V3 CONSULTING ENGINEERS

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE (COGHSTA)

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

FEBRUARY 2023

EMPLOYER:

THE HEAD OF DEPARTMENT
CoGHSTA
PRIVATE BAG X5005
KIMBERLEY
8300

CONSULTING ENGINEERS:

V3 CONSULTING ENGINEERS (PTY) LTD
P O BOX 1178
KIMBERLEY
8300

TENDERER: _____

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

CLOSING DATE**:** **FRIDAY, 03** MARCH 2023	CLOSING TIME**: 11H00**

NAME OF TENDERER* ……

CONTACT PERSON* ……

ADDRESS* ……

……

……

……

TEL NO* ……

FAX NO* ……

E-MAIL ADDRESS* ……

CIDB GRADING* ……

CIDB REGISTRATION NO* ……

NHBRC REGISTRATION NO* ……

B-BBEE LEVEL* ……

CSD REGISTRATION NO ……

TENDER AMOUNT, EXCL. VAT* R ……

TENDER PERIOD* …… weeks

(* TO BE COMPLETED BY TENDERER)

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

GENERAL TENDER INFORMATION:

INVITATION DATE	**FRIDAY,10 FEBRUARY 2023**
REQUIRED GRADING	**6 GB** or higher CIDB Grading and NHBRC registration
CLARIFICATION MEETING (COMPULSORY)	**WEDNESDAY, 17 FEBRUARY 2023** at **09H00** at the **LOXTON MUNICIPAL OFFICES**
CLOSING DATE	**FRIDAY, 03 MARCH 2023**
CLOSING TIME	**11H00**
CLOSING VENUE	Tender Box at **COGHSTA HEAD OFFICE, LARRY MOLEKO LOUW BUILDING, 9 CECIL SUSSMAN ROAD, KIMBERLEY, 8301.**

The Tender Documents (which include the Form of Offer and Acceptance) completed in all respects, plus any additional supporting documentation required, must be submitted in a sealed envelope with the name and address of the Tenderer, the Tender No. and title and the closing date indicated on the envelope. The sealed envelope must be handed in at the Tender Box at the **CoGHSTA KIMBERLEY** Offices. Tenders will be opened directly after closing. Due to a two-stage evaluation process tender prices will **NOT** be read out.

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

CONTENTS

VOLUME 2

DRAWINGS

V3 CONSULTING
ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

VOLUME 1

V3 CONSULTING
ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

THE TENDER

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

PART T 1:

TENDER PROCEDURES

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

T 1.1:

TENDER NOTICE AND INVITATION TO TENDER

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENT AND TRADITIONAL AFFAIRS NORTHERN CAPE INVITES TENDERERS FOR LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON.

1. **CoGHSTA hereby invites tenders for LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON.**
2. **Only NHBRC and CSD registered tenderers with a CIDB grading of 6** GB **or HIGHER are eligible to submit tenders.**
3. **A NON-COMPULSORY site briefing will be held on WEDNESDAY, 17 FEBRUARY 2023 at 09H00. Tenderers are requested to meet in the LOXTON MUNICIPAL** OFFICES **Tender documents will be available from the COGHSTA WEBSITE. A site inspection can be arranged with Region on appointment within 5 working days.**
4. **Tender documents are available FROM THE COGHSTA WEBSITE**
5. **The tender requires tenderers to submit a proposal for LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON.**
6. General enquiries relating to this tender should be addressed to Tebogo Monoametsi of CoGHSTA, Tel: (053) 807–9713, e-mail: TMonoametsi@ncpg.gov.za and technical enquiries to Philip Loots of V3 Consulting Engineers, Tel: (053) 004–0430, e-mail: philip.loots@v3consulting.co.za.
7. **Please note:**
   - Preference will be given to construction companies who are owned by Women, Youth & Persons with Disabilities.
   - Functionality and 80/20 principle evaluation criteria will apply. Based on functionality the tenderer should score 70 or more on the following criteria to be further evaluated:

Functionality	**Criteria**	**Weight**
1.	Experience of Tenderer	40
2.	NHBRC Registered Engineer	10
3.	Project Staff Experience	40
4.	Plant and Equipment	10
TOTAL		100

   - The requirements of the Preferential Procurement Regulations, 2022 (Government Gazette No. 2721)shall also apply, together with all other requirements as set out in the Tender Data.
   - Failure to comply with above requirements will result in automatic disqualification of the bidder.
   - CoGHSTA reserves the right to withdraw any invitation to tender and/or re-advertise or to reject any tender or to accept a part of it. CoGHSTA does not bind itself to accepting the lowest tender or award a contract to the bidder scoring the highest number of points.
   - Tenders will be opened directly after closing. Due to a two-stage evaluation process tender prices will **NOT** be read out.

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

LOCALITY PLAN

CLARIFICATION MEETING VENUE: LOXTON MUNICIPAL OFFICES

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

T 1.2:

TENDER DATA

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

T 1.2: TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of Board Notice 86 of 2010 in government Gazette No. 33239 of 28 May 2010, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. (See www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of Tenderers as an Annex to this tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

Clause Number	**Tender Data**
F.1	**General**
F.1.1	**Actions**
	Add the following to F.1.1:
	The Employer is CoGHSTA.
F.1.2	**Tender Documents**
	Add the following to F.1.2:
	"The following documents form part of this contract:
	(i) The General Conditions of Contract (GCC) for Construction Works (3rd Edition) 2015, as published by the South African Institution of Civil Engineering. This publication is available and Tenderers must obtain copies at their own cost from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel.: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.
	(ii) The SANS Standardised Specifications for Civil Engineering Construction prepared by the South African Bureau of Standards. These publications are available and Tenderers must obtain copies at their own cost from the South African Bureau of Standards, Private Bag X191, Pretoria, 0001.
	The above may also be inspected, by appointment, at the offices of the Employer's Agent during normal office hours.

The Tender Documents issued by the Employer comprise:

Volume 1: The Tender Document (this document), in which is bound:

The Tender

Part T 1:	**Tendering Procedure**
T 1.1	Tender notice and invitation to tender
T 1.2	Tender data

Part T 2:	**Returnable Documents**
T 2.1	List of returnable documents
T 2.2	Returnable Schedules

The Contract

Part C 1:	**Agreement and Contract Data**
C 1.1	Form of Offer and Acceptance
C 1.2	Contract Data
C 1.3	Form of Guarantee
C 1.4	Occupational Health and Safety Agreement
C 1.5	Contract of Temporary Employment as Community Liaison Officer

Part C 2:	**Pricing Data**
C 2.1	Pricing Instructions
C 2.2	Calculation of Fixed Price

Part C 3:	**Scope of Work**
C 3.1	Description of the Works
C 3.2	Engineering Drawings
C 3.3	Construction Work Specifications: Project Specifications
C 3.4	Management
C 3.5	Annexures

Part C 4:	**Site Information**
C 4.1	Site Information

Volume 2: Drawings (listed in C 3.2: Engineering Drawings)

Volume 1 is deemed the "**Returnable Document**" which must be returned to the Employer in terms of submitting a tender offer.

F.1.4 **Communication and Employer's Agent**

Add the following to F.1.4:

Attention is drawn to the fact that verbal information, given by the Employer's Agent during site visits / clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer. Only information issued formally by the Employer's Agent in writing to Tenderers will be regarded as amending the Tender Document.

The Employer's Agent is:

Name: MR PORCH SEKHUKHUNE
V3 CONSULTING ENGINEERS (PTY) LTD
P O BOX 1178
KIMBERLEY, 8300
Tel.: (053) 004 0430
Fax: (053) 831 2460
E-mail: porsch.sekhukhune@v3consulting.co.za

F.1.6.2 **Competitive Negotiation Procedures**

Add the following to F.1.6.2:

A competitive negotiation procedure will **not** be followed.

F.1.6.3 **Proposal Procedure using the Two-Stage System**

Add the following to F.1.6.3:

A two-stage system will be followed.

F.2 Tenderer's Obligations

F.2.1 **Eligibility**

Add the following to F.2.1:

Only those Tenderers who satisfy the following criteria are eligible to submit tenders:

Construction Industry Development Board (CIDB) Contractor Registration

Only Tenderers who are registered with the CIDB, in a Contractor grading designation equal to or higher than a Contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a **6** GB Class of construction work, are eligible to have their tenders evaluated.

Joint Ventures are eligible to submit tenders provided that:

1. The Joint Venture is registered as a joint venture on the CoGHSTA database;
2. Every member of the Joint Venture is registered with the CIDB;
3. The lead partner has a Contractor grading designation in the **6** GB Class of construction work;
4. The combined Contractor grading designation calculated in accordance with the CIBD Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a **6** GB Class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.

Notwithstanding the above, Tenderers who are capable of being so registered prior to the evaluation of submissions may be evaluated at the sole discretion of the Employer (the evaluation of tenders shall be deemed to take place when the Employer's Bid Evaluation Committee meets to make a recommendation to the Bid Adjudication Committee).

For alpha-numerics associated with the Contractor Grading Designations see **Annex G** attached.

F.2.7 **Clarification Meeting**

Add the following to F.2.7:

Clarification site or information meetings are **compulsory**. Tenders will not be accepted from Tenderers who have not attended the compulsory site or information meetings. Tenderers who arrive 15 (fifteen) minutes or more after the advertised time the meeting starts will not be allowed to attend the meeting or to sign the attendance register. If the Tenderer is delayed, he must inform the Contact Person before the meeting commences and will only be allowed to attend the meeting if the Chairperson of the meeting, as well as all the other Tenderers attending the meeting, give permission to do so.

All partners or the leading partner of a Joint Venture must attend the compulsory clarification site or information meeting.

Tenderers should be represented at the compulsory clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.

F.2.9 **Insurance**

Add the following to F.2.9:

The Employer will provide **no** insurance.

F.2.10 **Pricing the Tender Offer**

F.2.10.3 *Add the following to F.2.10.3:*

The tendered Fixed Price will **not** be subject to escalation.

See C 1.2: Contract Data: Part 1: Data Provided by the Engineer: Clause 6.8.2.

F.2.13 **Submitting of a Tender Offer**

Add the following to F.2.13.1:

Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

Replace sub-clause F.2.13.2 with the following:

Return all returnable documents to the Employer after completing them in their entirety by writing in **non-erasable black ink.**

Add the following to F.2.13.3:

Parts of each Tender offer communicated on paper shall be submitted as an original **plus 1 (ONE) electronic scanned copy on a flash/dvd drive**.

Add the following after the first sentence of F.2.13.4:

The tender shall be signed by a person duly authorised to do so. Tenders submitted by Joint Ventures of 2 (two) or more firms shall be accompanied by the document of formation of the Joint Venture, authenticated by a public notary or other official deputed to witness sworn statements, in which is defined precisely the conditions under which the Joint Venture will function, its period of duration, the persons authorised to represent and obligate it, the participation of the several firms forming the Joint Venture, and any other information necessary to permit a full appraisal of its functioning.

Add the following to F.2.13.5:

The Employer's Agent's address for delivery of Tender Offers and identification details to be shown on each tender offer package are:

Location of tender closure: Tender Box**,** COGHSTA HEAD OFFICE, LARRY MOLEKO LOUW BUILDING, 9 CECIL SUSSMAN ROAD, KIMBERLEY, 8301.

Identification details: TENDER NUMBER: **NC/23/2022**
TITLE OF TENDER: **LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON**

Sealed tenders with the Tenderer's name and address and the endorsement: "TENDER NUMBER: **NC/23/2022**: **LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON**" on the envelope, must be placed in the appropriate official Tender Box at the abovementioned address.

Add the following to F.2.13.6:

A two-envelope procedure will **not** be followed.

Add the following to F.2.13.9:

Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will **not** be accepted.

Add the following to F.2.13.10:

By signing the offer part of C 1.1: Form of Offer and Acceptance, the Tenderer declares that all information provided in the Tender submission is true and correct.

F.2.15 **Closing Time**

Add the following to F.2.15.1:

The closing time for submission of Tender Offers is as stated in the Tender Notice and Invitation to Tender.

F.2.16 **Tender Offer Validity**

Add the following to F. 2.16.1:

The tender offer validity period is **90 (ninety)** days from the closing date.

F.2.17 **Clarification of Tender Offer after Submission**

Add the following to F.2.17:

A tender will be rejected as non-responsive if the Tenderer fails to provide any clarification requested by the Employer within the time for submission stated in the Employer's written request for such clarification. A tender will also be rejected as non-responsive if the Tenderer fails, within the time stated in writing by the Employer, to comply with the requirements of F.4.4.

F.2.18 **Provide Other Material**

F.2.18.1 *Delete the word "notarised"*

Add the following to F.2.18.1:

Provide, on written request by the Employer, where the tendered amount exclusive of VAT **exceeds R 8, 695, 652.17 (Eight Million, Six Hundred Nighty-Five Thousand Six Hundred Fifty-Two Rand and seventeen Cents)**:

i) audited annual financial statement for 3 (three) years, or for the period since establishment if established during the last 3 (three) years, if required by law to prepare annual financial statements for auditing;
ii) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any

portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard.

F.2.19 **Inspection, Tests and Analysis**

Add the following to F.2.19:

Access shall be provided for the following inspections, tests and analysis: **Site investigation.**

F.2.20 **Submit Securities, Bonds, Policies, etc.**

Add the following to F.2.20:

The successful Tenderer will have to provide a guarantee as security and documentary proof that the necessary insurance policies required in terms of the Contract have been taken out and provide proof of premium payments to the satisfaction of the Employer.

F.2.22 **Return of Other Tender Documents**

Add the following to F.2.22:

Return all retained tender documents and drawings within 28 (twenty-eight) days of the expiry date of the validity period.

F. 2.23 **Certificates**

Add the following to F.2.23:

The Tenderer is required to submit with his tender:

F.2.23.1 **Tax Clearance Certificate**

Tenderers shall be registered and in good standing with the South African Revenue Service (SARS) on CSD, if noncompliant, the tenderer must submit evidence from SARS informing the department of why it is none complaint and when is the estimated resolution.

F.2.23.3 **Broad-Based Black Economic Empowerment Status Level Certificates**

The B-BBEE certificate will only be used for your for identifying your level of B-BBEE but will not be used for scoring on the 80:20, Specific goals will be used for scoring.

F.2.23.4 **NHBRC Registration**

A NHBRC Registration is **compulsory** for this contract.

F.3 The Employer's Undertakings

F.3.2 **Issue Addenda**

Add the following to F.3.2:

Notwithstanding any requests for confirmation of receipt of Addenda issued, the Tenderer shall be deemed to have received such addenda if the Employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.

F.3.4 **Opening of Tender Submissions**

Add the following to F.3.4.1:

The time and location for opening of Tender Offers is as follows:

Time: Tenders will be opened immediately after the closing time for receipt of tenders as stated in the Tender Notice and Invitation to Tender, or as stated in any Addendum extending the closing date.

Location: COGHSTA HEAD OFFICE, LARRY MOLEKO LOUW BUILDING, 9 CECIL SUSSMAN ROAD, KIMBERLEY, 8301.

F.3.5 **Two-envelope System**

Add the following to F.3.5:

The 2 (two) - envelope procedure will **not** be followed.

F. 3.8 **Test for Responsiveness**

Add the following Sub-Clause F.3.8.3:

Tenders will be considered non-responsive if, inter alia:

a) the tender is not in compliance with the Scope of Work.
b) the Tenderer does not comply with the CIDB contractor grading designation specified in F.2.1 **above.**
c) the Tenderer has failed to clarify or submit any supporting documentation within the time for submission stated in the employers written request.
d) the Tenderer is not registered with the NHBRC.
e) The tenderer does not submit proof of CSD database registration
f) the tenderer does not provide 3Year Audited Financial statements

F.3.9 **Arithmetical Errors, Omissions and Discrepancies**

Amend Sub-Clauses F.3.9.1 & F.3.9.2 to read as follows:

"F.3.9.1 Check the highest ranked Tender or Tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 and check only the Summary: Calculation of Tender Sum for:

a) The gross misplacement of the decimal point in any rate; or
b) Arithmetical errors in:
   i) line item totals resulting from the product of a unit rate and a quantity or
   ii) the summation of the amounts.

F.3.9.2 The Employer must correct the arithmetical errors in the following manner:

a) Where there is a discrepancy between the amount in words and the amounts in figures, the amount in words shall govern;

b) If, in the Summary: Calculation of tendered Fixed Price there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern and the unit rate shall be corrected.

c) Where there is an error in the total of the amounts either as a result of other corrections required by this checking process or in the Tenderer's addition of prices, the total of the prices shall govern and the Tenderer will be asked to revise selected unit rates to achieve the Tendered total of the amounts.

Consider the rejection of a tender offer if the Tenderer does not correct or accept the correction of the arithmetical error in the manner described above."

F.3.11 **Evaluation of Tender Offers**

F.3.11.1 **General**

Add the following to F.3.11.1:

Functionality will be scored and a minimum of 70 out of the possible 100 is required to be evaluated any further.

Table F3.11.1.1 – Functionality Evaluation Criteria

Functionality	**Criteria**	**Weight**
1.	Experience of Tenderer	40
2.	NHBRC Registered Engineer	10
3.	Project Staff Experience	40
4.	Plant and Equipment	10
TOTAL		100

Table F3.11.1.2 – Criteria 1: Experience of Tenderer

Sub-Criteria:	**Points Awarded**
Completion of at least 5 projects of similar scope, with project values of R2.25 million or greater, in the last 5 years, supported by contactable references.	40
Completion of at least 4 projects of similar scope, with project values of R2.25 million or greater, in the last 5 years, supported by contactable references.	30
Completion of at least 3 projects of similar scope, with project values of R2.25 million or greater, in the last 5 years, supported by contactable references.	20
Completion of at least 2 projects of similar scope, with project values of R2.25 million or greater, in the last 5 years, supported by contactable references.	10
Completion of at least 1 projects of similar scope, with project values of R2.25 million or greater, in the last 5 years, supported by contactable references.	5
1.Total possible points for Experience of Tenderer	**40**

Table F3.11.1.3 – Criteria 2: NHBRC Registered Engineer:

Sub-Criteria:	**Points Awarded**
More than 10 years of experience in the built environment.	10
At least 7 years of experience in the built environment.	6
At least 5 years of experience in the built environment.	3
2.Total possible points for NHBRC Registered Engineer:	**10**

Table F3.11.1.4 – Criteria 3: Project Staff Experience

Sub-Criteria:	**Points Awarded**
3.1 Project Manager:	
More than 10 years of experience in project management.	10
At least 7 years of experience in project management.	6
At least 5 years of experience in project management.	3
Total possible points for Project Manager	**10**
3.2 Site Agent:	
More than 7 years of experience in the built environment, with particular experience in the required discipline.	10
At least 5 years of experience in the built environment, with particular experience in the required discipline.	6
At least 3 years of experience in the built environment, with particular experience in the required discipline.	3
Total possible points for Site Agent	**10**
3.3: Safety Officer	
NQF level 5 certificate with at least 2 years' experience.in the required discipline.	3
Total possible points for Safety Officer	**3**
3.4 SHE representative:	
NQF level 2 certificate with at least 6 months' experience.in the required discipline.	2
Total possible points for Site Agent	**2**
3.5 Artisans/Specialists (CVs to be attached to claim points):	
Bricklayers – 5 or more years of experience in the required discipline.	5
Plumbers – 5 or more years of experience in the required discipline.	5
Carpenters – 5 or more years of experience in the required discipline.	5
Electricians – 5 or more years of experience in the required discipline.	5
Total possible points for any 3 will amount to 15 points	**15**
3.Total possible points for Project Staff Experience	**40**

Should the person identified for a specific position not be in the employment of the tenderer, a signed letter providing availability and/or memorandum of understanding should be attached.

Table F3.11.1.5 – Criteria 4: Plant and Equipment

Sub-Criteria:	**Points Awarded**
The tenderer owns all plant and equipment required for the scope and size of the project, supported by proof of ownership.	10
The tenderer owns more than 50% of plant and equipment required for the scope and size of the project, supported by proof of ownership.	8
The tenderer owns less than 50% of plant and equipment required for the scope and size of the project, supported by proof of ownership.	7
The tenderer indicated that all plant and equipment required for the scope and size of the project will be hired.	5
The tenderer provided no specification on plant and equipment.	0
4.Total possible points for Plant and Equipment	**10**

The procedure for the evaluation of responsive tenders is **Method 2: Financial Offer and Preference** in accordance with F.3.11.8.

F.3.11.8 **Scoring Preferences (Specific Goals)**

Add the following to F.3.11.8:

Points will be awarded to Tenderers who are eligible for preferences (Specific Goals) in terms of the CoGHSTA NC Supply Chain Policy 2023.

Points for Specific Goals
A maximum of 20 (twenty) tender evaluation points will be awarded for Specific Goals to Tenderers with responsive tenders, who are eligible for such preference, in accordance with the criteria listed below.

Subject to section 2(1)(f) of the Preferential Procurement Policy Framework Act, 2000, the contract must be awarded to the tenderer scoring the highest points.

The following table must be used to calculate the score out of 20 forspecific goals:

Specific Goal	Number of Points
100% or more Women or Youth owned company	10
Less than 100% Women or Youth owned company	5
100% Black owned Company	10
Less than 100% Black owned Company	5
100% People living with disability	10
Locally owned companies	5
Maximum obtainable points	**20**

The following must be noted for the allocation of 20 points:

- A tenderer might be requested to submit proof of its B-BBEE status level of contributor.
- A share certificate and or CIPC information of the company might be requested to be able to verify ownership
- Any other relevant evidence can be requested from the tenderer to substantiate the claim for the 20 points from any of the above specific goals on the table.
- CSD printout must accompany all submission documents
- The above points can be increased, reduced and split to more than one specific goal, depending on the requirements of the bid and specifications, however when such is increased or reduced, the information must be published correctly to the bidder at the time of advert of tender, but total points must not exceed 20 points.
- Locality points will be allocated to any company with a valid and verifiable address in the Northern Cape, e.g. CIPC, SARS etc. A lease agreement must have substantiating legitimate evidence relating to the Northern Cape the address claimed, such as proof of rental payment and receipt of rentals by both the lessee and lessor.
- If the price offered by the tenderer scoring the highest points is not reasonable, COGHSTA must not award the contract to the tenderer
- COGHSTA may negotiate a reasonable price with the tenderer scoring the highest points or cancel the tender

- If the tenderer does not agree to a reasonable price, negotiate a reasonable price with the tenderer scoring the second highest points or cancel the tender
- If the tenderer scoring the second highest points does not agree a reasonable price, negotiate a reasonable price with the tenderer scoring the third highest points or cancel the tender.
- If a reasonable price is not agreed as envisaged, COGHSTA must cancel the tender.

F.3.12 Risk Analysis

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the employer will perform a risk analysis in respect of the following:

a) reasonableness of the financial offer
b) reasonableness of unit rates and prices
c) the Tenderer's ability to fulfil its obligations in terms of the tender document, that is, that the Tenderer can demonstrate that he/she possesses the necessary professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience, reputation, personnel to perform the contract, etc.

No Tenderer will be recommended for an award unless the Tenderer has demonstrated that he/she has the resources and skills required.

F.3.13 **Acceptance of Tender Offer**

Add the following to F.3.13:

The Employer reserves the right to with draw any invitation to tender and/or to re-advertise or to reject any tender or to accept a part of it. The Employer does not bind itself to accepting the lowest or only tender.

Tender offers will only be accepted if:

(a) the Tenderer is registered and in good standing with the South African Revenue Service (SARS) and has submitted evidence in the form of an original valid Tax Clearance Certificate (for tender) issued by SARS or recent CSD complaint status with the current month of the BID or poof hat he or she has made arrangements with SARS to meet his or her outstanding tax obligations;

(b) the Tenderer or any of its Directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector;

(c) the Tenderer has not:
  (i) abused the Employer's Supply Chain Management System; or

(d) the Tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the Tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process.

