bidder shall prepare additional but separate Schedules of Quantities covering essentially the same items as in the Schedule of Quantities included in these Documents or such additional items that are a requirement of the particular alternative Tender.

#### ***PS13.5 Details to be submitted***

Each Tender for an alternative shall accompanied by the following:

- Fully detailed design description, calculations and drawings.
- If structural design calculations are required, those calculations must have been checked by an independent recognised institution before the submission of the offer.
- Specifications and references to any standard specifications.
- Detailed description of manufacturing and construction processes.
- Standard dimensions that can be supplied and tolerances on dimensional requirements.
- Factory testing and quality control methods.
- Methods of handling and transport.
- Any other information that the bidder may regard as relevant and important.

Initials.....

**PS 14: QUALITY CONTROL AND QUALITY ASSURANCE**

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

**PS 15: FEATURES REQUIRING SPECIAL ATTENTION**

***PS15.1          Alternative Offers***

Not Applicable to this Contract.

***PS15.2          Existing Services***

The Contractor shall be responsible for the location of all existing services and shall take special care not to damage any existing services and structures on site.

The Contractor will be provided with information regarding the approximate position of all existing services as could be established to the best knowledge of the Project Manager. Before commencement of construction the Contractor shall acquaint himself with the position of all existing services before any excavation or other work likely to affect the existing services is commenced. The Contractor will be held responsible for damage to existing services and any damaged caused by or arising out of the Contractor's operations shall be made good at his own expense.

The Contractor shall verify details, positions and levels of all existing services well in advance of undertaking related works to prevent any possible delays if such services are not as mapped. No claims related to the late verification of existing services shall be entertained.

The provided drawings or other information indicating the position of existing services shall in no way relieve the Contractor of his obligation hereunder to acquaint himself with the position of all existing services nor of liability for damage to such services.

All electrical cables shall be considered as live at all times. Contact City of Windhoek at least two weeks prior to the date on which cable location is required. All associated costs will be to the Contractor's account.

The Contractor will be held responsible at all times for the security of any existing services (including the cost of any repairs) and for the safety of the general public in the vicinity of excavation work.

The contractor must be extra careful when mechanical plants are being used in the vicinity of existing services (i.e. overhead electrical lines, water lines).

The Contractor is fully responsible for the protection of all services. The Contractor will be held responsible for damage to services, which are:

Initials.....

- In the approximate position of services indicated on construction drawings.
- Where the presence of such services can reasonably be foreseen by an experienced Contractor from associated surface structures or markings or underground warning tape.
- Where they have been informed of the presence of such services by any person or authority.

The Contractor will be held responsible for any damage to “known” existing services caused by or arising out of his operations. Existing services will be considered “known” if it is either shown on the construction drawings, wayleaves or shown to the Contractor on site. The penalty for damage to a “known” existing service will be N\$2 000.00 plus the cost of repairing and reinstating such service.

In the event of damage caused to a service by the Contractor, the Contractor shall take such immediate action as is necessary to prevent further damage or danger to life and property and shall notify the Project Manager immediately, who will then issue instructions as to the necessary measures to be undertaken. The cost thereof shall be borne by the Contractor irrespective of whether the repairs or protective measures are carried out by themselves or by the owner or a representative of the owner of the service.

Some of the existing roads, water reticulations, and electrical systems crossing the site of the works need to be maintained by the Contractor and no disruptions of services will be tolerated.

Lump sums are inserted into the Schedule of Quantities for the location of all existing services within certain sections of the Works and no additional payment will be made for the provision of protective measures, co-operation with and providing access to Authorities concerned, delay to the construction arising from moving or protecting services or claims arising from damage to or relocation of existing services.

***PS15.3          Disruption of Existing Service***

Any work requiring the disruption of an existing service shall be carried out as quickly as possible. The estimated time and date required for the work shall be presented beforehand to the Project Manager for his approval.

***PS15.4          Accommodation of Traffic***

The Contractors shall accommodate normal traffic wherever possible and reasonable during the construction of the pipelines and will erect suitable warning signs which comply with the Road Traffic Ordinance to warn all traffic of these construction activities. The costs for the accommodation of traffic shall be included under the pay item provided in terms of Clause 8.8.2 of SANS 1200 A in the relevant sections of the Schedule of Quantities.

***PS15.5          Test on Completion of the Works***

The Contractor will be required to test the Works as specified in the Project Specifications. These tests will include the hydraulic testing of all the pipelines, if applicable.

***PS15.6          Restoring Surfaces***

Initials.....

The Contractor will be held responsible for all damage to existing surfaces, kerbs and channels outside the specified excavation dimensions, and the work has to be restored at his own expense to the satisfaction of the Project Manager

All rubbish, tools, tackle, plant and material must be removed immediately from each section of the work as soon as it is completed. Each completed section of the work is to be left in a neat, tidy and orderly state.

***PS15.7 Contract Manager***

The successful bidder shall notify the Project Manager in writing, within 14 days after receipt of the letter of award, of the name, qualifications and experience of the Contract Manager he proposes to appoint for the project. For bidding purposes, the intended Contract Manager shall be listed on FORM 1.5, Section IV (Bidding Forms), Qualification Information.

***PS15.8 Supervising Staff***

The Contractor shall ensure that sufficient supervisory staff, the required transport, instruments, equipment and tools are available to control works on site. The Contract Manager or his representative will not act as supervisor, foreman or surveyor.

All Construction activities shall be executed and supervised by suitably qualified and experienced personnel.

***PS15.9 Quality Assurance***

The quality of work and workmanship will be strictly monitored and in no way will work quality be compromised. All work shall meet the requirements of the specifications. The quality of work is not negotiable.

Quality Assurance System (QAS) shall consist of procedures compliance with all requirements of the contract. Contractor shall ensure that all key staff members are trained to implement and documents quality assurance system on the project. The following are some of the QAS requirements:

- Minimum requirements;
- Quality control systems;
- Measurement systems;
- Approval systems; and
- Site administration.

The quality assurance system shall be divided into “general” and “project specific” parts. The “general” part shall contain the Contractor’s standard best practice. The “project specific” part shall contain project specific requirements, especially with regards, to the Quality Control System, which shall reflect the requirements of the Standard and Project Specifications.”

***PS15.10 Testing Methods and Frequency***

All testing methods and their respective testing frequencies shall be strictly in accordance with the methods specified in the applicable SANS 1200 (or equivalent SANS 1200) standard

Initials.....

specifications. No additional payments will be made towards the testing of work and the Contractor should allow for the required testing in his Bid.

***PS15.11 Workmanship***

The onus shall rest on the Contractor to produce work that conforms in quality and accuracy of detail to the requirements of the specifications and drawings. The Contractor shall at his own expense institute quality control system to provide experienced project managers, foreman, surveyors, materials technicians, other technicians and technical staff (with all transport, instruments and equipment) to ensure adequate supervision and positive control of the works at all times. The cost of the supervision and process control and including testing carried out by the Contractor shall be deemed to be included in the rates tendered for the related items of work.

Contractor's attention is drawn to the provision of the various standardised specifications regarding the minimum frequency of testing required for his process control. The Contractor shall at all times at his own discretion increase this frequency where necessary to ensure adequate control. On completion and submission of every part of the work to the Project Manager for examination, the contractor shall furnish the Project Manager with results of the relevant tests, measurement and levels to indicate compliance with specifications.

***PS15.12 Traffic Control and Access to Property***

The successful Contractor must allow for provision and erection of all necessary barricading, road traffic sign boarding and lighting and for the posting of flagmen. When sections of a road have to be closed, the correct warning signs have to be displayed in positions which will allow traffic to change course without vehicles having to reverse or turn around. The road signs to be displayed during the contract shall be in accordance with "The road signs to be displayed during the contract shall be in accordance with "The South African Road Traffic Signs Manual" or accepted equivalent (Namibian Roads Traffic Signs Manual" or accepted equivalent

***PS15.13 Existing Residential Areas***

Electricity and water supply interruptions in surrounding areas shall be kept to an absolute minimum. The Project Manager's approval shall be obtained prior to such interruptions and residents shall be notified in writing at least 24 hours in advance. All supplies shall be normalised by 16h00 on the same day.

***PS15.14 Liaison Meeting***

The liaising of all parties involved on this Contract is of prime importance. The Contractor therefore needs to arrange ad-hoc meetings with stakeholders such as local authorities, etc.... on a regular basis to keep them well informed of the progress of the works.

***PS15.15 Safeguarding of Excavations and Trenches***

The responsibility of safeguarding of excavations lies entirely with the Contractor. No trenches may be left open during the Builder's Holidays. The onus shall rest with the Contractor to protect the public against dangerous on-site conditions such as open trench excavations, manholes etc. Special attention is drawn to the fact that the Contractor needs to ensure safe pedestrian and vehicular movement and access at all times especially at night. The Contractor should therefore

Initials.....

identify and safeguard potential hazard before the end of each working day especially on weekends.

## **PS 16: EXISTING ROADS AND ACCOMMODATION OF TRAFFIC**

### ***PS16.1 Existing Roads***

There is no formal access road to the site. The Contractor will have to make the necessary arrangements to gain access to the site for construction purposes. Although there is formal access to site, the project area does not have formal gravel road and this shall be considered by the Contractor when preparing this Bid as there might be a need to construct a temporary access road for the duration of the Contract. A train movement that is behind the boundary wall must be considered during the construction period.

## **PS 17: OVERHAUL**

All rates for materials or excavation shall allow for all hauling to and from the Site. For this contract, free-haul shall therefore continue indefinitely and no overhaul shall be paid.

## **PS 18: BLASTING**

No blasting will be permitted in this Contract

## **PS 19: AS-BUILT DRAWINGS**

The Contractor shall, on completion of the Works, submit a complete set of "as built" drawings for the project. The drawings must be in a reproducible form and on a durable material of at least a polyester base with a minimum thickness of 0.5 mm. The drawing size shall be A1, using the Employer's drawing title block as varied, and approved by the Project Manager, for the use by the Contractor. The drawings must be numbered and titled as directed by the Project Manager and to the same standard as the drawings issued with the Bid and shall be prepared using an approved CAD system. As built drawings shall be submitted in dwg or dxf format only. Drawings compiled through converted from pdf files to dwg format shall not be accepted. **The Taking-Over Certificate of the Works shall not be issued until the "as built" drawings have been received and approved by the Project Manager.**

## **PS 20: DAMAGES FOR LATE COMPLETION**

Should the Contractor find that it will not be possible for him to comply with the time for completion of the works as specified in the bid, he shall inform the Engineer in writing of the anticipated delay, the reason therefore and the new anticipated delivery date, which information shall be used to assess the reasonableness of any claims for extension of time if and when these are submitted by the Contractor. If the Contractor fails to submit the written information described above or fails to submit this within the time period as stipulated in the GCC, or if the reasons for the delay are not acceptable, delay damages (of percentage states in the SCC 46.1) of the total Contract Price per calendar day will become payable by the Contractor to the Employer in terms of Clause 46 of the GCC and will be deducted from any monies due to the Contractor.

Initials.....

**PS 21: WORKING HOURS**

The Contractor shall limit his operations hours to normal working hours, which shall be defined as sunrise to sunset, Monday to Friday. The Contractor shall make allowance for all working restrictions, public holidays, and the normal construction industry holidays, in his tender. The Normal industry holiday runs from early December to early January, but it is not statutory.

Should sub-contractors be employed by the Contractor, such sub-contractor will follow the same working hours as the main Contractor. A sub-contractor will not be allowed to work on site without the Contractor's Representative on site.

**PS 22: NON-WORKING DAYS**

The Contractor shall not work on the statutory Public holidays as gazette as listed below:

- New Year's Day (1 January)
- Good Friday
- Easter Monday
- Independence Day (21 March)
- Workers Day (1 May)
- Cassinga Day (4 May)
- Ascension Day
- Africa Day (25 May)
- Heroes Day (26 August)
- International Human Rights Day (10 December) and
- Christmas Day and Family day (25/26 December)

**Note:** Where any of these days fall on a Sunday the following Monday will be special non-working day.

**PS 23: SAMPLES**

The Contractor shall supply the required samples at his own cost in terms of the General Conditions of Contract. Materials or work that does not conform to the approved samples shall be rejected. The Project Manager reserves the right to submit samples for test to ensure that the material represented by the sample, meeting specification requirements.

**PS 24: NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS**

The Contractor shall erect the necessary signs, notices and barricades for the duration of the contract to safeguard the works and public. Notices, signs and barricades as well as advertisements may be used only if approved by the Project Manager. The Contractor shall be responsible for the supply, erection and maintenance and removal of the road signage. The former shall be deemed to be included in the Contractor's tendered rates.

The Project Manager has the right to have any sign, notice or advertisement moved to another position, should they in any way prove to be unsatisfactory, inconvenient or dangerous to the general public. Such barricades shall be provided at the Contractor's own expense.

Initials.....

**PS 25: DEALING WITH WATER**

The Contractor is responsible for the control of storm water from adjoining areas, the site and groundwater. No additional payment will be made and it will be deemed to be included in the rates of the relevant work items. Take note that the area is relatively flat therefore there might be standing water during the rainy season. A pay item is included under Bill 1 P&G and the rate for dealing with water shall make provision for all mentioned above.

**PS 26: CERTIFICATES OF PAYMENT**

The payment shall be made only if all construction work is completed and as per all requirements, minus the 10% retention.

**PS 27: VALUE ADDED TAX**

Prices and rates to be inserted in the Schedule of Quantities and daywork shall be full inclusive values of the work described under the several items. It will include all costs and expenses which may be required in and for the construction of the work described together with all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based.

All items in the Bill must be priced exclusive of VAT. VAT shall be added, at a rate of 15%, to the Bid Price.

**PS 28: KEY PERSONNEL**

The Contractor's Site Agents will under no circumstances be allowed to be absent from the site without the written approval of the Project Manager. Should this approval be granted, the Contractor will be required to provide an equally or better qualified replacement for the duration of the Contractor's Foreman absence from the site. Any such arrangements should be done timeously.

Detailed CV of the proposed site agent and senior key personnel must be attached to qualifications information and submitted with the bid documents.

Should the Contractor fail to comply with this sub-clause, Preliminary and General payments will be withheld until such time that the Contractor does comply.

**PS 29: LIMITATION OF CONSTRUCTION ACTIVITIES AND PROTECTION OF THE ENVIRONMENT**

Construction activities by the Contractor shall be limited, where possible to the boundaries of the pipeline route and will be done with minimum disruption to the environment.

The contractor is not allowed to enter NamWater premises without approval from the project manager.

The ESMP, NSMPs and the NamWater Environmental Code of Conduct (NECC) which form an integral part of the Contract are attached to this Bidding Document and provides measures to the Contractor for environmental and social compliance. The Engineer will monitor these provisions during construction to ensure compliance. The Contractor is obliged to sensitize the workforce on environmental issues, since all members of the construction team will be expected to co-operate in this regard. The Contractor shall appoint a member of his staff to act as Environment Control

Initials.....

Officer (ECO) in terms of Clause 6.7 of the General Conditions of Contract. This person shall be responsible for liaison with the Engineer in respect of environmental matters and for ensuring that these environmental regulations are adhered to at all times.

The Contractor shall report monthly under a monitoring programme, on his compliance with the EMP and shall include in these reports photographs clearly showing the relevant area or site before his occupation and after rehabilitation thereof. The format of the monthly report will be instructed by the Engineer. This report shall form part of the progress report in terms of Clause 4.21 of the General Conditions of contract, but shall be bound and submitted separately for forwarding to NamWater.

The Contractor should note that the environmental and social issues are considered serious and that penalties or termination of the contract (**mentioned in the EMP where applicable**) may result in a case of non-compliance. The obligations mentioned in this EMP shall be applicable to the Contractor and his sub-contractors.

The Contractor should specifically note that all borrow pits, including existing ones pointed out by the Engineer, must be rehabilitated according to this EMP and as specified in the tender document. Before the release of any retention monies, the Contractor must submit proof to the Engineer that he has fulfilled all requirements of the various acts which deals with the rehabilitation of quarries. He must also submit a letter from the relevant landowners and/or authorities in this regard.

A special duty of care is laid upon the Contractor to conduct all his operations in a manner specifically calculated to restrict his operations to the site area, except where he must unavoidably move outside the area for the sole purpose of actions essential, in the opinion of the Engineer, for the execution of the work.

All elements of the work are required to comply with the EMP, ESMPs and NECC will be deemed to be included in the Bidding rates.

**PS 30: INCLEMENT WEATHER CONDITIONS**

The Contractor shall make allowance for the average rainfall conditions that may exist during the contract period. All necessary steps shall be taken to proceed with the works despite inclement weather. The Contractor shall however record all rainy periods which adversely affect the contract extension of time of the general conditions of contract, arising from abnormal climatic conditions.

The contractor shall take note of the fact that the following anticipated number of days may be lost due to climatic conditions during this contract.

**Table 30-1: Number of days lost due to inclement weather**

Month	Working Days Lost (no compensation)	Average monthly rainfall
January	3	68.3
February	2	31.8
March	3	70.7
April	4	123.2
May	0	0
June	0	0
July	0	0

Initials.....

August	0	0
September	0	0
October	2	62.8
November	1	0
December	2	41.5

Sandstorms will be regarded as "exceptionally adverse climatic conditions" for the extension of time for completion in terms of **clause 34** of the General Conditions of Contract (GCC). No claim for extension of time will be considered where working time was lost because of rainfall/sandstorm which could normally have been expected to occur during a certain period.

There is no hydrological information available, however it may be noted that it can be foggy windy and dusty at times, thus the contractor is expected to programme and protect his works such that he is not severely affected by the above-mentioned weather conditions. Therefore, Bidders should ensure that their bid prices adequately consider the effect of such conditions, and remedial damage thereto.

For the purpose of this contract the number of days expected to be lost per month as a result of rainfall is listed in **Table 30-1**. The Contractor shall therefore be deemed to have allowed in his program and Bidding rates for at least the number of days per month listed as expected days lost as a result of rainfall.

To submit a claim for an extension of time due to inclement weather conditions the number of days more than the number of working days anticipated to be lost as per the table above shall be taken into consideration. The contractor shall give a written notice with the following details:

- The times work was stopped and recommenced.
- A motivation for the reason's construction could not continue, with reference to the agreed construction programme activities and whether the critical path has been affected.
  - A report on active resources (material, plant, labour) on site at the time of the disruption, which shall be certified by the Project Manager's site representative or Clerk-of-Works.
  - The circumstances surrounding any instruction by a third party to stop work due to inclement weather (i.e., Industrial Council/Safety Officer, etc.).

The Contractor shall submit to the Project Manager notice for all time lost due to inclement weather within 14 working day of the event, duly certified by the Project Manager's representative or Clerk-of-Works, as the case may be. A record of inclement weather will be kept and summarized at site meetings. Only when all parts of the contract have been handed over will claims, if any, be considered for exceptionally inclement weather. The onus is on the Contractor to prove these claims within the specified period as per GCC.

Extension of time as a result of rainfall shall be calculated monthly and shall be regarded as the total number work days on which no work was possible less the number of days listed in the **Table PS 30-1, provided that the Project Manager's Representative certifies lost day(s) due to adverse weather conditions**, which he will do only if:

- a) No work on the critical path could be carried out during the specific working day(s); or if

Initials.....

- b) Only 30% or less of the work force and plant on Site could be employed during the specific working day(s)

The contractor is required to setup a rain gauge (or other instruments for measuring rainfall) on site, and to keep records of rainfall data to substantiate his claims for Extension of Time.

The delays granted, in terms of this clause, shall not automatically result in an overall extension of time being granted for completion of the works unless the effect is clearly applicable to the critical path of the agreed construction programme.

**PS 31: MANAGEMENT**

***PS31.1 Maintenance of Accesses and Streets***

The Contractor must note that no additional payment will be made for the construction of temporary access roads to the construction site, borrow areas or to the spoil sites, except for payment made under payment item A 8.3.2.2 of SANS 1200 A.

***PS31.2 Blasting Operation***

No blasting is required on this project based on the scope of work and general geology of the project area. However, should there be a need to carry out the following applies. This a competent, registered blaster shall carry out any blasting required. The Blaster’s Certificate and the Blaster’s Permit from NamPol shall be provided to the Project Manager. All permits required, purchasing, transport, use and dispose of unused blasting material shall be obtained and copies given to the Project Manager before any blasting may take place. The Contractor’s methodology shall be provided to the Project Manager for approval. Proof of insurance covering damage due to blasting must be submitted. A letter of approval from the local authority must be submitted.

The commander of the local Police Services shall be informed of the time and date that blasting operations will take place at least 6 hours before blasting. No blasting operations may take place on weekends or holidays or after 17:00 on weekdays.

The Contractor shall ensure that sufficient suitable cover material, to the satisfaction of the blaster, is available and in place before a blast is initiated.

***PS31.3 Interference with NamWater Staff and Operations***

The Contractor shall ensure that none of his staff interfere in any way with any NamWater staff member or their functions.

Any member of the Contractor’s staff found to be interfering with NamWater staff or operations in any way shall be removed from the site and shall not be allowed to return.

***PS31.4 Giving Notice of Work to Be Covered Up***

The Contractor shall give the Project Manager reasonable time to accommodate examinations in his programme, in which case times for inspections can be agreed on. Requests for inspection of work shall be made in the site request book 24 hrs. in advance and furthermore, the Project Manager shall be notified through an email.

Initials.....

If the Project Manager attends with the purpose of examining any part or materials of the works at the time and date as agreed upon with the Contractor, and it is found that the works or materials are not yet ready for inspection, the Contractor shall be responsible for the costs of such a visit by the Project Manager

***PS31.5 Cost of Test Specimens and Tests***

It is deemed that the Contractor has made provision in his tender for all such services and tests that are required from him. It is the duty of the Contractor to prove, at his own cost and by means of the necessary tests, to the Project Manager that the works and compaction where prescribed, comply with the specification.

***PS31.6 Demarcation of the Site***

For the purpose of the EMP, the site shall be divided into two areas identified by the Project Manager and the Contractor:

The construction camp comprising all buildings, offices, lay down yards, vehicle wash areas, fuel and material storage areas, batching areas and other infrastructure that is required for the running of the job.

The working area is the area in which construction activity is permitted to take place. No infrastructure, permanent lay down or storage areas shall be established in this working area unless specified in the project specification or prior approval is obtained from the Project Manager

***PS31.7 Construction Camp***

The construction camp shall be planned in such a way so as to affect as small an area as practically possible.

***PS31.8 Fencing of the Site***

If a temporary fence is required, the Contractor shall erect and maintain such a fence (demarcating the boundary of the working area, construction camp and access roads) to the satisfaction of the Project Manager. The erection of this fence shall be one of the first tasks undertaken by the Contractor after the commencement date. The boundaries between the construction camp area and the working area within the site shall also be fenced.

The Contractor shall ensure that the erection of the fencing causes minimal disturbance to flora, fauna, natural, historical and cultural features. A method statement shall be submitted to the Project Manager prior to erection to ensure proper positioning of the fence.

All material left over from fencing operations shall be collected after the fence has been erected and removed from site. Fences shall not be moved or removed without the written consent of the Project Manager. The Contractor throughout the construction period shall maintain fences.

***PS31.9 Workshops***

Any workshops shall be located inside the demarcated construction camp area. The exact location and design of the workshop shall be as approved by the employer and the Project Manager prior to establishment. The workshop shall have a smooth impermeable (concrete) floor. The floor shall

Initials.....

be banded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil). When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. All waste material shall be disposed of in accordance with national, regional and local laws, regulations and by-laws. This waste material shall be regularly removed off site and disposed of at an approved waste site.

**PS31.10      *Eating Areas***

The Contractor's employees shall eat in the designated eating area indicated on the Contractor's drawing of the construction camp that has been approved by the Project Manager. No changes to the eating area shall be made without the approval of the Project Manager. The Contractor shall provide shade and adequate scavenger-proof and weatherproof refuse bins in this area.

Any cooking on site shall only be undertaken in the eating area and be done on well-maintained gas cookers with fire extinguishers present. No cooking shall be done anywhere else on site and no fires are permitted.

**PS31.11      *Watchmen***

The Contractor shall ensure that a watchman is present on site during all non-working hours, including public holidays unless otherwise agreed with the Project Manager to ensure the safety of sensitive areas.

**PS31.12      *Solid Waste Collection Areas***

"Solid waste" refers to all solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

The Contractor shall set up a waste control and removal system. The Contractor shall submit a method statement for waste control and removal to the Project Manager for approval prior to commencement. Bins shall be closed, weatherproof and scavenger-proof.

Waste shall be collected from these bins on a daily basis and shall be stored in a central collection area prior to removal off-site. The waste from this central collection area shall be disposed of off-site at an approved waste site. Waste shall be removed from site on a regular basis as approved by the Project Manager. Waste shall not be burnt or buried on site or in the surrounding area. Where possible, appropriate material shall be reused or recycled.

**PS31.13      *Fuel Storage Areas***

Fuels required for use during construction shall be stored in a depot at the construction camp at a location as agreed upon by the Project Manager. The Contractor shall ensure that all liquid fuels (petrol and diesel) are stored in tanks with lids, which are kept firmly shut. The tanks shall be situated on a smooth impermeable (plastic or concrete) base with an earth bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 1,5 x the total capacity of the storage tanks. The banded area shall be emptied of water following rainfall events. The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel and / or fuel-soaked water to be removed.