F.3.14 **Notice to unsuccessful Tenderers**

Replace the heading above with:

Notice to successful and unsuccessful Tenderers

Replace sub-clause F.3.14.2 with the following:

The Employer shall, at the same time as notifying the successful Tenderer of the Bid Adjudication Committee's decision to award the tender to the successful Tenderer, also give written notice to the other Tenderers informing them that they have been unsuccessful.

F.3.15 **Provide copies of the contract**

Add the following to F.3.15:

The number of paper copies of the signed contract to be provided by the Employer is **1 (One).**

F.4 ADDITIONAL CONDITIONS OF TENDER

The additional conditions of tender are:

F.4.1 **Compliance with Occupational Health and Safety Act (Act 85 Of 1993)**

Tenderers are to note the requirements of the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2014 where applicable, issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

The Contractor will not be allowed to start with any construction works until his Health and Safety Plan is approved by the Health and Safety Agent.

Tenderers are to note that the Contractor is required to ensure that all Sub-Contractors or others engaged in the performance of the contract also comply with the above requirements.

The Contractor shall prepare and maintain a Health and Safety File in respect of the project, which shall be available for inspection on Site at all times and handed over to the Employer on Final Completion of the project.

The Contractor is required to submit to the Employer the Occupational Health and Safety Agreement (included in C 1.4 of the Contract document) and a letter of good standing from the Compensation Commissioner, or a licensed Compensation Insurer, within 14 (fourteen) days after the Commencement Date of the Contract.

F.4.2 **Eligibility with respect to Expanded Public Works Programme**

This Contract does not qualify for consideration as an Expanded Public Works Program project, but he Contractor shall make use of local labour as far as possible. Where manual labour is required, remuneration must be paid according to the minimum wages for the region and in accordance with the latest published “Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (Epwp)”. Monthly project reporting will be done on all the EPWP reporting documentation attached in Annexure A of Part 3: Scope of Works of this Tender Document.

F.4.3 Claims arising after submission of tender

No claim for any extras arising out of any doubt or obscurity as to the true intent and meaning of anything shown on the Contract Drawings or contained in the Conditions of Contract, Scope of Work and Pricing Data, will be admitted by the Employer after the submission of any tender and the Tenderer shall be deemed to have:

(a) Inspected the Contract Drawings and read and fully understood the Conditions of Contract;

(b) Read and fully understood the whole text of the Scope of Work and Pricing Data and thoroughly acquainted himself with the nature of the works proposed and generally of all matters which may influence the Contract;

(c) Visited the site of the proposed works, carefully examined existing conditions, the means of access to the Site, the conditions under which the work is to be done, and acquainted himself with the limitations or restrictions that may be imposed by the Municipality or other Authorities in regard to access and transport of materials, plant and equipment to and from the site and made the necessary provisions for any additional costs involved thereby.

(d) Requested the Employer or his duly authorized agent to make clear the actual requirements of anything shown on the Contract Drawings or anything contained in the Scope of Work and Pricing Data, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer.

(e) Received any Addenda to the tender documents which have been issued in accordance with the Employer's supply Chain Management Policy.

Before submission of any tender, the Tenderer should check the number of pages, and if any are found to be missing or duplicated, or the figures or writing indistinct, or if the Pricing Data contain any obvious errors, the Tenderer must apply to the Employer's agent at once to have the same rectified, as no liability will be admitted by the Employer in respect of errors in any tender due to the foregoing.

F.4.4 **Community Liaison Officer**

It is a requirement of the Contract that a Community Liaison Officer (CLO) for the project shall be appointed by the Contractor. The primary functions of the CLO shall be to assist the Contractor with the selection and recruitment of labour, to represent the local community in matters concerning the use of labour on the works, and to assist with and facilitate communication between the Contractor, the Principal Agent and the local communities.

The method of identifying suitable candidates for the position of CLO will be through advertisement throughout the community and local Municipality, interviews will be held with candidates and the representative of the Department will be present.

F.4.5 **Invalid tenders**

Tenders shall be considered invalid and shall be endorsed and recorded as such in the tender opening record, by the responsible official who opened the tender, in the following circumstances:

(a) If the tender offer (the tender price/amount) is not submitted on the Form of Offer and Acceptance bound into this tender document (Form C 1.1: Part C 1: Agreement and Contract Data);

(b) If the tender is not completed in non-erasable black ink;

(c) If the Form of Offer and Acceptance is signed, but the name of the Tenderer is not stated or is indecipherable.

F.4.6 **Negotiations with preferred Tenderers**

The Employer may negotiate the final terms of a contract with Tenderers identified through a competitive tendering process as preferred Tenderers, provided that such negotiation:

(a) does not allow any preferred Tenderer a second or unfair opportunity;

(b) is not to the detriment of any other Tenderer; and

(c) does not lead to a higher price than the quotation as submitted.

Minutes of any such negotiations shall be kept for record purposes.

F.4.7 **General Supply Chain Management Conditions applicable to tenders**

In terms of its Supply Chain Management Policy, the Employer may not consider a tender unless the provider who submitted the tender:

a) has furnished the Employer with that provider's:

- full name;

- **identification number or company or other registration number; and**
- **tax reference number and VAT registration number, if any;**
- Certificate of attendance at a compulsory site inspection, where applicable

b) has indicated whether:

- the provider is in the service of the state, or has been in the service of the state in the previous twelve months;
- the provider is not a natural person, whether any of the directors, managers, principal shareholders or stakeholders is in the service of the state, or has been in the service of the state in the previous twelve months; or
- whether a spouse, child or parent of the provider or of a director, manager, shareholder or stakeholder referred to above is in the service of the state, or has been in the service of the state in the previous twelve months.

Irrespective of the procurement process followed, the Employer is prohibited from making an award to:

- a person who is in the service of the state;
- a juristic entity of which any director, manager, principal shareholder or stakeholder is in the service of the state;
- an advisor or consultant contracted with the Employer; or
- a person, advisor or corporate entity involved with the bid specification committee, or a director of such corporate entity.

In this regard, Tenderers shall complete Schedule 2, Part T2.2: Returnable Schedules: Compulsory Enterprise Questionnaire. Failure to complete this schedule may result in the tender not being considered.

F.4.8 **Combating abuse of the Supply Chain Management Policy**

In terms of the Its Supply Chain Management Policy, the Employer may reject the tender of any Tenderer if that Tenderer or any of its Directors has:

(a) failed, during the last five years, to perform satisfactorily on a previous contract with the Employer or any other organ of state after written notice was given to that Tenderer that performance was unsatisfactory;

(b) abused the supply chain management system of the Employer or has committed any improper conduct in relation to this system;

(c) been convicted of fraud or corruption during the past five years;

(d) willfully neglected, reneged on or failed to comply with any government, municipal or other public-sector contract during the past five years; or

(e) been listed with the Register of Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004) or has been listed on National Treasury's database as a person or juristic entity prohibited from doing business with the public sector.

In this regard, Tenderers shall complete Schedules 3 as well as 5, Part T2.2: Returnable Schedules: Certificate of Independent Tender Determination and Declaration in terms of the Municipal Finance Management Act. Failure to complete these schedules may result in the tender not being considered.

F.4.9 **UIF payments**

The Tenderer shall submit to the Employer a letter from the Industrial Council indicating his or her good standing with regard to UIF payments upon being requested to do so.

F.4.10 **Registration with Bargaining Council**

Tenderers must be registered with a relevant Bargaining Council (if such be in place) and provide the applicable Certificate of Compliance in terms of the relevant Government Gazette.

F.4.11 **Price Variations**

The tendered Fixed Price shall **not** be subject to contract price adjustment in accordance with the General Conditions of Contract. If special materials are specified in the Contract Data, then the provision of the General Conditions of Contract shall apply to such special materials.

F.4.12 **Requests for contract documents, or parts thereof, in electronic format**

The Employer shall formally issue tender documents in electronic format as contemplated in F.2.13.2 and F.2.13.3 and shall only issue tender documents in hard-copy. The following must be noted,

(a) the Employer shall not accept tenders submitted in electronic format. Tenderers may not complete and submit a printed copy of the electronic version of the tender document or part thereof. Only those tenders that have been completed on the issued hard copy tender document shall be considered;

(b) any non-compliance with these provisions, including effecting any unauthorized alterations to the tender document as contemplated in F. 2.11, shall render the tender invalid. The Employer reserves the right to take any action against such Tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.

(c) In requesting the electronic version of the tender document or parts thereof, the Tenderer is deemed to have read, understood and accepted all of the above conditions.

F.4.13 **Minimum Wages**

The Tenderer is drawn to the fact that minimum wages must be paid in terms of the relevant legislation.

ANNEX F
(Normative)

STANDARD CONDITIONS OF TENDER

(As contained in Annex F of Board Notice 86 of 2010 in Government Gazette No. 33239 of 28 May 2010, Construction Industry Development Board (CIDB): Standard for Uniformity in Construction Procurement) (See www.cidb.org.za)

F.1 **GENERAL**

F1.1 **Actions**

F.1.1.1 The Employer and each Tenderer submitting an offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

F.1.1.2 The Employer and the Tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the Employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.

2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty, which would in any way affect any decisions taken.

F.1.1.3 The Employer shall not seek and a Tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

F1.2 **Tender Documents**

The documents issued by the Employer for the purpose of a tender offer are listed in the Tender Data.

F.1 .3 **Interpretation**

F.1.3.1 The Tender Data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

F.1.3.2 These conditions of tender, the Tender Data and Tender Schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;

ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or

iii) incompatibility or contradictory interests exist between an Employee and the organisation which employs that Employee.

b) **comparative offer** means the Tenderer's financial offer after all tendered parameters that will affect the value of the financial offer have been taken into consideration in order to enable comparisons to be made between offers on a comparative basis

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the Employer or his staff or agents in the tender process; and

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the Employer, including collusive practices intended to establish prices at artificial levels

e) **organization** means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body

F.1.4 **Communication and Employer's Agent**

Each communication between the Employer and a Tenderer shall be to or from the Employer's Agent only, and in a form, that can be readily read, copied and recorded. Communications shall be in the English language. The Employer shall not take any responsibility for non-receipt of communications from or by a Tenderer. The name and contact details of the Employer's Agent are stated in the Tender Data.

F.1.5 **The Employer's right to accept or reject any tender offer**

F.1.5.1 The Employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The Employer shall not accept or incur any liability to a Tenderer for such cancellation and rejection but will give written reasons for such action upon written request to do so.

F .1.5.2 The Employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of 6 (six) months unless only one tender was received, and such tender was returned unopened to the Tenderer.

F.1.6 **Procurement procedures**

F.1.6.1 **General**

Unless otherwise stated in the Tender Data, a contract will, subject to F.3.13, be concluded with the Tenderer who in terms of F.3.11 is the highest ranked or the Tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

F.1.6.2 **Competitive negotiation procedure**

F.1.6.2.1 Where the Tender Data require that the competitive negotiation procedure is to be followed, Tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the Employer shall announce only the names of the Tenderers who make a submission. The requirements of F.3.8 relating to the material deviations or qualifications which affect the competitive position of Tenderers shall not apply.

F.1.6.2.2 All responsive Tenderers, or not less than three responsive Tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions, and associated information. Notwithstanding the provisions of F.2.17, the Employer may request that tenders be clarified, specified and fine-tuned in order to improve a Tenderer's competitive position provided that such clarification, specification, fine tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

F.1.6.2.3 At the conclusion of each round of negotiations, Tenderers shall be invited by the Employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

F.1.6.2.4 The contract shall be awarded in accordance with the provisions of F.3.11 and F.3.13 after Tenderers have been requested to submit their best and final offer.

F.1.6.3 **Proposal procedure using the two stage-system**

F.1.6.3.1 **Option 1**

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The Employer shall evaluate each responsive submission in terms of the method of evaluation stated in the Tender Data, and in the second stage negotiate a contract with the Tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

F.1.6.3.2 **Option 2**

F.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The Employer shall invite all responsive Tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

F.1.6.3.2.2 The Employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the Tender Data and award the contract in terms of these conditions of tender.

F.2 **TENDERER'S OBLIGATIONS**

F.2.1 **Eligibility**

F.2.1.1 Submit a tender offer only if the Tenderer satisfies the criteria stated in the Tender Data and the Tenderer, or any of his principals, is not under any restriction to do business with the Employer.

F.2.1.2 Notify the Employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the Employer as the basis in a prior process to invite the Tenderer to submit a tender offer and obtain the Employer's written approval to do so prior to the closing time for tenders.

F.2.2 **Cost of tendering**

Accept that, unless otherwise stated in the Tender Data, the Employer will not compensate the Tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.

F.2.3 **Check documents**

Check the tender documents on receipt for completeness and notify the Employer of any discrepancy or omission.

F.2.4 **Confidentiality and copyright of documents**

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the Employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 **Reference documents**

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, Conditions of Contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

F.2.6 **Acknowledge addenda**

Acknowledge receipt of addenda to the tender documents, which the Employer may issue, and if necessary apply for an extension to the closing time stated in the Tender Data, in order to take the addenda into account.

F.2.7 **Clarification meeting**

Attend, where required, a clarification meeting at which Tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the Tender Data.

F.2.8 **Seek clarification**

Request clarification of the tender documents, if necessary, by notifying the Employer **at least 5 (five) working days** before the closing time stated in the Tender Data.

F.2.9 **Insurance**

Be aware that the extent of insurance to be provided by the Employer (if any) might not be for the full cover required in terms of the Conditions of Contract identified in the Contract Data. The Tenderer is advised to seek qualified advice regarding insurance.

F.2.10 **Pricing the tender offer**

F.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful Tenderer, such duties, taxes and levies being those applicable 14 (fourteen) days before the closing time stated in the Tender Data.

F.2.1 0.2 Show VAT payable by the Employer separately as an addition to the tendered total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the Conditions of Contract identified in the Contract Data.

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the Tender Data. The Conditions of Contract identified in the Contract Data may provide for part payment in other currencies.

F.2.11 **Alterations to documents**

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the Employer, or necessary to correct errors made by the Tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 **Alternative tender offers**

F.2.12.1 Unless otherwise stated in the Tender Data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the Tenderer proposes.

F.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the Tender Data or criteria otherwise acceptable to the Employer.

F.2.13 **Submitting a tender offer**

F.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the Contract Data and described in the scope of works, unless stated otherwise in the Tender Data.

F.2.13.2 Return all returnable documents to the Employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

F.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the Tender Data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the Employer.

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The Employer will hold all authorized signatories liable on behalf of the Tenderer. Signatories for Tenderers proposing to contract as joint ventures shall state whom of the signatories is the lead partner whom the Employer shall hold liable for the purpose of the tender offer.

F.2.13.7 Seal the original tender offer in an envelope that states on the outside only the Employer's address and identification details as stated in the Tender Data.

F.2.13.8 Accept that the Employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

F.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the Employer, unless stated otherwise in the Tender Data.

F.2.14 **Information and data to be completed in all respects**

Accept that tender offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the Employer as non-responsive.

F.2.15 **Closing time**

F.2.15.1 Ensure that the Employer receives the tender offer at the address specified in the Tender Data not later than the closing time stated in the Tender Data. Accept that proof of posting shall not be accepted as proof of delivery.

F.2.15.2 Accept that, if the Employer extends the closing time stated in the Tender Data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 **Tender offer validity**

F.2.16.1 Hold the tender offer(s) valid for acceptance by the Employer at any time during the validity period stated in the Tender Data after the closing time stated in the Tender Data.

F.2.16.2 If requested by the Employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

F.2.16.3 Accept that a tender submission that has been submitted to the Employer may only be withdrawn or substituted by giving the Employer's Agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

F.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as "SUBSTITUTE".

F.2.17 **Clarification of tender offer after submission**

Provide clarification of a tender offer in response to a request to do so from the Employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of Tenderers or substance of the tender offer is sought, offered, or permitted.

Note: Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred Tenderer following a competitive selection process, should the Employer elect to do so.

F.2.18 **Provide other material**

F.2.18.1 Provide, on request by the Employer, any other material that has a bearing on the tender offer. The Tenderer's commercial position (including notarized joint venture agreements), referencing arrangements, or samples of materials, considered necessary by the Employer for the purpose of a full and fair risk assessment. Should the Tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the Employer's request, the Employer may regard the tender offer as non-responsive.

F.2.18.2 Dispose of samples of materials provided for evaluation by the Employer, where required.

F.2.19 **Inspections, tests and analysis**

Provide access during working hours to premises for inspections, tests and analysis as provided for in the Tender Data.

F.2.20 **Submit securities, bonds, policies, etc.**

If requested, submit for the Employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the Conditions of Contract identified in the Contract Data.

F.2.21 **Check final draft**

Check the final draft of the contract provided by the Employer within the time available for the Employer to issue the contract.

F.2.22 **Return of other tender documents**

If so instructed by the Employer, return all retained tender documents within 28 (twenty-eight) days after the expiry of the validity period stated in the Tender Data.

F.2.23 **Certificates**

Include in the tender submission or provide the Employer with any certificates as stated in the Tender Data.

F.3 THE EMPLOYER'S UNDERTAKINGS

F.3.1 **Respond to requests from the Tenderer**

F.3.1.1 Unless otherwise stated in the Tender Data, respond to a request for clarification received up to 5 (five) working days before the tender closing time stated in the Tender Data and notify all Tenderers who drew procurement documents.

F.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to pre-qualify a Tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;

b) the new partners to a joint venture were not pre-qualified in the first instance, either as individual firms or as another joint venture; or

c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

F.3.2 **Issue Addenda**

If necessary, issue addenda that may amend or amplify the tender documents to each Tenderer during the period from the date that tender documents are available until **3 (three) days** before the tender closing time stated in the Tender Data. If, as a result a Tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all Tenderers who drew documents. All Addenda's will be posted on the departmental website (www.coghsta.ncpg.gov.za), therefore is the responsibility of the bidder to ensure that there is no posted addendums before 3 days of the closing of the bid.

F.3.3 **Return late tender offers**

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the Tenderer concerned.

F.3.4 **Opening of tender submissions**

F.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of Tenderers' Agents who choose to attend at the time and place stated in the Tender Data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the Tender Data, the name of each Tenderer whose tender offer is opened and, where applicable, the total of his prices, preferences claimed and time for completion for the main tender offer only.

F.3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F.3.5 **Two-envelope system**

F.3.5.1 Where stated in the Tender Data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of Tenderers' Agents who choose to attend at the time and place stated in the Tender Data and announce the name of each Tenderer whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by Tenderers, then advise Tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of Tenderers, who score in the quality evaluation more than the minimum number of points for quality stated in the Tender Data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to Tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 **Non-disclosure**

Not disclose to Tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful Tenderer.

F.3.7 **Grounds for rejection and disqualification**

Determine whether there has been any effort by a Tenderer to influence the processing of tender offers and instantly disqualify a Tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 **Test for responsiveness**

F.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

a) complies with the requirements of these Conditions of Tender,
b) has been properly and fully completed and signed, and
c) is responsive to the other requirements of the tender documents.

F.3.9 **Arithmetical errors, omissions and discrepancies**

F.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

F.3.9.2 Check the highest ranked tender or Tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the Pricing Schedule or Bills of Quantities; or
c) arithmetic errors in:

i) line item totals resulting from the product of a unit rate and a quantity in Bills of Quantities or Schedules of Prices; or

ii) the summation of the prices.

F.3.9.3 Notify the Tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

F.3.9.4 Where the Tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If Bills of Quantities or Pricing Schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the Tenderer's addition of prices, the total of the prices shall govern, and the Tenderer will be asked to revise selected unit prices (and their rates if Bills of Quantities apply) to achieve the tendered total of the prices.

F.3.10 **Clarification of a tender offer**

Obtain clarification from a Tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

F.3.11.1 **Decimal places**

Score financial offers, preferences and quality, as relevant. To 2 (two) decimal places.

F.3.11.2 **Scoring Financial Offers**

Score the financial offers of remaining responsive tender offers using the following formula:

$\mathbf{N}_{FO} = \mathbf{W}_1 \times \mathbf{A}$

where: $\mathbf{N}_{FO}$ is the number of tender evaluation paints awarded for the financial offer.

$\mathbf{W}_1$ is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.

A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

Formula	Comparison aimed at achieving	Option 1[a]	Option 2[a]
1	Highest price or discount	$A = (1 + \frac{(P - Pm)}{Pm})$	A = P / Pm
2	Lowest price or percentage commission / fee	$A = (1 - \frac{(P - Pm)}{Pm})$	A = Pm / P
[a] Pm is the comparative offer of the most favourable comparative offer. P is the comparative offer of the tender offer under consideration			

Table F.1: Formulae for calculating the value of A

F.3.11.8 **Scoring preferences**

Confirm that Tenderers are eligible for the preferences claimed in accordance with the provisions of the Tender Data and reject all claims for preferences where Tenderers are not eligible for such preferences. Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the Tender Data.

F.3.11.9 **Scoring quality**

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data.

Calculate the total number of tender evaluation points for quality using the following formula:

$\mathbf{N}_Q = \mathbf{W}_2 \times \mathbf{S}_O / \mathbf{M}_S$

where: $\mathbf{S}_O$ is the score for quality allocated to the submission under consideration;

$\mathbf{M}_S$ is the maximum possible score for quality in respect of a submission; and

$\mathbf{W}_2$ is the maximum possible number of tender evaluation points awarded for the quality as stated in the Tender Data;

F.3.12 **Insurance provided by the Employer**

If requested by the proposed successful Tenderer, submit for the Tenderer's information the policies and / or certificates of insurance which the Conditions of Contract identified in the Contract Data, require the Employer to provide.

F.3.13 **Acceptance of Tender Offer**

Accept the Tender Offer if, in the opinion of the Employer, it does not present any unacceptable commercial risk and only if the Tenderer:

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the Employer's procurement,

b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,

c) has the legal capacity to enter into the contract,

d) is not insolvent, in receivership, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,

e) complies with the legal requirements, if any, stated in the Tender Data, and

f) is able, in the opinion of the Employer, to perform the contract free of conflicts of interest.

F.3.14. **Prepare contract documents**

F.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the Employer as part of the tender documents to take account of:

a) addenda issued during the tender period,
b) inclusion of some of the returnable documents, and
c) other revisions agreed between the Employer and the successful Tenderer.

F.3.14.2 Complete the Schedule of Deviations attached to the Form of Offer and Acceptance, if any.

F.3.15 **Complete adjudicator's contract**

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.16 **Notice to unsuccessful Tenderers**

F.3.16.1 Notify the successful Tenderer of the Employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the Tender Data or agreed additional period.

F.3.16.2 After the successful Tenderer has been notified of the Employer's acceptance of the tender, notify other Tenderers that their tender offers have not been accepted.

F.3.17 **Provide copies of the contracts**

Provide to the successful Tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

F.3.18 **Provide written reasons for actions taken**

Provide upon request written reasons to Tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of Tenderers or might prejudice fair competition between Tenderers.

ANNEX G

Alpha-numerics associated with the Contract Grading Designations

CONTRACTOR GRADING DESIGNATION	TENDER VALUE RANGE DESIGNATION	MAXIMUM VALUE OF CONTRACT THAT A CONTRACTOR IS CONSIDERED CAPABLE OF PERFORMING (R)
1 (Class of Construction works)	1	500,000
2 (Class of Construction works)	2	1,000,000
3 (Class of Construction works)	3	3,000,000
4 (Class of Construction works)	4	6,000,000
5 (Class of Construction works)	5	10,000,000
6 (Class of Construction works)	6	20,000,000
7 (Class of Construction works)	7	60,000,000
8 (Class of Construction works)	8	200,000,000
9 (Class of Construction works)	9	No Limit

TABLE G1: CONTRACTOR GRADING DESIGNATIONS AND ASSOCIATED PARAMETERS

DESCRIPTION	DESIGNATION	DEFINITION	WORKS TYPES	EXAMPLES
Civil Engineering Works	CE	Construction works that are primarily concerned with materials such as steel, concrete, earth and rock and their application in the development, extension, installation, maintenance, removal, renovation, alteration, or dismantling of building and engineering infrastructure.	Water, sewerage, roads, railways, harbours and transport, Urban Development and Municipal services	Structures such as a cooling tower, bridge, culvert, dam, grand stand, road, railway, reservoir, runway, swimming pool, silo or tunnel. The results of operations such as dredging, earthworks and geotechnical processes. Township services, water treatment and supply, sewerage works, sanitation, soil conservation works, irrigation works, storm-water and drainage works, coastal works, ports, harbours, airports and pipelines.
Electrical Engineering Works (Infrastructure)	EP	Construction works that are primarily concerned with development, extension, installation, removal, renovation, alteration or dismantling of engineering infrastructure: a) relating to the generation, transmission and distribution of electricity; or b) b) which cannot be classified as EB.	Electrical power **generation, transmission**, control and distribution equipment and systems.	**Power generation** Street and area lighting Substations and protection systems Township reticulations **Transmission Lines** Supervisory control and data acquisition systems
Electrical Engineering Works (Buildings)	EB	Construction works that are primarily concerned with the installation, extension, modification or repair of electrical installations in or on any premises used for the transmission of electricity from a point of control to a point of consumption, including any article forming part of such an installation.	All electrical equipment forming an integral and permanent part of buildings and/or structures, including any wiring, cable jointing and laying and electrical overhead line construction.	Electrical installations in buildings Electrical reticulation within a plot of land (erf) or building site Standby plant and uninterrupted power supply Verification and certification of electrical installations on premises
General Building Works	GB	Construction works that: a) are primarily concerned with the development, extension, installation, renewal, renovation, alteration or dismantling of a permanent shelter for its occupants or contents; b) b) cannot be categorised in terms of the definitions provided for civil engineering works, electrical engineering works or specialist works.	Buildings and ancillary works other than those categorised as being: a) civil engineering works; b) electrical engineering works; c) mechanical engineering works; or d) specialist works	Buildings for domestic, industrial, institutional or commercial occupancies; Car ports; Fences other than classified as SS (SQ); Stores; Walls

DESCRIPTION	DESIGNATION	DEFINITION	WORKS TYPES	EXAMPLES
Mechanical Engineering Works	ME	Construction woks that are primarily concerned with the development, extension, installation, removal, alteration, renewal of engineering infrastructure for gas transmission and distribution, solid waste disposal, heating, ventilation and cooling, chemical works, metallurgical works, manufacturing, food processing and materials handling	Machine systems including those relating to the environment of building interiors: • gas transmission and distributing systems; • pipelines; • solid waste disposal; • materials handling, lifting, machinery, heating, ventilation and cooling pumps; • continuous process systems; • chemical works, metallurgical works, manufacturing, food processing such as that in concentrator machinery and apparatus, oil and gas wells, smelters, cyanide plants, acid plants, metallurgical machinery, equipment and apparatus and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances or other chemical processes.	Air-conditioning and mechanical ventilation Boiler installations and steam distribution; Central heating; Centralised hot water generation Cranes and hoists; Dust and sawdust extraction; Compressed air, gas and vacuum installations; Conveyor and materials handling installations; Continuous process systems involving chemical works, metallurgical works, oil and gas wells, acid plants, metallurgical machinery, equipment and apparatus and works necessary for the beneficiation of metals, minerals, rocks, petroleum and organic substances and other chemical processes; Kitchen equipment; Laundry equipment; Lift installations and escalators; Refrigeration and cold rooms; Waste handling systems (including compactors).

DESCRIPTION	DESIGNATION	DEFINITION	WORKS TYPES	EXAMPLES
Specialist Works	SB	A subset of construction works identified and defined by the Board that involves specialist capabilities for its execution.	The extension, installation, repair, maintenance or renewal, or removal, of asphalt	
	SC		The development, extension, installation, removal and dismantling, as relevant, associated with building excavations, shaft sinking and lateral earth support.	
	SD		The development, extension, installation, repair, removal or alteration of corrosion protection systems (cathodic, anodic and electrolytic).	
	SE		Demolition of buildings and engineering infrastructure and blasting	
	SF		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of fire prevention and protection infrastructure (drencher and sprinkler systems and fire installation)	
	SG		The development, extension, installation, renewal, removal, renovation, alteration or dismantling of glazing, curtain walls and shop fronts	
	SH		The development, extension, installation, maintenance, renewal, removal, alteration or dismantling, as relevant, of landscaping, irrigation and horticultural works	
	SI		The development, extension, installation, repair, maintenance, renewal, removal, renovation, alteration or dismantling, of lifts, escalators, travellators and hoisting machinery.	
	SJ		The development, installation, removal or dismantling, as relevant, of piles and other specialized foundations for buildings and structures	
	SK		The installation, renewal, removal, alteration or dismantling, as relevant, road markings and signage	
	SL		The development, extension, installation, renewal, removal renovation, alteration or dismantling of structural steelwork and scaffolding	
	SM		Timber buildings and structures	
	SN		The extension, installation, repair, maintenance, renewal, removal, renovation or alteration, as relevant, of the waterproofing of basements, roofs and walls using specialist systems	
	SO		The development, extension, installation, renewal, removal, alteration or dismantling or demolition of water installations and soil and waste water drainage associated with buildings (wet services, plumbing)	
	SQ		The development, extension, installation, repair, removal, alteration, dismantling or demolition of precast concrete or steel fencing	

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

PART T 2:

RETURNABLE DOCUMENTS

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

T 2.1:

LIST OF RETURNABLE DOCUMENTS

T 2.1: LIST OF RETURNABLE DOCUMENTS:

NB: TENDERERS MUST COMPLETE THESE SCHEDULES / DATA SHEETS / FORMS IN BLACK INK

1. Returnable Schedules required for Tender Evaluation Purposes:

Schedule 1:	Method Statement; Project Program and Projected Cashflow
Schedule 2:	Compulsory Enterprise Questionnaire
Schedule 3:	Certificate of Independent Tender Determination
Schedule 4:	Certificate of Authority for Joint Ventures where applicable
Schedule 5:	Certificate for Municipal Services and Payments to Service Provider
Schedule 6:	Declaration in terms of the Public Finance Management Act.
Schedule 7:	Bargaining Council Certificate and Declarations in respect of Minimum Wage
Schedule 8:	Schedule of Work Experience
Schedule 9:	Schedule of Sub-Contractors
Schedule 10:	Proposed Amendments and Qualifications by Tenderer
Schedule 11:	Details of Management Team
Schedule 12:	Schedule of Construction Equipment
Schedule 13:	Confirmation of Construction Industry Development Board (CIDB) Registration
Schedule 14:	Confirmation of National Home Builders Registration Council (NHBRC) Contractor Registration
Schedule 15:	Tax Clearance Certificate
Schedule 16:	Compensation for Occupational Injuries & Diseases (COID)
Schedule 17:	Declaration concerning fulfilment of the Construction Regulations 2014, where applicable
Schedule 18:	Day works Schedule
Schedule 19:	Audited Financial Statements for the last 3 years

2. Other documents required for Tender Evaluation Purposes:

2.1. Joint Venture Agreement (if applicable) - append to Schedule 4.
2.2. A certified copy of the Bargaining Council Certificate (where applicable) - append to Schedule 7.
2.3. A certified copy of the certificate of Contractor Registration issued by the CIDB - append to Schedule 13.
2.4. A certified copy of the NHBRC registration certificate - appended to Schedule 14.
2.5. An original valid Tax Clearance Certificate issued by the South African Revenue Services - append to Schedule 15.
2.6. A certified copy of the COID - appended to Schedule 16

3. Returnable Schedules that will be incorporated into the Contract:

Schedule 20:	Record of Addenda to Tender Documents
Schedule 21:	NCP Schedules as required by COGHSTA: NCP 1; NCP 2; NCP 4; NCP 7.1;

4. C 1.1 The offer portion of the C1.1 Form of Offer and Acceptance

5. C 1.2 Contract Data (Part 2)

T 2.2:

RETURNABLE SCHEDULES

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 1

METHOD STATEMENT; PROJECT PROGRAM AND DETAILED CASHFLOW

Attach to this schedule a Detailed project Method Statement, Project Program and Projected Cashflow

Anticipated Timeframes from the Client:
Contract Award 1 day
Contract Acceptance: 5 days
Inception Meeting: 5 days
Geotechnical Investigation and Approval at NHBRC: 6-8 weeks
Detailed Designs and NHBRC Enrolment: 4 weeks
Site Handover Meeting: 5 days
Anticipated Construction Period from Client: 52 weeks
Retention Period: 3 Months

Cashflow:
The Cashflow must be linked to the project program and Milestone Payment Measurements

SIGNED ON BEHALF OF THE TENDERER: ……

SIGNED ON BEHALF OF THE CONSULTANT: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 2

COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a Joint Venture, SEPARATE questionnaires in respect of each partner must be completed and submitted.

SECTION 1:

Name of Enterprise: ……

Address of Enterprise: ……

……

……

SECTION 2:

VAT Registration Number, if any: ……

SECTION 3:

CIDB Registration Number, if any: ……..

SECTION 4:

Particulars of Sole Proprietors and Partners in partnerships:

NAME*	IDENTITY NUMBER *	PERSONAL INCOME TAX NUMBER*

* Complete only if Sole Proprietors or Partnership and attach separate page if more than 5 (five) partners.

SECTION 5: Particulars of Companies and Close Corporations:

Company Registration Number: ……

Close Corporation Number: ……

Tax Reference Number: ……

SECTION 6: Record of service of the State:

Indicate by marking the relevant boxes with a cross, if any Sole Proprietor, partner in partnership or Director, Manager, Principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 (twelve) months in the service of any of the following:

☐ A member of any Municipal Council;

☐ A member of any Provincial Legislature;

☐ A member of the National Assembly or the National Council for Provinces;

☐ A member of the Board of Directors of any Municipal entity;

☐ An official of any Municipality or Municipal entity;

☐ An employee of any Provincial Department, National or Provincial public entity or Constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999);

☐ A member of the accounting authority of any National or Provincial public entity; or

☐ An employee of Parliament or a provincial legislature.

If any of the above boxes are marked, disclose the following:

Name of Sole Proprietor, Partner, Director, Manager, Principal shareholder or Stakeholder	Identity Number	Name of Institution, Public Office, Board or Organ of State and position held	Status of service (tick appropriate column)	
			Current	Within last 12 months

* **Insert** separate page if necessary.

SECTION 7: Record of spouses, children and parents in the service of the State:

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a Sole Proprietor, Partner in a partnership or Director, Manager, Principal shareholder or Stakeholder in a company or close corporation is currently or has been within the last 12 (twelve) months been in the service of any of the following:

☐ A member of any Municipal Council;

☐ A member of any Provincial Legislature;

☐ A member of the National Assembly or the National Council for Provinces;

☐ A member of the Board of Directors of any Municipal entity;

☐ An official of any Municipality or Municipal entity;

☐ An employee of any Provincial Department, National or Provincial public entity or Constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999);

☐ A member of the accounting authority of any National or Provincial public entity; or

☐ An employee of Parliament or a provincial legislature.

Name of Sole Proprietor, Partner, Director, Manager, Principal shareholder or Stakeholder	Identity Number	Name of Institution, Public Office, Board or Organ of State and position held	Status of service (tick appropriate column)	
			Current	Within last 12 months

* **Insert** separate page if necessary.

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

i) Authorizes the Employer to obtain a Tax Clearance Certificate from the South African Revenue Service that my/our tax matters are in order;

ii) Confirms that neither the name of the enterprise or the name of any Partner, Manager, Director or other person, who, wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulter established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;

iii) Confirms that no Partner, Member, Director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last 5 (five) years been convicted of fraud or corruption;

iv) Confirms that I/we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the Tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;

v) Confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 3

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting this tender for TENDER NO. NC/23/2022: LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON in response to the invitation to tender made by the DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE, do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of (Name of Tenderer) ……... that

1. I have read and understand the contents of this Certificate;

2. I understand that this tender will be disqualified if this Certificate is found not to be true and complete in every respect;

3. I am authorised by the Tenderer to sign this Certificate, and to submit this tender on behalf of the Tenderer;

4. Each person whose signature appears on this tender has been authorised by the Tenderer to determine terms of, and to sign, the tender on behalf of the Tenderer;

5. For the purposes of this Certificate and this tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer whether or not affiliated with the Tenderer;

   (a) has been requested to submit a tender in response to this invitation to tender;
   (b) could potentially submit a tender in response to this invitation to tender, based on their qualifications, abilities or experience; and
   (c) provides the same goods and services as the Tenderer and/or is in the same line of business as the Tenderer;

6. The Tenderer has arrived at this tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communicating between partners in a Joint Venture or Consortium[1] will not be construed as collusive tendering;

7. In particular, without limiting the generality of Paragraph 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

   (a) prices;
   (b) geographical area where product or service will be rendered (market allocation);
   (c) methods, factors or formulas used to calculate prices;
   (d) the intention or decision to submit or not to submit a tender;
   (e) the submission of a tender which does not meet the specifications and conditions of the tender; or
   (f) tendering with the intention not to win the tender.

[1] Joint Venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this invitation to tender relates.

9. The terms of this tender have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of Section 59 of the Competition Act No. 89 of 1989 and/or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and/or may be restricted from conducting business with the Public Sector for a period not exceeding 10 (ten) tears in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or another applicable legislation.

……...	……
SIGNATURE	**DATE**
……	……
POSITION	**NAME OF TENDERER**

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 4

CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This returnable schedule is to be completed by Joint Ventures.

YES NO (**PLEASE INDICATE IF THIS IS A JV OR NOT. IF YES, FILL IN THE DETAILS BELOW. ALSO ATTACH A SIGNED COPY OF AGREEMENT BETWEEN PARTIES)**

We, the undersigned, are submitting this tender offer in Joint Venture and herby authorize

Mr/Mrs ……., authorised signatory of the

Company, Close Corporation or Partnership ……., acting in the capacity of Lead Partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead Partner:		Signature: ……..…… Name: …… Designation: ……..
		Signature: ……..…… Name: …… Designation: ……..
		Signature: ……..…… Name: …… Designation: ……..

Note: A copy of the Joint Venture Agreement shall be appended to this Schedule.

SIGNED ON BEHALF OF THE TENDERER: ……..……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 5

CERTIFICATE FOR MUNICIPAL SERVICES AND PAYMENT TO SERVICE PROVIDER

The Tenderer must attach to this page a **certified copy** of the Tenderer's latest Municipal Services Account, invoiced not more than **30 (thirty) days** prior to tender closure.

To: THE HEAD OF THE DEPARTMENT

TENDER NO. NC/23/2022:
LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

NAME OF THE TENDERER: ……

FURTHER DETAILS OF THE TENDERER/S; PROPRIETOR / DIRECTOR/S / PARTNERS, ETC.

PHYSICAL BUSINESS ADDRESS OF THE TENDERER	MUNICIPAL ACCOUNT NUMBER/S

If there is not enough space for all the names, please attach the additional details to the Contract document.

NAME OF DIRECTOR/ MEMBER/PARTNER	IDENTITY NUMBER	PHYSICAL RESIDENTIAL ADDRESS OF DIRECTOR/ MEMBER/ PARTNER	MUNICIPAL ACCOUNT NUMBER/S

CERTIFICATION:

I, ……., the undersigned,
(Full name in block letters)

certify that the information furnished on this declaration form is correct and that I/we have no undisputed commitments for Municipal Services towards a Municipality or other Service Provider in respect of which payment is overdue for more than 30 (thirty) days.

……..
SIGNATURE

THUS DONE AND SIGNED for and on behalf of the Tenderer / Contractor

at ……..(Place) on the …… day of ……(Month) 20 ……(Year)

Please note:

Even if the requested information is not applicable to the Tenderer, the table above should be endorsed NOT APPLICABLE and THIS DECLARATION MUST STILL BE SIGNED.

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 6

DECLARATION IN TERMS OF THE PUBLIC FINANCE MANAGEMENT ACT (No. 29 of 1999)

ITEM	QUESTION	YES	NO
1.1	Is the Tenderer or any of its Directors listed on the National Treasury's database as a company or person prohibited from doing business with the Public Sector? **(Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied)**		
1.1.1	If so, furnish particulars:		
1.2	Is the Tenderer or any of its Directors listed on the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combatting of Corrupt Activities Act (No. 12 of 2004)? **(To access this Register, enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to Facsimile Number 012-326 5445).**		
1.2.1	If so, furnish particulars:		
1.3	Was the Tenderer or any of its Directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past 5 (five) years?		
1.3.1	If so, furnish particulars:		
1.4	Does the Tenderer or any of its Directors owe any Municipal rates and taxes or Municipal charges to the Municipality/Municipal entity, or to any other Municipality/Municipal entity, that is in arrears for more than 3 (three) months?		
1.4.1	If so, furnish particulars:		
1.5	Was any contract between the Tenderer and the Department / entity or any other Organ of State terminated during the past 5 (five) years on account of failure to perform on or comply with the contract?		
1.5.1	If so, furnish particulars:		

CERTIFICATION:

I, THE UNDERSIGNED ……..

(Full Name)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

……...	……
SIGNATURE	**DATE**
……	……
POSITION	**NAME OF TENDERER**

*** Where the entity tendering is a Joint Venture, each party to the Joint Venture must sign a declaration in terms of the Public Finance Management Act and attach it to this Schedule.**

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 7

BARGAINING COUNCIL CERTIFICATE AND DECLARATION IN RESPECT OF MINIMUM WAGE

Tenderers must be registered with a relevant Bargaining Council (if such be in place) and must attach to this Schedule the applicable Certificate of Compliance (Letter of Good Standing in terms of the relevant Government Gazette).

Each party to a Consortium / Joint Venture shall attach separate certificates in the above regard.

DECLARATION IN RESPECT OF MINIMUM WAGE:

The Tenderer, by signing this Schedule, declares that not less than the statutory minimum wage shall be paid to Employees, as applicable.

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 8

SCHEDULE OF WORK EXPERIENCE

The Tenderer shall insert in the spaces provided below a list of similar completed contracts awarded to him and those currently being undertaken.

EMPLOYER (NAME, TEL. NO. AND FAX NO.)	PRINCIPAL AGENT (NAME, TEL. NO. AND FAX NO.)	NATURE OF WORK	VALUE OF WORK R (m)	COMPLETION DATE
COMPLETED CONTRACTS (Not older than 5 years)				
CURRENT CONTRACTS				

Number of sheets appended by the Tenderer to this Schedule: …… **(If nil, enter NIL**)

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 9

SCHEDULE OF SUB-CONTRACTORS

We notify you that it is our intention to employ the following Sub-Contractors for work (excluding work covered by provisional sums and contingencies) in this contract.

Acceptance of this tender shall not be construed as approval of all or any of the listed Sub-Contractors. Should any of the Sub-Contractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this contract and the tendered unit rates for the various items of work shall remain final and binding.

SUB-CONTRACTORS		
SUB-CONTRACTOR'S NAME	**WORK ACTIVITIES TO BE UNDERTAKEN BY THE SUB-CONTRACTOR**	**ESTIMATED VALUE OF WORK (RAND)**

Number of sheets appended by the Tenderer to this Schedule: …… **(If nil, enter NIL**)

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 10

PROPOSED AMENDMENTS AND QUALIFICATIONS BY TENDERER

The Tenderer should record any proposed deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a Tenderer may state such proposed deviations and qualifications in a covering letter attached to his tender and reference such letter in this Schedule.

The Tenderer's attention is drawn to Clause F.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the employer's handling of material deviations and qualifications.

If no deviations or modifications are desired, the Schedule hereunder is to be marked **NIL** and signed by the Tenderer.

PAGE	CLAUSE OR ITEM	PROPOSAL

Number of sheets, appended by the Tenderer to this Schedule: ……..…… **(If nil, enter NIL)**

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 11

DETAILS OF MANAGEMENT TEAM

Tenderers shall set out in the Schedule hereunder details of the Project Staff experience in work of a similar nature to that for which their tender is submitted.

The Tenderer must attach to this page a **detailed organogram** of the Proposed project team. Should the person identified for a specific position not be in the employment of the tenderer, a signed letter providing availability and/or memorandum of understanding should be attached

Failure to complete this Schedule may result in the Tenderer not being considered.

1) NHBRC Registered Engineer Name: ……

Years' Experience: ……

2) Project Manager Name: ……

Years' Experience: In housing delivery field as Project/Contract Manager: ……
In housing delivery field as Site Agent: ……

3) Site Agent's Name: ……

Years' Experience: In housing delivery field as Site Agent: ……
In housing delivery field as Foreman: ……

4) Safety Officer's Name: ……

Years' Experience: ……

5) SHE Representative's Name: ……

Years' Experience: ……

Trade:	Name	Date Certified	Years' Experience
Bricklayer			
Plumber			
Carpenter			
Electrician			

NOTE: PLEASE APPEND CV'S AND CERTIFICATES OF ALL TEAM MEMBERS

Number of sheets, appended by the Tenderer to this Schedule: ……..…… **(If nil, enter NIL)**

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 12

SCHEDULE OF CONSTRUCTION EQUIPMENT

F 1: CONSTRUCTION EQUIPMENT IMMEDIATELY AVAILABLE:

DESCRIPTION, SIZE, CAPACITY	NUMBER
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……
……	……

F 2: CONSTRUCTION EQUIPMENT ON ORDER:

(State details of arrangements made, with delivery dates)

DESCRIPTION, SIZE, CAPACITY	NUMBER
……..	……
……..	……
……..	……
……	……..
……	……..
……	……..
……	……..
……	……...

F 3: CONSTRUCTION EQUIPMENT THAT WILL BE ACQUIRED OR HIRED:

(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER
……..	……
……..	……
……..	……
……	……..
……	……..
……	……..
……	……..
……	……...

Number of sheets appended by the Tenderer to this Schedule: ……..…… **(If nil, enter NIL)**

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 13

CONFIRMATION OF CIDB CONTRACTOR REGISTRATION

I/We understand that only Tenderers who are registered with the Construction Industry Development Board (CIDB) in a Contractor grading designation equal to or higher than a Construction grading designation determined in accordance with the sum tendered for, are eligible to submit tenders.

Joint Ventures are eligible to submit Tenders provided that:

1. Every member of the Joint Venture is registered with the CIDB;

2. The lead partner has a Contractor grading of not more than one lower than the designation determined in accordance with the sum tendered.

3. The combined Contractor grading designation calculated in accordance with the CIDB Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered; and

4. The contract participation of each member in a Joint Venture is in accordance with the individual member's CIDB contractor grading designation.

I/We understand that the Employer may only enter into a formal contract with a Tenderer who is registered with the Construction Industry Development board (CIDB) as a CIDB Designation **GB** (of the correct Class in accordance with the tendered sum) and has been issued with such a CIDB Contractor registration grading designation.

Contractor Industry Development Board (CIDB) Contractor Registration

I/We wish to confirm the following:

Yes I/We are registered with the CIDB as a …..... GB (Class …….. General Building Works) Contractor:

Registration No.: ……

CIDB Contractor's Grading: ……

Tender amount, VAT excluded: R……

I/We understand that:

Tenderers must be registered prior to the closing date/time for tender submissions in a CIDB Contractor grading designation equal to or higher than a grading corresponding to the amount tendered.

DESIGNATION	UPPER LIMIT, (R) OF TENDER VALUE RANGE, VAT INCLUDED
1	500,000
2	1,000,000
3	3,000,000
4	6,000,000
5	10,000,000
6	20,000,000
7	60,000,000
8	200,000,000
9	No Limit

TABLE: The value required to determine the financial capability of a Contractor is as indicated.

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 14

CONFIRMATION OF NHBRC CONTRACTOR REGISTRATION

I/We understand that only Tenderers who are registered with the National Home Builders Registration Council (NHBRC) are eligible to submit tenders.