The Contractor shall keep fuel under lock and key at all times.

Initials.....

**PS31.14      *Concrete Batching Area***

Cement and concrete are regarded as hazardous to the environment due to the high pH of the material and the chemicals it contains.

The Contractor shall submit a method statement for mixing of concrete for approval by the Project Manager indicating where the mixing will take place and the methods to ensure that wastewater and materials are contained in the batching area and disposed of correctly. Concrete shall not be mixed directly on the ground.

**PS31.15      *Equipment Maintenance and Storage***

All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from the site. Where possible, all maintenance of equipment and vehicles shall be performed in the workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain agreement from the Project Manager prior to commencing activities.

The Contractor shall demarcate an area in which equipment and vehicles may be stored. The location of this area shall be as approved by the Project Manager. The Contractor shall take measures to ensure that there is no pollution of this storage area by leaks or drips.

**PS31.16      *Materials Handling, Use and Storage***

The Contractor is responsible for ensuring that any material delivery drivers are informed of all procedures and restrictions (e.g. which access roads to use, “no go” areas, speed limits, dust control, etc.) required to comply with the EMP before they arrive at site and off load any materials. The Contractor shall ensure that the delivery drivers are supervised during off-loading by someone with an adequate understanding of the requirements of the EMP, so as to ensure that all relevant requirements of the EMP are followed.

**PS31.17      *Hazardous Substances***

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous materials.

The Contractor shall provide the Project Manager with a list of all hazardous materials to be used on site, together with the storage, handling and disposal procedures of the materials. This information shall be available to all personnel on site.

The location of the hazardous material store shall be within the demarcated construction camp area. The location and design of the store within this area shall be approved by the Project Manager prior to establishment.

**PS31.18      *Fuel (Petrol and Diesel) and Oil***

Where possible, the Contractor shall ensure the refuelling of vehicles takes place only at the fuel storage area in the construction camp. Where this is not possible, the Contractor shall notify the Project Manager to get his approval of the refuelling method to be used. The surface under the refuelling area shall be protected against pollution to the satisfaction of the Project Manager prior

Initials.....

to any refuelling activities. All equipment that leaks shall be repaired immediately or removed from the site. Refuelling shall be carried out by means of pumps, rather than funnels.

***PS31.19 Emergency Procedures***

The Contractor shall ensure that emergency procedures for the following situations are submitted for approval to the Project Manager prior to establishment of the site.

***PS31.20 Fire***

The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall ensure that his staff and the staff of Subcontractors are aware of the procedure to be followed in the event of a fire.

***PS31.21 Accidental Leaks and Spillages***

The Contractor shall ensure that his staff and the staff of Subcontractors are aware of the procedure to be followed for dealing with spills and leaks, which will include notifying the Project Manager and relevant authorities. The Contractor shall also ensure that the necessary materials and equipment for dealing with spills and leaks are present on site at all times. The clean-up of spills and any damage caused by the spill or leak shall be for the Contractor's account. The Contractor shall submit a method statement for management of accidental leaks and spillages of any liquid material to the Project Manager for approval.

***PS31.22 Care of Surrounding Areas***

The Contractor shall ensure that no contamination of or damage to the surrounding areas or watercourses shall occur as a result of any of his activities during construction.

Care shall be taken to ensure no accidental spillage or leakage occurs. Should any spillage or leakage occur the Contractor shall immediately stop his operations and clean up the spillage. He shall then rectify the cause of the spillage or leakage before proceeding further to ensure that no further spillages occur.

The clean-up of spillage and any damage caused by the spillage or leakage shall be for the Contractor's account. The Contractor shall submit a method statement for management of accidental leaks and spillages of any sewage to the Project Manager for approval.

The Contractor shall ensure that no pollution of the surrounding areas occurs due to wind-blown or other litter emanating from the site or from his activities during construction. No fires are permitted, neither is the cutting down of or any damage to trees and other vegetation outside of the demarcated site.

***PS31.23 Planning and Programming***

The Employer will take no responsibilities for any work done outside the site of works without approval by the Project Manager

Immediately after the handing over of the site the Project Manager and the Contractor shall discuss the order of procedure and methods in which the Contractor shall carry out the works, and to give priority to the following parts of the works to avoid delays, after which the Contractor

Initials.....

shall compile and submit to the Project Manager, within 14 days of the commencement date, a bar chart showing the construction programme.

The programme shall be in the form of a bar chart only, and shall clearly show the anticipated quantities, the production rates and value of work to be performed each month.

A software generated bar chart (e.g. MS Projects or equivalent) shall also be provided showing the various activities and critical path in such detail as may be required by the Project Manager. The programme shall be updated monthly in accordance with the progress made by the Contractor.

It is a prerequisite of this contract that minimal disruption of the public is ensured during construction. Construction methods must be of such a nature that no property or life is endangered. The Employer accepts no responsibility for any work done outside the site boundaries without the Project Manager's approval.

Failure to comply with these requirements will entitle the Project Manager to use a programme based on his own assumptions for the purpose of evaluating claims for extension of time or additional payments.

The compilation of the construction programme and any amendments thereto during the course of construction shall be at the cost of the Contractor and shall not be measured elsewhere in the contract.

***PS31.24 Recording of Weather***

The Contractor shall record all rainy and windy periods, which may adversely affect to the contractual time for completion in terms of clause 42 of the General Conditions of Contract.

The Contractor shall erect a rain gauge on site for the purpose of recording precipitation. Photographic record to be submitted clearly indicating the date.

***PS31.25 Format of Communications***

All communication regarding the contract shall be channelled through the Project Manager and/or his duly authorised representative.

A "Progress Report", "Labour on site", and "Plant on site" must be submitted at each site meeting.

***PS31.26 Management Meeting***

Management (site) meetings shall be held once a month for the duration of the project on times and dates to be agreed.

Health and Safety management meetings will be arranged by the appointed Health and Safety Officer.

***PS31.27 Electronic Payments***

Electronic payments, if applicable, will be discussed at the first site meeting.

***PS31.28 Daily Records***

Initials.....

Daily records must be kept as a "Site Diary".

**PS31.29      *Payment Certificates***

The date of measurement of the monthly payment certificate will be agreed at the first site meeting. All quantities must be agreed with the Resident Project Manager/Clerk of Works before a payment certificate is submitted.

The applicable cession forms for unfixed materials on site and unfixed materials not on site as shown in on form to be supplied must be submitted with each payment certificate if applicable.

**PS31.30      *Health and Safety Requirements***

Before starting work on site, the Contractor shall present to the Employer his Health and Safety Plan for approval. He shall also appoint a Health and Safety Officer in writing and give a copy of the letter of appointment to the Employer.

The Health and Safety Specifications are attached and must be referred to when compiling the Health and Safety Plan.

**PS31.31      *Access to Site by Public***

The Contractor shall erect fences and employ sufficient security personnel to prevent unauthorised access to the site by members of the public. Notices prohibiting access to the site shall be clearly displayed at all access points.

The notices shall be in English, Afrikaans and the most commonly used local language.

**PS 32: WORKING TIMES**

Normal working hours shall be between 07:00 and 17:00 on weekdays from Mondays to Fridays and between 07:00 and 13:00 on Saturdays, should the Contractor choose to work on Saturdays, excluding Public holidays.

**PS 33: COPYRIGHT**

All records connected with or referring to the contract in any way shall become the property of the Employer in whom the copyright shall rest.

**PS 34: APPLICABLE STANDARDISED AND PARTICULAR SPECIFICATIONS**

**PS34.1      *Standardised Specifications***

For the purpose of this Contract the latest issues of the following Standard Specifications for Civil Engineering Construction of SANS 1200 and variations for Civil Engineering Construction Works, applicable at the date of tender advertisement, shall apply and the work has to be executed to the satisfaction of the Project Manager and the Employer.

SANS 1200 A	:	1986	General
SANS 1200 AA	:	1986	General (Small Works)
SANS 1200 AB	:	1986	Project Manager's Office
SANS 1200 AD	:	1986	General (Small Dams)
SANS 1200 C	:	1980	Site Clearance (Amendment 1, 1982)

Initials.....

SANS 1200 D	:	1988	Earthworks (Amendment 1, 1990)
SANS 1200 DA	:	1988	Earthworks (Small Works) (Amendment 1, 1990)
SANS 1200 DB	:	1989	Earthworks (Pipe Trenches)
SANS 1200 DM	:	1981	Earthworks (Roads, Subgrade)
SANS 1200 G	:	1982	Concrete (Structural)
SANS 1200 GA	:	1982	Concrete (Small Works)
SANS 1200 GE	-	1984	Pre-cast Concrete (Structural)
SANS 1200 H	:	1990	Structural Steelwork
SANS 1200 HA	:	1990	Structural Steelwork (Sundry Items)
SANS 1200 HC	:	1988	Corrosion Protection of Structural Steel
SANS 1200 L	:	1983	Medium-Pressure Pipelines
SANS 1200 LB	:	1983	Bedding (Pipes)
SANS 1200 LC	:	1981	Cable Ducts
SANS 1200 M	:	1996	Roads (General)
SANS 1200 ME	:	1981	Subbase
SANS 1200 MF	:	1981	Base

- a) The term project specifications appearing in any of the SANS 1200 standardized specifications must be replaced with the terms scope of work and read in reference with the provided scope of work included under Appendix I of this bid document.

**PS34.2 Variations and Additions to Specifications**

This Portion of the project specification covers variations and additions to standardized or particular specifications that are applicable to the contract.

The numbering method of this project specification deviates as follows from the method suggested in the Code of Practice SANS 0120. Each clause with the prefix PS shall refer to the congruent clause in the appropriate section of the standardized or particular specification. Such clause shall either substitute, or supplement, or amend the clause with the same number. Where there is no such congruent clause in the standardized or particular specification, the PS clause shall be a new clause in the project specification.

**PS34.3 Particular Specification**

In addition, the following Particular Specifications that are bound into the Portion-3 of this Contract Document shall apply:

- PF Building Construction
- PG Fencing
- PJ Cleaning and Finishing

Should anything appear in the above-mentioned Particular Specifications which is at variance with the SABS standard specifications or the drawings, the Particular Specifications and Bid Drawings shall prevail.

In case of discrepancy or conflict between the various specifications and drawings, the order of preference shall be as follows:

- Project Scope of work requirements
- Project Drawings
- Particular Specifications
- The variations and additions to the Standardized Specifications

Initials.....

- Standardised Specifications

**Note:** Wherever the word or term “Employer’s Representative” is used in all the above-mentioned Standard Specifications, Particular Specifications and variations and additions thereof, it shall have the same meaning as the word or term “Project Manager”.

## 2. PORTION 2: AMENDMENTS TO THE REQUIREMENTS OF THE STANDARDISED SPECIFICATIONS

### SANS 1200 A: GENERAL

#### PS A 2: INTERPRETATIONS

- PSA 2.2 Applicable edition of standards

*Add at the beginning of the first sentence of Sub-clause 2.2:*

"Unless a specific edition is specified (see the List of Applicable Specifications) ..."

- PSA 2.3 Definitions

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

*Add the following definitions:*

The Engineer shall be Om’kumoh Consulting Engineers

General Conditions: the general conditions of contract specified for use with this contract and the special conditions of contract applicable.

Specified: as specified in the standardised specifications, the drawings or the project specifications. Specifications shall have the corresponding meaning.

#### (b) **Measurement and Payment**

Replace the definitions for fixed charge, time-related charge and value-related charge with the following:

“Fixed Charge”: A charge that is not subject to adjustment on account of variation in the value of the contract amount or the contract time of completion.

“Time-related Charge”: A charge, the amount of which varies in accordance with the time for completion of the work, adjusted in accordance with the provisions of the contract.

“Value-related Charge”: A charge, the amount of which varies pro rata with the final value of the measured work executed and valued in accordance with the provisions of the contract.

- PSA 2.4 b Abbreviations

*Add to Sub-clause 2.4(b):*

"MAMDD: Modified AASHTO maximum dry density".

Initials.....

PSA 2.8.1 Principal

In the fourth line of Sub-clause 2.8.1, after the word "specification", add: "or in the measurement and payment clause of the standard specification, particular specification or project specification".

*Add the following to this clause:*

Items which are designated as provisional quantities or provisional sums in the Schedule of Quantities are intended to provide for works, the need or extent of which shall be established by the Engineer during construction. Work scheduled as such shall only be undertaken on the written instruction of the Engineer and, where applicable, shall be paid for at the tendered rate or in the absence of rates shall be valued in accordance with Clause 6.4 of the General Conditions of Contract.

The Schedule of Quantities shall not be used for ordering purposes and no liability or responsibility shall be admitted by the Engineer in respect of materials ordered or procured by the Contractor on the basis of the Schedule of Quantities.

**PS A 3: MATERIALS**

- PS A 3.1 Quality and Samples

*Add the following to this clause:*

“Where a material to be used in this Contract is specified to comply with the requirements of a SANS Standard Specification, and such material is available with the official SANS mark, the material used shall bear the official mark.

The Contractor shall submit in good time, before any construction commences, to the Engineer on site samples of all materials intended to be incorporated into the works. The samples shall be accompanied by results of tests undertaken by an approved independent laboratory on the samples in question on behalf of the Contractor and at his cost, before consideration by the Engineer.

The Engineer, during construction, will take independent samples from stockpile of proposed construction materials on site and from the completed works. Approval will not be granted for samples delivered by the contractor directly to the Engineer’s office.

The Contractor shall be responsible for the cost of all testing to ascertain that the materials do comply with the specified minimum requirements of the relative materials and no additional payment will be made for such testing.

The Contractor shall inform the Engineer of any control testing to be done at least 48 hours before such tests are required and must allow in his programme for the time necessary for the tests and the processing of the results thereof.

The Engineer, during construction, will take independent samples from stockpiles of proposed construction materials on site and from the completed works. Approval will not be granted for samples delivered by the contractor directly to the Engineer’s office. The Contractor shall be responsible for the cost of all failures on test samples and control testing.

All pipes, fittings and materials used in the Works, must bear the official standardisation mark of Standards South Africa where applicable. The mark on a pipe shall be visible from above after the pipe is laid.

Initials.....

Rubber articles, including pipe insertion or joint rings shall be stored in a suitable shed and kept away from sunlight, oil or grease.

Large items not normally stored in a building shall be neatly stacked or laid out on suitable cleared areas on the Site. Grass or vegetation shall not be allowed to grow long in the storage areas and the material shall be kept free of dust and mud and be protected from stormwater. Pipes shall be handled and stacked in accordance with the manufacturer's recommendations, special care being taken to avoid stacking to excessive heights and placing over hard objects. uPVC pipes shall be protected from direct sunlight by suitable covers.

Every precaution shall be taken to keep cement dry and prevent access of moisture to it from the time it leaves the place of manufacture until it is required for use on the Site. Cement is to be used on a first in/first out basis. Bags of cement which show any degree of hydration and setting shall be removed from the site of the Works and replaced at the Contractor's own expense. Any cement older than six weeks is to be removed from site.

Materials shall be handled with proper care at all times. Under no circumstances may materials be dropped from vehicles. Large pipes or large plant shall be lifted or lowered only by means of suitable hoisting equipment.

Irrespective of any approval granted by the Engineer or the Employer, the Contractor shall be deemed responsible for all material quality use for construction and their specified performance."

*Add the following to this clause:*

- PS A 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 Project Engineer whether or not the scope of the work for which the materials are required is likely to change substantially. No liability or responsibility whatsoever shall be attached to the Employer for materials ordered by the Contractor except when ordered in accordance with written confirmation issued by the Project Engineer."

#### **PS A 4: PLANT**

- PS A 4.2 Contractor's Office, Stores and Services

*Add the following to A 4.2:*

"The Contractor's site agent or representative must be contactable at all times by phone. Should use be made of radio and/or cellular-phone, these must be operational at all times with sufficient back-up batteries or recharging facilities.

The Contractor's buildings, sheds and other facilities erected or utilised on the site for the purpose of the contract shall be fenced off and shall contain all offices, stores, workshops, testing laboratories, toilet facilities, etc. as may be required by the Contractor.

No personnel may reside on the site. No housing facilities for the Contractor's work force are available and the Contractor shall make his own arrangements to house his employees. Only night watchmen may be on the site after hours.

The suitable first aid services required in terms of Sub-clause 4.2 of SANS 1200 A shall include, inter alia, a First Aid cabinet fully equipped and maintained with at least the minimum contents as listed in Regulation 3 of the General Safety Regulations of the Occupational Health and Safety

Initials.....

Act, 1993 (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period.”

## **PSA 5: CONSTRUCTION**

- PSA 5.1 Survey

- PS A 5.1.1 Setting Out of the Works

*Substitute the first sentence in sub-clause A 5.1.1 with the following:*

Setting out of the works is the sole responsibility of the Contractor and shall be done from survey pegs along the street reserve boundaries and from bench marks as indicated on the drawings. The Contractor shall, within two (2) weeks after the site has been handed over to him, ascertain himself of the correctness of all pegs and bench marks. Any discrepancy shall immediately be reported in writing to the Engineer. Any costs or subsequent costs arising from discrepancies which had not been reported to the Engineer within the aforementioned period, shall be the sole responsibility of the Contractor.

*Add the following:*

“Setting out of the works will not be measured and paid for directly, and compensation for the work involved in setting out shall be deemed to be covered by the tendered rates for the various items of work included under the contract.”

- PSA 5.2 Watching, Barricading, Lighting

*Add the following to this clause:*

The Contractor shall employ competent watchmen to guard the Works both by day and night.

From the time any portion of the Works commences, until the Completion of the Works and the issue of the Certificate of Completion of the Works, the Contractor shall be responsible for protecting the property of the Employer and all persons having business on the Site from anything dangerous or likely to cause damage or injury. The Contractor shall take all practical precautions to avoid nuisance or inconvenience to the owners or occupier of properties near to the Site and to the public generally whilst carrying out the Works and shall at all times keep the Site clean and, in a safety, and satisfactory condition.

Temporary traffic signs shall be erected when work is being done within and adjacent to roadways. The number and layout of the traffic signs shall comply with the Site Manual entitled “Safety at Roadworks in Urban Areas”, as published by the Department of Transport. Traffic signs shall have a yellow background with either a red or black border. The Contractor shall control all access to the site, for authorised persons only, and to ensure that the approved conditions of the Health and Safety Management Plan is adhered to.

The Contractor shall control all access to the site, for authorised persons only, and ensure that the approved conditions of the Health and Safety Management Plan is adhered to.

- PS A 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.

Initials.....

- PS A 5.4 Protection of Overhead and Underground Services

*Add the following to A 5.4:*

Before construction of the works, or any phase of the works, the Contractor shall contact all relevant parties and authority officials to establish the existence of existing services on site. The Contractor shall be responsible for obtaining all necessary wayleaves. No claims shall be lodged by the contractor for delays in obtaining such wayleaves.

The Contractor shall also commence with the detection of existing services as soon as the site is handed over to him.

In the event of damage to existing services, the Contractor shall take such immediate action as is necessary to prevent further damage or danger to life or property and shall immediately notify the Engineer who will issue instructions as to the necessary repairs or protective measures to be taken. The cost thereof shall be borne by the Contractor irrespective of whether the repairs or protective measures were carried out by him or on behalf of the service authority or department concerned.

Where the Contractor is responsible for the cost of repairs carried out by the Employer or others, the costs will be recovered by means of a deduction from the Contractor's monthly payment certificate.

All exposed pipes, cables and appurtenant structures shall be backfilled before nightfall, and if this is not possible, watchmen shall be placed at the exposed services to ensure that the exposed pipe, cable or other service is not damaged or stolen during the night. Should anything be stolen or damaged in this way, the Contractor is responsible for the cost of the repair and replacement thereof.

- PS A 5.5 Dealing with Water on Works

*Add the following to A 5.5:*

Special treatment of water on site shall where necessary, be specified separately.

- PS A.5.7 Safety

*Substitute A 5.7 with the following:*

“Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor’s obligations there under, the Contractor shall at its own expense (except only where specific provision (if any) is made in the Contract for the reimbursement to the Contractor in respect of particular items):

- Provide to its Employees on the Site of Works, all safety materials, clothing and equipment necessary to ensure full compliance with the provisions of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended and effective measures to ensure the proper usage of such safety materials, clothing and equipment at all times; and
- Provide, install and maintain of all barricades, safety signage and other measures to ensure the safety of workmen and all persons in, on and around the Site, as well as the general public; and
- Implement on the Site of Works, such procedures and systems and keep all records as may be required to ensure compliance with the requirements of the Act at all times; and
- Implement all necessary measures as to ensure compliance of the Act by all subcontractors engaged by the Contractor and their employees engaged on the Works; and
- Comply fully with all other requirements pertaining with safety as may be specified in the Contract.

Initials.....

The Employer, Employers Agent and the Engineer shall be entitled, although not obliged, to make such inspections on the Site, as they shall deem appropriate, for the purpose of verifying the Contractor's compliance with the requirement of the Act. For this purpose, the Contractor shall grant full access to the Site of all parts of the Site and shall co-operate fully in such inspection and shall make available for inspection, all such documents and records as the Employer's and/or Engineer's representative may reasonably require.

Where any such investigations reveal, or where it comes to the Engineer's attention that the Contractor is in any way in breach of the requirements of the Act or is failing to comply with the provisions of this clause, the Engineer shall, in accordance with the

provision of Clause 39 of the General Conditions of Contract, be entitled to suspend progress on the Works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, the breach has been rectified.

The Contractor shall have no grounds for a claim against the Employer for extension of time and/or additional costs if the progress on the Works or any part thereof is suspended by the Engineer in terms of this clause and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of Clause 43(1) of the General Conditions of Contract should the Contractor fail to complete the Works on or before the specified Due Completion Date in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this clause shall constitute ground for the Engineer to act in terms of Sub-Clause 55.1.5 of the General Conditions of Contract and for the Employer to terminate the Contract in accordance with the further provisions of the said Clause 55.

Lump sums are provided in the Bill of Quantities to cover the contractor's cost for compliance with the requirements of the Construction Environmental Management Plan and the Occupational Health and Safety Act, 1993, the Construction Regulations, 2003 and the Health and Safety Specification respectively.

- PS A 5.9 Time-Related Items

Where extension of time is approved no payment shall be claimed against time related items unless approved by the engineer. The extension of time may only refer to the relief of penalties.

- PS A 5.10 Compensation Act

It is a requirement of this contract that all labour employed on the site be covered by the Employee's Compensation Act and Social Security. The Contractor is to arrange a suitable method of complying with the Act including the payment of the necessary levies.

- PS A 5.11 Existing Services

The tendered rate shall further cover the cost of backfilling the excavation with selected material compacted to 90% AASHTO density, keeping the excavation safe and taking care that the services are not damaged in any way. The rate shall include for all negotiations with the authorities, notification to all affected parties and any other requirement to protect and complete the work. No additional direct payment will be made for the protection of such services.

- PS A 5.12 Record Drawing Information

As the Works are progressing, the Contractor shall mark on a special set of drawings, all as-built details and submit them to the Engineer's Representative for approval on a monthly basis. No extra payment shall be made for preparation of these as-built plans.

Initials.....

All service household ends, manholes, valves, hydrants and the like shall be co-ordinated together with their invert and cover/ground levels on the as-built drawings.

The Certificate of Completion shall only be issued once all the as-built information has been received and verified by the Engineer.

- PS A 5.13 Clearance of Site on Completion

The Contractor shall obtain, from each property owner listed in the Project Specification as being affected by the Works, a certificate to the effect that the property owner is satisfied with the standard of reinstatement of any fences, boundary walls or structures, compensation paid for loss or damage to stock, crops or property, material spoiled on their properties or any other condition affecting their properties as a result of the operations of the Contractor. The Contractor shall further obtain a Clearance Certificate from each authority whose services have been affected or installed during the construction of the works.

All such certificates must be lodged with the Engineer before the Certificate of Completion will be issued.

- PS A 5.14 Community Liaison Officer

A provisional sum is included to allow for the salary of a person working full time as the Community Liaison Officer for the duration of the construction on this Contract. The sum also includes for costs such as transport, an office space, communication and any other requirement necessary. The Contractor shall ensure that the salary and other expenses such as payment to the Community Liaison Officer members are paid timeously in accordance with the payment dates of his own staff.

A separate item for overheads, charges and profit on the above item is applicable.

- PS A 5.15 Connection into Existing Services

A provisional sum has been included to cover the cost of connecting into the existing sewer system. The sum includes for all labour, plant, specials, and materials required to complete the work and deal with existing flows. All works are to be based on rates submitted in the Tender.

- PS A 5.16 Relocation of Existing Services

A provisional sum has been included to cover the cost of re-locating existing services. The sum includes for all labour, plant, specials, and materials required to complete the work. All works are to be based on rates submitted in the tender.

- PSA 5.17 Electricity Connection Fee

A provisional sum has been included to allow for the electrical connection at the required points in the works. The sum includes for all work to be carried out by NORED.

- PSA 5.18 Site Meeting

The Contractor will be required to attend regular site meetings, normally held once a month to discuss general progress, quality of work, problems, claims, payments, etc., but not matters concerning the day-to-day running of the Contract. The Contractor must be represented at the site meetings by a duly authorised person that is empowered to take decisions on behalf of the company.

Initials.....

**PSA 6: TOLERANCE**

- PS A 6.2 Degree of Accuracy

*Add the following to this clause:*

The degree of accuracy II will be applicable to this contract.