Joint Ventures are eligible to submit Tenders provided that every member of the Joint Venture is registered with the NHBRC.

I/We understand that the Employer may only enter into a formal contract with a Tenderer who is registered with the NHBRC.

National Home Builders Registration Council (NHBRC) Contractor Registration

I/We wish to confirm the following:

Registration No.: ……

The Certificate must be valid for a period of 1 (one) year.

Date Issued: …….

Expiry Date: ……..

I/We understand that Tenderers must be registered with the NHBRC prior to the closing date/time for tender.

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 15

TAX CLEARANCE CERTIFICATE

An original valid Tax Clearance Certificate from the South African Revenue Service (SARS) shall be attached to this Schedule, or proof that the Tenderer has made arrangements with SARS to meet his or her outstanding tax obligations.

Each party to a Consortium / Joint Venture shall submit a separate Tax Clearance Certificate, or proof that he or she has made the necessary arrangements with SARS.

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……..……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 16

COMPENSATION FOR OCCUPATIONAL INJURIES & DISEASES (COID)

The Tenderer must attach to this page a **certified copy** of the Tenderer's COID Number from the Department of Labour.

GOOD STANDING FROM THE COMPENSATION COMMISSIONER

1. A valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof must accompany the Tender Document.

2. In the case of a Consortium/Joint Venture every member must submit a separate valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof with the Tender Documents.

3. If a Tender Document is not supported by a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof, the Employer reserves the right to obtain such document after the closing date. If no such document can be obtained within a period as specified by the Employer, the Tender will be disqualified.

4. Should a Tenderer's Letter of Good Standing from the Compensation Commissioner expire during the contract period, a valid certificate must be submitted within an agreed upon time.

5. The right is reserved to not award a Tender if a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof is not submitted within the requested time.

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 17

DECLARATION CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS 2014, WHERE APPLICABLE

In terms of regulations 5.1 (g) & (h) of the Construction Regulations, 2014 (hereinafter referred to as the Regulations), promulgated on 07 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) the Employer shall not appoint a Contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

Tenderers shall answer the questions below:

1. I confirm that I am fully conversant with the Regulations and that my Company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations.

   (*Tick)* **YES** ☐ **NO** ☐

2. Indicate which approach shall be employed to achieve compliance with the Regulations. *(Tick)*

Own resources, competent in terms of the Regulations (refer to 3 below)	
Own resources, still to be hired and/or trained (until competency is achieved)	
Specialist subcontract resources (competent) – Specify: …… …… …… …… ……	

3. Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CV's to be attached):

   ……

   ……

   ……

4. Provide details of proposed training (if any) that will be undergone:

……

……

……

……

5. List potential key risks identified and measures for addressing risks:

……

……

……

……

……

6. I have fully included in my tendered Fixed Price for resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period. (*Tick)*

YES ☐ **NO** ☐

SIGNATURE OF PERSON(S) AUTHORISED TO SIGN THIS TENDER:

SIGNED ON BEHALF OF THE TENDERER: ……...

(Name in print): ……,,,,,……. **ID NO**.: ……..……..……..

WITNESS: ……..……..

(Name in print): ……. **ID NO**.: ……...……..……

DATE: ……...

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 18

DAY WORKS SCHEDULE

This day work statement shall be used according to the opinion of the Engineer for the assessment of value of additional work which cannot be assessed easily according to the tendered Fixed Price.

The rates for labour and material should not include overhead costs and profit, Site Supervision of personnel, insurance, paid vacation, the use and maintenance of small hand equipment and non-mechanical equipment, travel allowance, other payments and allowance. Provision is being made for this by including the percentages covering all these items with the item “Up costs”. The rate which should be used for the assessment of value of additional work is the basic rate plus the percentage “UP costs”.

The item “Up costs” is left out in the case of equipment. The rate then has to include all of the above “Up costs” mentioned as well as Operator’s costs, user’s goods, maintenance, etc.

The Tenderer has to fill in all of the items listed underneath, otherwise his tender can be considered as incomplete.

A. **LABOUR**

1)	Workers	……	per hour plus	…… % “Up cost”
2)	Supervisors	……	per hour plus	…… % “Up cost”
3)	Artisans	……	per hour plus	…… % “Up cost”

B. **EQUIPMENT**

DESCRIPTION	RATE PER HOUR	
	In Work	Standing
Excavator ……	……	……
Front-end Loader …….	……	……
Tipper Truck …….. cubic meters	……	……
Compressor …….. (capacity)	……	……
…… (Specify)	……	……
…… (Specify)	……	……
…… (Specify)	……	……

Note: The rate for an air pressure machine has to include rubber pipes and pneumatic equipment.

C. **MATERIAL**

Here, the Tenderer has to provide the “Up Costs” which ought to be added to the basic price:

…… %

SIGNED ON BEHALF OF THE TENDERER: ……

DATE: ……

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 19

AUDITED FINANCIAL STATEMENTS FOR THE PAST 3 FINANCIAL YEARS TO BE ATTACHED TO THIS PAGE

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 20

RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:

	DATE	TITLE OR DETAILS
1		Minutes of the Compulsory Site Meeting (Clarification Meeting) of WEDNESDAY, 17 FEBRUARY 2023
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

……..... ……

SIGNATURE **DATE**

…… ……

POSITION **NAME OF TENDERER**

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

SCHEDULE 21

NCP SCHEDULES AS REQUIRED BY COGHSTA

LIST OF NCP FORMS **Pages**

INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF CoGHSTA

TENDER NO. NC/23/2022 CLOSING DATE: FRIDAY, 03 MARCH 2023 CLOSING TIME:11H00

DESCRIPTION: **BIDS ARE INVITED BY DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE FOR LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN** LOXTON**. The successful Bidder will be required to fill in and sign a written contract Form (NCP 7)**

BID DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT: **LARRY M LOUW BUILDING**
9 CECIL SUSSMAN ROAD
KIMBERLEY
8301

A NON-COMPULSORY SITE MEETING WILL BE HELD ON WEDNESDAY, 17 FEBRUARY 2023 AT 09H00 AT LOXTON MUNICIPAL OFFICES **.**

Bidders should ensure that bids are delivered timeously to the correct address. If the bid is late, it will not be accepted for consideration.

The bid box is generally open 24 (twenty-four) hours a day, 7 (seven) days a week.

ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS (NOT TO BE RE-TYPED)

THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE Preferential Procurement Regulations, 2017 (Government Gazette No. 10684), THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

THE FOLLOWING PARTICULARS MUST BE FURNISHED.
(FAILURE TO DO SO MAY RESULT IN YOUR BID BEING DISQUALIFIED)

NAME OF BIDDER: ……

POSTAL ADDRESS: ……

STREET ADDRESS: ……

TELEPHONE NUMBER: ……

CELLPHONE NUMBER: ……

FACIMILE NUMBER: ……

E-MAIL ADDRESS: ……

VAT REGISTRATION NUMBER: ……

HAS AN ORIGINAL AND VALID TAX CLEARNACE CERTIFICATE BEEN SUBMITTED? (NCP 2) **YES NO**

IF YES, WHO WAS THE CERTIFICATE ISSUED BY?

AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA) …….. ☐

A VERIFICATION AGENCY ACCREDITED BY THE SOUTH AFRICAN ACCREDITATION SYSTEM (SANAS); …… ☐
OR

A REGISTERED AUDITOR …… ☐
(Tick the applicable box)

A B-BBEE STATUS LEVEL VARIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE)

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS / SERVICES / WORKS OFFERED? **YES NO**

IF YES, ENCLOSE PROOF

……... ……

SIGNATURE OF BIDDER **DATE**

……

CAPACITY UNDER WHICH THIS BID IS SIGNED

……... ……...……

TOTAL BID PRICE **TOTAL NUMBER OF ITEMS OFFERED**

ANY ENQUIRIES REGARDING THE BIDDING PROCEDURE MAY BE DIRECTED TO:

Contact Person: **Tebogo Monoametsi of CoGHSTA, Tel: (053) 807–9713, e-mail: TMonoametsi@ncpg.gov.za**

ANY ENQUIRIES REGARDING TECHNICAL INFORMATION MAY BE DIRECTED TO:

Contact Person: **Philip Loots of V3 Consulting Engineers, Tel: (053) 004–0430, e-mail: philip.loots@v3consulting.co.za.**

TAX CLEARANCE REQUIREMENTS

IT IS A CONDITION OF BIDDING THAT:

1. The taxes of the successful Bidder **must** be in order, or that satisfactory arrangements have been made with the Receiver of Revenue to meet his/her tax obligations.

2. Tenderers shall be registered and in good standing with the South African Revenue Service (SARS) on CSD, if none compliant, the tenderer must submit evidence from SARS informing the department of why it is none complaint and when is the estimated resolution.

3. In bids where Consortia / Joint Ventures / Sub-Contractors are involved, each party must submit a separate Tax Clearance Certificate. Copies of the “Application for Tax Clearance Certificates” are available at any Receiver’s Office.

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest1 in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	**Identity Number**	**Name of State institution**

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

……
……

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

……
……

1 the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

3 DECLARATION

I, the undersigned, (name)…… in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium2 will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF

PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND

COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS

DECLARATION PROVE TO BE FALSE.

……...	……
SIGNATURE	**DATE**
…….	……
POSITION	**NAME OF TENDERER**

2 Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

CONTRACT FORM – PURCHASE OF GOODS / WORKS

THIS FORM MUST BE COMPLETED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS

PART 1 (TO BE COMPLETED BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution) …….. in accordance with the requirements and specifications stipulated in bid number ……..…… at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   (i) bidding documents, *viz*
   - Invitation to bid;
   - Tax Clearance Certificate
   - Pricing Schedule(s);
   - Technical Specification(s);
   - Preference claims for Broad Based Black
   - Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022;
   - Declaration of interest;
   - Declaration of Bidder's past SCM practices;
   - Certificate of Independent Bid Determination;
   - Special Conditions of Contract;

   (ii) General Conditions of Contract; and

   (iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the tendered Fixed Price quoted cover all the goods and/or works specified in the bidding documents; that the tendered Fixed Price cover all my obligations and I accept that any mistakes regarding the tendered Fixed Price and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

5. I declare that I have no participation in any collusive practices with any Bidder or any other person regarding this or any other bid.

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT) ……

CAPACITY ……

SIGNATURE ……

NAME OF FIRM ……

DATE ……

WITNESSES

1. ……..

2. ……..

DATE: ……

CONTRACT FORM – PURCHASE OF GOODS / WORKS

PART 2 (TO BE COMPLETED BY THE PURCHASER)

1. I, …… in my capacity as …….

   accept your bid under Reference Number …….. dated …….. for the supply of goods / works indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating delivery instructions is forthcoming.

3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED), EXCL VAT	BRAND	DELIVERY PERIOD	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorised to sign this contract.

SIGNED AT …….. ON ……

NAME (PRINT) ……

SIGNATURE ……

OFFICIAL STAMP

WITNESSES
1. ……..
2. ……..
DATE: ……

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

THE CONTRACT

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

PART C 1:

AGREEMENT AND CONTRACT DATA

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

C 1.1:
FORM OF OFFER AND ACCEPTANCE (AGREEMENT)

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

FORM OF OFFER AND ACCEPTANCE
(AGREEMENT)

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

TENDER NO. NC/23/2022:LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

The Tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED TOTAL OF THE TENDERED FIXED PRICE EXCLUSIVE OF VALUE ADDED TAX IS:

R……………………………………………………………………………………………… (in figures);

……

……………………………………………………………………………………………… (in words).

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature(s) ………………………………………. ………………………………………

Name(s) ………………………………………. ………………………………………

Capacity ………………………………………. ………………………………………

For the Tenderer ………………………………………………………………………………………

(Name and address of Organisation/Tenderer)

Name & signature of Witness ……………………………………………… **Date** ……………………

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this Agreement and in the contract that is the subject of this Agreement.

The terms of the Contract are contained in:

Part C 1: Agreement and Contract Data, which includes this agreement
Part C 2: Pricing Data (Tendered Fixed Price)
Part C 3: Scope of Work
Part C 4: Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C 3 above.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Tenderer shall within 2 (two) weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of Contract identified in the Contract Data at, or just after, the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives 1 (one) fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within 5 (five) days of the date of such receipt, notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

Signature(s) ……. ……

Name(s) ……. ……

Capacity ……. ……

For the Employer DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE
PRIVATE BAG X5005
KIMBERLEY, 8300

Name & signature of Witness ……..…….…….….. **Date** ……

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.

2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the Contract shall also be recorded here.

4. Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

1. Subject ……..

Details ……...

2. Subject ……..

Details ……...

3. Subject ……..

Details ……...

4. Subject ……..

Details ……...

5. Subject ……..

Details ……...

6. Subject ……..

Details ……...

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

AGREEMENT

The Employer identified below has accepted a Tender Offer by the Contractor for the construction, completion and remedying of defects of the specified Works. Acceptance of the Contractor's Offer shall form an agreement between the Employer and the Contractor upon the terms and conditions contained in the Agreement and in the Contract that is the subject of the Agreement.

THIS AGREEMENT WITNESSES THAT:

1. The following documents shall be deemed to form and be read and construed as part of this Agreement:

   (a) Form of Offer and Acceptance, including Schedule of Deviations
   (b) Addenda, Schedules
   (c) Contract Data
   (d) Tendered Fixed Price
   (e) Scope of Work (Specifications, drawings)
   (f) Site Information
   (g) Annexures (as applicable)

2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor covenants with the Employer to execute and complete the Works and remedy any defects therein, in conformity with the provisions of the Contract.

3. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works and the remedying of defects therein, the tendered Fixed Price at the times and in the manner prescribed by the Contract.

FOR THE CONTRACTOR (SUCCESSFUL TENDERER):

Signature(s) ……. ……

Name(s) ……. ……

Capacity ……. ……

For the Contractor ……
(Name and address of organisation)

Name & signature of Witness ……..……..……..…. ……
Date

FOR THE EMPLOYER:

Signature(s) ……. ……

Name(s) ……. ……

Capacity ……. ……

For the Employer DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE
PRIVATE BAG X5005
KIMBERLEY, 8300

Name & signature of Witness ……..……..……..…. ……

CONFIRMATION OF RECEIPT

The Tenderer, (now Contractor), identified in the Offer part of this Agreement hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

At ……..…….… (Place) on the ……..… day of …… (Month) 20 ……. (Year)

FOR THE CONTRACTOR (SUCCESSFUL TENDERER):

Signature(s) ……. ……

Name(s) ……. ……

Capacity ……. ……

For the Contractor ……
(Name and address of organisation)

Name & signature of Witness ……..……..……..… ……
Date

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

C 1.2:
CONTRACT DATA

V3 CONSULTING ENGINEERS

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PART 1:
DATA PROVIDED BY THE EMPLOYER

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

Variations, amendments and additions to the General Conditions of Contract as Special Conditions of Contract prescribed by the Employer are set out below. Each item of the Special Conditions of Contract given below is cross-referenced to the clause in the General Conditions of Contract to which it mainly applies.

The General Conditions of Contract (GCC) for Construction Works, Third Edition, 2015, as published by the South African Institution of Civil engineering (SAICE), Private Bag X200, Halfway House, 1685, is applicable to this Contract and is obtainable from www.saice.org.za.

The Pro Formas bound with the General Conditions of Contract 2015, shall not apply to this Contract and shall be replaced with the documentation bound into this Contract Document.

CONTRACT SPECIFIC DATA

The following contract specific data, referring to the GCC for Construction Works, Third Edition, 2015, are applicable to this Contract:

Compulsory Data

Clause 1.1.1.13:

The Defects Liability Period is *3 (Three) months, measured from the date of the Certificate of Completion.*

Clause 1.1.1.15:

The name of the Employer is CoGHSTA.

Clause 1.1.1.16:

The name of the Employer's Agent is V3 CONSULTING ENGINEERS (PTY) LTD

Clause 1.1.1.26:

The Pricing Strategy is a Fixed Price Contract. See also Clause 1.1.1.19
.

Clause 1.2.1.2:

The address of the Employer is:

Physical address: LARRY M LOUW BUILDING
9 CECIL SUSSMAN ROAD
KIMBERLEY
8301

Postal Address: PRIVATE BAG X5005

KIMBERLEY
8300

E-mail address: bslenkoe@ncpg.gov.za

The address of the Employer's Agent is:

Physical address: c/o Quinn and Villiers Streets
KIMBERLEY, 8300

Postal address: P O BOX 1178
KIMBERLEY, 8300

E-mail address: porsch.sekhukhune@v3consulting.co.za

Clause 1.3.3:

The language of the Contract and of written communication shall be Afrikaans and/or English as determined by the Employer and the Employer's Agent at the onset of the Contract.

Clause 1.3.6:

The Employer's Agent shall retain copyright and property rights on his documentation, etc.

Clause 3.2.3:

The Employer's Agent is required to obtain the specific approval of the Employer before executing any of the following functions or duties:

1. Nominating the Employer's Agent's Representative in terms of Clause 3.3.1.
2. Delegation of Employer's Agent's authority in terms of Clause 3.3.4.
3. Granting permission to work during non-working times in terms of Clause 5.8.1.
4. Suspend the progress of the works in terms of Clause 5.11.
5. The issuing of an instruction to accelerate progress in terms of Clause 5.7.3.
6. The Term Engineer will be the Project's Professional Services provider

Clause 4.1.2:

Amend the first three lines to read:

"Where any part of the Works, whether permanent or temporary is designed by the Contractor, he shall, notwithstanding any approval of the Employer's Agent be liable for any error or deficiency in and design, drawing or document and any loss or damage arising out of such error or deficiency."

Clause 4.2:

Add the following new sub-clause:

Clause 4.2.3:

"4.2.3.1 The Employer's Agent shall establish the basic reference pegs and benchmarks on the Site and give to the Contractor the particulars thereof in sufficient time to enable the Contractor to meet his approved programme.

4.2.3.2 After compliance by the Employer's Agent with the provisions of Sub-Clause 5.4.1, the Contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith.

4.2.3.3 If at any time during the progress of the Works, any error shall appear or arise in the position, levels dimensions or alignment of any part of the Works, the Contractor, on being required to do so by the Employer's Agent, shall at his own expense rectify such error to the satisfaction of the Employer's Agent, but if such error is based on incorrect data supplied in writing by the Employer's Agent or if there is any delay in providing the particulars required in terms of Sub-Clause 5.4.1, the Contractor shall, in respect of that delay and the Cost of such rectification, be entitled to make a claim in accordance with Clause 10.1.
The Contractor shall carefully protect and preserve all benchmarks, sight-rails, pegs and other things used in setting out the Works. The checking of any setting-out or of any line or level by the Employer's Agent shall not relieve the Contractor of his responsibility for the correctness thereof."

Clause 4.3:

Add the following new sub-clause:

"4.3.3 The Employer and the Contractor shall enter into an agreement to complete the work required for construction of the works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (Act 85 of 1993) and the Construction Regulations promulgated thereunder.

An agreement is concluded in the Contract Document (C 1.4 of Contract Data) and shall be completed and submitted to the Employer, together with a letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed Compensation Insurer) within 14 (fourteen) days after the Commencement Date. The Contractor shall ensure that any letter of Good Standing shall be timeously **renewed in order that it remains in full force for the duration of the Contract**".

Clause 4.4.4:

Add the Employer's Agent to the consultation between the Employer and the Contractor.

Clause 4.9

Add the following new sub-clauses:

"4.9.2: In order to preclude seizure by the owner of any construction equipment being held by the Contractor on a hire-purchase agreement for the purposes of the contract, the Employer shall be entitled to pay any such owner the amount of any outstanding instalment or other sum owing under any hire or hire-purchase agreement and in the event of his doing so, any amount thus paid by him shall be a debt payable to the Employer by the Contractor and may be deducted by the Employer from any monies owing or that may become owing the Contractor in terms of the Contract, or be recovered at law from the Contractor by the Employer.

4.9.3: When entering into any subcontract for the execution of any part of the works, the Contractor shall incorporate in such subcontract, by reference or otherwise, the provisions of this clause in respect of construction equipment brought to the site by the Subcontractor."

Clause 5.3.1:

The Commencement Date will be the date that the site is handed over to the Contractor by the Employer's Agent/Employer.

The Contractor shall commence executing the Works **within *7 (seven) days*** *from the Commencement Date.*

The documentation required before commencement with Works execution is:

1) Approved Health and Safety Plan (Refer to Clause 4.3)
2) Initial programme (Refer to Clause 5.6)
3) Security or performance guarantee (Refer to Clause 6.2)
4) Insurance (Refer to Clause 8.6)
5) Occupational Health and Safety Agreement (C 1.4 of the Contract Document)
6) Letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed Compensation Insurer)

Clause 5.3.2:

The Works programme is to be delivered within **7 (seven) days** of the Commencement Date
The time to deliver the Performance Guarantee; within **28 (twenty-eight) days** of Acceptance
The liability for the guarantee shall be for **10 (ten) %** of the Contract Price
The Works are to be commenced within **14 (fourteen) days** of the Commencement Date
The other documentation required before commencement with Works execution is **28 (twenty-eight) days**

Clause 5.3.3:

Add the following clause after Clause 5.3.3:

"5.3.4: The Contractor shall commence executing the Works within **7 *(seven) days*** from the Commencement Date.

The Commencement Date will be the date when all of the following takes place:
1) Site Handover to the Contractor
2) The Completion of the Form of Offer and Acceptance
3) The above will take place within **7 (seven) days** of the issue of the Letter of Acceptance".

Clause 5.4:

Clause 5.4.2:

Access to and possession of Site shall not be exclusive to the Contractor insofar as the provisions of Clause 4.8 apply, and where on-going use by the general public is required.

Add the following sub-clause:

"5.4.4 The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for purposes of the Works."

Clause 5.8.1:

The non-working days are *usually Sundays.*

The special non-working days are:

1) *Public holidays and the official Builder's Holiday (Year End Break).*
2) *The year-end break commencing on 15 December 2023 and ending on 08 January 2024 and similar dates in the following year end break.*

Clause 5.9.1:

Add the following paragraph:

"All additional copies, whether provided by the Employer's Agent or reproduced by the Contractor, shall be to the Contractor's account."

Clause 5.11.4:

Add the following after "Contractor," and before "the Contractor: in the third line:

"5.11.4 "or by reason of any Contractor executing construction work, which is not in accordance with the Contractor's Health and Safety Plan for the site or which poses a threat to the health and safety of persons"

Clause 5.12.2.2:

No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed in the Project Specifications for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of Clause 5.12.

The number of days quoted under the Project Specifications shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work.

Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day is experienced.

Should an extension of time be granted by the Employer's Agent, such extension of time will be added to the time for completion or set against any over-provision that may have occurred in the abovementioned Schedule.

It shall further be noted that where the critical path is not affected, no extension of time for **abnormal** climatic conditions or for any other reason will be entertained.

See also C 3.3.3.5.10.

Clause 5.13.1:

The following penalties will applicable on this contract:

a) The penalty for failing to complete a house within 8 weeks of casting foundation is ***R 500-00 (Five Hundred Rand)*** *per house per calendar day of delay.*
b) The penalty for failing to complete the total Works is ***R 1000-00 (One Thousand Rand)*** *per outstanding house per calendar day of delay.*

Clause 5.14.4:

Add the following at the end of this sub-clause:

"However, a Certificate of Completion will not be issued before the Contractor hands over a consolidated Health and Safety file that shall include all the specified information, as well as all "Record" information as required by the Employer's Agent."

Clause 5.16.3:

The latent defect period is *10 (ten) years.*

Clause 6.2.1:

The security to be provided by the Contractor shall be a performance guarantee of 10 (ten) % of the Contract Sum. The performance guarantee shall contain the wording of the document included in C 1.3.

Clause 6.2.2:

Delete Clause 6.2.2 in its entirety.

Clause 6.2.3:

Delete Clause 6.2.3 in its entirety and replace with the following:

"The Contractor shall ensure that the performance guarantee remains valid and enforceable until the Certificate of Completion of the Works is issued."

Clause 6.3:

Add the following sub-clause:

"6.3.3.1: The Fixed Price will be fixed as tendered, irrespective of the percentage variation."

Clause 6.6:

*In the second line of sub-clause 6.6.1.2, after the words "*sum or sums" *insert the words* "excluding VAT."
*In the first line of sub-clause 6.6.1.2.1, after the words "*sum or sums" *insert the words* "excluding VAT."
*In the second line of sub-clause 6.6.1.2.2, after the word "*sum" *insert the words* "excluding VAT."
*In the fourth line of sub-clause 6.6.2, after the word "*price" *insert the words* "excluding VAT."

Clause 6.7.1:

Refer to sub-clause 1.1.1.26 and C 3.3.6.13.

Clause 6.8.2:

Add the following to Clause 6.8.2:

"The tendered Fixed Price shall **not be** subject to contract price adjustments in accordance with Clause 6.8 of the General Conditions of Contract.

If special materials are specified in Part 2 of the Contract Data then the provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials."

Clause 6.8.4:

Add the following to Clause 6.8.4:

"Notwithstanding the above, in the event that a public holiday is proclaimed after 28 (twenty-eight) days before the closing date for tenders, no cost other than those that can be claimed under Clause 5.12.3 shall be added to the contract price."

Clause 6.10.1.5:

The percentage advance on materials not yet built into the Permanent Works is *0 (nil) %.*

Clause 6.10.3:

Interim payments to the Contractors shall be subject to retention by the Employer of an amount of **5 (five) %** of the said amounts due to the Contractor. The limit of retention money is **5 (five) %** of the Contract Price, including allowances for contingencies and Contract Price Adjustment. A guarantee in lieu of retention is **not** permitted for the latent defects period.

Clause 6.10.4:

Add the following to Clause 6.10.4:

"Furthermore, payment shall be subject to the Employer being in possession of an original valid Tax Clearance Certificate at the time payment is due (it is the responsibility of the Contractor to submit an updated original Tax Clearance Certificate to the Employer) should any current certificate expire during the contract period.

The Employer shall withhold any payments should EPWP reporting not be submitted monthly or with each claim, whichever comes first.

Notwithstanding anything above, the Employer's Agent shall be empowered to withhold the delivery of the payment certificate until the Contractor has complied with his obligations to report in terms of Clause 4.10.2 and as described in the Scope of Work."

Clause 7.2.1:

Add the following to this sub-clause:

"The onus rests with the Contractor to produce work which conforms in quality and accuracy of detail to all the requirements of the specifications and drawings, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced personnel, together with all transport, instruments and equipment, to ensure adequate supervision and positive control of the works at all times."

Clause 7.4.1

Add the following to this sub-clause:

"The Contractor shall conduct tests or have them conducted continually on a regular basis, to check the properties of natural materials and processed natural materials and of products manufactured on site, such as concrete and asphalt. Although not a requirement for the Contractor to conduct regular tests on any commercially produced products such as cement, bitumen, steel and pipes, the Contractor shall remain fully responsible for any defective material or equipment provided by him.

Similarly, the quality of all elements of the works shall be checked on a regular basis so as to ensure compliance with the specified requirements.

The intensity of control and of tests to be conducted by the Contractor in terms of these obligations is not specified but shall be adequate to ensure that proper control is being exercised to the satisfaction of the Employer's Agent.

Where any natural materials or products made from natural materials are supplied, upon completion of each element of the construction works, the Contractor shall test and check such materials, products and or elements for compliance with the specified requirements and shall submit his results to the Employer's Agent for approval. Such submission shall include all his measurements and test results and shall furnish adequate proof of compliance with the specified requirements."

Clause 7.6.3.3

Add the following new sub-clause:

"To stop any Contractor from executing construction work, which is not in accordance with, the Contractor's Health and Safety Plan for the site or which poses a threat to the health and safety of persons and to implement the required health and safety measures before continuing."

Clause 8.4.1.1:

Delete and replace with the following:

"… hereby indemnifies the Employer, the Employer's Agent and all consultants against any liability in respect of damage to or physical loss of the property of any person, including any Employee of the Contractor, or injury to or death of any person, including any employee of the Contractor and"

Clause 8.6:

Clause 8.6.1.1.2:

The value of Plant and Materials supplied by the Employer to be included in the insurance sum is *R0-00 (Nil Rand).*

Clause 8.6.1.1.3:

The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is *R10 000-00 (Ten Thousand Rand) per house.*

Clause 8.6.1.3:

The limit of indemnity for liability insurance is *R 7 000 000-00 (Seven Million Rand).*

Clause 8.6.1.5:

In addition to the insurances required in terms of the General Conditions of Contract Clauses 8.6.1.1 to 8.6.1.4, the following insurance is also required:

a) Insurance of Construction Equipment (including tools, offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the site for a sum sufficient for their replacement.

b) Insurance in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993.

c) Motor Vehicle Liability Insurance comprising (as a minimum) “Balance of Third Party” Risks including Passenger Liability indemnity.

d) Where the contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor’s Policies of Insurance.

Clause 8.6.6:

The evidence that the insurances have been effected in terms of Clause 8.6.1, shall be in the form of an Insurance Broker’s Warranty, worded precisely as given in Part C 1.6 “Insurance Broker’s Warranty”.

Clause 8.6.8:

Add the following new sub-clause 8.6.8:

“Where the contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such works during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor’s Policies of insurance.”

Clause 9.2.1:

Add the following new sub-clause 9.2.1.3.9, 9.2.1.3.10, 9.2.1.3.11 and 9.2.1.3.12:

“9.2.1.3.9: The Contractor committed a corrupt or fraudulent act during the procurement process or execution of the contract. “

“9.2.1.3.10 An official or other role player committed any corrupt or fraudulent act during the procurement Process or in the execution of the contract that benefitted the Contractor.”

“9.2.1.3.11 The Contractor fails to provide the required Guarantee and insurances within the prescribed time.”

“9.2.1.3.12 Has failed to execute construction work in accordance with the Contractor’s Health and Safety Plan or with a threat to the health and safety of persons within 14 (fourteen) days after receiving from the Employer’s Agent written notice of the same.“

Clause 10.1.6

Add the following sub-clause:

"Early warning – A Party shall notify the other as soon as he is aware of any circumstance which may delay or disrupt the Works, or which may give rise to a claim for additional payment. The Contractor shall take all reasonable steps to minimise these effects.

The Contractor's entitlement to extension of the Time for Completion or additional payment shall be limited to the time and payment which would have been due if he had given prompt notice and had taken all reasonable steps."

ADDITIONAL CONDITIONS OF CONTRACT

Add the following new clause after Clause 10:

Clause 11: Details to be confidential

The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without prior written consent from the Engineer.

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PART 2:
DATA PROVIDED BY THE TENDERER

PART 2: DATA PROVIDED BY THE TENDERER

Clause 1.1.1.9:

The name of the Contractor is ……

Clause 1.2.1.2:

The address of the Contractor is:

Physical address: ……..

……

…….. ……

Postal address: ……....

E-mail address: ……

Fax number: ……..

Contact person: ……

Cell No.: ……

Clause 1.1.1.14:

The time for achieving Practical Completion is: ……. weeks from the Commencement Date.

In determining their Tender Period, Tenderers must take cognisance of Construction Regulations, 2014, Clause 3 (1), as applicable.

SIGNED ON BEHALF OF THE TENDERER: ……...

DATE: ……

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C 1.3:
FORM OF GUARANTEE

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 1.3: PERFORMANCE GUARANTEE FROM AN APPROVED FINANCIAL INSTITUTION

For use with the General Conditions of Contract for Construction Works, Second Edition, 2010.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

Physical address: ....

"Employer" means: CoGHSTA

“Contractor” means: ……..

"Engineer” means: V3 CONSULTING ENGINEERS (PTY) LTD

“Works" means: TENDER NO. NC/23/2022: **LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON**

"Site" means: The site as defined in Clause 1.1.1.29 of the General Conditions of Contract.....

"Contract" means: The agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

“Contract Sum” means: The accepted amount exclusive of tax of R …….

Amount in words: ……..

"Guaranteed Sum" means: The maximum aggregate amount of R .....

Amount in words: .....

"Expiry Date" means: The date of issue by the Engineer of the Certificate of Completion of the Works

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificates and the Certificate of Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever comes first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. The Guarantor hereby acknowledges that:

   3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a surety ship;

   3.2 its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

   4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

   4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

   4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

   5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or

   5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; or

   5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payments in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor, showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within 7 (seven) calendar days upon receipt of the first written demand to the Guarantor.

9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

13. This Performance Guarantee, with the required demand notices in terms of 4 and 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No. 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

SIGNED AT: …….

DATE: ……

GUARANTOR'S SIGNATORY (1): …….

CAPACITY: ……..

GUARANTOR'S SIGNATORY (2): …….

CAPACITY: …….

WITNESS SIGNATORY (1): ……

WITNESS SIGNATORY (2): ……

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C 1.4:
OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 1.4: OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

AGREEMENT MADE AND ENTERED INTO BETWEEN CoGHSTA (HEREINAFTER CALLED THE "EMPLOYER") AND

……
(Contractor / Mandatary / Company / CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, ACT NO. 85 OF 1993 AS AMENDED

I, ... , representing

....., as an employer in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated there under.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/we are insured with an approved licensed Compensation Insurer.

COID Act Registration Number: .....

OR Compensation Insurer: .... Policy No.: ..... .

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any Sub-Contractors employed by me will enter into an occupational health and safety agreement separately, and that such Sub-Contractors comply with the conditions set.

I hereby declare that I have read and understand the appended Occupational Health and Safety Conditions undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specifications and Plan.

Signed at …….. on the …… day of ……. 2018.

WITNESS: ……

MANDATARY: …….

Signed at …….. on the …… day of ……. 2018.

WITNESS: ……

For and on behalf of COGHSTA: ……

OCCUPATIONAL HEALTH AND SAFETY CONDITIONS

1. The Chief Executive Officer of the Contractor shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act (as amended). Should the Contractor assign any duty in terms of Section 16(2), a copy of such assignment shall immediately be provided to the representative of the Employer as defined in the Contract.

2. All work performed on the Employer's premises shall be performed under the supervision of the Construction Supervisor who understands the hazards associated with any work that the Contractor performs on the site in terms of Construction Regulations 2014.

3. The Contractor shall appoint a Competent Person who shall be trained on any occupational health and safety aspect pertaining to them or to the work that is to be performed.

4. The Contractor shall ensure that he familiarizes himself with the requirements of the Occupational Health and Safety Act and that he, his employees, and any Sub-Contractors, comply with them.

5. Discipline in the interests of occupational health and safety shall be strictly enforced.

6. Personal protective equipment shall be issued by the Contractor as required and shall be worn at all times where necessary.

7. Written safe work procedures and appropriate precautionary measures shall be available and enforced, and all employees shall be made conversant with the contents of these practices.

8. No substandard equipment / machinery / articles or substances shall be used on the site.

9. All incidents referred to in terms of Section 24 of the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour and the Employer.

10 The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act and into any incident involving a Contractor and /or his employees and/or his Sub-Contractors.

11. No use shall be made of any of the Employer's machinery / plant/ equipment /substance/ personal protective equipment or any other article without prior arrangement and written approval.

12. No alcohol or any other intoxicating substance shall be allowed on the site. Any person suspected of being under the influence of alcohol or any other intoxicating substance shall not be permitted access to or allowed to remain on the site.

13. Prior to commencement of any work, verified copies of all documents mentioned in the agreement, must be presented to the Employer.

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C 1.5:
CONTRACT OF TEMPORARY EMPLOYMENT AS COMMUNITY LIAISON OFFICER

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 1.5: CONTRACT OF TEMPORARY EMPLOYMENT AS COMMUNITY LIAISON OFFICER

Construction Contract No.: …….....

PROJECT : ……..... ..... .

AGREEMENT made between the CONTRACTOR .....

and the Community Liaison Officer. ..... hereafter referred to as the CLO, for the appointment and employment of a CLO for the duration of the work in respect of the above-named construction contract.

1. THE PARTIES HAVE AGREED THAT

The CLO will be employed by the CONTRACTOR on a temporary basis for the duration of the contract to the date of practical completion as defined in the Contract, subject to all the conditions set out below.

2. THE DUTIES OF THE CLO SHALL BE:

(a) to keep the community informed on the progress of the project;
(b) to keep the Contractor informed on relevant Community affairs and possible grievances;
(c) to manage the recruitment of workers from the Sub-Council Job-Seekers Database;
(d) to assist the Contractor's supervisory staff in the management of the workers.

3. THE FOLLOWING CONDITIONS OF EMPLOYMENT SHALL APPLY:

The Conditions of Temporary Employment as applicable on this Contract for the workers recruited from the Community shall apply equally to the CLO, except that the rate of remuneration shall be a not less than R200.00 per working day or as stated in the Bill of Quantities. All costs pertaining to the CLO must be included in the tended rates for contractual requirements in Preliminary & General in the Bill of Quantities.These conditions that apply are listed below as they appear in the Contract of Temporary Employment:

3.1 If required to work on a statutory public holiday or Sunday the payment will be double the amount stated in the previous paragraph.

3.2 Maximum hours of work:

(a) 9¼ hours per day
(b) 45 hours per week;
(c) 5 days per week;
(d) 5 hours without an interval, whereupon there shall be an interval of at least minutes;
(e) A spread-over period of 12 hours.

3.3 The CLO shall be entitled to payment where the CLO is prevented from working by reasons which are within the control of the Contractor.

3.4 On days when it is raining the Contractor may, before 9 a.m., decide not to open the site and there will be no pay.

If the Contractor closes the site between 9 a.m. and 1 p.m., the CLO will be paid half the daily wage.

If the site works later than 1 p.m., the CLO will be paid the full daily wage.

3.5 Workers and the CLO will not be permitted to work under conditions of:

(a) abuse of intoxicating substances;
(b) criminal actions by the employee;
(c) strike action or political stayaways.

3.6 Workers, including the CLO, may be dismissed after 2 official written warnings for the following behavior:

(a) undisciplined or unruly behavior;
(b) insubordination to Team Leader, Supervisors or Management;
(c) abuse of intoxicating substances;
(d) willful or negligent damage to or loss of machines or equipment.

The Contractor shall ensure that he has statements from at least 2 witnesses' concerning any of the above situations.

The Contractor shall inform the CLO within 24 hours of any warning issued to workers employed from the Job-Seekers Database.

3.7 The CLO will be paid on a Friday afternoon every 2 weeks, 1 week in arrears**.**

3.8 The CLO shall be given a statement with each payment on which is recorded:

(i) the name of the Contractor;
(ii) the CLO's name;
(iii) the number of days worked by the CLO;
(iv) the rate per day;
(v) the details of any deductions made;
(vi) the actual amount paid to the CLO.

3.9 No deduction shall be made from the remuneration except where the CLO consents in writing or unless the Contractor is permitted or required to do so by law or the order of any competent court.

3.10 The CLO shall be supplied free of charge with all health and safety equipment required by the Occupation Health and Safety Act. The equipment shall remain the property of the Contractor.

3.11 The Contractor must give the CLO at least 1 weeks' notice of the termination of the Contract of Temporary Employment. If this is not done, the CLO must be paid earnings for 5 days. This condition does not apply if the CLO is dismissed.

3.12 At the end of the period of temporary employment, the Contractor shall provide a Certificate of Service recording the Contractor's name, the CLO's name and address, the period of service, the type of work on which the CLO was engaged and the rate of remuneration on termination.

4. TERMINATION OF AGREEMENT

4.1 If the CLO can no longer perform and execute his/her duties as detailed in this agreement, this agreement will be terminated without prejudice to any rights under this agreement.

5. THE CONDITIONS OF THIS AGREEMENT

5.1 The parties expressly declare that this agreement contains all the conditions negotiated between them, and no condition or stipulation not contained herein shall be binding upon the parties.

3. THUS AGREED AND SIGNED BY THE PARTIES:

CONTRACTOR: ……

COMMUNITY LIAISON OFFICER: ……

DATE: ……..

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PART C 2:
PRICING DATA

V3 CONSULTING
ENGINEERS

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C 2.1:
PRICING INSTRUCTIONS

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 2.1 PRICING INSTRUCTIONS

1. Pricing Instructions means the criteria as set out below, read together with all parts of this Contract document, which will be assumed in the contract that the Tenderer has taken into account when developing his prices.

2. The work scheduled below is described in more detail in the specifications and drawings. Where certain items are referred to the General Conditions of Contract or Specification or a certain drawing number for more information, the Tenderer is referred to the complete General Conditions of Contract, Specification and Drawings and it must not be presumed that the references are complete.

3. Arithmetical errors will be corrected by assuming the amount per Item as correct. The tendered Fixed Price will be corrected accordingly if there are arithmetical errors.

4. The price quoted shall be assumed **the all-inclusive price** for the work to be executed.

5. The prices as tendered in the Calculation of Tender Sum (Fixed Price) shall be taken as being valid for the full duration of the Tender, unless otherwise stated in C 1.2: Contract Data: Part 1: Clause 6.8.2 of this Tender Document.

6. No deviation that may be requested by the Tenderer from the above, or from the General Conditions of Contract, Specification, Calculation of Tender Sum (Fixed Price), Tender form and Conditions, shall be considered, unless clearly indicated in Part 2: Returnable Documents: Schedule 10 of this Tender Document when the Tender Document is submitted.

7. The costs to comply with all the conditions, obligations and liabilities and as described in the General Conditions of Contract and Specifications, shall be assumed as being all inclusive in this Calculation of Tender Sum (Fixed Price), except if indicated differently in Part 2: Returnable Documents: Schedule 10 of this Tender Document.

8. The Calculation of Tender Sum (Fixed Price) must be completed in **BLACK INK** and must not be removed from the bound set of documents. Only the Calculation of Tender Sum (Fixed Price) as bound into this document may be used. **Nothing else** will be accepted. Deviation from this will render the Tender as invalid.

9. **No** correction fluid may be used.

10. The price quoted in the Calculation of Tender Sum (Fixed Price) shall be in Rand and whole cents. Fractions of a cent shall be discarded.

11. In this document SABS will mean SANS and vice versa.

12. Measurements for Certificates of Payment will be in accordance to C 3.3.3.6.

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C 2.2:
CALCULATION OF TENDER SUM
(FIXED PRICE)

COGHSTA
LOXTON 51: THE CONSTRUCTION OF 50 BNG HOUSES IN LOXTON- IN THE UBUNTU MUNICIPALITY
SECTION A: New House – 40 m² BNG

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	RATE	No. of Houses	AMOUNT
Supply, delivery and installation of all material and tools to construct complete standard **40 m² BNG** houses inclusive of ancillary works as per the breakdown for the minimum specifications C.3.1.10 from page C3.25:						
1		ALL CONTRACTUAL REQUIREMENTS	SUM		1	
2		A comprehensive GFSH 02 Geotechnical Investigation	PROV. SUM	200 000	1	200 000
3		Site clearance and access	SUM		1	
4		Submit Building plans to LM for approval	SUM		1	
5		Engineering Design of foundation, Inspections and Engineering Certification (Foundation, Superstructure & Roof)	SUM		50	
6		NHBRC Enrolment	No.		50	
8		Excavations (Foundations and services connections)	No.		50	
9		Reinforcing and Casting of Strip Foundations	No.		50	
10		Building of Foundation Brickwork	No.		50	
11		Cast Surface Bed	No.		50	
12		G5 Fill Compacted to 93% MOD AASTHO & 25Mpa Re-inforced Raft Foundation	No.		50	RATE ONLY
13		Building of Superstructure Brickwork	No.		50	
14		Complete Design, Supply, Deliver and Installation of Roof	No.		50	
15		Complete gable and beamfilling	No.		50	
16		Apply approved brick sealant to all external walls, as per manufacturers specifications	No.		50	
17		Supply and Install Ceiling complete with Cornish installation according to SANS 10400 and two Coats of PVA (approx. 40m²)	No.		50	
18		Supply and Install Plumbing inclusive of all sanitary fittings and pipe work	No.		50	
19		Supply, deliver and install **TWO (2)** external doors inclusive of 3 lever lock and 70 mm weather board (Well sanded and cleaned, apply 1 coat wood stain and 2 coats external polyurethane varnish) **per unit**	No.		50	
20		Supply, deliver and install **THREE (3)** internal doors inclusive of a 2-lever lock. (Well sanded and cleaned, apply 1 x coat timber primer and 1 x universal undercoat and 2 coats Enamel paint) **per unit**	No.		50	
21		Supply, Deliver and Install **1xC1** Window, inclusive of all Fittings and Glazing as per specifications **per unit**	No.		50	
22		Supply, Deliver and Install **3xC7** Windows inclusive of all Fittings and Glazing as per specifications **per unit**	No.		50	
23		Supply, Deliver and Install **1xD57** Window inclusive of all Fittings and Glazing as per specifications **per unit**	No.		50	
24		Construct Concrete apron as per specifications (25mpa concrete, 1m wide, 85mm thick all round	No.		50	
25		Supply, Deliver and Install All Electrical components inclusive of 7 Light Switches, 2 External Lights, 5 Indoor Lights, DB board, 4 electrical sockets and a stove plug **per unit**	No.		50	
26		Electrical Connection Application with the Local Municipality on behalf of beneficiary	No.		50	
27		Supply, Deliver and Install Connection to Water Service	No.		50	
28		Supply, Deliver and Install Connection to Sewer Service	No.		50	
29		Quality Completion Pack	No.		50	
30		OHS Compliance	SUM		1	
				SECTION A TOTAL CARRIED FORWARD TO SUMMARY PER UNIT		

ITEM NO	PAYMENT CLAUSE	DESCRIPTION	UNIT	RATE	No. of Houses	AMOUNT
Supply, delivery and installation of all material and tools to construct complete standard **45 m² BNG** houses inclusive of ancillary works as per the breakdown for the minimum specifications C.3.1.10 from page C3.25:						
1		ALL CONTRACTUAL REQUIREMENTS	SUM		1	
2		Site clearance and access	SUM		1	
3		Submit Building plans to LM for approval	SUM		1	
4		Engineering Design of foundation, Inspections and Engineering Certification (Foundation, Superstructure & Roof)	SUM		1	
5		NHBRC Enrolment	No.		1	
6		Excavations (Foundations and services connections)	No.		1	
7		Reinforcing and Casting of Strip Foundations	No.		1	
8		Building of Foundation Brickwork	No.		1	
9		Cast Surface Bed	No.		1	
10		G5 Fill Compacted to 93% MOD AASTHO & 25Mpa Re-inforced Raft Foundation	No.		1	RATE ONLY
11		Building of Superstructure Brickwork	No.		1	
12		Complete Design, Supply, Deliver and Installation of Roof	No.		1	
13		Complete gable and beamfilling	No.		1	
14		Apply approved brick sealant to all external walls, as per manufacturers specifications	No.		1	
15		Supply and Install Ceiling complete with Cornish installation according to SANS 10400 and two Coats of PVA (approx. 40m²)	No.		1	
16		Supply and Install Plumbing inclusive of all sanitary fittings and pipe work	No.		1	
17		Supply, deliver and install **TWO (2)** external doors inclusive of 3 lever lock and 70 mm weather board (Well sanded and cleaned, apply 1 coat wood stain and 2 coats external polyurethane varnish) **per unit**	No.		1	
18		Supply, deliver and install **THREE (3)** internal doors inclusive of a 2-lever lock. (Well sanded and cleaned, apply 1 x coat timber primer and 1 x universal undercoat and 2 coats Enamel paint) **per unit**	No.		1	
19		Supply, Deliver and Install **1xC1** Window, inclusive of all Fittings and Glazing as per specifications **per unit**	No.		1	
20		Supply, Deliver and Install **3xC7** Windows inclusive of all Fittings and Glazing as per specifications **per unit**	No.		1	
21		Supply, Deliver and Install **1xD57** Window inclusive of all Fittings and Glazing as per specifications **per unit**	No.		1	
22		Construct Concrete apron as per specifications (25mpa concrete, 1m wide, 85mm thick all round	No.		1	
23		Supply, Deliver and Install All Electrical components inclusive of 7 Light Switches, 2 External Lights, 5 Indoor Lights, DB board, 4 electrical sockets and a stove plug **per unit**	No.		1	
24		Electrical Connection Application with the Local Municipality on behalf of beneficiary	No.		1	
25		Access to house(12m² paving, and ramp at doorway	SUM		1	
26		Kick plates to doors	SUM		1	
27		Hand and Grab rails	SUM		1	
28		Lever action taps	SUM		1	
29		1 m vinyl folding door in bathroom	SUM		1	
30		Supply, Deliver and Install Connection to Water Service	No.		1	
31		Supply, Deliver and Install Connection to Sewer Service	No.		1	
32		Quality Completion Pack	No.		1	
33		OHS Compliance	SUM		1	
		SECTION B TOTAL CARRIED FORWARD TO SUMMARY PER UNIT				

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 2.2 CALCULATION OF TENDER SUM (FIXED PRICE)

DESCRIPTION	AMOUNT
SECTION A: Fixed price per **40m² BNG Houses:** BNG house, inclusive of connection to sewer, water, and electrical network **x 50**	
SECTION B Fixed price per **40m² BNG Houses:** BNG house, inclusive of connection to sewer, water, and electrical network **x 1**	
SUB TOTAL 1	
PLUS : 15% CONTINGENCIES (calculated on SUB TOTAL 1)	
SUB TOTAL 2	
PLUS : **0% VAT** (calculated on SUB TOTAL 2)	
TOTAL (CARRIED OVER TO FORM OF OFFER & FRONT PAGE)	

CONTRACT PERIOD: …….. WEEKS

DECLARATION IN RESPECT OF COMPLETENESS OF TENDER:

DEPT. OF COGHSTA
Private Bag X5005
KIMBERLEY
8300

I/We, the undersigned, do hereby declare that these are the properly priced Calculation of Tender Sum (Fixed Price) forming Part 2.2 of this Contract Document upon which my/our tender for the TENDER NO. NC/23/2022: LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON has been based.