*Add the following sub- clause:*

- PS A 6.4 Use of Tolerances

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

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

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

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

**PSA 7: TESTING**

- PSA 7.1 Principles

- PSA 7.1.1 Checking

*Replace the last sentence with the following:*

“The Contractor shall obtain the services of an independent laboratory at his own cost (clause PS 7.2 of Portion 1 of the Project Specifications) to carry out the checks prescribed in the various standardized specifications.”

- PSA 7.1.2 Standard of Finished Work not to Specification

*Replace the words:*

“Where the Project Engineer’s checks reveal ....” With “Where the checks by the approved laboratory reveal...”

*Add the following:*

Initials.....

Every completed layer on a section of the roadworks shall be subject to check testing by the Contractor. Once the Contractor is satisfied with the standard of the constructed layer, the Engineer will be requested to perform acceptance testing for the particular section. When giving notice, the Contractor shall provide the Engineer with the results of the check testing indicating that the work is to specification. The Engineer shall be given 48 hours noticed of when testing or inspections are required.

The Engineer may from time to time carry out his own check tests on the work performed by the Contractor. Should such check tests show that the Contractor's control testing be such that the quality of the Contractor's work can be called into question, then the Engineer may order further check tests to be carried out on work already completed. All costs associated with such check tests shall be for the Contractor's account, as also the costs of any other check test whose results to not comply with the specification.

Failure by the Contractor to notify the Engineer or to provide the required information or, where specified, to perform the required test, will be grounds to exempt the Employer from payment for the associated work and for all subsequent work which would be affected by the failure of the Work to be tested.

The Engineer will be under no obligation to the Contractor to perform the tests. If the Engineer elects not to perform a particular test after notification by the Contractor, the Contractor will be issued with a written instruction to proceed with the relevant works without the acceptance test being performed.

Nothing contained in this clause will relieve the Contractor of any responsibilities under the specification or in any way limit the tests, which the Engineer may call for or perform in terms of the specification.

Where the Engineer is called to witness certain control tests, such as the pressure testing of a pipeline, and the results of such tests do not comply with the specifications, then the Client reserves the right to recover costs for the Engineers presence at the unsuccessful test from the Contractor.

- PS A 7.2 Approved Laboratories

*Add the following:*

Acceptance testing shall be done by an independent laboratory used by the Contractor and approved by the Engineer shall also be deemed as an approved laboratory. The contractor shall appoint an approved laboratory to carry out all required quality control (acceptance) tests as described in PS13.4. All these tests results shall be submitted to the project Engineer for approval. Only after the Project Engineer has approved the work may the Contractor commence with subsequent work. The Employer may appoint an approved laboratory to carry out check testing to confirm the results of the contractor's laboratory.

The Engineer requires twenty-four hours' notice from the Contractor in order to perform the relevant acceptance test.

All acceptance testing by the Engineer shall be paid by the Contractor. The costs of such tests which meet the specification requirements will be reimbursed to the Contractor in the monthly payment certificate. This payment shall consist of a billed amount plus the tendered mark-up.

A Provisional Sum has been provided in the Schedule of Quantities to allow for the cost of such testing.

The Contractor shall make due allowance for testing procedures in the construction programme.

Initials.....

- PSA 7.4 Statistical Analysis of Control Tests

*Substitute A 7.4 with the following:*

Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements of the materials concerned.

## **PSA 8: MEASUREMENT AND PAYMENT**

- PSA 8.1 Measurement

### PSA 8.1.2 Preliminary and General Items or Section

#### *PSA 8.1.2.2: Tendered Sums*

*Replace the contents of this sub clause with the following:*

“The Contractor’s tendered sums under items PSA 8.3 and PSA 8.4 shall collectively cover all charges for:

- a) Risks, costs and obligations in terms of the general conditions of contract and of this standardised specification, except where provision is made in these project specifications to cover compensation for any of these items;
- b) Head office and site overheads and supervision profit and financing costs;
- c) Expenses of a general nature not specifically related to any item or items of permanent or temporary work;
- d) Providing facilities on site for the Contractor’s personnel , including offices, storage facilities, workshops, ablutions, for providing services such as water, electricity, sewerage, sewage and rubbish disposal, for access roads and all other facilities required, as well as for the maintenance and removal on completion of the works of these facilities and the cleaning-up of the camp site on completion of the works; and
- e) Providing facilities for the Project Engineer and staff (refer to PS8.1).”

- PSA 8.2 Payment

### PS A 8.2.1 Fixed-charge and Value Related Items

*Replace sub clause 8.2.1 with the following:*

#### *PSA 8.2.1.1: Fixed Charge items*

“Payment of fixed charges in respect of items 8.3.1 and 8.3.3 will be made as follows:

80% of the sum tendered will be paid when the facilities have been provided and approved. The remaining 20% will be paid when the works have been completed, the facilities have been removed and the camp site has been cleared and cleaned.

#### *PSA 8.2.1.2: Value related items*

“Payment for the sum tendered under item 83.2 will be made in three separate instalments as follows:

1. The first instalment, which is 40% of the sum, will be paid when the Contractor has fulfilled all his obligations to date under this specification, the general conditions of contract and the special conditions of the contract, and when the value of work certified for payment, excluding materials on site and payments for preliminary and

Initials.....

general items, is equal to not less than 5% of the total value of work listed in the schedule of quantities.

2. The second instalment, which is 40% of the sum, will be made when the amount certified for payment, including retention monies but excluding this second instalment, exceeds 50% of the tender sum.
3. The final payment, which is 20% of the sum, will be made when the works have been certified as completed and the Contractor has fulfilled all his obligations to date under this specification, the general conditions of contract and the special conditions of contract.

Should the value of the measured work finally completed be more or less than the tender sum, the sum tendered under item 8.3.2 will be adjusted up or down in accordance with the provisions of sub-clause 12.3 of the general conditions of contract and the special conditions of contract, and this adjustment will be applied to the third instalment.

No adjustment will apply to items 8.3.1 and 8.3.3 in respect of variations in the value of work done or the finally authorised time for completion.”

*PSA 8.2.1.2: Time related items*

*Replace the contents of this sub clause with the following:*

“subject to the provision of sub-clause 8.2.3 and 8.3.4, payment under items 8.4.1, 8.4.2 and 8.4.3 (time-related item) will be made monthly in equal amounts, calculated by dividing the sum tendered for the item by the tendered contract period (and the extension of time granted in accordance with the provisions of the contract, if applicable) in months, provided always that the total of the monthly amounts so paid for the item is not out of proportion with the progress of the work as a whole.

Should the project Engineer grant an extension of time for completion of the works, the Contractor will be entitled to an increase in the sum tendered for the time-related item, which increase shall be in the same proportion to the original tendered sum as the extension of time is to the original time for completion of the works.

Payments of such increased amounts will be deemed full compensation for all additional time-related preliminary and general costs due to the circumstances pertaining to the extension of time granted.”

- PS A 8.2.5 Adjusted Payment for Time-related Items

The payment to the Contractor for time-related items shall be adjusted in accordance with the following formula in the event of the contract being extended by means of a variation order:

Extended contract period as authorised by:

$$\sum \text{Tendered amounts for time-x } \underline{\text{Variation order}} \text{ related items of tendered contract}$$

The above-mentioned adjustment of the payment for time-related items shall be made in the Completion Payment Certificate and shall be the only payment for additional time-related costs.

- PS A 8.3 Scheduled Fixed Charge and Value-related items

*Replace the items with the following:*

PSA 8.3.1: Fixed preliminary and general charges.....Unit: Sum

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

Initials.....

The sums tendered shall include full compensation for all fixed and value-related preliminary and general charges as describe in sub-clause PSA 8.1.2.2. Payment will be made as described in sub-clause PSA8.2.1.1.

*PSA8.3.2.2 (a): Facilities for Contractor*

The Contractor shall make provision for a room furnished with a table and chairs to accommodate Eight (8) persons in which monthly meetings can be conducted.

• PS A 8.4 Scheduled Time-related items

*Replace the items with the following:*

PSA 8.4.1 & PSA 8.4.2: Time-related preliminary and general charges.....Unit: Sum

The sums tendered shall include full compensation for all time-related preliminary and general charges as describe in sub-clause PSA 8.1.2.2. Payment will be made as described in sub-clause PSA8.2.2.

*PSA 8.4.2.1 Facilities for the Project Engineer*

The rate tendered under this item will cover all costs the Contractor shall incur to make available two (2) suitable experienced survey assistants when periodically requested by the Project Engineer.

*PS A 8.4.2.2 Facilities for the Contractor*

*Add the following to this clause:*

Facilities for the Contractor shall include all the costs of providing water for construction other than the water required for water tightness testing of water retaining structures.

The Contractor shall apply to the relevant Water Service Provider for water and sanitation connections. All costs attached thereto shall be to the Contractor’s account.

PSA 8.4.6 Standing Time Costs

- a) Plant .....Unit : Sum per working day
- b) Labour .....Unit : Sum per working day
- c) Other resources (to be specified by Contractor) . Unit : Sum per working day

The tendered sum for each item shall include full compensation for all standing time costs of the specified resource of whatever nature and approved by the Engineer, which are not recoverable by way of the provision made in PSA 8.2.5 for the adjusted payment of time-related items.

For the purposes of calculating the total standing time cost, a working week shall be held to consist of five working days and a working day of 9 hours.

Payment for the partial standing of any of the scheduled resources for a day or part thereof, or the standing of a complete resource for a part day, will be made pro rata in proportion to an appropriate factor assessed by the Engineer.

The amount by which the standing time costs is adjusted shall be subject to the contract price adjustment formula (if applicable) as defined in the conditions of contract.

Initials.....

The Contractor shall take note that this payment item shall only apply to delays, which in the opinion of the Engineer, are incurred as a result of riot, commotion, politically motivated sabotage and acts of terrorism or disorder outside the Contractor's control. This item shall also apply to standing time incurred as a result of labour boycotts, except that only sub-items (a) and (c), as applicable, will be paid where the Contractor did not pay his labour for the time boycotted. Costs for delays incurred for all other circumstances shall be treated as provided for in the conditions of contract.

The provision of this clause shall in no way prejudice the right of either the Employer or the Contractor to determine the contract in terms of the provisions of Clause 57 of the General Conditions of Contract (2004).

The Contractor shall take note that no payment will be considered for additional cost or time lost for any daily removal of plant and equipment from the site, any additional costs incurred in protecting his plant and site establishment, or loss incurred in respect of damage to construction plant, equipment and materials supplied and the works.

In the event that Clause 46.1 of the General Conditions of Contract (2004) becomes applicable, the time on which such penalties are calculated shall be reduced by the total standing time approved by the Engineer.

• PS A 8.5 Sums Stated Provisionally by Engineer

*Replace these items with the following:*

- i..... Locatin, exposure, protection and/or move existing services .. Unit: Prov. Sum
- ii..... Overhea ds, charges and profit on item (1) above..... Unit: %
- iii..... Additio nal tests ordered by the Project Engineer..... Unit: Prov. Sum
- iv..... Overhea ds, charges and profit on item (2) above..... Unit: %
- v..... Additio nal site surveys ordered by the Project Engineer ..... Unit: Prov. Sum
- vi..... Overhea ds, charges and profit on item (2) above..... Unit: %

The Provisional Sums provided in the Schedules of Quantities for the above-mentioned disciplines is work ordered by the Project Engineer or to be executed by specialist Sub-contractors and shall be paid in accordance with Clause 4.4 of the General Conditions of Contract.

The percentages tendered for overheads, charges and profit will be paid to the Contractor on the actual amount paid to the sub-contractor and shall include full compensation for all cost incurred in fulfilling his contractual role as the main Contractor.

• PSA 8.6 Prime Cost Item

*Replace this item with the following:*

- i. Additional tests required by the Project Engineer ..... Unit: PC Sum
- ii. Charges required by Contractor on sub item (i) above..... Unit: %
- iii. Relocation of services by employer/nominated sub-contractor as ordered by the

Initials.....

Project Engineer..... Unit: PC Sum

iv. Charges required by Contractor on sub item (i) above..... Unit: %

The prime cost sum provided under sub-item (i) and (iii) in the schedule of quantities will be expanded in accordance with the General Conditions of Contract.

The tendered percentage under sub-item (ii) will be paid to the Contractor on the value of each payment to the approved testing laboratory and shall also cover the cost for providing and delivering samples to the approved test laboratory.

The tendered percentage under sub-item (iv) will be paid to the Contractor on the value of each payment to the employer or nominated sub-contractor to relocate services. The percentage shall cover any cost the Contractor may encounter for accommodating the employer or nominated sub-Contractor on site.

*Note in connection with sub item (i):*

The Contractor is otherwise responsible for both the cost of normal testing as described in clause PS 18 in Portion 1 of the project specifications and for the cost of any additional test that indicates that the specifications have not been compiled with.

• PSA 8.8 Temporary Works

PSA 8.8.2 Accommodation of Traffic.....Unit: Sum

*Add the following:*

The Contractor shall ensure that all streets adjacent to or crossing the Site and which are affected by the Works and/or Temporary Works are kept in a safe condition for pedestrians and vehicular traffic.

The Contractor shall organise his work so as to reduce the inconvenience to traffic to a minimum, and no public road or street shall be completely closed without prior approval. If so ordered, the Contractor shall provide suitable bridges at street and driveway crossings where traffic must cross open trenches. The Contractor shall construct temporary access to adjacent private properties if necessary, to ensure access.

The Contractor must protect completed layer works in order to prevent damage thereto. Any potential damage caused to completed layer works shall be for the Contractor’s expenses.

The Contractor shall provide and maintain, in proper condition, all necessary barricades, lights, warning signals and all direction signs necessary to enable traffic to follow the routes of diversions and/or obstructions where deemed necessary by the Project Engineer.

All signs shall be as shown on the signs and deviation drawings. All traffic signs and the control of traffic shall be in accordance with either the South African (1982) or Namibian Road Traffic Signs Manual.

The Contractor shall liaise and co-operate with the relevant Traffic Authorities and Project Engineer Representatives wherever the works affect existing roads. The Contractor shall sign an indemnity clearing the Local Authority, as applicable, from all liabilities in respect of excavations and works on or adjacent to trafficked roads.

The Contractor will not require any Bypass lanes or roads and the site will be closed for traffic during the construction period.

Payment for this item shall include for all work necessary to comply with this Project Specification. Subject to the provisions of Clause 8.2 of SANS 1200A, payment of incremental amounts (Calculated by the division of the tendered sum by the number of months required to

Initials.....

complete the site activities for which the relevant sum was tendered) will be authorised in each of the subsequent progress certificates until the sum tendered has been paid. An approved extension of time will qualify the Contractor to receive payment at the monthly rate determined by the above method.

PSA 8.8.4 Existing Services

*Replace item 8.8.4 with the following:*

PSA 8.8.4 Location and Protection of Existing Services:

*PSA 8.8.4.1 Provision of detection devices for:*

- a. Water and Sewer Pipes ..... Unit: Sum
- b. Electrical and other cables ..... Unit: Sum

Tendered amount shall cover the cost of providing and operating suitable equipment for as long as is required to locate the existing services likely to be affected by the construction activities.

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

- a. .... In  
Roadways ..... Unit: Sum
- b. .... In all  
other areas ..... Unit: Sum

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

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

Reinstating layer works and surfacing shall be measured and paid for under SANS 1200DB

The tendered rates shall also include for keeping excavations safe, for dealing with surface and sub-surface water, for removing surplus excavated material from the site, for transporting all material within the free-haul distance, and for supplying adequate supervision during both excavation and backfilling operations.

In cases where an expose service cannot be backfilled before nightfall due to delays thereof by service department, it shall be properly securing and made

PS A 8.8.6 Special Water Control in Terms of Project Specification.....Unit: Sum

PS A 8.8.6(b) Continuous Handling of Flow.....Unit: Sum

This rate covers all costs, labour, materials and equipment, etc as may be required to ensure:

The method will be determined by the Contractor. Temporary works must be removed on completion of construction.

PS A 8.8.7 Reducing / Enlarging of Contract Value .....Unit: Sum

The tenderer is requested to put forward an amount on which he/she will reduce or enlarge the Provisional and General Cost, if the contract value is reduced or enlarged with the listed percentage (%).

Initials.....

• PS A 8.9 Occupational Health and Safety (Provisional)

PSA 8.9.1 Health and Safety Requirements ..... Unit: Sum

The rate shall cover all costs pertaining to the provision and maintenance for the duration of the contract of the health and safety measures required in terms of Clause 5 (Principle Contractor and Contractor) of the Construction Regulations (2003) of the Occupational Health and Safety Act. No other sum shall be paid in this respect and Tenderers must therefore ensure that adequate provision has been allowed for. The Health and Safety officer involved will certify part or total of provisions allowed.

PSA 8.9.2 Health and Safety Plan..... Unit: Sum

The rate shall cover all costs pertaining to the provision and maintenance for the duration of the contract of the health and safety plan as required in the Construction Regulations (2003). The rate shall include for all risk assessments required as well as for the development and implementation of safe work procedures and method statements. No other sum shall be paid in this respect and Tenderers must therefore ensure that adequate provision has been allowed for. The Health and Safety officer involved will certify part or total of provisions allowed.

PSA 8.9.3 Health and Safety File ..... Unit: Sum

The rate shall cover all costs pertaining to the provision and/or collection of data (drawings, design, materials, operation and maintenance manuals, etc.) to be contained in the file, co-operation with other parties, compilation and maintenance of the file during the duration of the contract and the handing over of the file to the Client on completion of the contract. No other sum shall be paid in this respect and Tenderers must therefore ensure that adequate provision has been allowed for. The Health and Safety officer involved will certify part or total of provisions allowed.

**SANS 1200 AB: ENGINEER’S OFFICE**

**PSAB 3: MATERIALS**

• PSAB 3.1 Name Boards

The contractor shall supply the number of name boards as specified and will erect it at a position to be indicated by the Project Engineer. A sketch of the typical name board will be provided by the Project Engineer. The rate shall include supply and installation complete, including all overheads, charges and profit.

Substitute "South African Institution of Civil Engineers" in the first paragraph of PSAB 3.1 with "South African Association of Consulting Engineers".

The board shall be manufactured from materials specified in Clause 3.1 of SANS 1200 AB but shall conform in the painting, decorating and detail with the recommendations for the Standard Board of the South African Institution of Civil Engineers.

All nameboards shall be removed 14 days prior to the date of the Final Approval Certificate.

• PS AB 3.2 Office Buildings

*Add the following to PSAB 3.2:*

A site office will not be required by the Engineer. However, the Contractor must provide adequate office facilities for site meetings. The site office shall be dust proof with sufficient room to accommodate 8 people, seated at a suitable table. All contract related documentation and drawings

Initials.....

shall be kept available in this office. Provision shall be made by Contractor for parking space for Engineer (at least 2 spaces).

*Add the following sub-clause:*

- PS AB 3.3 Ablution Units

Ablution units shall be well ventilated and the floors shall be of concrete. Latrines shall be provided with vitreous enamel W.C. pans with PVC seats, covers and flushing cisterns. Washbasins shall be in vitreous enamel of minimum size, complete with taps and drains. The ablution unit shall be provided with a lockable door and two keys. The Contractor shall be responsible for providing all sanitary services necessary to keep latrines in a clean, neat and hygienic condition. The contractor shall also provide and maintain the necessary septic tank and French drain or connection to the local sewer network to the approval of the Project Engineer.

#### **PSAB 4: PLANT**

- PS AB 4.1 Telephone

*Substitute PSAB 4.1 with the following:*

- PS AB 4.1 Site Office

A site office will not be required by the Engineer. However, the Contractor must provide adequate office facilities for site meetings. The site office shall be dust proof with sufficient room to accommodate 8 people, seated at a suitable table. All contract related documentation and drawings shall be kept available in this office.

#### **PSAB 5: CONSTRUCTION**

- PS AB 5.1 Name Boards

*Add the following to AB 5.1:*

The name boards shall be erected within one month after receipt of the letter of acceptance and shall be placed at the position indicated by the Engineer, and kept in good repair for the duration of the contract and the defects liability period. Any damage to these boards shall be repaired within fourteen days of a written instruction issued by the Engineer. No payment shall be made in terms of the contract prior to the erection of the name boards.

The Contractor will be permitted to erect a maximum of two of his own name boards, in positions approved by the Engineer. The Engineer reserves the right to order the removal of these boards if they are not kept in good repair.

- PSAB 5.5 Survey Assistants

Substitute "two or more suitably educated survey labourers" in the first sentence of AB 5.5 with "two semi-skilled labourers."

*Add the following sub clause:*

- PSAB 5.6 Survey Equipment

The Contractor shall provide the following tested and approved survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed:

- a) 1 tachometer capable of reading to minimum 20 seconds arc;
- b) 1 automatic level plus tripod;

Initials.....

- c) 2 tachometer staffs and one level staff, all graduated metrically; and
- d) 1 steel tape measure of length 100m.
- e) Wooden and steel pegs and hammers as required.

The above-mentioned equipment may by arrangement be shared between the Contractor and the Engineer's representative.

The Contractor shall keep the equipment continuously insured against any loss, damage or breakage, and he shall indemnify the Engineer and the Employer against any claims in this regard. The Contractor shall also maintain the equipment in good working order throughout the Contract period.

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

The following additional equipment/services may be required from time to time by the Engineer's Representative and shall be supplied by the Contractor when required. The equipment/service may be shared with the Engineer's Representative.

- f) Two chainmen to assist with levelling and surveying.
- g) Theodolite and prism.
- h) Spray paint (selected colour)

Upon completion of the whole of the Works, ownership of the equipment shall revert to the Contractor.

- **PS AB 5.7 Site Instruction Books**

The Engineer shall supply a site instruction book for specific use on the Site. All instructions given by the Engineer's Representative must be confirmed and countersigned by the Engineer. The instruction shall be countersigned by the Contractor before implementation.

The Contractor shall supply a triplicate book for site correspondence and inspection requests to the Engineer's Representative. Reasonable notice shall be allowed prior to inspections. All inspections requests and approval/disapproval thereof shall be recorded by the Site staff in writing. All requests must be signed and dated by the Engineer's Representative before implementation.

The Contractor in conjunction with the Engineer must ensure that a suitable site quality record system is put in place to record that each section, or work item, complies with the relative works specification. Failure to update or provide sufficient records may result of a 10% interim payment reduction being withheld.

## **PSAB 8: MEASUREMENT AND PAYMENT**

- **PSAB 8.2 Payment**

*PSAB 8.2.2 Telephone, Survey Assistants and Survey Equipment*

No payment shall be made for the telephone, survey assistants or survey equipment and all costs shall be deemed to be covered by the rates tendered for the Contractor's facilities.

*PS AB 8.2.3 Nameboards*

The Contractor shall supply and erect the Contractor's name board in accordance with SANS 1200AB clause 3.1.

Initials.....

Payment will be made for the supply and erection of another contract nameboards under the fixed P&G rate provided.

Payment will be made for maintaining the contract nameboards in a suitable condition under the relevant time related P&G rate.

*PSAB 8.2.5 Survey Equipment*

Payment for compliance with Clause PSAB 5.6 on the following basis:

Payment will be made for the supply of the equipment specified in clause PSAB 5.6 under the fixed P&G rate on verification by the Engineer that the equipment specified is on site. Should any of this equipment be removed from site during the course of the contract then any payments made for the supply of this equipment will be reversed out of the next interim certificate.

Payment will be made for the maintaining the above equipment in a suitable condition under the time related P&G rate.

**SANS 1200 C: SITE CLEARANCE**

**PSC 3: MATERIAL**

• PS C 3.1 Disposal of Material

*Add the following:*

Surplus material obtained from clearing and grubbing shall be disposed of on a site to be found by the Contractor and approved by the Project Engineer. The site shall be left in a condition that meets with approval of the Project Engineer and no material shall be disposed of on the Site of the works.

**PSC 5: CONSTRUCTION**

• PS C 5.1 Areas to Be Cleared and Grubbed

*Add the following:*

Pipeline routes shall be cleared to a distance of 1.5m on both sides of the pipeline centreline, route pegs and markers shall not be damaged or destroyed during clearing operations. Only areas where actual clearing was required along the route shall be payable.

Road reserves shall be cleared and grubbed otherwise only the minimum area required shall be cleared and grubbed, as instructed by the Project Engineer, and the Contractor shall take care not to unnecessary damage natural vegetation.

*Substitute the first sentence of C 5.1 with the following:*

Unless otherwise indicated by the Engineer, clearing and grubbing are limited to the street reserves or such wider area as is necessitated by the street prism, borrow pits, a 10 m wide strip for concrete and/or earth channels, a 1.5 m wide strip either side of the pipelines not in street reserves and if requested by the Engineer the spoil areas. The Contractor may proceed with clearing and grubbing after the handing over of the site. Measurement and payment for clearing and grubbing shall only occur for areas as required in writing by the Engineer.

*Substitute the last paragraph with the following:*

The Contractor shall programme his work in such a manner that re-clearing will not be necessary. The cost of re-clearing shall be borne by the Contractor.

*Add the following:*

Initials.....

For the access and site roads the width of clearing shall only be sufficient for the construction of the road i.e. for the cut and fill operations and allowing for side slopes or as amended by the Engineer.

No trees with a trunk girth of more than 1 m shall be removed without the written permission of the Engineer.

• PSC 5.2 Clearing of Trees

The Contractor shall take care to remove only those trees that lie directly in the path of operations. Under no circumstances shall any other trees be removed without the prior approval of the Project Engineer.

• PSC 5.3 Removal of Existing Fences

Any existing fences obstructing the new work shall be dismantled and re-erected as instructed by the Project Engineer.

• PSC 5.6 Conservation of Topsoil

Stockpiling of topsoil shall be required under section 1200DM of this contract.

• PS C 5.8 Demolition of Structures

Add the following to C 5.8:

Any existing building structures must be demolished once the contractor has received an approval from the engineer. The existing building must be demolished after the new pump station is in operation. The roof tiles, roof trusses, gutters, windows and doors, etc. must be removed with caution to ensure that all building material be recovered, cleaned and delivered to the Employer in good order. The existing concrete pond structure to be demolished as well.

**PSC 8: MEASUREMENT AND PAYMENT**

• PSC 8.2 Scheduled Items

PS C 8.2.1 Clear and grub .....Unit: ha

Add the following after Clear and Grub: “designates areas”

Clear and grub designated areas shall include the area within the cut/fill toe line of earthworks platforms and road embankments. Clear and grub designated areas will be measures to the nearest 1.0m<sup>2</sup>. The rate shall cover the cost as outlined under sub clause 8.2.1, SANS 1200C.

The rate tendered for clearing and grubbing shall cover the cost of disposal of the material off the Site by approved means. Debris should be dealt with as per [PSC 3.1](#), as amended.

PS C 8.2.2 Remove and Grub large trees and Tree Stumps of Girth ..... Unit: No.

- a) Over 1m and up to and including 2m in areas

The rate shall cover the cost of cutting the trunk of the tree into lengths not exceeding 2.0m, loading, transporting and offloading at designated stockpile site, cutting of branches into manageable lengths, removal of roots, loading, transporting and dumping in designated spoil dumps.

PS C 8.2.7 Dismantle and re-erect fences ..... Unit: m

Initials.....

The rate shall cover the cost of removal and stacking of existing fencing material, including all gates, as well as of the re-erection thereof with the existing material. No additional payment will be made for the replacement of fencing material that has been damaged by the Contractor.

Material that is unsuitable for re-erection must be viewed by the Engineer before it is removed after which the Engineer must give written approval for the replacement thereof and for payment therefore.

*PS C 8.2.8 Dismantle and remove pipelines..... Unit: m*

Separate items will be scheduled for each type and diameter (or group of diameters) of pipeline (encased in concrete or not encased). The unit of measurement shall be the length of pipelines removed and disposed of as instructed by the Project Engineer. The rate shall cover the cost of all labour, materials and equipment necessary for the breaking, dismantling, lifting, loading, transporting and disposing of each pipeline, including the associated charges at an approved disposal site. The rate shall further cover the additional cost of precautions required during excavation in the vicinity of such pipeline, but not the cost of excavating, backfilling and reinstatement of ground surfaces. These will be measured separately.

## **SANS 1200 D: EARTHWORKS**

### **PSD 2: INTERPRETATIONS**

- PSD 2.3 Definitions

*Add the following to D 2.3:*

Sand (cohesion less and non-cohesive)

For the purposes of the compaction requirements, a non-plastic material of which not less than 95 % by mass passes a sieve of nominal aperture size 4.75 mm, and not more than 10 % passes a sieve of nominal aperture size 0.075 mm.

### **PSD 3: MATERIALS**

- PSD 3.1 Classification for Excavation Purposes

- PSD 3.1.2 Classes of Excavation

*Add the following*

Only “soft” or “hard rock” excavation shall be applicable to this Contract.

The Contractor shall immediately inform the Project Engineer if and when the nature of the material being excavated changes to such an extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Project Engineer in good time shall entitle the project Engineer to reclassify, at his discretion, such excavated material.

*Replace Sub-clauses 3.1.2 (a), (b) and (c) with the following:*

All material encountered in any excavations for any purpose including restricted excavations will be classified as follows:

1. Excavation in all materials, excluding hard rock. This category of excavation includes; excavation in all sandy and disturbed material; in clay; in undisturbed and weathered Shale (clay); Sandstone; Mudstone and in all rippable rock.
2. Excavation in hard rock will require blasting or rock splitting. Areas where

Initials.....

rock splitting is required will be indicated on site by the Engineer.

Extra-over payment will be made for hard rock excavation and boulder excavation class A and B provided the surface levels of the hard rock have been recorded on drawings signed by the Engineer before it is excavated.

Other earthworks

Non-plastic sandy material from excavations shall be used in the following order:

- a) As selected granular material for pipe bedding.
- b) As blanket and backfill to pipe trenches.
- c) As backfill to structures.
- d) As spoil stockpiled in selected areas indicated by the Engineer.

The Contractor shall employ selective methods of excavation to obtain topsoil, and material suitable for backfill, embankments, pipe bedding, selected granular material, road construction and bulk earthworks platforms.

- PSD 3.2 Classification for placing purposes

PSD 3.2.3 Material suitable for backfill or fill against structures

*Replace the contents of this sub-clause with the following:*

Material used for backfill behind the structures shall generally be the material excavated, subject to the following conditions:

- a) The material shall not contain an excessive number of stones retained on a 50mm sieve;
- b) The material shall not contain large clay lumps that do not breakup under the action of the compaction equipment;
- c) The liquid limit of the material shall not exceed 40, neither shall the PI exceed 18.
- d) Selected fill/backfill against retaining walls shall have a minimum CBR of 25 @95% MOD AASHTO compaction, PI less than 12 and minimum GM of 12 or as specified on the drawings.

- PSD 3.3 Selection

PSD 3.3.1 General

*Substitute the second paragraph of D 3.3.1 with the following:*

The Contractor shall deal selectively with material from general excavation. Any imported material in road reserves that do not comply with the minimum requirements for the respective layers, shall be removed and replaced with suitable material, all at the Contractor's expense.

The Contractor shall deal in such a way with materials from all excavations for streets, channels or pipe trenches and excavations for structures to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with suitable material, all at the Contractor's expense. No additional payment shall be made in respect of this and all relevant costs shall be deemed to be included in the tendered rates.

All unsuitable material shall be removed prior to importing fill material to such areas.

*Add the following sub-clause:*

Initials.....

PSD 3.3.3 Selection in Excavations

Approval for a borrow area for a certain purpose does not necessarily mean that all the material in that area is suitable for the specified purpose. What it does mean is that the borrow area contains some suitable material. The onus shall rest with the Contractor to ensure that only material that is indeed suitable is removed and used for the specified purpose.

When the Contractor has to select excavated material for a specified purpose, the above provisions relating to borrow areas shall apply mutatis mutandis to excavations.

The Contractor shall not waste or contaminate material that has been selected for a specific purpose.

- PSD 3.4 Material for Subsoil Drainage

PSD 3.4.1 Pipes

Pipes for subsoil drainage shall be uPVC pipes complying with the requirements of SANS 791 but shall be perforated or slotted.

The size of perforations in perforated pipes shall in all cases be 8 mm in diameter  $\pm$  1,5 mm and the number of perforations per metre shall be not less than 26 for 110 mm pipes and 52 for 160 mm pipes. Perforations shall be spaced in two rows for 110 mm pipes and in three rows for 160 mm pipes.

Slotted pipes shall have a slot width of 8 mm  $\pm$  1,5 mm. The arrangement of slots shall be subject to the Engineer's approval, but the total slot area shall be not less than that presented for perforations.

Pipes without slots or perforations required for conveying ground water from the subsoil drainage proper to the point of discharge, shall be uPVC pipes as specified above.

PSD 3.4.2 Crushed-stone

Crushed-stone in subsoil drains shall be 19 mm single-sized stone complying with the grading requirements of stone for concrete in SANS 1083.

PSD 3.4.4 Sand

Sand in subsoil drains shall comply with the requirements of PS D 2.3.

**PSD 4: PLANT**

- PSD 4.5 Avoiding Quagmire Conditions

In order to prevent quagmire conditions occurring in the excavations, relatively static plant such as back-actors shall be used combined with hand trimming to complete the excavation to final level. Should the Contractor allow quagmire conditions to develop, he shall, at his own expense, take such steps to rectify the conditions as the Engineer may order.

**PSD 5: CONSTRUCTION**

- PSD 5.1 Precautions

PSD 5.1.1 SafetyPSD 5.1.1.2 safeguarding of excavations

Replace Clause 5.1.1.2 (b) with the following:

Initials.....

The Contractor must note that the excavations for some manholes are deep and the concrete and brickwork walls to be constructed are vertical. The deep vertical faces of excavations could collapse during construction causing injury or death and the Contractor must either: -

a) provide a shoring system, designed by the Contractor and signed by a suitably qualified Professional Engineer,

**OR**

b) Reduce the slope of excavations to the safe angle as determined by a suitably qualified Professional geotechnical engineer employed by the Contractor.

PSD 5.1.1.3 Explosives

*Replace the contents of this Sub-clause with the following:*

The use of explosives is prohibited on this project

PSD 5.1.2 Existing Services

*PSD 5.1.2.2 Detection, location and exposure*

*Add the following:*

The requirements of PSA 5.4 shall apply mutatis mutandis.

If existing services are not shown on the drawings but the existence thereof can be reasonably expected, the Contractor shall, in conjunction with all relevant authorities, determine the exact depth and location of such services before the commencement of construction. After locating the exact position of services, whether indicated on the drawings or not, such services shall be deemed to be known services and the Contractor shall be liable for all costs and subsequent costs arising from the damage thereof as a result of the Contractor's activities. These services must also be indicated on the "as built" drawings.

*PSD 5.1.2.3 Protection of cables*

Substitute "estimated position" in the second sentence of PSD 5.1.2.3 with "actual or exposed position".

PSD 5.1.3 Stormwater and Groundwater

*Add the following:*

The Contractor shall where applicable and at the earliest practicable opportunity, install the permanent drainage specified or shown on the Drawings and shall at his own cost provide the temporary drainage required to protect the works.

PSD 5.1.4 Nuisance

*PSD 5.1.4.1 Dust nuisance*

*Add the following:*

The Contractor is responsible for dust control and is liable for all claims that may result from dust nuisance on all parts of the site and surrounding areas at all times from the date of handing over of the site to the completion date of the contract. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tendered rates.

The Contractor shall plan the Works accordingly and shall use sufficient water or other methods to keep the level of dust to a minimum. This shall be done in consultation with the Engineer and to the Engineer's approval. The contractor must make allowance for the above in the rates tendered for excavation.

Initials.....

*PSD 5.1.4.3 Excavated material not to endanger or interfere*

Add the following to this clause:

All surplus material and unsuitable material not required for backfilling shall be disposed of at suitable sites to be located by the Contractor. All such sites shall require the approval of the Engineer and the Local Authority and community. No additional payment will be made for the transportation of such material

Dumping shall proceed in an orderly manner with coarse material placed at the bottom and covered with finer material, where possible. Upon completion of dumping, the material shall be shaped to provide free-draining surfaces and slopes and finished off to the satisfaction of the Engineer.

PSD 5.1.6 Road Traffic Control

Add the following:

- a) Sufficient road signs must be erected in such a way that motorists will be warned in time of works, e.g. at the closing of a street sufficient signs to direct traffic must be erected at the preceding intersection.
- b) Bypasses and/or road signs shall be provided and/or erected at all locations where the free flow of traffic is obstructed and shall be approved by the Engineer before the commencement of construction. Where main roads are crossed, detours and temporary traffic signs must be provided as shown on the attached drawings.
- c) Where a trench crosses a street or any place where a trench crosses the direction of traffic flow, drums must be placed in the street and not just along the sides of the street with danger tape in between.
- d) Danger tape must be put up between drums and tied around the drums.
- e) Drums may not be filled with stones. The spacing of drums must be in such a way (maximum 5 m) that they are visible from all directions.
- f) Sufficient safety measures must be utilised for pedestrians.

- PSD 5.2 Methods and Procedures

PSD 5.2.1 Site Preparation*PSD 5.2.1.2 Conservation of topsoil*

Add the following:

Removal of topsoil shall only occur in areas as approved, in writing, by the Engineer. The topsoil shall be conserved for use elsewhere.

PSD 5.2.2 Excavation*PSD 5.2.2.1 Excavations for general earthworks and for structures*

Add the following:

Strip foundations and encasement of pipes shall be cast directly against excavated surfaces.

Materials under foundations and floors of structures which are regarded by the Engineer as unsuitable for the bearing of such structures shall be removed to the depths and widths ordered. The excavated voids shall then be filled with sand compacted to 100 % of MAASHTO density, to the underside of such foundation or floors, unless a soil cement mixture in terms of PSD 5.2.3.2 is ordered by the Engineer.

Initials.....

*PSD 5.2.2.3 Disposal*

*Substitute the second sentence with the following:*

All surplus and unsuitable material shall be dumped and neatly finished off at an approved dump site, organised by the Contractor.

The Contractor shall provide the necessary spoil site for unsuitable material or surplus material, shall make the necessary arrangements with the owner of the site where the material is disposed of, and shall make provision in his rates for all charges in this regard and for transporting the material regardless of the distance involved. Unsuitable material shall be disposed immediately and no extra payment will be made for double handling or temporary stockpiling.

*Add the following Sub-clause:*

*PSD 5.2.2.4 Selections and temporary stockpiling*

Approval or designation of the material in a particular borrow/cut area on site or excavation for a particular purpose does not imply that all the material in the borrow/cut area or excavation is suitable for that purpose or should be used for that purpose. The Contractor shall select suitable material from that source, discard unsuitable material and reserve material for other purposes as necessary. When required and as ordered by the Project Engineer, suitable material from borrow/cut or excavation shall be temporary stockpiled for later use. The onus rests with the Contractor not to contaminate suitable material during temporary stockpiling.

The Contractor shall plan the works in such a way that direct cut to fill is prioritised. The stockpile area shall be as close as possible to the site as no free haul or overhaul will be payable and any such costs must be included in the relevant rates.

*PSD 5.2.3 Placing and Compaction**PSD 5.2.3.1 Embankments*

*Add the following:*

The areas over which earth fills are to be constructed shall, after site clearance and removal of 150mm topsoil, be ripped to a depth of 150 mm and compacted to 90% of Mod AASHTO Density. Should the topsoil layer be in excess of 150mm the Contractor is to notify the Engineer in writing and request a directive as to how to proceed further.

The Contractor shall plan his operations and particularly his cut and fill operations in such a manner that all cut material may be used to the best advantage of the Employer. This would mean that no material shall be unnecessarily spoiled.

The Contractor shall therefore not spoil any materials without the Engineer's approval and without satisfying the Engineer that this is necessary and that the most economical method of constructing the works is proposed.

Where the earthworks pattern is such that the selected materials cannot be placed directly in their appropriate positions the Engineer may authorize their removal to temporary stockpiles.

Wherever practical, fill shall be placed in successive layers parallel to the final level of the platform, in depths not exceeding 300mm unless otherwise approved by the Engineer.

Where filling is required on ground slopes greater than 1:10 the Contractor shall submit proposals for benching for approval by the Engineer.

The material to be used for the platform construction will be G7 minimum quality material.

Initials.....

Fill in other applications shall be compacted to the densities specified in Sub-clause 5.2.3.1 of SANS 1200 D and Sub-clause 5.2.4.2 of SANS 1200 DM (100% for sand). Material shall be placed in such a way that adjacent layers at any stage of the operation do not differ in height by more than 300 mm.

*PSD 5.2.3.2 Backfilling of trenches and backfilling against structures*

*Add the following:*

Backfilling around structures shall be compacted to 95 % (100 % for sand) of MAASHTO density unless otherwise stipulated in the scheduled item.

When specified or ordered by the Engineer the backfilling against structures shall be done using a mixture of soil cement. The mixture shall contain 5 % cement and just sufficient water for it to be placed and compacted like ordinary backfilling material. The material must be selected so that no clay, boulders or rock is used for backfilling within 300 mm of the structure.

*PSD 5.2.4 Finishing*

*PSD 5.2.4.1 final grading*

*Add the following:*

Embankments shall be trimmed to an even grade of 1 in 3, and all other terraces to an even grade on 1 in 3.

*PSD 5.2.4.2 top soiling*

*Add the following:*

“Topsoil shall not be stockpiled higher than 2,0 m. Care shall be exercised to prevent the compaction of topsoil in any way especially by vehicles travelling over such material.”

Topsoil shall be placed as directed in Sub-clause 5.2.4.2 on the faces of cut slopes and embankments and other flatter areas, as shown on the drawings or ordered by the Engineer, to a nominal thickness of 100 mm after light compaction. The cut and embankment surface shall be raked or lightly scarified before laying of the topsoil to assist with adhesion between the surfaces.

*PSD 5.2.4.3 Grass or other vegetation*

*Add the following:*

Planting shall be carried out at the earliest convenient stage of the construction and shall be arranged to suit the seasonal weather conditions. The Contractor shall arrange for the topsoil to be tested for fertiliser requirements and he shall submit the test reports to the Engineer who will, after that, issue instructions on the fertiliser to be used. The cost of any such tests together with the cost of supplying fertiliser will be dealt with as day work. Undue humps and hollows shall be smoothed out before planting is commenced.

The areas to be planted shall be covered with a 50 mm depth of well-rotted compost or manure from a source to be approved by the Engineer, scarified, harrowed, raked or otherwise worked until the compost or manure has been well worked into the soil.

a) Grassing

Stools or runners of "Kikuyu" or other grass approved by the Engineer shall be planted by forming trenches 75 mm deep at 300 mm intervals along lines at right angles to the direction of maximum slope, laying the stools or runners at intervals not exceeding 150 mm along the trenches and closing the trenches in such a way to

Initials.....

cover the grass entirely. After planting the surface shall be lightly rolled with a hand roller with a maximum mass of 150 kg.

b) Sour fig (*Carpobrotus edulis*)

Sour fig shall be planted on sloping sides of terraces and elsewhere, as indicated by the Engineer, at a rate 10 plants per square metre.

c) Rose of Sharon (*Hypericum calycinum*), Alpine Phlox (*Phlox Subulata*) and Knotweed (*Polygonum Capitatum*)

Rose of Sharon shall be planted on sloping sides of terraces and elsewhere, as indicated by the Engineer, at a rate of 4 plants per square metre.

*PSD 5.2.4.6 Straw stabilisation*

Where directed by the Engineer, areas affected by construction activities shall be stabilised with straw which shall be evenly spread at a rate of one bale ( $\pm 50$  kg) of approved straw per 25 m<sup>2</sup>. The straw shall be thoroughly mixed into the top 150 mm of the in-situ material until a homogenous mixture is obtained. Unless otherwise approved by the Engineer, straw stabilisation shall be carried out using hand labour.

*PSD 5.2.5 Transport for Earthworks*

*PSD 5.2.5.1 Free-haul*

The free haul distance for all earthworks on this Contract shall be unlimited.

Transporting any material obtained from and used on site again it deemed to be within the freehaul distance.

*PSD 5.2.5.2 Over-haul*

The overhaul is not applicable to this project as described under PS12 of Portion 1.

When material is to be spoiled on a site situated outside the Site of the Works, which site has to be provided by the Contractor, or otherwise disposed of at the Contractor's initiative, the rate for cut to spoil or excavate and spoil shall include full compensation for the haul entailed by this operation and no overhaul shall apply.

**PSD 6: TOLERANCES**

• PSD 6.1 Position, Dimensions, Levels

Degree of Accuracy II shall apply for all earthworks except as specified otherwise.

• PSD 6.2 Moisture Content and Density

Degree of Accuracy II shall apply.

**PSD 7: TESTING**

• PSD 7.2 Taking and Testing of Samples

*Replace the contents of the sub-clause with the following:*

The Contractor shall carry out sufficient process control checks (one test per five cubic metres of backfill) on the compaction of all backfill layers before calling the Engineer to inspect the work completed.

The Project Engineer may likewise carry out such tests.

Initials.....

Testing by the Project Engineer will not be relieving the Contractor of his obligations to provide materials and workmanship in accordance with Specifications.

The compaction requirements for fills shall be deemed complied with when at least 85% of the dry-density tests on any lot show values equal to or above the specified density and when no single value is more than five percentage (5%) below the specified value.

The Contractor shall carry out sufficient tests as part of his Process Control Testing obligations under SANS 1200D, or as applicable, to demonstrate that all materials used for bulk earthworks and road works conform to the specifications. The Contractor shall ensure that the cost of testing is included in his tendered rates.

**PSD 8: MEASUREMENT AND PAYMENT**

• PSD 8.1 Basic Principles

*Add the following to sub-clause:*

PSD 8.1.4 Recording of original ground profiles

The tendered rate for excavation shall cover the cost of recording the original ground profiles, rock and/or foundation levels, as applicable prior to commencement of any excavation, including stripping of topsoil. This is required to allow the Engineer to check the Contractor’s survey and adjust his design levels if necessary.

PSD 8.1.5 Backfilling of over-excavation

Backfilling over-excavation with concrete as specified in [PSD 5.2.2.1\(e\)](#), as amended, will not be measured for payment unless the over-excavation is ordered by the Engineer to remove unsuitable material, in which case the additional excavation will be measured and paid as excavation in all materials and the concrete will be measured by volume, all to the additional dimensions ordered by the Engineer.

PSD 8.1.6 Benching

The construction of benches shall be measured as “cut to fill” or cut to spoil as the case may be.

• PSD 8.2 Computation of Quantities

*Add the following to sub-clause 8.2.1:*

The volume of excavated material will be measured from the net outline of the structures and the average depth of excavation unless otherwise approved by the Engineer.

• PSD 8.3 Scheduled Items

PSD 8.3.2 Bulk Excavation

*Add the following items:*

b) Extra-over for..... Unit: m<sup>3</sup>

Replace the contents of this Sub-clause with the following:

No extra-over payment will be made for excavation in material classified in terms of Sub-clause 3.1.2, as amended, as intermediate excavation. The tendered rate for excavation in all materials shall include for the cost of such excavation. Refer to [PSD 3.1.2](#), as amended.

Extra-over item will be made for:

- a) Material classified as “hard rock”. Refer to [PSD 3.1.2](#), as amended.

Initials.....

b) Boulder excavation which, for the purposes of measurement, will not be differentiated into Class A and Class B.

c) Excavate in all materials, temporary stockpile and maintain.....Unit: m<sup>3</sup>

The unit of measurement shall be the cubic meter and the quantity shall be calculated from the authorised dimensions and as agreed with the Project Engineer.

The tendered rate shall include the excavation and loading of suitable, selected material from cut, where the selected material cannot be placed directly in their required position, transporting it to the temporary stockpile site selected by the Contractor, off-loading, spreading and maintain for the duration of the stockpiling.

d) Excavate in all materials, dispose surplus or unsuitable material..... Unit: m<sup>3</sup>

The unit of measurement shall be the cubic meter and quantity shall be calculated from the authorised dimensions and as agreed with the Project Engineer.

The tendered rate shall cover the costs for the operation and shall include full compensation for providing an approved spoil site by local authority for transporting the material regardless of the distance involved, for acceptance charges for such material and for all other incidental costs to dispose of the spoil material. No overhaul shall apply.

e) Extra-over for hand excavation in

1) Intermediate excavation ..... Unit: m<sup>3</sup>

2) Hard rock excavation ..... Unit: m<sup>3</sup>

PSD 8.3.3 Restricted Excavation

*Substitute with the following:*

Restricted excavation shall be limited to those excavations detailed on the drawings or as agreed to by the Engineer as being restricted.

a) Extra excavation in all materials to provide working space around structures Unit: m<sup>3</sup>

Alter the number of item PSD 8.3.5 to PSD 8.3.5(a) and add the following sub-item:

b) Extra over for hard rock excavations .....Unit: m<sup>3</sup>

The rate shall cover the additional cost of complying with the requirements of PSD 5.3.5 (a) for any portion of the excavated material that is classified as hard rock.

PSD 8.3.4 Importation of Material

*Change sub-clause 8.3.4 (a) to read as follows:*

a) (i) Importation of suitable material from temporary stockpile..... Unit: m<sup>3</sup>

(ii) Importation of fill/backfill behind structures from commercial source .....Unit: m<sup>3</sup>

And

*Replace the last paragraph with the following:*

The rate for importation of fill/backfill materials from temporary stockpile or selected fill/backfill materials for use against temporary stockpile or commercial source selected by the Contractor shall cover the costs of royalties if applicable in the case of commercial source, acquiring suitable material, excavation, selection of suitable material, loading, transportation irrespective of distance, offloading at point of placing, spreading or backfilling, watering, compacting, final grading,

Initials.....

testing in final position all in accordance with the requirements, specifications and detail given on the drawings.

PSD 8.3.6 Overhaul

Replace this clause with the following:

Freehaul is unlimited and no overhaul shall be paid.

Add the following to this sub-clause:

PSD 8.3.7 Additional Lateral Support .....Unit: Sum

Add the following to 8.3.7:

The depth of shoring will be measured from the bottom of excavation to the top of excavation that requires support. Additional lateral support shall be measured in depth increments where necessary.

PSD 8.3.8 Existing Services

PSD 8.3.8.1 Location

c) Excavate by hand in soft material to expose existing services .....Unit: m<sup>3</sup>

Add the following:

Excavation by hand to expose existing services shall only be measured and paid for if so ordered in writing by the Engineer. After the excavation of trial holes to determine the exact position and depth of existing services, at intervals as required by the Engineer, the excavation to a level of 300 mm above such services shall be measured and paid for as normal excavation, independent of the depth of such excavation.