NAME OF FIRM: ……

SIGNATURE OF TENDERER/S: ……

DATE: ……..

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PART C 3:
SCOPE OF WORK

STATUS:

Should any requirement or provision in the parts of the Scope of Works conflict with any requirement of any Standardised Specification, or any drawings, the order of precedence, unless otherwise specified, is:

Drawings
Scope of Work (Part C 3.1, C 3.3, C 3.4 and C 3.5)
SABS / SANS Standardised Specifications

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

C 3.1:
SCOPE OF THE WORKS:
PART 1

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 3.1: SCOPE OF WORKS: PART 1

C 3.1.1 GENERAL DESCRIPTION OF THE CONTRACT

The project involves the construction of 51 BNG houses. The work to be carried out under this Contract entails LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON. Preferences afforded to construction companies owned by women, youth or disabled persons.

C 3.1.1.1 PRINCIPAL CONTRACT

The scope of this principle Contract includes the following activities:

1. Appointment of NHBRC accredited Structural Design Engineer, to inspect and approve super structure and roof and sign off on NHBRC D1 documents.
2. A comprehensive GFSH 02 Geotechnical investigation in line with SANS 634 with one test pit per site, including:
   a) Foundation indicator tests / Atterberg limits
   b) Grading
   c) Soil classification
   d) Moisture content
   e) PH and conductivity
3. NHBRC Enrolment (Enrolment paid by COGHSTA)
4. Municipal Approval of Building plans (Per stand)
5. Site establishment.
6. Site clearance and access.
7. Construction of 51 x complete top-structures and ancillary works:
   f) Engineering Design, of foundation and Inspection and Engineering Certification
   g) Demolishing where applicable and discarding
   h) G5 fill and compaction (if and when required)
   i) Excavations (Foundations and services connections)
   j) Casting of Foundations (strips)
   k) Building of Brickwork
   l) Cast Surface Bed / Raft Foundation
   m) Plaster and Paint
   n) Windows and Doors
   o) Roof and Ceiling
   p) All plumbing
   q) Aprons all round
   r) Electrical Installation
   s) Connection to existing Water and Sewer Services
   t) OHS Compliance
   u) Completion of snags
   v) Signing of “happy letters”
   w) Submission of Completion Quality Pack (per stand)

Contractors are required to provide under their tendered Fixed Price for the appointment of an NHBRC registered Engineer to design and sign off on foundations, superstructures and roofs. To supply of all necessary materials, the supply and use of tools, the provision, operation and maintenance of all Contractor's plant and equipment, the supply and supervision of all labour and workmanship and everything and every service for the construction, completion and upholding of the Works in a manner required by the Contract and to the entire satisfaction of the Engineer.

The Contract is to extend to and comprise all such minor operations, matters and details as if they had been expressly shown and described, the intention being that the Contractor is to execute, as part of this Contract, every requisite for the full and perfect completion of the whole of the Works comprised therein and essential to their stability and completeness for the purposes intended by them, whether Drawings or Specifications are sufficient or not.

C 3.1.1.2 OTHER SIMULTANEOUS CONTRACTS

During the construction period Contracts may be awarded to other Contractors.

The Contractor's attention is drawn to Clause 4.8 of the General Conditions of Contract that all reasonable access must be given to other Contractors. The Building Contractor must co-ordinate his program with the other Contractors to accommodate the overlap of construction activities. No additional payments will be made or the above arrangements.

C 3.1.2 **DESCRIPTION OF THE SITE AND ACCESS**

The site of the Works is in the residential area of LOXTON in the UBUNTU Municipality area and is accessible by means of tar and gravel roads. Vehicles may only use **existing** roads and accesses to and on the site. Where no entrance to the construction site exists, there may only be moved within the areas as indicated by the Engineer.

Where existing roads and accesses are not sufficient for construction purposes, the Contractor will have to construct his own accesses to meet his needs and repair it, to the satisfaction of the Engineer, after completion of the Contract.

Due to the fact that the works will be executed in residential areas, the Contractor will ensure that his work does not inconvenience the residents. Work will only be executed during normal working hours from Monday to Friday.

Where the construction takes place within existing road reserves, the Contractor will at all times ensure safe passage to vehicles and/or pedestrians.

Where only half of the carriageway is accessible to vehicular traffic, sufficient flagmen, signs, etc. will be provided to safely regulate the traffic. Site traffic management must comply with SA Road Traffic Signs Manual, Chapter 13.

C 3.1.3 **NATURE OF SOIL AND UNDERGROUND SOIL CONDITIONS**

The Geotechnical Report is attached as Annexure C of this tender document.

The Contractor is responsible to obtain and supply all material that must comply with the minimum requirements for the specific material, as well as the construction and maintenance of all access roads to the work on site, to spoil sites and sources of material on site that may be required by the Contractor. No payment will be made for the above and payment will be deemed to be included in the tendered Fixed Price.

It is the responsibility of the Tenderers to dig additional trial holes if deemed necessary.

The Contractor will be responsible for the obtaining of all materials needed in the construction process.

Where there is not sufficient material available on site, material will have to be obtained from commercial sources.

The information, where applicable, given in this document with regards to the underground conditions on site is given in good faith for the convenience of the Tenderer, but must not be accepted as representative. The provision of this information does not exempt the Tenderer of his primary responsibility of ascertaining the conditions on site for himself.

It is the responsibility of the Contractor to provide foundation designs by a Professional Engineer of his choice, to be approved by the Client's Engineer and the NHBRC. The cost to adhere to the above must be included in the tendered Fixed Price.

C 3.1.4 **DRAWINGS**

The drawings attached in this document are only for tender purposes. Final construction drawings will be issued to the successful contractor at commencement of the project.

C 3.1.5 **CONSTRUCTION PROGRAMME**

C 3.1.5.1 GENERAL

The Contractor's programme to be submitted in terms of Clause 5.6 of the General Conditions of Contract shall take full account of all matters as may impact on the sequence of executing the various components of the Works and the requisite rate of progress of the Works, as are specified in or reasonably to be inferred from the Contract.

C 3.1.5.2 FORMAT

The Construction Programme to be submitted by the Contractor in accordance with the provisions of Clause 5.6 of the General Conditions of Contract shall:

a) Be in the form of a bar chart;
b) Clearly indicate the start and end dates and duration of all construction activities and identify the critical path; and
c) Take full cognizance of all the Contractor's risks and obligations in terms of the Contract.
d) A resource histogram is required in0line with the submitted program of the works.

C 3.1.5.3 FAILURE TO MAINTAIN CONSTRUCTION PROGRAMME

C 3.1.5.3.1 If the Construction Programme has to be revised in terms of Clause 5.6 of the General Conditions of Contract, because the Contractor is falling behind on his programme, the Contractor shall submit a revised programme of how he intends to regain lost time to ensure completion of the Works before the Due Completion Date. Any proposals by the Contractor to increase the tempo of work must incorporate positive steps to increase production either by the provision of more labour and plant on the Site, or by using the available labour and plant in a more efficient manner.

C 3.1.5.3.2 Failure on the part of the Contractor to submit or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps to remedy the situation.

C 3.1.5.3.3 A written request from the Contractor must be obtained for the following inspections: Floor, Brickwork, Roof, Practical Completion and Final Completion. Failure to comply with requested inspections will result in an R 700-00 (Seven hundred rand) fine and a re-inspection.

C 3.1.5.4 SPECIFIC PROGRAMME REQUIREMENTS

The Contractor's programme shall also take full account of matters described in the Sub-Clauses hereunder. **No** additional payments will be made to the Contractor in respect of any additional costs as it may incur in consequence of arranging or adjusting its programme to accommodate the said matters and the Contractor's various tendered rates and prices shall be deemed to be fully inclusive of such costs.

C 3.1.6 **SITE ESTABLISHMENT**

C 3.1.6.1 SITE FACILITIES AVAILABLE

C 3.1.6.1.1 WATER SUPPLY

The Contractor shall make his own arrangements with the relevant authorities or any other organisation or source for obtaining water for construction and domestic purposes as well as toilet facilities as required by the Health and Safety Regulations. The Contractor shall pay for the water at the rates and tariffs as determined by the source, including the cost of supplying a temporary standpipe as required. The contractor shall also be responsible for all testing of water by an accredited laboratory, as required.

C 3.1.6.1.2 ELECTRICITY SUPPLY

The Contractor shall make his own arrangements for obtaining power and be responsible for all costs involved.

C 3.1.6.1.3 LOCATION OF CAMP AND DEPOTS

The contractor must arrange with the Local Authority for an appropriate site that can be used for the Contractor's site office and camp.

C 3.1.6.1.4 HEALTH & SAFETY

The contractor must make the necessary arrangements to comply with the Occupational Health and Safety Act. This includes all the registrations required and the appointment of a qualified safety officer on site.

C 3.1.6.1.5 LOCATION OF CAMP AND DEPOTS

The Contractor must make his own arrangements for a Camp Site at the location of the Works. The location of the Contractor's camp, including the material storage areas, will be subject to the Engineer's approval.

C 3.1.6.1.6 HOUSING FOR THE CONTRACTOR'S EMPLOYEES

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

The Contractor is in all respects responsible for the housing and transporting of his employees and for the arrangements thereof and no extension of time due to any delays resulting from this, will be granted.

No housing on site will be allowed.

C 3.1.6.2 SITE FACILITIES REQUIRED

C 3.1.6.2.1 ENGINEERS OFFICE

A separate office will not be required for the Engineer's representative.

The Contractor will, however, need to furnish an office with a desk, drawing table, a lockable cupboard and two chairs for the exclusive use by the Engineer. No telephones need be provided for the Engineer or his staff.

The Engineer and his representative shall be allowed free use of all the Contractor's site facilities.

The Engineer and the Engineer's representative shall be allowed free use of survey equipment and assistants to carry out control work as and when required and the Contractor shall provide all pegs, concrete, tools and other necessary items as well as all necessary labour for excavation, bush cleaning, mixing and placing of concrete, as and when required for the control of the setting out of the Works.

C 3.1.6.2.2 SANITATION AND FIRST AID

The Contractor shall provide and maintain adequate sanitation and first aid for his work force. These facilities shall comply with the requirements of the Local Authority and must be accessible from all points of construction.

C 3.1.6.2.3 TELEPHONE

A site telephone will not be required by the engineer but the contractor must be available 24/7 on his cell phone for the duration of the contract. The time related tender rate for the contractor's telephone shall include for official calls made by/to the Engineer.

C 3.1.6.2.4 HOUSING FOR THE CONTRACTOR'S EMPLOYEES

The contractor shall make his own arrangements with regards to the housing of his employees since no housing is available. The transporting of the contractor's employees to the site is his own responsibility. No extension of time because of mismanagement of afore mentioned will be granted.

C 3.1.6.2.5 OFFICES FOR THE CONTRACTOR

The Contractor must provide for such temporary offices as he may require for his own use. No conference facility is required.

C 3.1.6.2.6 SITE INSTRUCTION BOOK

The Contractor shall provide an A4-size carbon triplicate site instruction book and maintain it permanently in the site office. All site instructions to Sub-Contractors will also be recorded in this site instruction book.

C 3.1.6.2.6 REFUSE

The Contractor shall provide suitable refuse containers at his site offices and stores yard. He should ensure that his employees make use of the containers for the disposal of refuse so that the site of the Work as well as the existing production facility will not become polluted. The Contractor shall dispose of the refuse in the containers at regular intervals in an acceptable manner.

C 3.1.6.3 FEATURES REQUIRING SPECIAL ATTENTION

C 3.1.6.3.1 EXISTING SERVICES

The Contractor shall take all necessary steps to ascertain the location of existing services before commencing with any section of the works and shall exercise the greatest care when working near such services.

The Contractor shall check the position and level of every existing service before starting any construction that has to connect with such a service. The Contractor shall give written confirmation of the accuracy or inaccuracy of the positions and levels of existing services.

The Contractor shall request the latest available drawings showing the location of services already installed, no more than 3 (three) weeks and not less than 1 (one) week before commencing his operations in any particular area.

The Contractor shall take all the necessary steps to protect any existing services and/or structures whatsoever against damages which may arise as a result of his operations on site. The Contractor shall bear the cost of the repair of damage to any service the possible existence of which could reasonably have been ascertained by him in good time and the Contractor shall bear the cost of the repair of damage to any structure caused by his operations on site.

Where the Contractor is responsible for damage for which repairs have to be carried out by the Employer or an outside authority, the costs of these repairs will be covered by means of a deduction from the Contractor's Monthly Payment Certificate.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

C 3.1.6.3.2 CONTRACTOR'S CONSTRUCTION PLANT

If, during the course of the Contract, the Engineer considers that any item or items of construction plant are in any way inefficient, unsafe or inadequate to complete the Works within the Contract period, he shall have the right to call on the Contractor to either:

a) Put the construction plant in order;
b) Remove such construction plant and replace it with other efficient plant; or
c) Provide additional similar plant or plant of greater capacity.

No additional payment shall be made to the Contractor for expenses incurred in complying with any or all of the above, the cost being deemed to be included in the Contractor's tendered Fixed Price.

C 3.1.6.3.3 KEY PERSONNEL

The Contractor shall furnish the Employer and the Engineer with a list of addresses and telephone numbers of key personnel in the Contractor's organization who may be contacted in an emergency both during and outside office working hours in connection with the Works.

C 3.1.6.3.4 PUBLICATION AND ADVERTISING

The Contractor shall not publish, or cause to be published in any papers, articles or information relating to the Works nor permit any advertising mentioning the subject of his Contract and he shall not display or allow his Sub-Contractors to display any advertisement on the site or elsewhere in connection with the Works without the prior written permission of the Employer.

C 3.1.6.3.5 ORDERS AND INDENTS

On acceptance of this tender the Contractor is to ascertain if all materials to be supplied by him can be obtained in South Africa and if not, steps will be taken to import the same so that the Works are not delayed. Delay in the Works owing to non-delivery of materials will not be considered a cause for delay in completing the Works.

C 3.1.6.3.6 SECURITY AND SAFETY REGULATIONS

The Contractor is to familiarize himself and comply with all safety regulations, statutes and regulations governing construction activities. The safety of all personnel on site shall be the Contractor's sole responsibility.

C 3.1.6.3.7 ACCESS TO PROPERTIES

The Contractor shall organize the work to cause the least possible inconvenience to the municipal operating staff. The Contractor will be responsible for the necessary traffic control where required. Works over private property will be done in close co-operation with the specific Landowners.

The Contractor shall ensure that all streets, roads and footpaths 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 and the private Landowners to a minimum, and no public road track or footpath 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.

All signs shall be in English and Afrikaans.

C 3.1.6.3.8 SITE MAINTENANCE

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

C 3.1.6.3.9 TESTING AND QUALITY CONTROL

C 3.1.6.3.9.1 CONTRACTOR TO ENGAGE SERVICES OF A SUITABLE LABORATORY

Notwithstanding the requirements of the Specifications pertaining to testing and quality control, the Contractor shall engage the services of a suitable laboratory to undertake all testing of materials, the results of which tests are specified in, or reasonably to be inferred from the Contract, as to be taken into consideration by the Engineer in deciding on whether the quality of materials utilized and workmanship achieved by the Contractor complies with the requirements of the Specifications. The afore going shall apply irrespective of whether the said testing is indicated in the Specifications as to be carried out by the Engineer or by the Contractor.

The Contractor shall be responsible for arranging with the testing laboratory for the timeous carrying out of all such testing specified in the Contract, at not less than the frequencies and in the manner specified. The Contractor shall promptly provide the Engineer with copies of the results of all such testing carried out by the laboratory.

For the purposes of this Clause, a "suitable laboratory" shall mean a laboratory which is not under the management or control of the Contractor and in which the Contractor has no financial interest, nor which has any control of financial interest in the Contractor.

C 3.1.6.3.9.2 ADDITIONAL TESTING REQUIRED BY THE ENGINEER

In addition to the provisions of Sub-Clauses 7.4.2 and 7.4.3 of the General Conditions of Contract, the Engineer shall be entitled at times during the Contract, to require that the Contractor arrange with the laboratory to carry out any such tests, additional to those described, at such times and at such locations in the Works as the Engineer shall prescribe. The Contractor shall promptly and without delay, arrange with the laboratory for carrying out of all such additional testing as required by the Engineer and copies of the test results shall be promptly provided to the Engineer.

C 3.1.6.3.9.3 COSTS OF TESTING

(a) Tests in terms of Sub-Clause 7.4.4.1 of the General Conditions of Contract:

The costs of all testing carried out by the laboratory in accordance with the requirements of Sub-Clause 7.4.4.1 of the General Conditions of Contract above shall be borne by the Contractor and shall be deemed to be included in the tendered Fixed Price. No separate payments will be made by the Employer to the Contractor in respect of any testing carried out in terms of Sub-Clause 7.4.4.1 of the General Conditions of Contract.

Where, as a result of the consistency of the materials carrying or as a result of failure to meet the required Specifications for the work, it becomes necessary to carry out additional tests (e.g. Re-test on rectified work and/or replacement material), the costs of such additional testing shall be for the Contractor's account.

(b) Additional tests required by the Engineer

The cost of any additional tests required by the Engineer in terms of Sub-Clause 7.4.4.1 of the General Conditions of Contract shall be reimbursed to the Contractor, provided always that the costs of any such additional tests ordered by the Engineer, the results of which indicate that the quality of the materials utilized and/or the standard of workmanship achieved is not in accordance with the Specifications, shall not be reimbursable to the Contractor.

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

C 3.1.6.3.10 EXTENSION OF TIME DUE TO ABNORMAL CLIMATIC CONDITIONS

Extension of time will not be granted for what is considered normal adverse climatic conditions. Extension of time will only be grated in case of abnormal rainfall or saturated conditions in accordance with the method described as follows:

The Contractor must make allowance in his programme for the expected number of working days for which possible delays due to weather conditions may occur as scheduled in the table below.

Extension of time for each calendar month or part thereof for the full period required for the completion of the works, plus any approved extensions thereof will be calculated as follows:

Delays caused by abnormal climatic conditions will only be considered for extension of time if, in the opinion of the Engineer, critical path items as indicated on the Contractor's programme are influenced negatively. Only delays occurring on working days will be considered.

Extension of time will be granted for the number of days on which accepted adverse climatic conditions occurred, minus the number of days for the specific month in the schedule below.

The nett extension of time determined for every month, which may be negative, will be algebraically accumulated to determine the total nett number of days of extended time due to adverse climatic conditions. A negative balance at the time of completion will not be taken into consideration.

Where a portion of a month is involved, a pro rata number of days will be calculated.

SCHEDULE:
Expected number of working days which work may be delayed due to adverse weather conditions:

MONTH	DAYS	MONTH	DAYS
January	2	July	1
February	2	August	1
March	2	September	1
April	2	October	1
May	1	November	2
June	1	December	1

TOTAL: 12 Days

C 3.1.6.3.9.10.1 The Engineer shall, simultaneously on granting any extension of time in terms of this Clause, revise the Due Completion Date of the Contract to reflect an extension of time having been granted in respect of wet climatic conditions, to the extent of the above calculation provided that where such period is negative, the Due Completion Period shall not be revised.

C 3.1.6.3.10.2 Any extension of time in respect of wet climatic conditions granted in terms of this Clause shall not be deemed to take into account delays experienced by the Contractor in repairing or reinstating damage to or physical loss of the Works arising from the occurrence of abnormal climatic conditions. Extension of time in respect of any such repairs or reinstatement of damage shall be the subject of a separate application for extension of time in accordance with the provisions of the General Conditions of Contract.

C 3.1.6.3.11 SUB-CONTRACTORS (NOMINATED OR APPROVED)

The Contractor shall be responsible for work carried out by both nominated and approved Sub-Contractors on his behalf.

The Engineer will not liaise directly with such Sub-Contractors. Problems related to payments, programming, workmanship, etc. shall be the concern of the Contractor and the Sub-Contractor, and the Engineer will not become involved.

C 3.1.6.3.12 STANDING TIME

Standing time will only be considered when work is suspended by the written order of the Engineer. The Contractor shall not be entitled to recover any standing costs unless he provides full details in writing to the Engineer within 48 (forty-eight) hours of the Engineers order.

Standing time will not be considered when work is suspended as a result of inclement weather or default on the part of the Contractor.

C 3.1.6.3.13 LABOUR RETURNS

The Contractor shall provide the Engineer with monthly returns showing the number and grade of employers and the number and type of construction plant on site.

C 3.1.6.3.14 SITE MEETINGS

The Engineer shall hold monthly site meetings and keep and circulate minutes. The Contractor will attend and will ensure that all Sub-Contractors are represented.

C 3.1.6.3.15 RESTRICTED AREAS

The Contractor and his workers shall remain within the demarcated area of the construction site. No persons will in particular be allowed in adjacent areas actively used by the Landowners for agricultural operations.

C 3.1.6.3.16 INTERFACE WITH OTHER CONTRACTORS (OPERATING / EMERGING CONTRACTORS)

Other Contractors may be operating on the Site in close proximity to the Works during the construction period. The Contractor is to take cognizance of this and specify what restrictions (if any) are to apply.

C 3.1.6.3.17 MINIMUM NUISANCES TO PERSONS FROM THE SURROUNDING AREA

The Contractor is to ensure that he causes an absolute minimum nuisance to persons from the surrounding area by complying strictly with the following:

a) Work to be executed only between the hours of 07:00 and 18:00.
b) The works to be continuously and adequately watered as a means of dust suppression**.**

C 3.1.6.3.18 BORROW PITS

No borrow pits or sand quarries have been specifically allocated for this Contract. The Contractor is advised to liaise with the Municipality and/or Commercial Quarries on the availability of material.