Only excavation within 300 mm of the existing services will be measured and paid for as excavation by hand and then only if ordered in writing by the Engineer. The rate shall also include the backfilling of the excavations and compaction thereof.

b) The use or hire of specialist equipment for detection..Unit: Hour (normal work) or Sum

Add the following to D 8.3.8.1(b):

The rate shall cover the cost of lease of equipment, supply and deliver of all material and labour necessary for the detection of the existing services as well as for operating the equipment.

c) Excavate by hand in soft material to expose service .....Unit: m<sup>3</sup> or day work

Add the following to D 8.3.8.1(c):

Measurement will be done in depth increments of 500 mm.

d) Extra-over PSD 8.3.8.1(c) for excavation in .....Unit: m<sup>3</sup>

The provisions of PSD 8.3.2(d) shall apply mutatis mutandis.

PSD 8.3.11 Grassing or Other Vegetation Cover .....Unit: m<sup>2</sup>

Add the following D 8.3.11:

Payment for grassing and covering with other vegetation of designated areas will be made in stages as follows:

**First payment**

Initials.....

When the area has been prepared and planted, 60 % of the rate tendered per square metre shall be paid.

**Second payment**

When the area has been initially accepted by the Engineer, a further 30 % of the rate tendered per square metre shall be paid in respect of the re-measured area which is accepted.

**Third payment**

At the end of the maintenance period the outstanding amount will be paid in respect of the actual re-measured area of grass and other vegetation finally accepted by the Engineer for payment.

The rate tendered and paid for shall include full compensation for trimming of existing slopes, supply and spreading of compost and/or manure, preparation of the soil, watering, supply and planting of grass and other vegetation and maintenance of the covered areas, including all labour, supervision, specialist advice, materials, transport, plant, equipment and incidentals necessary to complete the work and bring the covered areas into the condition required for final acceptance, and shall include for any loss due to vegetation failing to establish a satisfactory cover of living vegetation in which gaps larger than 150 mm do not occur.

PSD 8.3.12 Construction of Earth Stormwater Channels.....Unit: m<sup>3</sup>

The rate shall be all inclusive for labour, material and equipment necessary for the excavation, construction, selection, transport, offloading and placement according to the specified slopes and dimensions as shown on the plans, as well as for compaction to 93 % of MAASTHO density.

PSD 8.3.13 Shaping of Stormwater Channels .....Unit: m<sup>2</sup>

The rate is an extra-over item PSDM 8.3.4 and shall be all inclusive for labour, material and equipment to shape stormwater channels according to the dimensions and grades as shown on the drawings and to compact to 93 % of MAASTHO density (100 % for sand).

PSD8.3.13 Shoring.....Unit: m<sup>2</sup>

Trenches must be safeguarded as per clause PSD 5.1.1.2, as amended.

The area of shoring measured for payment will be the actual area of excavation side shored, calculated from the perimeter of structure plus adequate working space and the height of shoring actually used. (The maximum additional working space for shoring measurement will be 1.5 m)

The rate shall cover all the cost of the design, supply, placing, maintenance and removal of the shoring system and other support measures together with any cost that results from the inconvenience of working in the supported excavation and the cost of any risks inherent in the operation.

**SANS 1200 DB: EARTHWORKS (PIPE TRENCHES)**

**PSDB 1: SCOPE**

*Add the following:*

This specification additionally covers the excavation for cable trenches.

- PSDB 2.2 Application

Substitute "pipe trenches" with "pipe and cable trenches" in DB 2.2.

Initials.....

### **PSDB 3: MATERIALS**

- PSDB 3.1 Classes of Excavation

The classification of material for excavation using labour intensive methods shall be as specified in Project Specification Clause PSD 3. For mechanical excavation the classification shall be as specified in sub-clause 3.1.2 of SANS 1200D, as amended.

- PSDB 3.5 Backfill Materials

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

Material excavated from trenches may be used as main fill. However, where hard excavation is encountered, such material shall be kept separate from other excavated material and may not be used in the first 300mm of main fill above the selected fill blanket. The first 300mm of fill above the selected fill blanket shall meet the requirements of Clause 3.4(a) of SANS 1200 DB.

*Add the following paragraphs:*

Backfilling shall be stabilised with 5% cement where directed by the Project Engineer. The aggregate shall consist of approved soil or gravel containing stones not bigger than 38mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed with 5% cement and shall be compacted in layers of 100mm thick to 90% of modified AASHTO density.

d) Soilcrete backfilling

The aggregate for soilcrete shall be mixed with 5% cement and shall consist of approved soil or gravel containing stones not bigger than 38mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed in a concrete mixer with the cement and enough water to acquire a consistency that allows the mixture to be placed with vibrators to fill all voids between the pipe and the sides of the trench. Shuttering shall be used where necessary.

- PSDB 3.6 Materials for Reinstatement of Roads and Paved Areas

- PSDB 3.6.1 Subbase and Base

*Substitute PSDB 3.6.1 with the following:*

“Where trenches cross or run adjacent to existing surfaced roads the following will apply:

- a) The service (pipe, cable etc.) shall be laid on a bedding cradle, and covered with a fill blanket, as specified in section LB (Bedding - Pipes) SANS 1200 or in the Project Specification.

The rate for placing and compacting bedding and blanket material shall be included in the items for excavation and backfilling. No additional payment will be made for placing and compacting bedding and blanket using material selected from trench excavations. Where material excavated from trenches is unsuitable for backfill bedding or blanket material and suitable material cannot be reasonably selected from adjacent trench excavations or stockpiles within free haul distance on the site, then the Engineer will order the use of material from commercial sources.

- b) The remaining portion of the trench, from the top of the fill blanket to the underside of the road wearing layer, shall be filled with soilcrete (G4 gravel with 5% cement) compacted mechanically in 150mm layers to 98% of MOD. ASSHTO for a minimum total thickness of 300mm.

- PSDB 3.6.5 Concrete Pavement

Initials.....

The concrete pavement shall be of the same thickness as that of the existing pavement or be at least 100 mm thick grade 20 MPa/19 mm concrete, cast in panels with maximum dimensions of 2 m x 2 m.

**PSDB 3.6.6 Brick Pavement**

The existing brick paving shall be re-used and damaged bricks shall be replaced with bricks of the same grade, texture and colour.

• **PSDB 3.7 Selection**

Replace the words “if he so wishes” in the first line of the second paragraph with the word “at his own cost”

*Add the following to this sub-clause:*

Notwithstanding Sub clause 3.7, in terms of which the Contractor has a choice regarding methods of selection, the Contractor is required to use selective methods of excavation. The Contractor shall selectively remove and keep separate the sandy material from unsuitable material and place it adjacent to the trench for reuse as backfill, selected fill, selected granular material or for other use as ordered by the Engineer.

Material which, in terms of Sub clause 6.2 of SANS 1200 D or Sub clause 6.1 of SANS 1200 LB, is too wet for immediate use in the trench (but which is otherwise suitable) will not be regarded as "unsuitable" material and, if so ordered by the Engineer, the Contractor shall spread such material in a suitable area until it has dried sufficiently for later use. Should the material which is replaced in the trench become too wet again, due to the fact that the Contractor made insufficient provision for the handling and removal of groundwater in accordance with Sub clause 5.5 of SANS 1200 A, the Contractor shall replace the material at his own cost with material which is, in the opinion of the Engineer, suitable.

When preparing his programme and construction methods, the Contractor shall make allowance for selective excavation and the handling and drying out of material which is too wet for immediate use.

Unless otherwise ordered by the Engineer, all excavated material shall be kept within the pipe servitude. The toe of the bank of excavated material shall be trimmed well back from the edge of the trench so as to leave a minimum 0.6 m clearance between the toe of the bank and the edge of the trench. The Contractor shall keep this strip clear of excavated material at all times.

The Contractor shall take steps to avoid burying or contaminating topsoil which shall be set aside for replacing, as far as practical, on the surface from which it was excavated.

**PSDB 4: PLANT**

• **PSDB 4.1 Excavation Equipment**

*Add the following to DB 4.1:*

All excavations exceeding the specified widths, shall be backfilled with approved selected material. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates.

• **PSDB 4.4 Dewatering Equipment**

One set of dewatering equipment shall consist of pumps, pipes, well points and other equipment necessary for keeping the trenches sufficiently free from water for dewatering of excavations up to 4 m depth and a trench length of 45 m for either sides or 70 m on one side.

Initials.....

## **PSDB 5: CONSTRUCTION**

### *PSDB 5.1.2 Stormwater, seepage and dewatering excavations*

#### *PSDB 5.1.2.1 Throughout the works.*

*Add the following to this sub-clause:*

Trenches may be inundated during the rainy season. No provision has been made for separate payment for dealing with water in trench excavations and this cost shall be included in the unit rate for excavation.

In addition to the Contractor's responsibilities for dealing with water, the Engineer may order the Contractor to place a crushed stone bedding layer (minimum thickness 150 mm) on the trench bottom. Should the trench bottom conditions remain unstable due to the nature of the soil and the degree of saturation, the Engineer may order the Contractor to install a filter fabric on the trench bottom prior to the provision of the stone layer. Should the material in the trench bottom or the bedding material be of such a nature that it can penetrate the stone layer, the Engineer may instruct the Contractor to enclose the stone layer completely within a geotextile filter blanket which shall comply with the requirements below, and shall have overlaps of at least 200 mm.

The Contractor will only be paid by providing and laying the stone bedding layer and filter fabric after receipt of a written order to do so from the Engineer.

The cost of dealing with water as specified in Sub-clause DB 5.1.2.1, as amended will be held to have been included in the tendered sums.

#### **Stone bedding in water-logged conditions:**

Where the use of a layer of crushed stone in the trench bottom has been authorized by the Engineer, it will be measured by volume calculated according to length multiplied by the minimum base width and specified thickness. The tendered rate shall cover the cost of preparation of the trench bottom to accommodate the layer of stone, the supply and placing of the layer of stone over at least the specified width and all related activities in order to produce a stable platform.

#### **Geotextile filter fabric:**

Where the Engineer has authorised the use of geotextile filter fabric, this shall be measured by area as: width x nett length, where the width shall be the full or half-width supplied by the manufacturer which conforms closest to the specified of plus 2 x base width plus 200mm. The tendered rate shall include the cost of supply, placing and losses as a result of overlaps and over excavated trench widths.

The synthetic fibres of a geotextile blanket shall consist of at least 85% by mass of polypropylene, polyethylene, a polyester, a polyamide, or a copolymer of vinyl chloride and vinylidene-chloride, or any combination of these polymers, and shall contain such additives as are necessary to render the filaments resistant to the effects of ultra-violet radiation and heat. The amount of water absorbed by the geotextile after 24 hours soaking in water at 20 deg. C shall be less than 1% by mass.

In addition to the requirements of Sub clause 3.1.3 of SANS 1200 DK the geotextile shall comply with the following:

Mass:	150 g/m <sup>2</sup> (minimum)
Strength in all directions:	6 kN/m (minimum)
Equivalent opening size (EOS):	105 micrometres (maximum)

Initials.....

A non-punched, approved geotextile acceptable to the Engineer.

PSDB 5.1.3 Accommodation of Traffic and Access to Properties

Add the following to item (b):

The Contractor shall at all times provide and allow pedestrian and vehicular access to properties within or adjoining or affected by the area in which he is working. In this respect the Contractor's attention is drawn to Clause 4.15 of the General Conditions. The Contractor shall at all times, wherever possible, keep open and maintain all existing roads on or about the site that may be affected by his operations in connection with the Contract, and he shall construct and maintain, to the satisfaction of the Project Engineer, temporary accesses to properties.

On completion of the work, the Contractor shall dismantle and remove all such temporary construction and reinstate these areas to their former condition.

Add the following sub-clause:

PSDB 5.1.5 Existing Pipes

Existing pipes that have to be removed shall be carefully opened up by machine excavation to 300mm above the pipes after which the whole pipe shall be fully exposed by means of hand excavation. The excavation width shall comply with sub-clause 8.2.3. Payment shall comply with sub-clause PSA 8.8.4.2.

The pipe shall be removed from the trench in a manner approved by the Project Engineer, and brought to the surface for inspection by the Project Engineer.

Pipes that are declared suitable for re-use shall be cleaned and carefully stacked on a prepared site, pointed out by the Project Engineer.

Pipes declared unfit for re-use shall be disposed of as determined by the Project Engineer.

- PSDB 5.2 Minimum Base Widths Specified

Replace paragraph (a) with the following:

Where two pipes or more are placed in the same trench, they shall be placed as shown on the drawings or minimum 300mm apart and the specified side allowance will still apply. All calculations for measurement purpose will be based solely on these dimensions.

Add the following to this clause:

Notwithstanding the requirements of clause 5.2 the minimum widths for trenches shall be as detailed in the Schedule of Quantities.

**OR**

A side allowance of 300 mm shall be applicable to pipes of diameter equal to or less than 200 mm OD

Substitute paragraph (b) of DB 5.2 with the following:

The minimum base width for all pipes with a diameter less than 125 mm shall be 600 mm plus the outside diameter of the pipes, irrespective of the depth at which they are laid, except for subsurface drains where the width shall be 400 mm and for house water connections where the width shall be 300 mm.

The base width of box culverts shall be the net width of the in-situ cast bottom slab or the net width of the precast bottom slab plus 100 mm.

Initials.....

A bedding is required for all pipes with a diameter less than 125 mm, except for subsurface drains. The minimum base width for Telecom Namibia ducts shall be 500 mm.

The minimum base width for electric cable trenches shall be 500 mm. Where more than one cable is installed in the same trench, the base width shall become 300 mm plus the distances specified between the centre lines of the cables (50 mm minimum).

- PSDB 5.4 Excavation

*Add the following to DB 5.4:*

The trench excavations shall be carried out to the grades and levels indicated on the drawings.

Trench excavation shall proceed progressively and shall not be carried out further ahead of pipe laying than is required for efficient working.

Where the routes of telephone/electrical ducts coincide with the routes of water and/or sewer pipes, the services will be accommodated in a single trench.

Excavation and backfilling of pipe trenches on sidewalks in the residential area shall be done in such a way as to ensure the least possible disruption to the public and entrances to properties. No additional payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates. Electric cable trenches shall be dug in lengths as requested by the electrical contractor.

No additional payment will be made to the Contractor for any inconvenience he may experience because of this requirement and it will be deemed that any such costs be included in the tendered rates.

- PSDB 5.5 Trench Bottom

*Add the following to this clause:*

Trenches shall be excavated and trimmed to a depth of not less than 100mm below the bedding level of pipes as indicated on the pipeline longitudinal sections. These depths shall be maintained for the full length and width of the trench and all stones, rocks or other projections trimmed accordingly.

Where the Contractor's method of working results in quagmire conditions in the trench bottom, the Contractor shall excavate and stabilize the trench at his own cost to the approval of the Engineer.

Substitute "90 %" in the second paragraph of DB 5.5 with "93 % (100 % for sand)".

- PSDB 5.6 Backfilling

- PSDB 5.6.2 Material for Backfilling

*Substitute "from trench excavations" in the first paragraph of DB 5.6.2 with "from trench, channel or street excavations".*

- PSDB 5.6.3 Disposal of Soft Excavation Material

*Add the following to PSDB 5.6.3:*

All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of at the spoil site, (as described in PSD 5.2.2.3) and levelled.

*Delete the contents of Clause 5.6.3 and replace with the following:*

Initials.....

All surplus material and unsuitable material not required for backfilling shall be disposed of at suitable sites to be located by the Contractor. All such sites shall require the approval of the Engineer and the Local Authority and community. No additional payment will be made for the transportation of such material

Dumping shall proceed in an orderly manner with coarse material placed at the bottom and covered with finer material, where possible. Upon completion of dumping the material shall be shaped to provide free-draining surfaces and slopes and finished off to the satisfaction of the Engineer.

PSDB 5.6.5 Deficiency of Backfill Material

Add the following:

The free haul distance shall be unlimited.

PSDB 5.6.6 Completion of backfilling

Add the following to this sub-clause:

The contractor shall bring on to the site sufficient resources for pipe laying so that trenches do not remain open for longer than one week ahead or behind the pipe laying team.

Precautions shall be taken to ensure that the natural drainage of the ground is not interfered with. Care shall be taken to prevent erosion of the backfill by construction of the necessary banks and drains.

The Contractor shall be responsible for settlement of the backfill and erosion of the site up to the time the contract maintenance period has expired and he shall fill and level any settlement and/or erosion from time to time, as required by the Engineer and at the Contractor's expense.

The finishing-off of the pipeline surface shall be included in the price for excavation and backfill.

PSDB 5.6.8 Transport for earthworks

Add the following to this sub-clause:

Freehaul distance shall be unlimited, and no payment will be made for overhaul.

- PSDB 5.7 Compaction

Add the following:

Where pipelines cross existing gravel/bitumen surfaced roads, backfilling shall be carried out as specified in sub clause 5.7.2 and payment therefore will be made under sub item 8.3.3.3.

PSDB 5.7.2 Areas Subject to Traffic Loads

Add the following:

All pipe trenches that fall in the street reserves, will be regarded as areas subject to traffic loads and the backfill material and compaction in these trenches shall comply with the requirements of Sub-clauses 3.5(b) and 5.7.2.

- PSDB 5.9 Reinstatement of Surface

PSDB 5.9.2 Private Property and Commonage

Add the following to DB 5.9.2:

Gardens and lawns shall be repaired to the original standard where they were crossed. Grass and plants shall be taken out of the ground, temporarily planted, watered during construction and replanted after backfilling.

Initials.....

PSDB 5.9.4 Bitumen Roads: Subbase and Base

Add the following to DB 5.9.4:

Any additional imported material required for the reinstatement of selected layers, subbase or base shall comply with the requirements of the relevant standardised and/or project specifications.

PSDB 5.9.5.1 Bitumen roads: Surfacing

Add the following to DB 5.9.5.1:

The thickness of the asphalt shall be 30 mm for all streets except if specified otherwise.

**PSDB 8: MEASUREMENT AND PAYMENT**

- PSDB 8.1 Basic Principles

- *Add the following:*

The free haul distance shall be unlimited.

*Add the following to DB 8.1.2(b):*

The depth of electric cable trenches is as indicated on the relevant drawings.

*Amend the last sentence of sub-clause 8.1.2 (c), to read:*

"The ground surface will be that existing after any bulk excavation has been carried out and before any embankment has been constructed, unless a portion of the embankment has to be constructed in order to achieve an acceptable cover over a pipe that is to be installed, in which case, measurement will be made from the level of embankment that produces an acceptable minimum cover over the pipe."

- PSDB 8.2 Computation of Quantities

PSDB 8.2.4 Shoring

*Add the following to DB 8.2.4:*

Shoring will only be measured and paid for if written approval is given by the Engineer before it is installed.

- PSDB 8.3 Scheduled Items

PSDB 8.3.2 Excavation

*Add the following to the sub-clause:*

The rates for excavation of trenches shall also cover the cost of selection as specified in PSDB 3.7 Selection, as amended. The costs of drying out of material suitable for bedding will be measured elsewhere. See PSDB 8.3.9, as amended. Temporary stockpiling of wet material from trench excavations.

The rate tendered for excavation in all materials shall include. Extra-over payment will be made for hard rock excavation provided the surface levels of the hard rock have been recorded on drawings signed by the Engineer before it is excavated.

#### Existing Services Intersects or Adjoin Pipe Trenches

Sub-Clauses 8.3.5 (a) and (b) will not apply. No special payment other than that included in terms of SANS 1200A Clause 8.8.4(c) or clause PSA 8.10 Alterations to existing services, will be made for working across or adjacent to existing services or for the protection of these services.

Initials.....

PSDB 8.3.2 a) Excavate in all materials for trenches, backfill, compact and dispose of surplus material.....Unit: m

Add the following to D 8.3.2(a):

The depth of excavation in street reserves shall be measured from the final finished level.

In cases where services lay parallel to steep slopes, the depth of the excavation will be measured along the centre of the trench (on the route of the service).

The rate shall cover the cost of complying with the requirements of clause 5.1, excavation, backfilling, compacting and disposing of surplus and/or unsuitable material to designated spoil dump site. The length measured for payment of pipe trenches will include for manholes and no separate payment will be made for excavation for manholes. Various depths will be measured in increments of 0.5m to the bottom of the bedding layer.

The rate shall also provide for the fact that the excavation width in sand will be wider than normal and that fast excavation and backfill will reduce ground water seepage.

i) **Electric cable trenches**

Excavation for electric cables not laid with other services will be measured and paid for separately under the relevant depth increments. The rate shall provide for excavation, preparing trench lengths as requested by the electrical subcontractor, backfilling and compaction thereof.

The rate shall also make provision for the possibility that long trenches need to be prepared for the electrical Contractor to lay full cable lengths (up to 300 m) and immediate backfilling after the installation of the cable (same day) to prevent theft.

ii) **Combined trenches**

The rate for excavation and backfilling of trenches with more than one service, shall allow for trench widths as set out in PSDB 5.2 and the bill of quantities. Extra bedding and fill blanket will be measured as in the case of normal pipe trenches.

The depth increment for combined trenches is determined by the deepest pipe in the trench.

PSDB 8.3.2 c) Excavate unsuitable material from trench bottom.....Unit: m<sup>3</sup>

Delete "and the disposal" in the heading of DB 8.3.2(c) and in the last paragraph.

PSDB 8.3.2 d) Hand excavation and backfill.....Unit: m<sup>3</sup>

The provisions of PSDB 8.3.2(a), DB 8.3.2(b) and PSDB 8.3.2(c) shall apply mutatis mutandis for hand excavation.

Payment shall only be made if so ordered by the Engineer.

PSDB 8.3.2 e) Extra-over PSDB 8.3.2(a) for temporary stockpiling of material Unit: m<sup>3</sup>

Temporary stockpiling of material will only be measured and paid for if ordered so in writing by the Engineer and if it is not contaminated with unsuitable material.

The rate shall provide for the handling and stockpiling of the material within the free haul distance.

PSDB 8.3.3 Excavation Ancillaries

PSDB 8.3.3.1 Make up deficiency in backfill material (provisional) .....Unit: m<sup>3</sup>

Initials.....

Delete the words “all within freehaul distance” from this paragraph

Add the following to PSDB 8.3.3.1:

d) .....Stockpile.....Unit: m<sup>3</sup>

Add the following to the last paragraph of DB 8.3.3.1:

No payment will be made for the transport of material from commercial sources or sources outside the site that the Contractor has selected.

PSDB 8.3.3.3Compaction in road reserves.....Unit: m<sup>3</sup>

Replace the heading of this sub item with the following:

PSDB 8.3.3.3Compaction in road crossings.....Unit: m<sup>3</sup>

Replace the sentence, “The volume will be measured as specified in 8.2.2, 8.2.3 and 8.3.3.1, with the following:

In the case of gravel roads, the volume will be measured from the underside of the gravel wearing course to the top of the fill blanket, and in the case of bitumen roads from the underside of the subbase to the top of the fill blanket.

PSDB 8.3.3.5Backfilling of culverts with 1:3:6 concrete mixture.....Unit: m<sup>3</sup>

Backfilling of box culverts with 1:3:6 concrete mixture shall be measured to the neat dimensions as shown on the drawings. Backfilling as above shall only be done with the written permission of the Engineer.

The rate shall provide for the supply, delivery, mixing and placing of all the necessary materials as well as for labour and supervision.

PSDB 8.3.4 a) Shore a trench opposite structure or service.....Unit: m

Add the following to DB 8.3.4(a):

Separate items shall be provided for shoring on both sides and on one side of trenches.

The tendered rate shall allow for additional excavation for shoring as well as for the design of effective shoring.

PSDB 8.3.5 Existing Services That Intersect or Adjoin A Pipe Trench

PSDB 8.3.5 a) Services that intersect a trench.....Unit: No

Add the following to DB 8.3.5(a):

Existing services with a depth of cover exceeding 300 mm, measured from the bottom of excavation to the top of the existing service shall not be measured and paid for. There will be distinguished between existing trunk services and existing erf connection.

The rate shall also allow for the following costs:

- i) Sufficient photos have to be taken of existing services and handed over to the Engineer before they are being crossed, if there is a possibility of a difference in opinion over the condition of those services, especially on private property.
- ii) If such a service is damaged, it has to be repaired to its original condition or if possible, to a standard agreed to in writing with the relevant owner. This agreement has to be approved by the Engineer.
- iii) If such a service is removed, it has to be replaced as per original.

Initials.....

PSDB 8.3.5 b) Services that adjoin a trench.....Unit: No or m

*Add the following to DB 8.3.5 (b):*

The unit "number" will only be used for services such as poles and trees.

No payment will be made for overhead services that do not rest directly on the ground except where allowance is made for this in the schedule of quantities.

Existing services that rest directly on the ground e.g. poles, trees, walls and structures are handled in the same way as underground services, but the axis of the service will be determined as follows:

The vertical axis is defined as the nearest side or corner of the existing structure to the excavation, measured at the point where the structure and natural ground level intersect.

The horizontal axis will be at the point where the structure and the natural ground level intersects. In this instance, where the excavation falls above the 45° line but within 1,0 meters horizontally from the structure, the service will also be measured as adjoining.

If the structure, according to the above-mentioned, does not qualify as an adjoining service but the foundation of the structure is such that if a 45° line drawn from the nearest bottom corner thereof cuts through the excavation, the structure will be measured as an adjoining service if approved by the Engineer.

There will be distinguished between existing trunk services and existing erf connection.

PSDB 8.3.5.1 New sewer gravity pipeline crossing River.....Unit: Sum

The rate shall include the costs of all plant, equipment, labour and material required for the river crossing and erosion protection above and around the new sewer pipeline, complete as specified in PSDB 5.1.4.1.

PSDB 8.3.5.4 Removal and replacement of bollards.....Unit: No

The rate shall include the cost of removal, loading, transport to the municipal dumping site, the supply and installation of the same type of bollards with a finish similar to that of the existing.

PSDB 8.3.5.5 Removal and relaying of existing brick paving.....Unit: m<sup>2</sup>

The rate shall include the cost of the removal of the existing brick paving, stacking on site and the relaying thereof, after completion of the services, on a 25 mm layer of sand from commercial sources placed on a 300 µm (0,3 mm) polyethylene sheet. No payment will be made for the buying of additional brick paving due to damage, and it will be deemed as covered in the relevant items. Payment for excavation and backfilling up to the level of the polyethylene sheet will be made in the relevant items in the schedule of quantities.

PSDB 8.3.5.6 Removal and replacement of concrete paving.....Unit: m<sup>2</sup>

The rate shall include the cost of cutting the concrete, breaking, loading, transport and spoiling thereof on the municipal dumping site, preparation of the backfill directly beneath the concrete, placement of a 100 mm thick class 20/19 concrete in panels of maximum 2 m x 2 m including the necessary shuttering, expansion joints and wood-floated finish to match the level of the existing surfaces.

A maximum of 10 % of the tendered amount will be payable after completion of the breaking up and removal of the concrete.

PSDB 8.3.5.7 Removal and reinstatement of existing grass areas.....Unit: m<sup>2</sup>

The rate for the reinstatement of lawns, where it was crossed by pipe trenches, will include the following:

Initials.....

- i) the removal of grass sods in the strip needed for excavating the trench;
- ii) maintenance of the grass sods during the construction period;
- iii) reinstating the grass to its original level and watering it after backfilling the trench.

Payment will only be made for the specified trench width and on approval of the Engineer.

PSDB 8.3.5.8 Reinstatement of gardens.....Unit: m<sup>2</sup>

Shrubs, bushes, plants and small trees will all be regarded as shrubs for the purpose of measuring. Annuals will not be regarded as shrubs.

The rate for the reinstating of gardens, where pipe trenches have crossed the gardens, will include the following:

- i) the removal of shrubs with minimum damage thereto;
- ii) maintenance of these shrubs during the construction period;
- iii) replanting and watering of shrubs in their original positions.

Payment will only be made for the specified trench width and if approved by the Engineer.

PSDB 8.3.6 Finishing

*PSDB 8.3.6.1 Re-instatement of road layers*

*Add the following to DB 8.3.6.1:*

The rate shall include for the selective excavation of existing subbase and base material where this material is going to be re-used.

PSDB 8.3.6.2 Extra-over DB 8.3.6.1 for imported material.....Unit: m<sup>3</sup>

The quantity will be calculated according to the actual volume of material placed in the final position according to the specified dimensions.

The rate is an “extra-over” Item DB 8.3.6.1 and includes all costs of supplying and placing of imported material in the final position with material from commercial sources.

PSDB 8.3.7 Accommodation of traffic

The tendered sum shall include full compensation for the accommodation of traffic and the construction and maintenance of bypasses, including existing roads used as bypasses, during the construction period. It shall also include full compensation for traffic control, traffic signs, and where necessary, communications equipment to regulate traffic, for the construction of temporary drainage works, for the maintenance of drainage works, arrangements for moving services, attending to traffic problems, and complying with the requirements of the Road Traffic Ordinance and the relevant local authorities.

Payment shall be made in equal monthly instalments.

*Add the following Payment Clauses:*

PSDB 8.3.8 Crushed stone bedding layer and geofabric blanket.....Unit: m<sup>3</sup> / m<sup>2</sup>

Where the use of a layer of crushed stone in the trench bottom has been authorized by the Engineer, it will be measured by volume calculated according to the length multiplied by the specified thickness and specified minimum base width.

Initials.....

The rate shall cover the cost of all additional excavation and preparation of the trench bottom to accommodate the layer of stone, the removal of unsuitable material, the supply and placing of a layer of stone at least the specified thickness over at least the specified width and all related activities in order to produce a stable platform.

Where the Engineer has authorized the use of geotextile filter blanket, this will be measured by area as indicated on the drawings. The rate shall include the cost of supply, placing and losses as a result of overlaps and over excavated trench widths.

#### PSDB 8.3.9 Temporary stockpiling of wet material from trench excavations

The excavation and stockpiling of material which is too wet will be measured by the volume, based on the specified trench width, depth and length, which the Engineer orders to be removed in terms of [PSDB 3.7, as amended, Selection](#).

The rate shall cover the cost of all operations required to handle, transport to a suitable site and spread to allow the material to dry sufficiently, as well as any costs for disruptions, delays and associated overhead costs resulting from drying out the material.

#### PSDB 8.3.10 Provision of temporary Bridges for maintaining access to properties

The rate shall cover the cost of all the materials to be procured and operations required to install and transport of the material to site. The rate also includes the moving of this temporary bridge during the contract period.

### **SANS 1200 GA: CONCRETE (SMALL WORKS)**

#### **PSGA 3: MATERIAL**

- PSGA 3.2 Cement

*PSGA3.2.1: Applicable Specifications*

*Substitute G 3.2.1 with the following:*

All cement types shall comply with the requirements of SANS EN 197-1.

For this contract only CEM 1 Portland cement shall be used in structural concrete.

*PS GA 3.2.2 Storage of Cement*

*Add the following to GA 3.2.2:*

Separate storage facilities shall be provided for the various type of cement specified.

Consignments of cement shall be used in the same sequence as that in which they are delivered to site. No cement shall be used which has been stored on site or a longer period than six (6) weeks. All cement so stored for a longer period than six (6) weeks, all cement damaged in any way, and all cement which does not comply with the specification, shall be removed immediately and permanently from site.

#### **PSGA 5: CONSTRUCTION**

- PSGA 5.2 Formwork

*PS GA 5.2.1 Classification of Finishes*

*Add the following to GA 5.2.1:*

Initials.....

The following surface conditions are required on the finished concrete:

a) **Rough**

Concealed surfaces and surfaces lower than 100 mm below finished ground level.

b) **Smooth**

All surface finishes not classified as rough in paragraph a) shall be classified as smooth. All exposed arises unless otherwise indicated on the drawings, shall be chamfered 20 mm x 20 mm by means of triangular fillets fixed to the formwork.

**PSGA 8: MEASUREMENT AND PAYMENT**

• PSGA 8.1 Measurement and Rates

PS GA 8.1.2 Reinforcement

*Substitute GA 8.1.2 with the following:*

Reinforcement shall be measured and paid for by mass. Valuation of variations shall not be applicable.

No allowance shall be made for individual reinforcement bar sizes.

• PSGA 8.2 Scheduled Formwork Items

PS GA 8.2.3 Narrow widths.....Unit: m

*Substitute GA 8.2.3 with the following:*

No payment shall be made for narrow widths.

• PSGA 8.3 Scheduled Reinforcement Items

PS GA 8.3.2 High-tensile Welded Mesh.....Unit: kg

*Substitute GA 8.3.2 with the following:*

Welded mesh shall be measured and paid for by mass.

• PSGA 8.4 Scheduled Concrete Items

PS GA 8.4.1 Prescribed Mix Concrete.....Unit: m<sup>3</sup>

Add the following to GA 8.4.1:

The rate for installation of concrete slabs shall include for the compaction of the in-situ material to 90 % of MAASHTO density.

PS GA 8.4.5 Inlet Structure.....Unit: No

The tendered rate shall cover all costs for excavation, backfilling, compaction, blinding, concrete, reinforcement, chamfers, trimming, pipe work connection and all labour, handling and transport of material, complete as per detail drawing.

Initials.....

## **SANS 1200 HA: STRUCTURAL STEELWORK (SUNDRY ITEMS)**

### **PSHA 1: GENERAL**

#### • PSHA 1.1 Paint Spec

1. All steel to be cleaned and prepared for paintwork as defined in the international Standards ISO 8501-1: 1988 & Sa 2, 5 ISO 880 1-1: 1988. 30-50 micrometres blast profile.
2. Paint System for Structural Mild Steel/New Steel:
  - a. PRIMER: Interzinc 52-Organic Zink Rich Epoxy Primer (Code IZP 52). One 100-micron coat applied by airless/conventional spray/brush/roller.
  - b. INTERMEDIATE COAT: Interseal 010 H/B Recoatable Micaceous Iron Oxide (Code IEP 10). One 100-micron coat applied by airless/conventional Spray/brush/roller.
  - c. FINISHING: Interthane 99 (Code IUP). One 50-75-micron coat applied by Airless/conventional spray/brush/roller.
  - d. Similar guaranteed and approved products may be used.
3. Steel Grade 300W.

### **PSHA 3: MATERIALS**

*Add the following under this heading:*

Where the words "Structural Steelwork" appear in the heading and in other relevant Clauses, amend to read "Aluminium, Stainless Steel and Structural Steel".

#### • PSHA 3.1 Structural Steelwork

Add the following to this clause:

Structural steelwork shall comply with Grade 43 of BS 4360. All steel pipes and specials, irrespective of diameter, shall be fabricated from plain ended pipes. The use of screwed flanges and fittings shall not be permitted, except for use on air-valve assemblies. All fabrication shall take place in a suitable workshop prior to galvanizing, and no cutting or welding of pipes on site shall be permitted.

*Add the following clauses:*

#### PSHA 3.1.2 Stainless steel

Where stainless steel is to be used, the grade of stainless steel shall be grade 340L unless for the use in any sewage environment it shall be grade 316L.

#### PSHA 3.1.3 Aluminium

All aluminium items shall be grade M57S material anodized in accordance with SANS 999 Grade 25.

#### PSHA 3.3.1 Bolts and nuts

*Add the following to this Sub-clause:*

All bolts, nuts and washers within water retaining structures or exposed to the rain, or with a diameter of 10 mm or less, all anchor bolts of any size in concrete or brickwork and all bolts of any size used in conjunction with stainless steel items, shall be manufactured from Grade 304L stainless steel.

Initials.....

All other bolts, nuts and washers with a diameter of 12 mm or greater shall be hot dip galvanized to SANS 10684. Nuts shall be tapped before galvanizing, taking into consideration the extra clearance necessary to allow for the thickness of galvanizing on the bolts. If, after installation, there is any indication that galvanising has been stripped from either the nut or the bolt, both nut and bolt shall be removed and replaced.

## **PSHA 5: CONSTRUCTION**

### PSHA 5.2.4: Welding

The Contractor shall submit with his shop drawing full details of welding procedures. All welds shall be continuous. Unless otherwise approved no longitudinal or overhead welding shall be carried out on site. Under no circumstances will cutting and welding of grid covers and frames be permitted on site.

Welders undertaking manual welding of permanent steelwork shall be experienced and competent artisan.

### PS HA 5.2.6 Handrails

*Substitute the first sentence of HA 5.2.6 with the following:*

Handrails shall be of the tube and sphere type and shall be manufactured by an approved firm specialising in such works.

Handrails shall be 900 mm high and shall consist of a handrail and a knee-rail, both manufactured of steel tubing of nominal thickness 2,6 mm and of nominal outside diameter of at least 34 mm.

Stanchions shall be manufactured preformed in one piece and shall be of steel tubing of nominal thickness of 2,6 mm and of nominal outside diameter of at least 42 mm. The bases of the stanchions shall be manufactured of 150 mm x 75 mm x 12,5 mm flat bars and shall be performed to suit the situation in which they are to be installed (i.e. for platform- or side-mounting, and for horizontal- or sloped-mounting on concrete or steel), and the stanchion spheres shall be performed to suit right angled or other angled intersections), all as shown on the drawings.

Unless specified, handrails should be hot dip galvanised in accordance with SANS763 and be Wecrolok solid forged rails and standards.

Stanchions shall be spaced at intervals not exceeding 1,5 m and shall be fixed with two M16 galvanised bolts, washers and nuts each. All joints shall be welded.

Handrails shall be GRP after manufacture.

See paint specification above (HA 1.1).

### PSHA 5.2.1: Ladders

*Add the following to HA 5.2.11:*

Ladders shall be GRP or equivalent after manufacturing.

See paint specification above (HA 1.1).

### PSHA 5.2.8: Open Grid Floors

Grid floors shall be manufactured from galvanised mild steel with corrosion protection coatings as specified and shall be U-grid or approved equivalent. All parts shall be banded and secured with standard clips

Initials.....

All open grid floor panels shall be open-ended as specified, except where bonding is specified on the drawings. Cut outs shall be provided where indicated on the Drawings,

PSHA 5.2.12: Prefabricated Open Grid Floors

Substitute the second sentence of HA 5.2.8.1 with the following:

This shall be similar to the "U"-grid type grid floors manufactured by Armco Superlite and hot-dipped galvanised.

PSHA 5.2.13: Floor plate Floors

Substitute HA 5.2.13 with the following:

Floor plate floors shall consist of 8 mm thick checker plate.

See paint specification above (HA 1.1).

**PSHA 8: MEASUREMENT AND PAYMENT**

PSHA 8.3.3: Ladders, complete and installed

Separate items will be scheduled for ladders of different materials, dimensions and height.

The tendered rate shall include full compensation for the cost of supplying the specified or scheduled ladders complete, including welding and all fasteners, where applicable.

PSHA 8.3.4: Flooring, complete and installed with frames

Separate items will be scheduled for grid floors, floor plate floors and kerbs of different materials, dimensions, weight and different methods of fixing.

The tendered rate shall include full compensation for the cost of supplying the specified or scheduled types of flooring, frames or kerbing complete, including welding where applicable.

PSHA 8.3.6: Corrosion Protection

Substitute HA 8.3.6 with the following:

Corrosion protection shall not be measured separately. The cost thereof shall be included in the rate for the related item.

PS HA 8.3.7 Stanchions.....Unit: No

The rates shall cover the cost for the supply of all material, manufacturing, galvanising, handle, and deliver to site, offloading, erection and grouting. The rate shall also cover the cost for all bolts and nuts, washers, cutting to size, etc.

PS HA 8.3.8 Steel Basket..... Unit: No

The rate shall cover the cost of manufacturing, supply of all materials (stainless steel) delivery on site and installation. The rate shall cover the cost of all bolts and nuts, washers, cutting to size, etc.

Initials.....

## **SANS 1200 HC: CORROSION PROTECTION OF STRUCTURAL STEEL WORK**

### **PSHC 5: CONSTRUCTION**

- PSHC 5.7 Coating System

Unless otherwise specified structural steelwork shall be prepared in accordance with sub-clause 5.4 of SANS 1200 HC and shall be blast cleaned to SA 2.5. Within four hours after blast cleaning, the surface shall be over-coated with one coat zinc chromate primer to SANS 769 (Type 1) to a dry film thickness of 40 microns. This shall be followed by a second coat of the same primer coat and to the same thickness. The primer coat shall be followed by two coats of high gloss enamel.

### **PSHC 8: MEASUREMENT AND PAYMENT**

- PSHC 8.1 Principles

No additional payment will be made for corrosion protection and the cost of the protective coating shall be included in the cost of supply and erection.

## **SANS 1200 LB: BEDDING (PIPES)**

### **PSLB 1: SCOPE**

- PSLB 1.1 Scope

*Add the following to LB 1.1:*

This specification also covers the bedding required for electric cables and cable ducts.

### **PSLB 3: MATERIALS**

#### PSLB 3.1 Selected Granular Material

*Substitute LB 3.1 with the following:*

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100 % passing a 13,2 mm sieve and not more than 5 % passing a 0,075 mm sieve.

In very wet conditions and if so ordered by the Engineer, a non-plastic crushed material with the specification as stated underneath should be used for bedding cradle.

a) **Grading**

<b>Sieve size (mm)</b>	<b>% going through</b>
19,0	100
13,2	84 - 100
9,5	70 - 84
4,75	45 - 65
2,36	29 - 47
1,18	19 - 33

Initials.....

0,600	13 - 25
0,300	10 - 18
0,150	6 - 13
0,075	4 - 10

b) **Crusher value**

The aggregate crushing value, calculated at minus 13,2 mm plus 0,5 mm fraction, may not exceed 29.

• PSLB 3.2 Selected Fill Material

*Substitute LB 3.2 with the following:*

The requirements of PS LB 3.1 shall apply mutatis mutandis.

Selected fill material shall be free from vegetation and from lumps and stones of diameter exceeding 30 mm and shall be obtained from the trench excavations or other necessary excavations on the site, on the approval of the Engineer. The material shall have a  $PI < 6$ .

• PSLB 3.3 Bedding

*Add the following to LB 3.3:*

All PVC pipes shall be classified as flexible pipes and shall be laid according to SANS 1200 drawing LB-2. All MS, D1 and FC pipes shall be classified as rigid pipes and shall be laid on a Class C bedding, except water connections which shall be classified as flexible pipes. Cable bedding is specified separately.

• PS LB 3.4 Selection

*PSLB 3.4.1: Suitable material available from trench excavation*

Replace the second sentence of this sub-clause commencing with "The contractor will be permitted..." with the following:

The contractor will be required to preserve material excavated from trenches that is suitable for bedding for reuse as bedding.

• PSLB 3.5 Protective Concrete Slabs for Cables

Protective concrete slabs shall be precast concrete slabs with dimensions of 1 000 mm x 350 mm x 50 mm and shall comply with the requirements of SANS 1200 G for 25 MPa strength concrete. The slabs shall be reinforced with three 8 mm diameter high-tensile reinforcing bars in both directions.

• PS LB 3.6 Polyethylene Warning Tape

The danger tape shall be manufactured from Grade XJF 46/60 polyethylene at least 0,4 mm thick and with a nominal width of 230 mm, and which is completely impregnated with a light orange pigment reasonably matching colour no B26 of SANS 1091.

A black triangle and lightning flashes for electricity, as depicted on sign WW7 of SANS 1186, as well as the word "DANGER, GEVAAR, OSHIPONGA" shall be printed clearly and permanently onto the tape. The whole pattern shall be repeated every 1 m.

Initials.....

The quality of all materials employed shall be such as to ensure the permanency of the tape under all environmental and soil conditions, as well as the stability of the orange pigmentation and the lettering and warning symbols.

## **PSLB 5: CONSTRUCTION**

- PSLB 5.1 General

- PSLB 5.1.4: Compacting

Substitute "90 % of MAASHTO" in LB 5.1.4 with "93 % of MAASHTO (100 % for sand)".

## **PSLB 8: MEASUREMENT AND PAYMENT**

- PSLB 8.1 Principles

- PSLB 8.1.1: Supply of Bedding Materials Measured Separately

Add the following to LB 8.1.1:

Payment for bedding material and selected fill material is only made if the selected trench excavation material cannot be used in the same position as bedding material but has to be obtained from another part of the site of works or designated borrow pits, or from commercial sources.

- PSLB 8.1.2: Source of bedding material

Add the following to this sub-clause:

Payment for the provision of imported bedding materials will only be made where they cannot be selected from the excavation within the confines of the site or within 5 km of the point where it is required and where it is ordered in writing by the Engineer whichever is the lesser.

- PSLB 8.1.3: Volume of bedding materials

Substitute the contents of this sub-clause with the following:

The volume of bedding material will be measured net, excluding the volume occupied by the pipe. The volume of bedding material will be computed from:

- the trench width specified or scheduled, and
- the depth of each bedding layer as shown on the drawings, and
- by deducting the volume occupied by the pipe.

- PS LB 8.1.4: Separate Items for Cradle and Blanket

Substitute LB 8.1.4 with the following:

No distinction shall be made as regards material for the bedding cradle and selected fill blanket, and the material shall comply with the requirements for material for bedding cradle.

- PS LB 8.1.5: Disposal of Displaced Material

Add the following to LB 8.1.5:

Surplus displaced material shall be dumped and levelled at the spoil site.

Initials.....

• PSLB 8.2 Scheduled Items

PSLB 8.2.2: Supply Only of Bedding by Importation

*PSLB 8.2.2.3: From commercial sources*

Add the following to LB 8.2.2.3:

- c) Bedding for wet conditions..... Unit: m<sup>3</sup>

The requirements of PS LB 3.1 for bedding in wet conditions must be noted. Payment will only be applicable if ordered by the Engineer.

*PSLB 8.2.2.4: From stockpile (provisional)*

- a) Selected granular material..... Unit: m<sup>3</sup>
- b) Selected fill material ..... Unit: m<sup>3</sup>

The rate shall cover the cost of obtaining, handling and transport regardless the distance, of the required bedding material from the stockpile, the delivery thereof at positions that are spaced along the trench in such a way as suits the working method of the Contractor, as well as the removal of material displaced by this importation within a free-haul distance of 0,5 km.

PSLB 8.2.5: Overhaul of Material for Bedding Cradle and Selected

Fill Blanket..... Unit: m<sup>3</sup>.km

*Substitute LB 8.2.5 with the following:*

- a) Limited overhaul ..... Unit: m<sup>3</sup>
- b) Long overhaul ..... Unit: m<sup>3</sup>km

Except that the volume is calculated according to LB 8.1.3, the requirements of D 8.3.6 or DA 8.3.3, as applicable, shall apply for overhaul.

PSLB 8.2.6 Bedding for Cables.....Unit: m trench

The tendered rate for cable bedding shall provide for the placing of material from any position along the trench within 50 m, the preparation and bedding for cables for the complete trench length, regardless of the number of cables. The tendered rate shall also make provision for the fact that long trenches have to be prepared (as specified PSDB 8.3.2), for all necessary arrangements with the electrical contractor to lay the cables, for the installation of the fill blanket and backfilling on the same day on which the cables are installed.

PSLB 8.2.7 Additional bedding.....Unit: m trench

The rate for additional bedding for electric cables is extra over LB 8.2.1 and LB 8.2.2 and provides for the preparation of each additional bedding level for cables, concrete slabs and protective layers over and above the preparation of the initial bedding level in the same trench.

PSLB 8.3 Protective Concrete Slabs for Cables ..... Unit: No

The provisions of G 8.6 shall apply mutatis mutandis.

PSLB 8.4 Polyethylene Warning Tape..... .. Unit: m

The rate shall cover the cost of the supply, handling and placing of the tape.

Initials.....

## **PORTION 3: PROJECT PARTICULAR SPECIFICATIONS**

### **1: PREFACE TO THE PROJECT PARTICULAR SPECIFICATIONS**

The Project Particular Specifications form an integral part of the Contract Documents and shall be deemed to be included in and form part of the Specifications.

The Project Particular Specifications are intended to describe the work to be carried out under the Contract when applicable and to clarify and modify the Standard Specifications. The clauses in this portion of the Project Specification contains Particular Specifications that are not covered in SANS 1200.

The number of a clause or a new payment item, which does not form part of a clause or a payment item in the Standard Specifications and is included here, is also prefixed by PS followed by a new number.

In case of discrepancy or conflict between the various specifications and drawings, the order of preference shall be as follows:

1. Amendments and additions to the Standardized/Particular Specifications
2. Particular Specifications
3. Standardized Specifications

### **PARTICULAR SPECIFICATIONS**

<b>No.</b>	<b>DESCRIPTION</b>
PF	Building construction
PG	Fencing
PH	Denso Tape Wrapping
PJ	Cleaning and finishing

Initials.....

**PF BUILDING CONSTRUCTION****PF 1 SCOPE**

PF 1.1 This Specification covers the construction of brick walls, including foundations, plastering, doors, electrical, painting, and all other aspects required to complete this work in accordance with the specifications and details given on the drawings.

**PF 2 INTERPRETATIONS****PF 2.1 SUPPORTING SPECIFICATIONS**

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

- (a) Project Specifications;
- (b) SANS 1200 AH;
- (c) SANS 1200 C;
- (d) SANS 1200 D or SANS DA, as applicable.

In addition, the following specifications may be required for the project: -

- (e) SANS 1200 G or SANS 1200 GA, as applicable.

**PF 2.2 APPLICATION**

Interpretations of and variations to this specification are set out in **Portion 2** of the Project Specification which precedes this specification in a contract document.

**PF 2.3 DEFINITIONS**

For the purpose of this specification the definitions and abbreviations given in the applicable specifications listed in 2.1 (b), (c) and (d) and (i) shall apply.

**PF 3 MATERIALS**

PF 3.1 Materials used in the construction of the works shall generally comply with the relevant standard specifications. In particular, the following standard specifications shall apply: -

SANS 987:	Cement Bricks
SANS 471:	Portland Cement
SANS 523:	Limes for Use in Buildings
SANS 1083:	Aggregate from Natural Sources
SANS 634:	Emulsion Paints for Exterior Use
SANS 904:	Red Oxide Zinc Chromate Primer
SANS 727:	Steel Windows and Steel Doors
SANS 1129:	Steel Door Frames
SANS 545:	Wooden flush Doors
SANS 678:	Primers for Wood
SANS 681:	Undercoats for Paints

Initials.....

SANS 630:	Decorative High Gloss Enamel Paints
SANS 920:	Steel Bars for Concrete Reinforcement
SANS 679:	Fine Chromate Primer

**PF 4 PLANT**

Not applicable to this specification.

**PF 5 CONSTRUCTION**

**PF 5.1 FOUNDATIONS**

**PF 5.1.1 Excavations**

All excavations and other earthworks shall be carried out in accordance with the requirements of SANS 1200 DA and the project specifications.