C 3.1.6.3.19 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 items.

C 3.1.6.3.20 SURVEY BEACONS

The Engineer will provide benchmarks with levels and co-ordinates as and when necessary. The Contractor's attention is drawn to Clause 5.1.2 of SABS 1200 A.

It is the exclusive responsibility of the Contractor to ensure that land surveyor's beacons, erf pegs and benchmarks are not covered, disturbed or damaged.

The Contractor's attention is drawn to the stipulations of Article 35 and 36 of the Land Survey Act, 1927 (Act 9 of 1927), in which he is held responsible for the safety of all survey beacons and benchmarks and of any plot boundary pegs that are found on the site, as well as for the cost involved in the replacement of displaced and/or damaged survey beacons and benchmarks or plot boundary pegs by a registered Land Surveyor.

After completion of the contract and before the final take-over certificate is issued, the Contractor will have to hand in a certificate from a registered land surveyor certifying that all survey beacons, benchmarks and erf pegs are in position.

Erf pegs and trigonometrical land surveyor's beacons that are either misplaced or destroyed during the contract must be replaced and installed by a registered land surveyor at the Contractor's expense.

The Contractor must point out to the Engineer, in writing, any erf pegs that are not in position within 14 (fourteen) days after commencement of the project. Should the Contractor fail to point out to the Engineer, in writing, any pegs not in position, it will be accepted that **all** pegs are in position.

It will be accepted that the Contractor has made provision under Preliminary and General to comply with the above. **No additional** payments will be made to comply with this.

The Contractor's attention is specifically drawn to the stipulation of Sub-Clause 5.1.2 of the Standardised Specifications SANS 1200 A.

C 3.1.6.3.21 RECORD DRAWINGS

As the Woks proceed the Contractor must keep detailed records of all changes to plans. The actual position of all new and existing services must be indicated on the set of drawings supplied free of charge for this purpose.

The Certificate of Completion will only be issued once the Engineer has received the record drawings. **No** separate payment will be made for this and it will be deemed to be included in the rates for the relevant items.

C 3.1.6.3.22 SAFETY

The Contractor must take the safety of the residents and their property into account during the planning and execution of the Works. All open trenches, services, material and machines must be protected and clearly marked.

Unless otherwise permitted by the Engineer in writing, no more trench in any one place shall be opened in advance of the pipe laying operation than can be backfilled before the end of the normal working day. Open trenches and/or excavations shall be clearly barricaded with rigid orange nylon netting, "Netlon", or similar approved. Minimum height **1,0 m** (safety netting) as instructed by the Engineer and/or Safety Agent. **No** trenches and/or excavations will be left open outside normal working hours. See Clause 5.8 of the General Conditions of Contract. The cost to provide the above will be taken as included with the tendered rates for the excavations. The Employer will make **no** additional payment to comply with the above.

Where applicable, no trenches may be left open during the Contractor's holiday during December and January. All trenches which have been excavated but which have not been finally backfilled and compacted at the commencement of the said holiday period shall be temporarily fully backfilled and compacted to a standard which will:

a) Prevent damage occurring to the trenches or any other part of the Works;
b) Prevent damage to or physical loss of the property of any person;
c) Eliminate the risk of injury to any person during the said period.

All costs involved in the temporary backfilling and compaction of such trenches and the subsequent re-opening of the trenches after the holiday period shall be for the Contractor's account.

The Contractor shall comply with all the safety regulations of the Employer, Other Authorities and/or as demanded by the Engineer.

It will be accepted that the Contractor has made provision in his tender to comply with abovementioned requirements and **no** additional payment shall be made to comply with these requirements.

The Contractor must ensure that works are properly safeguarded with the necessary road signs, chevron safety bands, lights, etc. at all times, especially at night. The Engineer reserves the right to instruct the Contractor to supply additional safety measures, **without additional payment**. Remuneration to comply with these requirements must be included in the tendered amounts in Section: Preliminary & General of the Bill of Quantities.

The possible cost of shoring of excavation sides must be included in the cost of excavations. The Engineer reserves the right to request shoring or to strengthen any shoring **without additional remuneration** to the Contractor.

The "Factories, Machinery and Building Work Act (Act 22 of 1941)" as well as the "Machinery and Occupational Safety Act (Act 6 of 1983)" must, where it may appear in the SANS 1200 Standardised Specifications, be replaced by the "Occupational Health and Safety Act (Act 85 of 1993).

C 3.1.6.4 CERTIFICATES OF PAYMENT

The statement to be submitted by the Contractor in terms of Clause 6.10 of the General Conditions of Contract shall be prepared in accordance with the standard payment certificate prescribed by the Engineer and shall consist of at least 2 (two) sets of A-4 sized paper copies.

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

The value certified in each payment certificate shall only be based on houses where specific interim payment stage has been reached and a Certificate of Compliance for that part of the work has been issued and signed by the Engineer, considering the information submitted by the Contractor.
No interim payments will be made for site establishment, demolishing and discarding of materials. First payment will be made only after milestone 1 (Foundation) has been reached.
The interim payment stages shall be based on the following progress achieved per house:

INTERIM STAGE	PROGRESS COMPLETED	% PAYMENT	CUMULATIVE %
1	Completion of raft foundation &/or foundation & floor slab construction, completely inspected and approved by Engineer.	20	20
2	Completion of all brickwork up to wall plate height including all door and window frames built in complete, inspected and approved by the Engineer.	20	40
3	Completion of roof trusses and roof sheeting complete, inspected and approved by the Engineer.	20	50
4	Completion of all plastering, inspected and approved by the Engineer.	10	60
5	Complete plumbing, installation of all doors and glazing, disposal and all finishes, inspected and approved by the Engineer.	5	65
6	Complete installation of ceiling with prescribed air gap inclusive of above-ceiling insulation, inspected and approved by the Engineer.	5	70
7	Complete electrical installation, inspected and approved by the Engineer.	5	75
8	Complete casting of aprons as per specifications, inspected and approved by the Engineer.	5	80
9	Practical Completion – Completion of house in totality, inspected and approved by the Engineer	15	95
10	Retention after successful 3(three) months inspection.	5	100

No re-measuring of quantities will be applicable. See also C 3.1.9.14.

C 3.1.6.5 CONSTRUCTION IN LIMITED AREAS

Although not very often, working space may sometimes be restricted. The construction method used in these restricted areas largely depends on the Contractor's plant. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used and that the rates and prices tendered will be deemed to include full compensation for difficulties encountered while working in restricted areas. **No** extra payment or any claim for payment due to these difficulties will be considered. Where, in the Engineer's opinion, the use of hand excavation has been deemed necessary, it has been allowed for in a separate item of the Schedule of Quantities.

C 3.1.6.6 SPOIL MATERIAL

No indiscriminate spoiling of material will be allowed. All surplus or unsuitable material shall be spoiled at a site to be indicated by the Employer. Such site shall meet with the approval of the Local Authority within whose area it falls and the spoiling shall comply with all the statutory and municipal regulations.

C 3.1.6.7 SAMPLES

The Contractor shall at his own cost, supply all samples that may be required. Material or work not conforming to the approved samples shall be rejected. The Engineer reserves to himself the right to submit samples to any tests to ensure that the material represented by the sample conforms to the requirements of the Specifications.

C 3.1.6.8 MANUFACTURER'S INSTRUCTIONS

The recommendations of the Manufacturers of patented materials must be strictly adhered to regarding the use, mixing, application, fastening, etc. thereof except when otherwise instructed by the Engineer in writing.

C 3.1.6.9 PROPRIETARY MATERIALS

Where proprietary materials are specified it is to indicate the quality or type of materials or articles required and where the terms "or similar approved" are used in connection with proprietary materials or articles, it is to be understood that the approval shall be at the sole discretion of the Engineer.

C 3.1.6.10 NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS

The Contractor shall erect the necessary signs, notices and barricades for the duration of the Contract in order to safeguard both the Works and the Public.

Notices: The Contractor may use signs and barricades as well as advertisements only upon approval, and the Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Engineer shall have the right to have any sign, notice or advertisement moved to another position or to have it removed from the site of the Works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

Such notices, signs and barricades shall be provided and erected at the Contractor's own expense.

C 3.1.6.11 SETTING OUT OF WORK

Benchmarks and reference line data shall be provided to the Contractor at commencement of the Contract. The Contractor shall be responsible for the proper and accurate setting out of the Works.

The Contractor shall be responsible for the correctness of the position, levels, dimensions and alignment of all parts of the Works.

The checking of any setting-out of any line or level by the Engineer shall not relieve the Contractor of his responsibility for the correctness thereof. The Contractor shall be responsible for the provision of all necessary instruments, appliances and labour in connection with his responsibility for setting out of the works.

If at any time during the progress of the Works, any error shall appear or arise in the position, level, dimension or alignment on any part of the Works, the Contractor, on being required to do so by the Engineer, shall rectify such error.

C 3.1.6.12 WORKMANSHIP AND QUALITY CONTROL

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

The cost of all supervision and process control, including testing thus caries out by the Contractor shall be deemed to be included in the rates tendered for the related items of work.

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

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

C 3.1.6.13 TRANSPORT OF MATERIAL

All costs of transporting material, including overhaul, shall be included in the applicable tendered rates. All references in the Specifications to transport, overhaul and haul distances shall be deleted irrespective of whether or not the deletion is included in these Specification Data.

The tendered unit prices for the provision of all imported construction materials from feudal quarries or commercial sources and for the removal of spoil material and unfit material, shall be deemed as including the loading and transportation of material from the source to the final unloading point, as well as the unloading thereof.

No additional payments shall be made for **any** imported construction materials.

All haul distances, unless otherwise specified in the Bill of Quantities, shall be deemed as free haul, including the dumping of excess material.

C 3.1.6.14 EMPLOYMENT OF PREVIOUSLY DISADVANTAGED LOCAL LABOUR

Where possible the Contractor must make use of unemployed local labour.

C 3.1.6.15 LIAISON WITH LOCAL AUTHORITIES

The Contractor will have to liaise with the Local Authorities regarding the following matters:

a) Dealing with traffic;
b) Locating of existing underground services;
c) Protection of existing services during construction.

All relevant authorities will be notified of above operations. It is then the Contractor's onus to immediately contact all these Authorities and to accommodate their involvement in his programme of work. The Contractor should also warn the Authorities at least 48 (forty-eight) hours before the actual work commence. Compensation for delays, losses or accidents will not be considered should the Contractor at and time have failed to keep the Local Authorities informed. The Engineer and/or Employer must immediately be notified, should the Contractor experience any problem regarding work, which involves a Local Authority.

C 3.1.6.16 LOCAL MATERIAL

Where possible the Contractor must make use of local suppliers for materials. It shall be **compulsory** for the contractor to source the required internal plaster bricks from the local brickworks.

C 3.1.7 **WAY LEAVES, PERMISSIONS AND PERMITS**

The Contractor shall be responsible for obtaining all the necessary way leaves, permissions or permits applicable to working near any existing services or other infrastructure on site, and shall ensure that any way leaves, permissions or permits obtained by the Employer's Agent prior to the award of the Contract are transferred into the Contractor's name.

The Contractor shall abide by any conditions imposed by such way leaves, permissions or permits.

The Contractor shall ensure that all way leaves, permissions and permits are kept on site and are available for inspection by the relevant service authorities on demand.

The Contractor shall also ensure that any way leaves in respect of electricity services are renewed timeously every 3 (three) months.

C 3.1.8 **ALTERNATIVE TENDERS**

In the case of an Alternative Tender submitted by the Contractor having been accepted by the Employer, the provisions as set out hereunder shall, in addition to the other requirements of the Contract, apply in the Contract.

C 3.1.8.1 COMPLETION AND SUBMISSION OF FINAL DESIGNS AND DRAWINGS

C 3.1.8.1.1 The Contractor shall, not later than **1 (one)** month prior to the date on which it intends to commence work on the Works or any part thereof which is the subject the Contractor's alternative technical proposals in respect of the design or Specifications of the Works contained in an alternative Tender accepted by the Employer, submit to the Engineer for his approval, the complete set of final working drawings, including general layout drawings and bending schedules, final design calculations, Specifications, the design assumptions and parameters on which the designs are based and all other documentation and details as may be required by the Engineer for the purposes of evaluating and approving the final design, Specifications and drawings.

C 3.1.8.1.2 The information and details to be submitted by the Contractor shall comply in all respects with the following:

a) **Calculations**

(i) Calculations shall include calculations of stresses in the structure as relevant, including calculations of reinforcing or pre-stressing steel.

(ii) The calculations shall be set out in a clear and logical manner to facilitate checking.

(iii) A full description of the design assumptions shall accompany the calculations.

b) **Drawings**

(i) Drawings shall show the whole structure in elevation, sectional elevation and in plan to a suitable scale.

(ii) Sufficient large-scale sections and other details shall be submitted to show the concrete and other dimensions clearly.

(iii) Foundation levels and foundation sizes as well as the steel reinforcement at critical sections shall be indicated on the drawings.

(iv) The standard of detailing and the quality of the prints shall be the same as that of the Contract drawings supplied to the Contractor, or in the absence of any such contract drawings having been provided, of the same standard as that which was provided in the Tender Documents.

(v) The drawings shall be compiled in the official language of the Contract.

c) **Further details**

Should the Engineer conclude that the calculations, drawings, Specifications or any other data submitted by the Contractor in accordance with the provisions of this Clause are insufficient or inadequate for proper evaluation, the Engineer reserves the right to require the Contractor to submit such further calculations, drawings, Specifications and any other such data as the Engineer may require. If such further details are not submitted within the time required by the Engineer, the Tenderer will be deemed in default of the provisions of this Clause.

C 3.1.8.1.3 The Contractor shall submit only drawings and other data, which are complete in all respects and in accordance with Sub-Clause C 3.3.5.1.2. If the final calculations, drawings and details do not comply with the specified requirements, the alternative designs will be rejected unless suitably amended by the Contractor.

C 3.1.8.1.4 The Contractor will not be entitled to any claim for delays experienced as a result of the submission of incomplete drawings or other documents and data, which is not strictly in accordance with the requirements of this Specification.

C 3.1.8.1.5 The Contractor shall not commence executing the Works or any portion thereof which is the subject of alternative technical proposals in respect of the design or Specifications of the Works contained in an Alternative Tender accepted by the Employer, until the Engineer's approval of the designs and calculations has been given in writing and the Drawings signed by the Employer, or the Engineer on the Employer's behalf.

C 3.1.8.2 STATUS OF ACCEPTED DRAWINGS

C 3.1.8.2.1 The accepted Drawings shall form an integral part of the Contract Documents and drawings not accepted and signed by or on behalf of the Employer will not be permitted for construction or manufacturing purposes.

C 3.1.8.2.2 Notwithstanding the approval and/or acceptance and signing of the drawings, the Contractor shall remain fully responsible for the details, discrepancies, omissions, errors and consequences in respect of the said drawings and the approval of a design by the Engineer shall not in any way relieve the Contractor of its responsibility to produce a design that complies with all the specified requirements.

C 3.1.8.3 MEASUREMENT AND PAYMENT

C 3.1.8.3.1 DESIGN, CONSTRUCTION AND REMEDYING OF DEFECTS

a) **Amount**

No payment will be made to the Contractor in respect of its costs incurred in the design, preparation and submission of drawings and other documents pertaining to an accepted Alternative Tender.

b) **Re-measurement**

Notwithstanding anything to the contrary as may be contained in the Contract, the said Works or portions thereof (as applicable) which are the subject of the works shall not be subject to re-measurement and the quantities listed by the Contractor in the Schedule of Quantities forming part of its Alternative Tender shall be fixed and not subject to any variation whatever during the Contract.

c) **Interim Payments**

The amounts which shall become due and payable to the Contractor in the monthly Payment Certificates, in respect of the portions of the Works which are the subject of the Contractor's alternative technical proposals, shall be determined on the basis of the quantities of work certified as having been completed in the period for which the payment applies as inspected in floor; brick work to roof; roof; Practical Completion and Final Completion; provided always that no payment will be made in respect of quantities exceeding those listed by the Contractor in the said Schedule. When payments on the abovementioned stages have been made per house the next payment must be Practical Completion or payment might be stopped until such time that said houses are practical complete.

C 3.1.8.3.2 ENGINEER'S COSTS IN REVIEWING THE CONTRACTOR'S DESIGN

The Engineer's costs incurred in reviewing, checking and approving the designs, drawings, calculations and other documents pertaining to the Contractor's accepted Alternative Tender (and which designs, drawings, calculations and other documents were submitted by the Contractor in accordance with the provisions of both the Tender Documents and the Contract) shall, on presentation of an account to the Contractor and certified in writing by the Employer, be paid by the Contractor to the Engineer.

The Contractor shall be reimbursed in the actual amounts of all such payments made in the next subsequent Payment Certificate, in substitution of the Provisional Sum provided by the Contractor in the Schedule of Quantities forming part of its Alternative Tender in accordance with the requirements of the Tender Documents.

C 3.1.8.4 VARIATIONS TO THE ACCEPTED ALTERNATIVE PROPOSALS

C 3.1.8.4.1 VARIATIONS BY THE ENGINEER

a) When the Engineer requires design modifications for reasons other than:

   (i) The Contractor's failure to comply with the design requirements; or
   (ii) Errors in the Contractor's designs (e.g. foundation conditions that differ materially from those indicated by the test holes); the Contractor shall make such modifications.

b) When such design modifications result in a variation on the quantities of work to be executed, such variations will be valued by the Engineer in accordance with the rates and prices in the Schedule of Quantities and the tendered Lump Sum for the alternative will be adjusted up or down, depending on whether the modifications entail an increase or a decrease in the quantity of work.

C 3.1.8.4.2 VARIATIONS BY THE CONTRACTOR

The Contractor shall not, subsequent to the approval of its alternative designs, specifications and drawings, amend without the prior written permission of the Engineer.

C 3.1.8.5 DEFAULT OF THE CONTRACTOR

C 3.1.8.5.1 Should it become apparent at any time during construction or during the Defects Liability Period that the Contractor's alternative design and/or Specifications do not comply with the specified requirements, the Contractor shall be liable for all consequential damage and shall, at its own expense, do all the work required to ensure that the structure complies with the design requirements and the Contractor shall not be entitled to any additional payment.

C 3.1.8.5.2 When circumstances that are within the control of the Contractor arise after the acceptance of the Alternative Tender and when these circumstances, in the opinion of the Engineer, render construction of the alternative unacceptable, the Contractor shall construct the Works strictly in accordance with the original designs specified in the Tender Documents. In such circumstances, the Contractor shall not be entitled to any additional payment.

C 3.1.9 **GENERAL**

C 3.1.9.1 CONNECTION TO EXISTING WORKS

Where construction has to be connected to existing works, the Contractor must negotiate a suitable time for the connecting with the Employer. It may be necessary to connect after hours and/or over weekends. Tendered prices for connection must provide for the above and/or control of all flows and **no** additional payments will be made by the Employer to comply with this.

C 3.1.9.2 CLEANING OF PIPES AND STRUCTURES

The Contractor shall ensure that pipes and structures shall be clear of all planks, stones, concrete, etc. which may be found in them, before commissioning. Any damage caused to equipment, structures, etc. as a result of the presence of above objects, shall be repaired at the Contractor's cost.

C 3.1.9.3 BLASTING

Where the Contractor is going to make use of blasting in excavations, the Contractor must notify all residents in the vicinity of the works in writing at least 14 (fourteen) days before commencement of the works of the proposed blasting.

The Contractor must also inspect **all** buildings in the vicinity at least 14 (fourteen) days before commencement of the blasting and any existing damage to buildings must be noted. Owners must sign the noted inspection within 7 (seven) days. After completion of **all** blasting in the vicinity, the buildings must once again be inspected, and damage noted. The Owners must again sign the noted inspection.

The Employer shall not be held accountable for **any** damages caused due to the use of explosives.

C 3.1.9.4 BEDDING AND BACKFILL

Placing and compacting of bedding and filling around pipes, as well as the main backfill over pipes, shall be done **strictly** according to the requirements of SANS 1200, the Project Specifications, Details on Drawings and the Specifications of the pipe manufacturers. **No** deviation of the above will be allowed. Tenderers shall make adequate provision in their tendered unit prices to comply with the above **in full**. The Employer shall make **no** additional payments to comply with the above.

Backfill density shall be done **strictly** in accordance with SANS 1200 DB, Sub-Clauses 5.7.1 and 5.7.2. The Contractor shall execute control tests as and when so requested by the Engineer, to verify densities, as prescribed in SANS 1200. Cost of the test will be deemed as included in bedding and backfill tendered rates.

C 3.1.9.5 CONTRADICTIONS AND OBSCURITIES IN THE TENDER DOCUMENT

Should there be any contradictions, obscurities or doubt in the text of the Tender Document or drawings, or if any obvious errors or illegible figures are found, the Contractor must, before submitting the tender, get a written, signed declaration of the correct meaning of such descriptions, figures, Clauses, etc. from the Engineer.

The Contractor shall not be permitted to submit **any** claims against the Employer and/or Engineer after closing of tender due to the abovementioned reasons.

The Contractor must examine the Tender Documents to ensure that it contains all the applicable pages and that a complete set of drawings has been issued. The Contractor must notify the Engineer accordingly should there be any pages and/or drawings missing. The Engineer shall then immediately supply a complete set of Tender Documents and/or drawings in exchange for the incomplete set of Tender Documents and/or drawings.

The Contractor will be forced to, at own cost, repair all work caused by the incorrect interpretation of the drawings and /or Specifications and as a result not complying with the requirements of this contract document and/or drawings.

C 3.1.9.6 CONTRACTOR TO BE COMPENSATED
(CLAUSE 4.5.4 OF THE GENERAL CONDITIONS OF CONTRACT)

The Employer shall NOT refund to the contractor any such sums.

C 3.1.9.7 VESTING OF MATERIAL

All material on site is to remain the contractor's responsibility throughout the duration of the contract. The contractor is to ensure that all material ate to be stored in a safe and secure location until completion of the works at hand.

C 3.1.9.8 SPECIFICATIONS

Where referred to SANS Specifications or any other specification, it shall mean the latest published edition of abovementioned specification.

C 3.1.9.9 COSTS INCURRED WITH THE PREPARATION AND SUBMISSION OF TENDERS

The Employer shall not be held responsible for **any** expenses or losses incurred by the Tenderer with regards to the preparation and/or submission of tender documents.

C 3.1.9.10 STATUTORY LAWS AND REGULATIONS

The Contractor must supply all notices and pay all fees, as required by an Act of the Parliament, Ordinance or any Regulations or By-Laws or any Local or other Statutory Power with regards to the executing of the Contract Works or any other Temporary Works and according to the Employer and all Public Authorities and Companies whose property or rights may at any time be influenced by the Contract Works or any temporary Works.

The Contractor shall under all circumstances comply with the regulations of any Act of Parliament, Ordinance or any Regulations or By-Laws or any Local or other Statutory Power that may be applicable to the Contract Works or any Temporary Works and according to rules and regulations of the Employer and all Public Authorities and Companies, as already mentioned, and shall indemnify the Employer against all fines and responsibilities of any kind for breach of contract of such an Act, Ordinance, Regulation or By-Laws.

The Employer shall compensate the Contractor, or reimburse the Contractor for all amounts payable, as specified by the Engineer, that is payable and already paid for by the Contractor on such fees, and also all taxes paid by the Contractor for the Site or any part thereof or

anything constructed or erected on site, or any part thereof, or any temporary structure, placed elsewhere, but exclusively for the use of the Contract Works, with the understanding that the Employer, and not the Contractor, shall be responsible for the obtaining any planning permissions that may be required for the Contract Works.