**PF 5.1.2 Concrete for Foundations**

All concrete work shall comply with the requirements of SANS 1200 GA and the project specifications.

**PF 5.2 WALLS**

**PF 5.2.1 Brickwork**

**PF 5.2.1.1 General**

All brickwork shall be executed in standard cement bricks which shall comply with the requirements of SANS 987 for class S7 bricks. Bricks shall be laid in English bond. Door frames shall be built in as the brickwork progresses.

**PF 5.2.1.2 Mortar**

Class B mortar which contains no lime shall be used throughout. The preparation of the mortar shall be such that all mixed mortar is used within one hour after mixing. Mortar which shows signs of beginning to harden shall not be used and must be discarded.

**PF 5.2.1.3 Reinforcement**

Unless shown otherwise on the drawings or ordered by the Project Manager each fifth layer of bricks in all walls shall be reinforced with a layer of 3 mm standard welded mesh brick reinforcement. Adequate overlap of such reinforcements shall be provided where joints in reinforcement occur and in all corners.

**PF 5.2.1.4 Damp proof Course**

Damp proof materials and other packing required at construction joints, at the base of wall or under concrete slabs shall comply with the requirements shown on the drawings.

Initials.....

**PF 5.2.2 Plaster**

Before any plastering of walls and brickwork commences the surfaces thereof shall be thoroughly brushed and washed with water. Thereafter plastering can commence and the completed plaster thickness shall lie between 12 mm and 20 mm. Final finishing of the plaster shall be by means of a steel trowel to give a smooth surface free of ridges and holes and scratch marks. Plaster shall consist of one-part cement, four parts sand and 10 percent lime which has previously been mixed with the dry sand. All materials shall comply with the requirements of the following SANS:

Cement	SANS 471
Sand	SANS 1083
Lime	SANS 523

**PF 5.2.3 Doors and Door Frames**

The size of doors shall be as shown on the drawings. Steel doors shall conform to the requirements of SANS 727 where applicable.

Steel door frames shall be a welded unit fabricated from 1,25 mm thick pressed steel conforming to the requirements of CKS 79. Wall anchors shall conform to the requirements of SANS 727.

Wooden doors shall conform to the requirements of SANS 545 and CKS 153 as applicable.

**PF 5.3 FLOOR****PF 5.3.1 Preparation**

Approved hardcore material 100 mm thick shall be placed on a levelled surface and compacted to at least 93 % of Mod AASHTO Maximum Dry Density before any surface beds are cast.

**PF 5.3.2 Surface Beds**

Minimum 100 mm thick concrete shall be cast on previously approved compacted hardcore and shall receive steel float finish to levels indicated on the drawings. Concrete shall comply to the requirements of SANS 1200 GA and Clause PSGA-4 of the project specifications.

**PF 5.3.3 Waterproofing**

The surface beds shall be underlain by 250 micron black PVC membrane conforming to the requirements of SANS 952 class C. A lap of 300 mm shall be provided at joints. Care shall be taken that the membrane is not punctured during the construction process.

**PF 5.4 PAINTING****PF 5.4.1 General**

Initials.....

All painting shall be carried out in accordance with manufacturer's instructions or recommendations. All surfaces shall be clean and correctly prepared before painting commences. All exposed surfaces and exposed steel surfaces, including those surfaces that are hidden or are inaccessible after installation, shall be painted and in the latter case all painting shall be completed before installation. All paint shall bear the SANS mark. The colours of the paint shall be as shown on the drawings or as directed by the Project Manager

**PF 5.4.2 Plastered Walls**

An emulsion primer shall be applied followed by two coats of emulsion paint. All emulsion paints shall conform to the requirements of SANS 634, "Emulsion Paints for Exterior Use".

**PF 5.4.3 Timberwork**

After the timberwork has been thoroughly sanded where required and cleaned an approved knot and surface sealant shall be applied. Thereafter a primer in accordance with SANS 678 type 111 shall be applied. This shall be followed by an undercoat in accordance with SANS 681 type 11 and a final coat of high gloss enamel conforming to SANS 630.

**PF 6 TOLERANCES**

**PF 6.1 Permissible Deviations**

The permissible deviations for foundations and elements or components above the foundations shall be as listed in Clause 6.4 of SANS 1200 GA and shall be as follows: -

Foundations	Degree of Accuracy III
Elements above foundation	Degree of Accuracy II

**PF 7 TESTING**

Not applicable to this specification.

**PF 8 MEASUREMENT AND PAYMENT**

**PF 8.1 BASIC PRINCIPLES**

All work shall be measured as set out hereunder and as specified in the Schedule of Quantities and payment will be made in accordance with the tender price per unit of the particular item.

**PF 8.2 COMPUTATION OF QUANTITIES**

**PF 8.2.1** Excavations shall be measured in accordance with the requirements of Clause 8.3.1 of SANS 1200 DA.

Initials.....

- PF 8.2.2 Concrete foundations and surface beds shall be measured in accordance with the requirements of Clause 8 of SANS 1200 GA.
- PF 8.2.3 Waterproofing under the surface beds shall be measured by the square metre laid.
- PF 8.2.4 Brickwork shall be measured by the square metre constructed in a particular width and shall include for Damp proof course, for air bricks if specified and for the type of finish specified on the drawings or in the project specification.
- Additional payment for plastering and painting shall only be made if specific items for the work is include in the Schedule of Quantities.
- PF 8.2.5 Brickwork reinforcement shall be measured by the linear metre built in for a particular width and shall include for the galvanized hoop irons or ties to be fixed to columns, walls or slabs as specified on the drawings or in the project specification.
- PF 8.2.6 Plastering shall be measured by the square metre for walls and by linear metre for narrow width smaller than 300 mm. Different items will be scheduled for internal and external plastering, various narrow widths and types of finish required as specified on the drawings or in the project specification.
- PF 8.2.7 Painting shall be measured by the square metre for walls and by linear metre for narrow width smaller than 300 mm and shall include for preparation of the surface to receive the paint, the application of the under and or priming coat and for the type of finish specified on the drawings or in the project specification.
- PF 8.2.8 Doors shall be measured by the number and shall include for setting and building in door frames and painting in accordance with the requirements shown on the drawings or in the project specification.
- PF 8.2.9 Window frames shall be measured by the number and shall include for setting and building in window frames and painting in accordance with the requirements shown on the drawings or in the project specification.
- PF 8.2.10 Glazing shall be measured by the square metre. Different items will be scheduled for types of glazing required as specified on the drawings or in the project specification.
- PF 8.2.11 Built-in items and other miscellaneous items shall be measured by the number and shall include for setting and building in or fixing and painting in accordance with the requirements shown on the drawings or specified in the project specification.
- PF 8.2.12 all structural concrete, steel work and cladding needed in a building will be measured in accordance with the Clause 8 of the relevant SANS specifications.

PF 8.3 **SCHEDULED ITEMS**

PF 8.3.1	Waterproofing under surface beds as specified	Unit: m <sup>2</sup>
PF 8.3.2	Brick walls including Damp proof course, air bricks and surface finish including painting as specified on the drawings in the	

Initials.....

	following widths: -	
	(a) 115 mm	Unit: m <sup>2</sup>
	(b) 230 mm	Unit: m <sup>2</sup>
	(c) 345 mm	Unit: m <sup>2</sup>
PF 8.3.3	Brickwork reinforcement including galvanized hoop irons or ties as specified on the drawings in the following widths: -	
	(a) 75 mm	Unit: m
	(b) 150 mm	Unit: m
PF 8.3.4	Supply and building in of door frames and hanging of doors including painting all as specified on the drawings  The schedule of quantities shall distinguish between different door heights and widths and for different wall thicknesses.	Unit: No
PF 8.3.5	Supply and building in of window frames including painting all as specified on the drawings  The schedule of quantities shall distinguish between different types of window frames.	Unit: No
PF 8.3.6	Supply and building of precast concrete lintels for various walls thickness and for specified lengths	Unit: No
PF 8.3.7	Supply and setting in, building in or fixing of miscellaneous items including painting all as specified on the drawings	Unit: No
PF 8.3.8	Glazing:  The schedule of quantities shall distinguish between different types of glazing.	Unit: m <sup>2</sup>
PF 8.3.9	Plastering:  (a) Internal plaster (b) External plaster (c) Internal plaster to narrow widths (d) External plaster to narrow widths	Unit: m <sup>2</sup> Unit: m <sup>2</sup> Unit: m Unit: m
PF 8.3.10	Painting:  (a) Internal surfaces (b) External surfaces (c) Internal painting to narrow widths (d) External painting to narrow widths	Unit: m <sup>2</sup> Unit: m <sup>2</sup> Unit: m Unit: m

## PF 9 APPLICABLE STANDARDS

Reference is made to the latest issues of the following standards: -

Initials.....

SANS 471 :	Portland Cement
SANS 523 :	Limes for use in Buildings
SANS 545 :	Wooden Flush Doors
SANS 630 :	Decorative High Gloss Enamel Paints
SANS 634 :	Emulsion Paints for Exterior Use
SANS 678 :	Primers for Wood
SANS 679 :	Zinc Chromate Primer
SANS 681 :	Undercoats for Paints
SANS 727 :	Steel Windows and Steel Doors
SANS 909 :	Red Oxide Zinc Chromate Primer
SANS 952 :	Polyethylene Sheet
SANS 987 :	Cement Bricks
SANS 1129 :	Steel Door Frames
SANS 1200 A:	Civil Engineering Construction: General
SANS 1200 AA :	Civil Engineering Construction: General (small works)
SANS 1200 AB :	Civil Engineering Construction: Engineer's Office
SANS 1200 C:	Civil Engineering Construction: Site Clearing
SANS 1200 D:	Civil Engineering Construction: Earthworks
SANS 1200 DA :	Civil Engineering Construction: Earthworks (small works)
SANS 1200 DB :	Civil Engineering Construction: Earthworks (pipe trenches)
SANS 1200 DM :	Civil Engineering Construction: Earthworks (roads, subgrade)
SANS 1200 G:	Civil Engineering Construction: Concrete (structural)
SANS 1200 GA :	Civil Engineering Construction: Concrete (small works)

## **CODES OF PRACTICE**

SANS 064 : Preparation of Steel Surfaces for Coating

Initials.....

**PH 'DENSO TAPE' WRAPPING****PH 1 SCOPE**

This specification covers the protection of buried steel pipes, specials and couplings by means of petrolatum impregnated tape, Denso, Petro Tape, or equivalent.

**PH 2 GENERAL REQUIREMENTS**

The corrosion protection system shall be based on a specially formulated cold-applied high temperature petrolatum tape for corrosion protection of steelwork and pipelines.

**PH 3 PROTECTION OF STEEL PIPES AND SPECIALS**

Wire brush all pipe surfaces to remove loosely adhering corrosion product and other dirt. Prime bare metal surfaces with Denso Primer, leaving a thin film. Wind Denso Tape circumferentially around the pipe, taking care to exclude air pockets. For pipes in excess of 80 NB, maintain 25 mm overlaps. Wind PVC outer wrap circumferentially over the Denso Tape, staggered with the overlaps of the Denso Tape. Secure the PVC outer wrap at the ends of the rolls by one complete turn of self-adhesive tape.

**PH 4 PROTECTION OF COUPLINGS**

Remove all sand and dirt from the pipe barrel and coupling. Apply Denso Priming Solution liberally to bolt heads and nuts and a thin film on all other bare metal surfaces. Apply Denso Mastic to cover bolt heads and nuts on outside of flanges, and between flanges, to give 13 mm cover on sleeve. Mould up to but not over bolts. Apply Denso Tape circumferentially over the mastic, taking care to exclude air pockets. Do not stretch the tape. One complete turn of tape is required, making an 80 mm overlap at the ends. Smooth the Denso tape over the mastic, pressing out any air pockets. Apply Layflat sheeting circumferentially over the whole joint. Use two complete turns of sheeting and secure the ends onto the pipe barrel by means of self-adhesive PVC tape.

Initials.....

**PJ CLEANING AND FINISHING****PJ 1 SCOPE**

**PJ 1.1** This Section covers the final finishing and cleaning up of the Works and Site, and the disposal of excess material at places approved by the Project Manager

This Section does not cover the disposal of unsuitable excavated material, the finishing of quarries or borrow pits, the finishing of any backfill, the cleaning and finishing of concrete and other finishes described elsewhere in the specification or for which separate payment clauses exist.

**PJ 2 INTERPRETATIONS**

Not applicable to this specification

**PJ 3 MATERIALS**

Not applicable to this specification.

**PJ 4 PLANT**

Not applicable to this specification.

**PJ 5 CONSTRUCTION****PJ 5.1 Precautions****PJ 5.1.1 Safety**

The requirements of Sub clause 5.1.1 of SANS 1200 D or SANS 1200 DA (as applicable) shall apply.

**PJ 5.2 Methods and Procedures****PJ 5.2.1 General**

After completion of the work which is to be executed under this Contract, the Works and the Site shall be finally and neatly cleaned and finished off by means of suitable machines and equipment and hand labour where required until a neat and clean appearance is obtained. The Contractor shall ensure that completed and approved work is not damaged during the cleaning up operations. If any part is damaged it shall immediately be rectified to comply with the required specification for the particular part of the Works. Camping Sites shall be neatly cleaned and all rubbish shall be disposed at places approved by the Project Manager

**PJ 5.2.2 Cleaning**

Loose stones, felled trees, roots and all other rubbish on fill or on the sides of streams shall be removed to give the site a neat appearance. Storm water drains shall be cleaned of debris, soil, silt and other material. Concrete floor panels from temporary buildings and any excess concrete dumped on the site shall be broken up

Initials.....

and disposed of in areas approved by the Project Manager and covered over to the satisfaction of the Project Manager

**PJ 5.2.3 Finishing**

Permanent access roads required for future use by the Employer and other permanent roads in the general works area shall be graded so as to remove all corrugations and all imperfections made good in such a way that the specified shape is maintained and the surface is not loosened. Dragging, pushing or scraping waste material along across these roads will not be permitted.

Care shall be taken not to damage culvert headwalls and drains when doing this work. All cutting, fills and drains shall be trimmed and finished to the original lines and grades or as required by the Project Manager All intersecting slopes shall be neatly rounded. Excess debris or other waste material adjacent to culverts and drainage structures shall be removed and trimmed as directed by the Project Manager

**PJ 6 TOLERANCES**

**PJ 6.1** After the completion of cleaning and finishing as described in this specification, all work shall be within the tolerances required by the relevant specification for each portion of the work.

**PJ 7 TESTING**

Not applicable to this specification.

**PJ 8 MEASUREMENT AND PAYMENT**

**PJ 8.1 Cleaning and Finishing** Unit: Lump Sum

Payment shall be a lump sum to provide for all expenses in connection with this work. The tendered lump sum shall be a fixed amount and shall not be subject to any variation as far as quantity is concerned.

Initials.....

## SECTION IV: PRICED ACTIVITY SCHEDULE

Procurement Reference Number: **W/RFQ/NW-000/2026**

<b>SECTION 1: PRELIMINARY AND GENERAL</b>						
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
	<b>SABS 1200A</b>	<b><u>GENERAL</u></b>				
		-				
1,1	8,3	<b><u>FIXED CHARGE ITEMS</u></b>				
1.1.1	8.3.1	<u>Contractual Requirements including Insurance's</u>	Sum	1		
	8.3.2	<u>Establish facilities on the site</u>				
	8.3.2.2	<u>Facilities for the Contractor</u>				
1.1.2	a)	Offices and storage sheds	Sum	1		
1.1.3	b)	Workshops	Sum	1		
1.1.4	c)	Fully equipped laboratory	Sum	1		
1.1.5	d)	Living accommodation	Sum	1		
1.1.6	e)	Ablution and latrine facilities	Sum	1		
1.1.7	f)	Tools and equipment	Sum	1		
1.1.8	g)	Water supplies, electric power and communications	Sum	1		
1.1.9	h)	Dealing with water (See SABS 1200 A Subclause 5.5)	Sum	1		
1.1.10	i)	Access (See SABS 1200 A Subclause 5.8)	Sum	1		
1.1.11	8.3.3	<u>General responsibilities and other fixed charges obligations</u>	Sum	1		
		-				
1.1.12	8.3.4	<u>Removal of site establishment</u>	Sum	1		
<b>CARRIED FORWARD</b>						

<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		<b><u>BROUGHT FORWARD</u></b>				
		-				
	<b>SABS</b>					

Initials.....

	<b>1200 A</b>					
1,2	8,4	<b><u>TIME - RELATED ITEMS</u></b>				
1.2.1	8.4.1	<u>Contractual Requirements including Insurance's</u>	Sum	1		
		-				
	8.4.2	<u>Operate and Maintain Facilities on the Site for the Duration of the Contract</u>				
	8.4.2.2	<u>Facilities for the Contractor</u>				
1.2.2	8.4.2.2 (a)	Offices and storage sheds	Sum	1		
1.2.3	8.4.2.2 (b)	Workshops	Sum	1		
1.2.4	8.4.2.2 (c)	Fully equipped laboratory	Sum	1		
1.2.5	8.4.2.2 (d)	Living accommodation	Sum	1		
1.2.6	8.4.2.2 (e)	Ablution and latrine facilities	Sum	1		
1.2.7	8.4.2.2 (f)	Tools and equipment	Sum	1		
1.2.8	8.4.2.2 (g)	Water supplies, electric power and communications	Sum	1		
1.2.9	8.4.2.2 (h)	Dealing with water (See SABS 1200 A Subclause 5.5)	Sum	1		
1.2.10	8.4.2.2 (i)	Access (See SABS 1200 A Subclause 5.8)	Sum	1		
1.2.11	8.4.3	<u>General responsibilities and other time-related obligations</u>	Sum	1		
		-				
1.2.12	8.4.5	<u>Other time-related services (specify):</u>	Sum	1		
		-				
		-				
		-				
<b>TOTAL CARRIED FORWARD TO SUMMARY</b>						

Initials.....

<b>SECTION 2: PROVISIONAL SUMS</b>					
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>
	<b>SABS 1200A</b>	<b><u>GENERAL</u></b>			
		-			
		<u>Sums stated provisionally by the Engineer</u>			
2,1		<u>Dayworks</u>			
		-			
2.1.1	8,7	Allow provisional sum to cover the cost of material ordered by the Engineer	Sum	1	10 000,00
2.1.2	8.5(b)(2)	Percentage to be added to item 2.1.1	%		
2.1.3	8,7	Allow provisional sum to cover the cost of work done by labour ordered by the Engineer	Sum	1	10 000,00
2.1.4	8.5(b)(2)	Percentage to be added to item 2.1.3	%		
2.1.5	8,7	Allow provisional sum to cover the cost of work done with plant and equipment ordered by the Engineer	Sum	1	10 000,00
2.1.6	8.5(b)(2)	Percentage to be added to item 2.1.5	%		
<b>TOTAL CARRIED FORWARD TO SUMMARY</b>					

Initials.....

<b>SECTION 3: MASONRY WALL</b>						
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		-				
2,1	<b>SABS 1200 D</b>	<b><u>EARTHWORKS</u></b>				
	8.3.2	<u>Bulk excavations</u>				
	8.3.2 a)	<u>Excavate in all materials and dispose of:</u>				
2.1.1		Wall footing, 700 mm wide, 1100 mm deep	m <sup>3</sup>	51,00		
2.1.2		Rip to a depth of 150mm, water and compact the bed of excavation to 93% Mod AASHTO density	m <sup>2</sup>	46,00		
		<u>Backfill and compact</u>				
2.1.3		Backfill excavated material in 2x150mm layers under the wall footing and compact to 98% Mod AASHTO dry density	m <sup>3</sup>	18,00		
<b>CARRIED FORWARD</b>						-
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		<b><u>BROUGHT FORWARD</u></b>				-
2,2	<b>SABS 1200 HB</b>	<b><u>WALL CONSTRUCTION</u></b>				
		<u>Brickwork in class 14 Mpa cement bricks in Class II mortar</u>				
2.2.1		2500mm tall, 350X480 mm masonry supporting piers	No.	21,00		
2.2.2		230 (220) mm masonry wall	m <sup>2</sup>	169,00		
		<u>Brickwork reinforcement</u>				
2.2.3		At every brick course below ground level	m	217,00		

Initials.....

2.2.4		At every third brick course above ground level	m	380,00		
<b>CARRIED FORWARD</b>						-
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		<b><u>BROUGHT FORWARD</u></b>				-
		<u>Plastering</u>				
2.2.5		One coat of plaster on brickwork of of piers, sides and top	m <sup>2</sup>	91,00		
2.2.6		One coat of plaster on brickwork of external surfaces of the wall, sides and top	m <sup>2</sup>	340,00		
		<u>Painting</u>				
2.2.7		Of internal plastered surfaces of the piers with one coat of primer and two coats of enamel paint	m <sup>2</sup>	91,00		
2.2.8		Of external plastered surfaces of the wall with one coat of primer and two coats of enamel paint	m <sup>2</sup>	340,00		
<b>CARRIED FORWARD</b>						-
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		<b><u>BROUGHT FORWARD</u></b>				-
	<b>SABS 1200 G</b>	-				
2,3	8,4	<b><u>CONCRETE (STRUCTURAL)</u></b>				
	8.4.3	<u>Strength concrete 15 MPa/19 mm concrete for:</u>				
2.3.1		50 mm thickness for blinding layer to wall footing	m <sup>2</sup>	45,50		
	8.4.3	<u>Strength concrete 25 MPa/19mm:</u>				
2.3.2		Wall footing	m <sup>3</sup>	13,70		

Initials.....

2,4	8,3	<b><u>REINFORCEMENT</u></b>				
	8.3.2	<u>High Yield Tensile welded mesh Ref. No. 395:</u>				
2.4.1		Wall footing	m <sup>2</sup>	45,50		
<b>CARRIED FORWARD</b>						-
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		<b><u>BROUGHT FORWARD</u></b>				-
2,5	8.4.4	<b><u>UNFORMED SURFACE FINISH</u></b>				
	8.4.4 a)	<u>Wood floated finish to:</u>				
2.5.1		Blinding layer of wall footing	m <sup>2</sup>	45,50		
2.5.2		Top of wall footing	m <sup>2</sup>	31,00		
2,6	8,5	<b><u>JOINTS</u></b>				
2.6.1		Construction joints	m	52,50		
<b>CARRIED FORWARD</b>						-
<b>Item No.</b>	<b>Payment clause</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rate (N\$ - Excl. VAT)</b>	<b>Total (N\$ - Excl. VAT)</b>
		<b><u>BROUGHT FORWARD</u></b>				-
2,7		<b><u>MISCELLANEOUS ITEMS</u></b>				
		<u>Supply and install:</u>				
2.7.1		110mm diameter uPVC drain pipes at bottom of wall at intervals of 5m	No	12,00		

Initials.....

		<u>Supply and installation of Electric fencing on the wall:</u>				
2.7.2		7 Line straight powder coded black poles	No	50,00		
2.7.3		8kg Braided wire	No	1,00		
2.7.4		Earth loop	No	50,00		
2.7.5		Wizzard 4J	No	1,00		
2.7.6		Stainless steel Nylon HD and Hook	No	100,00		
2.7.7		Lugs 6x35mm each	No	15,00		
2.7.8		Clip-on warning signs	No	6,00		
2.7.9		Earth spikes 1000mm copper coated steel	No	2,00		
2.7.10		Siren 15W	No	1,00		
2.7.11		HT cable soft/thin 100m-black	No	1,00		
2.7.12		Nite lite CT pulsar	No	3,00		
2.7.13		7 Line stays coated black	No	20,00		
2,8	<b>SABS 1200 A</b>	<b><u>GENERAL</u></b>				
2.8.1		The Bidder shall list below and price on a lump sum basis any additional items which in his opinion are not adequately covered elsewhere under this section				
			Sum	1,00		
			Sum	1,00		
			Sum	1,00		
<b>TOTAL CARRIED FORWARD TO SUMMARY</b>						-

<b>Summary</b>		-
<b>Section</b>	<b>Description</b>	<b>Total amount (N\$)</b>
1	Preliminaries and General (P&Gs)	-
2	Provisional sums	-
3	Masonry wall construction	-
	<b>SUB-TOTAL</b>	-
	<b>15% V.A.T</b>	-
	<b>GRAND TOTAL</b>	-

Initials.....

**Priced Activity Schedule Authorised By:**

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:	Company		

Initials.....

## SECTION V: SPECIFICATIONS AND COMPLIANCE SHEET

Procurement Reference Number: W/RFQ/NW-001/2027

*[Bidders should complete columns C and D with the specifications and performance of the Works offered. Also state “comply” or “not comply” and give details of any non-compliance/deviation to the specifications required. Attach detailed technical literature if required. Authorise the specifications offered in the signature block below]*

Item No	Specifications and Performance Required	Compliance of Specifications and Performance Offered	Details of Non-Compliance/ Deviation (if applicable)
A*	B*	C	D
1.	As per section III		

\* Columns A and B to be completed by Public Entity.

### Specifications and Compliance Sheet Authorised By:

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:		Company	

Initials.....

## SECTION VI: GENERAL CONDITIONS OF CONTRACT AND CONTRACT AGREEMENT

Any resulting contract shall be placed by means of a Purchase Order/Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC) for the Procurement of Goods (Ref. W/RFQ-GCC) available on the website of the Namibia Water Corporation Ltd ([www.namwater.com.na](http://www.namwater.com.na)), except where modified by the Special Conditions below

## SECTION VIII SPECIAL CONDITIONS OF CONTRACT

Procurement Reference Number: **W/RFQ/NW-001/2027**

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

<b>GCC Clause Reference</b>	<b>Special Conditions</b>
<b>Employer GCC 1.1(r)</b>	<b>Namibia Water Corporation Ltd (NamWater)</b>
<b>Intended Completion Date GCC</b>	The intended completion date is: <b>Two (2) months</b> after the official issuing of the Purchase Order.
<b>Project Manager GCC 1.1(y)</b>	The Project Manager is Mauritius A. Andjengo
<b>Site GCC 1.1(aa)</b>	The Site is located at NamWater Head office, Windhoek and is defined in Drawings Nos: _____
<b>Start Date GCC 1.1(dd)</b>	The Start Date shall be: <b>14 days after issuing of Award Letter</b>
<b>The Works GCC 1.1(hh)</b>	The Works consist of:
<b>Interpretation GCC 2.2</b>	The project will be completed in the following sections: Not applicable
<b>Interpretation GCC2.3</b>	The following additional documents shall form part of the contract: Contractor supporting documentation.
<b>Language and Law GCC 3.1</b>	The language of the contract is English The law that applies to the Contract is the law of Namibia.
<b>Project</b>	The Project Manager shall obtain specific approval from the Employer

Initials.....

GCC Clause Reference	Special Conditions
<b>Manager's Decisions 4.1</b>	before carrying out any of his duties under the Contract which in the Project Manager's opinion will cause the amount finally due under the Contract to exceed the Contract Price or will give entitlement to extension of time. This requirement shall be waived in an emergency affecting safety of personnel or the Works or adjacent property.
<b>Delegation GCC 5.1</b>	The Project Manager may not delegate his/her duties.
<b>Notices GCC 6</b>	<p>Any notice shall be sent to the following addresses:</p> <p>For the Employer, the address shall be as given on the page 2 of this Bidding Document and the contact name shall be</p> <p><b>NamWater</b>  <b>Procurement Management Unit</b>  <a href="mailto:bids@namwater.com.na">bids@namwater.com.na</a>  <b>Tell no: 061712009</b>  <b>Private Bag 13389 Windhoek, Namibia.</b></p> <hr/> <p>For the Contractor, the address shall be as given on the first page of the Purchase Order/Letter of Acceptance and the contact name shall be</p> <hr/>
<b>Insurance GCC 13.1</b>	<p>Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be:</p> <ul style="list-style-type: none"> <li>(a) for the Works, Plant and Materials: for <b>the full amount of the works including removal of debris, professional fee, etc.</b></li> <li>(b) for loss or damage to Equipment: <b>for the replacement value of the equipment that the contractor intends to use on site until the taking over by the Employer.</b></li> <li>(c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract <b>for an amount representing the value of the property that are exposed to the action of the contractor in the execution of the works. It will extend to the property of the Procuring Entity as well.</b></li> <li>(d) for personal injury or death: <ul style="list-style-type: none"> <li>(i) of the Contractor's employees: <b>The Contractor shall take an adequate insurance cover for its employees for any claim arising in the execution of the</b></li> </ul> </li> </ul>

Initials.....

GCC Clause Reference	Special Conditions
	<p><b>works.</b></p> <p>(ii) of other people: <b>This cover shall be for an adequate amount for Third Party extended to the Employer and its representatives.</b></p> <p>(e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable.</p> <p>The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.</p>
<b>Site Date GCC 14.1</b>	The site Data shall be: <b>NamWater Head Office, 176 Iscor street Northern Industrial Area, Windhoek.</b>
<b>Possession of the Site GCC 20.1</b>	The Site Possession Date shall be: Fourteen(14) Days after issuing of Award Letter.
<b>Procedure for Disputes GCC 24</b>	No Adjudicator shall be appointed under the contract and arbitration shall not apply. If any dispute arises between the Employer and the Contractor in connection with or arising out of the Contract, the parties shall seek to resolve any such dispute by amicable agreement. If the parties fail to resolve such dispute by amicable agreement, within 14 days after one party has notified the other in writing of the dispute, then the dispute shall be referred to court by either party.
<b>Program GCC 25.1</b>	The Contractor shall submit for approval a Program at the signing of the contract or issue of the Purchase Order Agreement.
<b>GCC 25.3</b>	Program updates shall be required..
<b>Defects Liability Period GCC 33.1</b>	The Defects Liability Period is 3 months.
<b>Payment Certificates GCC 39.7</b>	"Payment shall be made as per the progress of works with payment for materials on site".
<b>Payments GCC 40</b>	<p>The amount certified by the Project Manager shall be paid in full within 30 days from the date of the statement and upon receipt by the Employer of an invoice, supported by:</p> <p>(a) The payment certificate;</p> <p>(b) (b) a certificate of Completion of the Works.</p>

Initials.....

GCC Clause Reference	Special Conditions
<b>Adverse weather Conditions</b> GCC 41.1 (l)	Adverse weather refers to conditions that are significantly different from the norm and negatively impact construction activities. These conditions can delay, disrupt, or halt work, affect safety, damage materials, or compromise the quality of the construction process.
<b>Price Adjustment</b> GCC 44.	The Contract [not] subject to price adjustment.
<b>Retention</b> GCC 45.	Not applicable
<b>Liquidated Damages</b> GCC 46.1	The liquidated damages for the whole of the Works are <b>0.5</b> per day.  The maximum amount of liquidated damages for the whole of the Works is <b>10%</b> of the contract value.
<b>Bonus</b> GCC 47.1	The rate for the Bonus per calendar day is: Not applicable
<b>Advance Payment</b> GCC 48.1	(i) No advance payment shall be made.
<b>Performance Security</b> GCC 49.1	(i) No Performance Security is required.
<b>GCC 56.1</b>	As built” drawings or operating and maintenance manuals are required
<b>GCC 59.1</b>	The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is: <b>20%</b> , twenty percent.

Initials.....

## QUOTATION CHECKLIST SCHEDULE

**Procurement Reference No.: W/RFQ/NW-001/2027**

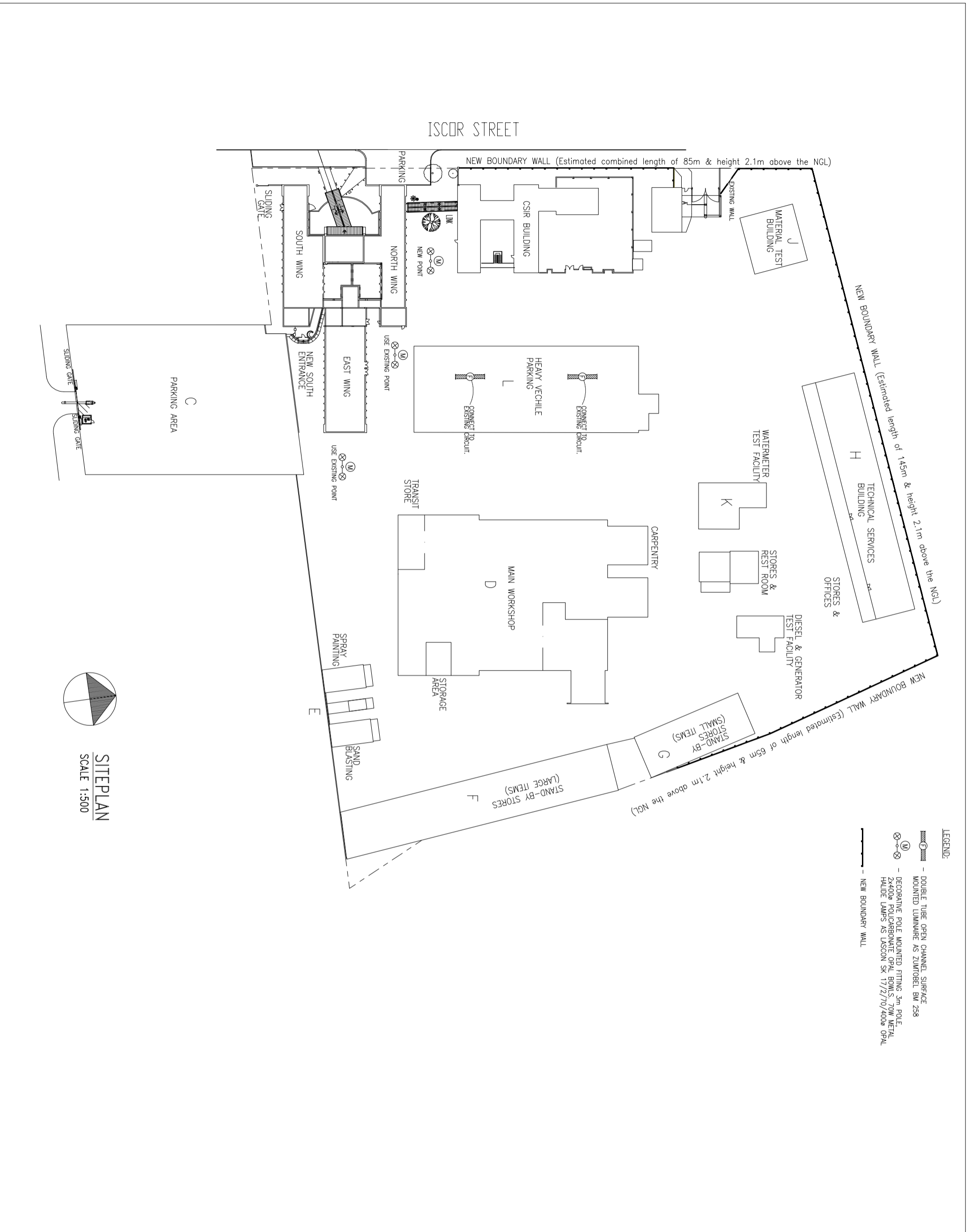
Description	Attached	Not Attached
Quotation letter		
Priced Activity Schedules		
Specification and Compliance Sheet		
Submit signed Bid-securing Declaration.		
Valid company Registration Certificate Copy from <b>Ministry of Trade and Industry</b>		
Original valid good standing Tax Certificate from <b>Inland Revenue</b> or a valid certified copy of an original certified by the Namibian Police of good standing Tax Certificate		
Original valid good Standing Certificate from <b>Social Security Commission</b> or a valid certified copy of an original certified by the Namibian Police of good standing Tax Certificate		
Valid Affirmative Action Compliance Certificate, proof from <b>Employment Equity Commissioner</b> that bidder is not a relevant employer, or exemption issued in terms of Section 42 of the Affirmative Action Act, 1998;		
Company Profile (detail of experience, references, business address and insight to activities)		
At least two (2) reference letter and or completion for experience in works of an equivalent nature and volume performed in the last 5 years.		
Work Delivery Schedule (i.e. time to complete work upon appointment/program of works).		
Methodology for site management and safety in executing this work, taking cognizance of the heavy equipment and tools to be		

Initials.....

used		
Comprehensive method statement indicating/focusing on the following areas; (Design, Site layout, construction methodology & Operational and maintenance methodology).		
Comprehensive CV's of the Key employees allocated to this particular project (CV with certified Qualifications).		
Declaration stating that the bidder commits to submit a comprehensive Safety File upon Contract Award.		

***Disclaimer:*** The list defined above is meant to assist the Bidder in submitting the relevant documents and shall not be a ground for the bidder to justify its non-submission of major documents for its quotation to be responsive. The onus remains on the Bidder to ascertain that it has submitted all the documents that have been requested and are needed for its submission to be complete and responsive.

Initials.....



- LEGEND:**
- ▬ - DOUBLE TUBE OPEN CHANNEL SURFACE MOUNTED LUMINAIRE AS ZUMTOBEL BW 258
  - ⊗ - DECORATIVE POLE MOUNTED FITTING 3m POLE 2x400<sup>W</sup> POLYCARBONATE OPAL BOWLS, 70W METAL HALIDE LAMPS AS LASCON SK 17/2/70/400<sup>W</sup> OPAL
  - ▬ - NEW BOUNDARY WALL

- NOTES :**
1. CONCRETE CLASS TO BE 25MPa/19mm.
  2. COVER TO REINFORCEMENT: 50mm.
  3. COMPACT LOOSE MATERIAL AT BOTTOM OF EXCAVATION TO 98% MOD. ASSHTO.
  4. BRICKS TO FOLLOW ENGLISH BOND PATTERN.
  5. TOP OF THE WALL TO BE FITTED WITH STANDARD 6-STRAND ELECTRIC FENCING.
  6. FOR DETAILS ON BOUNDARY WALL, REFER TO DRAWING NO. 15/1/2/4-191 R0

**DEFINITIONS:**  
 C/U - CONTROL JOINT  
 C/C - CENTER TO CENTER

NO.	AMENDMENTS	DATE	BY
0	FOR BIDDING PURPOSES	07/2025	ON



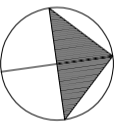
**NAMWATER HEAD OFFICE**

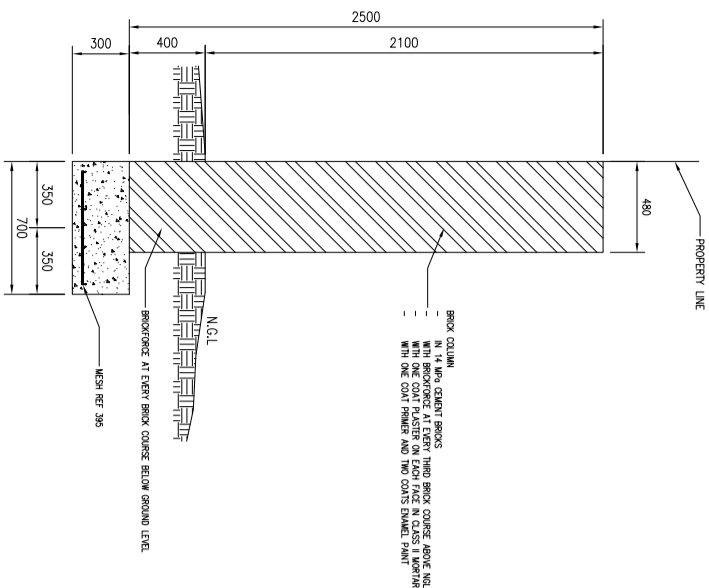
**DRAWING**  
 NAMWATER HEAD OFFICE  
 YARD LAYOUT

SURVEYED	DRAWN	TRACED
DESIGNED CIVIL	O. NAMBUJUNGA	AUTOCAD
CHECKED CIVIL	C. KANYANGELA	CHECKED MECH.
APPROVED CIVIL	W. ANDERSON	APPROVED MECH.

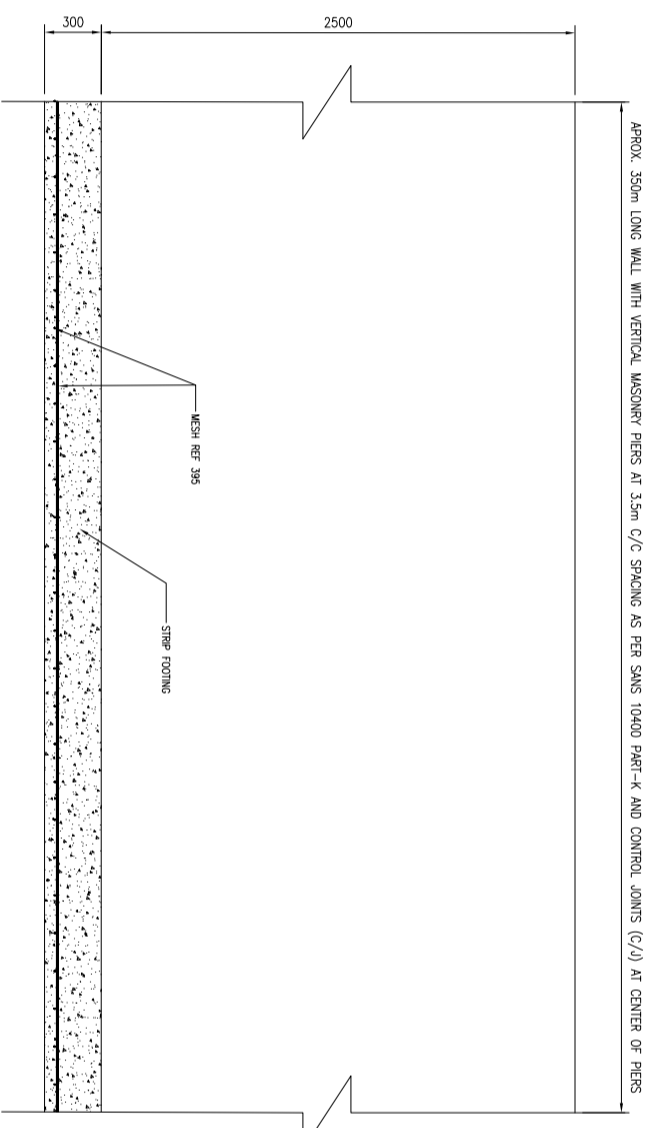
DATE	07/2025	MANAGER CIVIL DESIGN	SHEET NO.
SCALE	AS SHOWN		1 OF 1
REGISTRATION NO.	15/1/2/4-192 R0		

**SITEPLAN**  
 SCALE 1:500

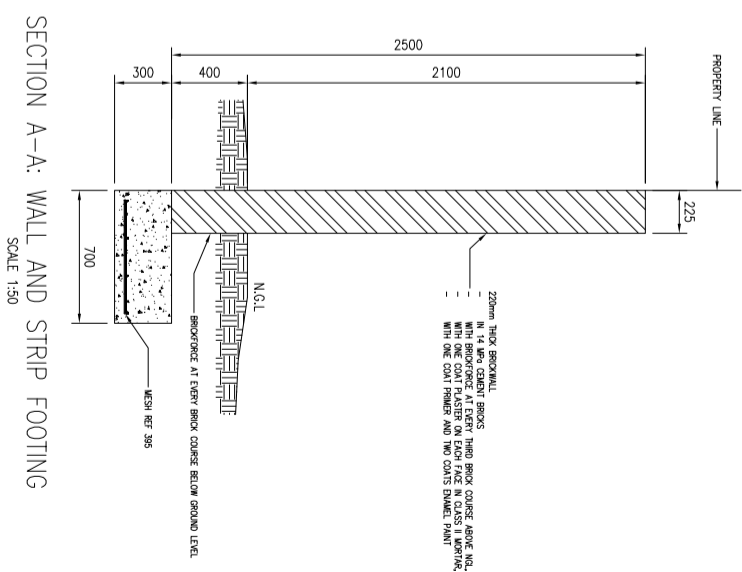




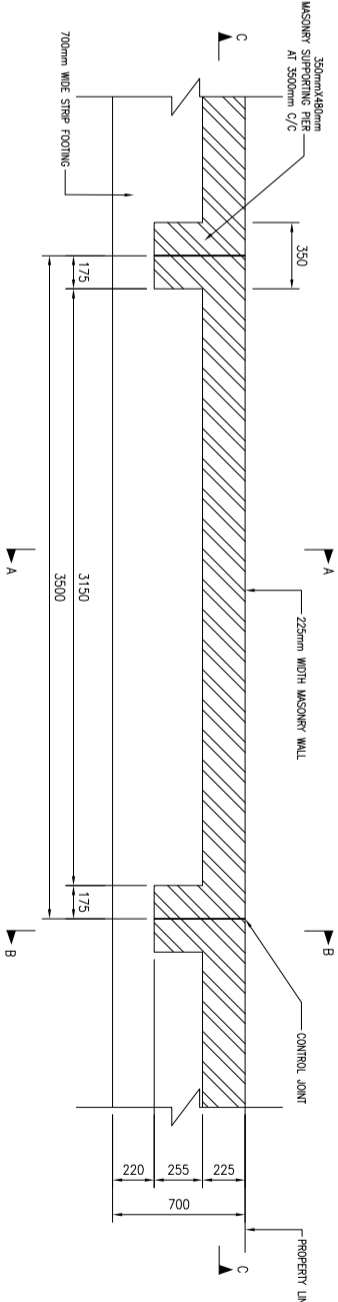
SECTION B-B: PIER AND STRIP FOOTING  
SCALE 1:20



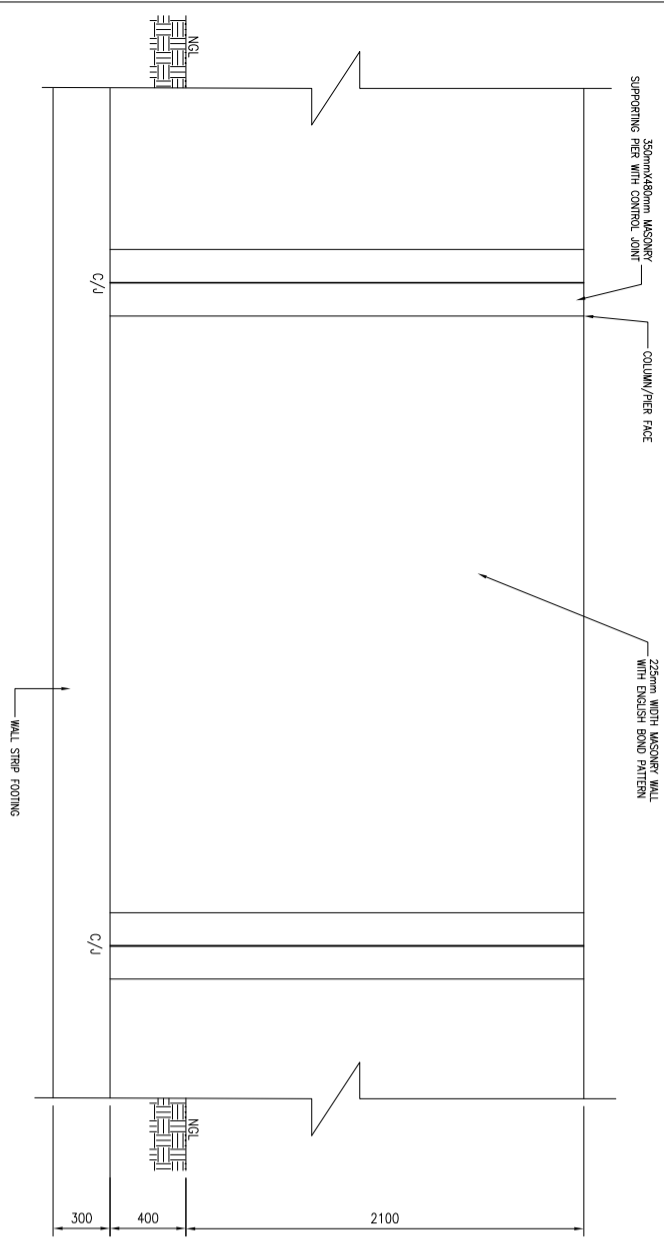
SECTION C-C: LATERAL SECTION OF WALL AND STRIP FOOTING  
SCALE 1:20



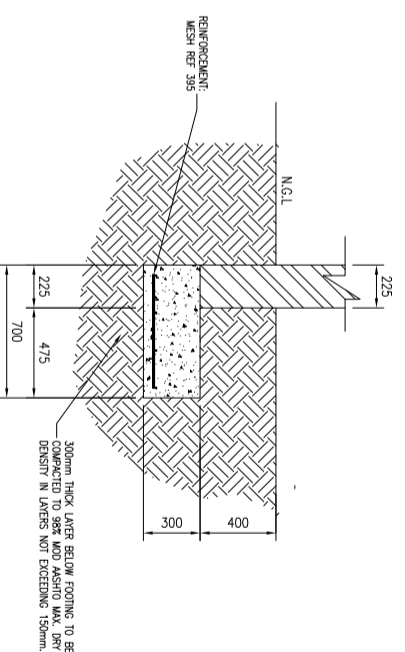
SECTION A-A: WALL AND STRIP FOOTING  
SCALE 1:30



PLAN VIEW: MASONRY WALL, PIERS AND STRIP FOOTING  
SCALE 1:20



WALL SIDE ELEVATION  
SCALE 1:20



STRIP FOUNDATION DETAIL  
SCALE 1:20

NOTES :

1. CONCRETE CLASS TO BE 25MPa/19mm.
2. COVER TO REINFORCEMENT: 50mm.
3. COMPACT LOOSE MATERIAL AT BOTTOM OF EXCAVATION TO 98% MOD. ASHTO.
4. BRICKS TO FOLLOW ENGLISH BOND PATTERN.
5. TOP OF THE WALL TO BE FITTED WITH A STANDARD 6-STRAND ELECTRIC FENCING.

DEFINITIONS:  
C/J - CONTROL JOINT  
C/C - CENTER TO CENTER

DRAWING: NAMWATER HEAD OFFICE		MASONRY BOUNDARY WALL DETAILS	
SURVEYED	GRAHAM O. NAMBUNDINGA	TRACED	AUTOLOAD
DESIGNED CIVIL	O. NAMBUNDINGA	DESIGNED ELEC.	DESIGNED MECH.
CHECKED CIVIL	G. KANYANGELA	CHECKED ELEC.	CHECKED MECH.
APPROVED CIVIL	W. ANDERSON	APPROVED ELEC.	APPROVED MECH.
MANAGER CIVIL DESIGN			
DATE	07/2025	SCALE	AS SHOWN
REGISTRATION NO.	15/1/2/4-191 RO	SHEET NO.	1 OF 1



NAMWATER HEAD OFFICE