C 3.1.9.11 LAWS THAT SHALL APPLY

The contract shall at all times be executed in accordance with the Laws of the Republic of South Africa, and any discrepancies that may occur between the Employer and the Contractor as far as the contract is concerned, shall be settled in the Republic of South Africa, unless the Law on the contract applicable on this Clause is from another country, the Employer is entitled to adopt the Law from another country in the case of any disagreement and/or the case may be settled in such a country.

All Laws and/or Regulations referred to in the Tender Document will be, where applicable, "as amended".

C 3.1.9.12 LABOUR

C 3.1.9.12.1 CONTRACTS WITH LABOURERS

The contractor will enter into employment contracts with all labourers to be employed during the construction period of this project.

C 3.1.9.12.2 WAGE RATES

Wage rates for labourers will be paid in accordance with the latest Government Gazette for the Northern Cape Province. The current rate is R29.37/hour for a normal 9 hours working day.

C 3.1.9.12.3 PROJECT LIAISON OFFICER (PLO)

A project liaison officer (PLO) will be appointed on a full-time basis for the duration of the project in order to facilitate, inter alia, the smooth proceeding of the employment of local labour. The PLO will be the link between contractor and labourers. The PLO will be identified by the UBUNTU Municipality but will be paid out of the project. The wages for the PLO shall be R4 850.00/month for an average 9 hour working day.

C 3.1.9.12.4 LABOUR INTENSIVE CONSTRUCTION ACTIVITIES

The following activities where applicable shall be carried out using Labour Intensive Construction (LIC) methods:

1. Preparation of bedding and blanket
2. Laying of all pipes with a diameter of less than 355mm
3. Installation of all fittings and accessories (valves etc.) to pipes
4. Mixing and placing of concrete for small concrete works (i.e. thrust blocks)
5. Building of manholes and benching
6. Finishing and cleaning of site
7. Other activities that by their nature are usually done by labour intensive construction methods.

The Contractor is encouraged to add activities to the above list but he shall ensure that the specified standards of construction will be achieved.

Although it is the intention that the above activities be carried out by labour intensive construction methods the Contractor may propose to the Engineer alternative ways in which the work is to be executed. The Engineer's approval of these alternative methods will not be unreasonably withheld from the Contractor.

C 3.1.9.12.5 EMPLOYMENT OF LOCAL LABOUR

C 3.1.9.12.5.1 QUANTUM OF KEY PERSONNEL

The Contractor must submit the description and numbers of his key-personnel that he will bring onto Site in a Key Personnel Schedule. Key personnel will include Foremen, Artisans, Clerks, skilled Supervisors and Operators.

C 3.1.9.12.5.2 QUANTUM OF LABOUR EMPLOYED

The Contractor shall submit detailed daily labour records, weekly, to the Engineer indicating respectively the numbers of permanent and temporary local employees employed on the Works, and the activities on which they were engaged.

The number of labourers stated by the Contractor in the Key Personnel Schedule shall be used by the PLO (if appointed), Engineer and Employer, in collaboration with the Contractor in the planning and programming of the Contractor's local labour requirements.

C 3.1.9.12.5.3 PAYMENT AND PRODUCTIVITY

Payment to the local labour force shall be made on a forth nightly basis in respect of Tasks completed during that period. Formal up to date records must be kept of all payments made to subcontractors and labourers.

In order that the project is economically viable and the employment of labour is not merely a "hand-out" to the local community, is important that payment of the labour force is linked to productivity. Increased productivity can be achieved by utilising the "Task Work" principle (see Clause PS 9.7), in terms of which the Contractor will be required to reward the labour force on the basis of Tasks completed.

C 3.1.9.12.6 CONDITIONS OF TEMPORARY EMPLOYMENT

It is envisaged that there may not be sufficient experienced local subcontractors available to warrant tenders or quotations on the base of competitive labour rates. Equally it may prove confusing to the local labourers and therefore counterproductive for possible tenderers to bargain for lower labour rates. A rate agreed upon at tender stage, may no longer be accepted as valid by the time the Tender is awarded. For the purpose of this tender therefore, tenders are to price labour at the approved local minimum daily rate as prescribed by the Department of Labour.

The rate of payment to local labour will be based on the accepted contractual productivity levels. The Engineers Representative will monitor productivity to ensure that this principle is carried out. For labour intensive construction (LIC) activities where no production rate is applicable, the minimum rate of payment per working day specified above shall apply.

The following conditions of work shall complement the conditions of employment:

(1) The Contractor shall give to a temporary employee, at the earliest possible opportunity, notice of the termination of the project and/or the requirements of that employee's participation in the project; provided that such notice.

(2) The temporary employee shall, upon termination of his services, be entitled to a certificate of service showing the full names of the employer and the employee, the date of commencement, a record of training received and the date of termination of the contract.

(3) Skilled labour e.g. Brick layers and carpenters will be paid normal hourly rates as commonly used in the industry.

(4) The Contractor must provide unemployment insurance for the local labourers.

C 3.1.9.12.7 TASK WORK RELATED ACTIVITIES

A task shall be determined on the basis of what an average person from the local Community could complete in a day. A Task shall be defined on the said basis with regard to the prevailing physical conditions and other regulatory conditions as specified in Clause PS 9.6.

A task is a quantified activity or operation to be performed by a person/labourer in one ordinary working day. The quantification of tasks shall be based on individual employees or a group of employees. The supply and control of hand tools and other equipment necessary to do the work, will be the responsibility of the Contractor.

	DESCRIPTION	UNIT	QUANTITY
1.	Excavation in: - Soft (sandy) material 0 to 1,0 m deep 0 to 1,5 m deep	 m^3 m^3	 3,0 2,2
2.	Backfilling: 0 to 1,5 m deep	m^3	6
3.	Brickwork to Manholes and similar (220 mm thick)	m^2	5
4. 4.1 4.2	Pipe laying, including bedding and blanket Sewer Pipes Water Pipes	 m m	 48m/team of 8 60m/team of 8

The activity and production rates ranges given in the schedule above, must be used only as a guideline.

C 3.1.9.12.8 TRAINING OF LOCAL LABOUR

C 3.1.9.12.8.1 IN SERVICE TRAINING OF LOCAL LABOUR

Through the core of artisans, skilled and semi-skilled personnel are required to construct, supervise and adequately control the Contract; the Contractor shall provide the necessary in-service (on-the-job) training in basic construction skills.

C 3.1.9.13 INTERCHANGEABLE TERMS

Throughout this document the terms “Bid/Bidder” and “Tender/Tenderer” has the same meaning.

“Bill of Quantities” and “Schedule of Quantities” will also have the same meaning.

C 3.1.9.14 BILL OF QUANTITIES: LUMP SUM CONTRACT

The Tender is a **Lump Sum** per Bill of Quantities Sections and **no** re-measuring of quantities will be applicable.

The Bill of Quantities is included in the document to assist Tenderers to price the Works. Quantities are provided in good faith, but Tenderers must ensure that their tendered prices for the works are **all inclusive** for the works as indicated on the drawings and as per the Specifications.

The Client will not pay any additional amounts not included in the Tendered amounts.

Due to the fact that the Bill of Quantities is not re-measurable, monthly payments will be calculated in accordance to C 3.1.6.4.

The Bill of Quantities were compiled as per “Model Preambles for Trades: 2008”. A copy can be viewed at the Offices of the Consulting Engineer.

C 3.1.9.15 VALUE ADDED TAX

The Contractor must be registered as a vendor in terms of the Law on Value Added Tax of 1991. **NOTE THAT COGHSTA DOES NOT PAY VALUE ADDED TAX.**

C 3.1.10 **MINIMUM SPECIFICATIONS FOR THE HOUSES**

C 3.1.10.1 INTRODUCTION

Tenderers must determine their independent tendered Fixed Rate per house, but the pricing structure of the houses must be in line with the National Human Settlement Guidelines.

House type and /or sizes are as listed below per area:

LOXTON Standard 40m² House = 50 units
LOXTON 45m² Disabled House – Category C = 1 units

C 3.1.10.2 DESIGN

Foundation, Superstructure and Roof Structures designed and certified by a Professional Engineer, accredited at the NHBRC, is the responsibility of the Tenderer. The designs must be submitted to the Engineer (Employer's Agent) for approval before **any** construction commences.

C 3.1.10.3 MINIMUM SPECIFICATIONS

C 3.1.10.3.1 Listed below are some abstracts from the SANS 10400 and also the specifications from National Housing Code, the specifications and code will be judged as the minimum requirements for these houses:

C 3.1.10.3.1.1 The minimum standard is a 40m² house, consisting of a lounge/kitchen, 2 bedrooms and a bathroom;

C 3.1.10.3.1.2 The installation of a ceiling with the prescribed air gap for the entire dwelling;

C 3.1.10.3.1.3 The installation of above-ceiling insulation comprising a 130 mm mineral fibreglass blanket for the entire house;

C 3.1.10.3.1.4 Internal walls to be plastered and painted (1 coat universal pva primer and 2 coats matt durable- Plascon or Dulux)

C 3.1.10.3.1.5 A standard basic electric installation comprising a pre-paid meter-ready board with a recessed distribution board with lid and lights and double plugs to all living areas of the house, water-tight outside lights above the front and back doors, and stove point in the kitchen area. Inclusive of Earthing and earthing peg.

The Electrical Installation must be done by a person registered as an Electrical Contractor in terms of the Occupational Health and Safety Act of 1993 - "Electrical Installation Regulations", as well as be registered with the Local Council / Authorities;

C 3.1.10.3.1.6 Must comply with the latest NHBRC specifications; SANS 10400 and SANS 1200.

C 3.1.10.3.1.7 Special low E clear and opaque safety glass of all windows.

C 3.1.10.3.2 Construction Specifications:

C 3.1.10.3.2.1 Walls:

(i) "Brickforce" of internal walls to fully overlap that of the external walls. Masonry walls to have suitable "Brickforce" every third course and in every course above window height and in foundation walls.
(ii) Internal walls: plastered and painted.

(iii) External walls: semi-face bricks. (Corojem Facebricks) To be sealed with approved facebrick sealant.

C 3.1.10.3.2.2 Doors:

(i) 2.0 mm Steel cottage section windows and 1.2 mm thick steel doorframes with fixed lugs neatly built into brickwork. Windows to have standard fittings.
(ii) Install precast lintels over all window- and door openings.
(iii) Exterior 2032 x 813 x 44 mm FL&B door complete with 70 mm weather board and 3-lever lock set. Internal 2032 x 813 x 44 mm hollow core doors (commercial veneer) to be fitted with 2-lever lock set. Doors to have standard fittings.

C 3.1.10.3.2.3 Windows:

(i) Kitchen Windows: C7 with 4 mm glass (No. = 1)
(ii) Bedroom Windows: C7 with 4 mm glass (No. = 2)
(iii) Lounge Windows: D57 with 4 mm glass (No. = 1)
(iv) Bathroom Windows: C1 with 4 mm obscure glass (No. 1)
(v) All glazing to comply with SABS 0137

C 3.1.10.3.2.4 Plumbing:

(i) All plumbing to be carried out by a Plumber registered with the Local Council/Authorities.
(ii) Build-in 1700 mm bath side wall and sand bed complete with 15 mm chromium plated hot and cold taps, 40 mm bath outlet and removable fibre cement inspection panel. Neatly silicone along wall surfaces;
(iii) Fit one WC complete with 6 ℓ cistern, fitments, toilet seat and flush pipe.
(iv) Provide and fit a 1200 x 535 mm single bowl sink unit with one chromium plated bib tap, 38 mm chromed waste outlet and 40 mm PVC trap, on one pair of brackets. Neatly silicone along wall surfaces.
(v) Hot and cold water polycop lines to be neatly chased into walls to all sanitary fittings. Hot water to be blanked off in roof for future geyser.
(vi) Install angle valves and a stop cocks where applicable.
(vii) A 16 mm HDPE water connection to the Municipal network, inclusive of a stopcock.

C 3.1.10.3.2.5 Drainage:

(i) Provide 1 x 15 mm bibtap over a gully at the kitchen.
(ii) Provide a 110 mm vent valve at the head of the 110 mm soil line.
(iii) Waste water pipe system to have 50 mm vent valve at highest point.
(iv) Provide a marked rodding eye at the head of the soil drain and at all change of direction. All pipe connections on soil drain to have inspection eyes.

C 3.1.10.3.2.6 Finishes:

(i) Floors to be power-floated to a smooth and level finish and kept damp for a period, as per Engineer's requirements, before any brickwork commences.
(ii) Steel window- and door frames to have a 1 x coat red oxide factory coated primer, 1 x universal undercoat and 2 x finishing coats.
(iii) External timber doors: well sanded and cleaned, apply 1 coat wood stain and 2 coats external polyurethane varnish.
(iv) Internal doors: well sanded and cleaned, apply 1 x coat timber primer and 1 x universal undercoat and 2 coats Enamel paint.
(v) Window panes to be fitted with correctly prepared putty and only painted when surface is firm and dry - not to be left unpainted for too long, paint as per window frames.

C 3.1.10.3.2.7 Roof:

(i) Engineer's designed and certified pre-fabricated nail plate roof trusses;
(ii) Minimum roof slope of 17.5 degrees.
(iii) Roof covering to be 0.5 mm corrugated chromadek roof cladding, color sandstone beige, installed according to manufacturer's specification
(iv) 30x1.2mm Galvanised hoop iron roof anchors at 1500mm centres on the eaves and on the centre wall including on each rafter to the gable walls. (or 4mm Wire built into brickwork for a minimum of 600mm)
(v) Install Gutter according to Manufactures Minimum Specifications
(vi) Install Concrete Channel to Discharge Rainwater 1.5m away from house.
(vii) 220x12mm fibre cement tiles to truss end with 50x5mm counter sunk steel wood screw heads and apply paint as for exterior walls.
(viii) All sprockets to be treated with carbolineum or similar approved product.

C 3.1.10.3.2.8 Ceiling:

(i) Ceiling to be installed in accordance to SANS 10400 and include the regional approved isolation.

C 3.1.10.3.2.9 Aprons:

(i) Concrete strength of 20MPa
(ii) Maximum slump of 75mm
(iii) 85mm thick, 1000mm wide
(iv) Maximum length of panels: 2500mm with 10mm expansion joints

C 3.1.10.4 COMPLETION QUALITY PACK:

The contractor will be required to submit a Completion Quality Pack for each stand number in the scope of works as part of completion of the project.

Each pack will consist of the following documentation:
(i) Signed Happy Letter
(ii) As-built drawing of house indicating orientation on stand and services connections.
(iii) SANS 10400 – A: Form 4 (Structure) – Signed by the NHBRC Registered Engineer
(iv) Test Cube results
(v) Roof Certificate
(vi) COC – Electrical Installation

Retention payments will be retained should the above documents not be submitted per stand.

C 3.1.11. Physical disabilities and the special housing needs:

CATEGORY C - 45m^2 BNG house Installation of additional fittings to improve quality of life:

- Access to house (12m^2 paving, and ramp at doorway)
- Kick plates to doors
- Hand rails and grab rails
- Lever action taps
- 1 m vinyl folding door in bathroom

Section A: New House: LOXTON x 50

Refer to clause 3.1.10.3 for minimum specifications.

	BNG house 40m^2 • ALL CONTRACTUAL REQUIREMENTS • Site clearance and access • Submit Building plans to LM for approval • Engineering Design of foundation, Inspections and Engineering Certification (Foundation, Superstructure & Roof) • NHBRC Enrolment • "Excavations (Foundations and services connections)" • Reinforcing and Casting of Strip Foundations • Building of Foundation Brickwork • Cast Surface Bed/ Raft Foundation • G5 Fill Compacted to 93% MOD AASTHO & 25Mpa Re-inforced Raft Foundation • Building of Superstructure Brickwork • Complete Supply, Deliver and Installation of Roof • Complete gable and beamfilling • Apply approved brick sealant to all external walls, as per manufacturers specifications • Supply and Install Ceiling complete with Cornish installation according to SANS 10400 and two Coats of PVA • Supply and Install Plumbing inclusive of all sanitary fittings and pipe work • Supply, deliver and install 2 external doors inclusive of 3 lever lock and 70 mm weather board (Well sanded and cleaned, apply 1 coat wood stain and 2 coats external polyurethane varnish) • Supply, deliver and install 3 internal doors inclusive of a 2-lever lock. (Well sanded and cleaned, apply 1 x coat timber primer and 1 x universal undercoat and 2 coats Enamel paint) • Supply, Deliver and Install 1xC1 Window, inclusive of all Fittings and Glazing as per specifications • Supply, Deliver and Install 3xC7 Window inclusive of all Fittings and Glazing as per specifications • Supply, Deliver and Install 1xD57 Window inclusive of all Fittings and Glazing as per specifications • Construct Concrete apron as per specifications (25mpa concrete, 1m wide, 85mm thick all round • Supply, Deliver and Install All Electrical components inclusive of 7 Light Switches, 2 External Lights, 5 Indoor Lights, DB board, 4 electrical sockets and a stove plug • Electrical Connection Application with the Local Municipality on behalf of beneficiary • Supply, Deliver and Install Connection to Water Service • Supply, Deliver and Install Connection to Sewer Service

	• Quality Completion Pack • OHS Regulation

Section B: New House: LOXTON x 1

Refer to clause 3.1.10.3 for minimum specifications.

	BNG house 45m^2 • ALL CONTRACTUAL REQUIREMENTS • Site clearance and access • Submit Building plans to LM for approval • Engineering Design of foundation, Inspections and Engineering Certification (Foundation, Superstructure & Roof) • NHBRC Enrolment • "Excavations (Foundations and services connections)" • Reinforcing and Casting of Strip Foundations • Building of Foundation Brickwork • Cast Surface Bed/ Raft Foundation • G5 Fill Compacted to 93% MOD AASTHO & 25Mpa Re-inforced Raft Foundation • Building of Superstructure Brickwork • Complete Supply, Deliver and Installation of Roof • Complete gable and beamfilling • Apply approved brick sealant to all external walls, as per manufacturers specifications • Supply and Install Ceiling complete with Cornish installation according to SANS 10400 and two Coats of PVA • Supply and Install Plumbing inclusive of all sanitary fittings and pipe work • Supply, deliver and install 2 external doors inclusive of 3 lever lock and 70 mm weather board (Well sanded and cleaned, apply 1 coat wood stain and 2 coats external polyurethane varnish) • Supply, deliver and install 3 internal doors inclusive of a 2-lever lock. (Well sanded and cleaned, apply 1 x coat timber primer and 1 x universal undercoat and 2 coats Enamel paint) • Supply, Deliver and Install 1xC1 Window, inclusive of all Fittings and Glazing as per specifications • Supply, Deliver and Install 3xC7 Window inclusive of all Fittings and Glazing as per specifications • Supply, Deliver and Install 1xD57 Window inclusive of all Fittings and Glazing as per specifications • Construct Concrete apron as per specifications (25mpa concrete, 1m wide, 85mm thick all round • Supply, Deliver and Install All Electrical components inclusive of 7 Light Switches, 2 External Lights, 5 Indoor Lights, DB board, 4 electrical sockets and a stove plug

	• Electrical Connection Application with the Local Municipality on behalf of beneficiary • Access to house (12m² paving, and ramp at doorway) • Kick plates to doors • Hand rails and grab rails • Lever action taps • 1 m vinyl folding door in bathroom • Supply, Deliver and Install Connection to Water Service • Supply, Deliver and Install Connection to Sewer Service • Quality Completion Pack • OHS Regulation

No.	ERF No.	No.	ERF No.	No.	ERF No.
1.	537	**18.**	559	**35.**	578
2.	541	**19.**	561	**36.**	579
3.	542	**20.**	562	**37.**	580
4.	543	**21.**	563	**38.**	581
5.	544	**22.**	564	**39.**	584
6.	546	**23.**	566	**40.**	587
7.	547	**24.**	567	**41.**	588
8.	548	**25.**	568	**42.**	589
9.	549	**26.**	569	**43.**	593
10.	551	**27.**	570	**44.**	600
11.	552	**28.**	571	**45.**	603
12.	553	**29.**	572	**46.**	610
13.	554	**30.**	573	**47.**	611
14.	555	**31.**	574	**48.**	613
15,	556	**32.**	575	**49.**	615
16,	557	**33.**	576	**50.**	625
17.	558	**34.**	577	**51.**	640

C 3.2:

PART 2:

PROJECT SPECIFICATIONS

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 3.2: PART 2: VARIATIONS AND ADDITIONS TO SABS 1200 STANDARDIZED SPECIFICATIONS

The following variation and additions to the SABS 1200 Standardized Specifications referred to will be valid for this contract. The prefix “PS A” indicated an amendment to SABS 1200 A; “PS C” to SABS 1200 C; etc. The numbers following these prefixes are the relevant Clause numbers in SABS 1200.

SANS 1200 A	:	GENERAL
SANS 1200 DB	:	EARTHWORKS (PIPE TRENCHES)
SANS 1200 G	:	CONCRETE (STRUCTURAL
SANS 1200 l	:	MEDIUM-PRESSURE PIPES
SANS 1200 LB	:	BEDDING (PIPES)
SANS 1200 LD	:	SEWERS
SANS 1200 LF	:	ERF CONNECTIONS (WATER)

SANS 1200 A : GENERAL

A 1 SCOPE

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

"This specification covers requirements, principles and responsibilities of a general nature which are generally applicable to civil Engineering construction and building works contracts, as well as the requirements for the Contractor's establishment on the Site."

A 2 INTERPRETATION

PS A 2.2 **APPLICABLE ISSUE OF STANDARDS**

ADD TO THE BEGINNING OF SUB-CLAUSE A 2.2:

"Unless another issue is specified, …."

PS A 2.3 **DEFINITIONS**

IN THE OPENING PHRASE, INSERT THE WORDS: "the definitions given in the Conditions of Contract and" *BETWEEN THE WORDS* "Specification" *AND* "the following".

a) General

ADD THE FOLLOWING DEFINITIONS:

"'General Conditions' and 'Conditions of Contract': The General Conditions of Contract specified for use with this contract, together with the Special Conditions of Contract as applicable.

'Specified': As specified in the Standardized Specifications, the Drawings or the Project Specifications. "Specifications' shall have the corresponding meaning.

ADD THE FOLLOWING NEW CLAUSE:

"PS A 2.3.1 **DELAY DUE TO SUPPLY OF MATERIALS AND ORDERING**

The Contractor shall ensure that the work is not delayed, due to the lack of materials on the site of the works, by placing orders with Suppliers for the material required under his contract as soon as possible after acceptance of this tender.

The Contractor shall, by producing copies of written enquiries for Suppliers, prove to the satisfaction of the Engineer that any delay occasioned by non-availability of materials has been caused by the ability of Suppliers to supply and not by his own lack of timely ordering or lack of exhaustive enquiry for Suppliers, before any extension of contract time will be allowed due to such delays.

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

PS A 2.4 **ABBREVIATIONS**

a) Abbreviations relating to standard documents:

ADD THE FOLLOWING ABBREVIATIONS:

"CKS: SABS Co-ordinating Specification."

A 3 MATERIALS

PS A 3.1 **QUALITY OF MATERIALS**

ADD THE FOLLOWING:

"All materials are to be the best of their respective kinds, new, undamaged, sound and free from defects and shall comply with the relevant Clauses of the Specifications.

All references to Standard Specifications are to the latest amendment to such Specifications.

Materials bearing the SABS or BS mark will not be subjected to tests to determine whether they comply with the relevant Specifications. The Engineer may in his discretion require any material not bearing such mark to be tested in accordance with the relevant Specifications; should he do so, the Contractor shall arrange for such tests to be carried out, to the Contractor's cost, by the South African Bureau of Standards or other approved body.

Whether or not the material bears the mark or is tested, any material found not to be in accordance with the Specifications shall be rejected and replaced by the Contractor at his own cost.

The Contractor may be required, at his own expense, to submit samples of the material offered to the Engineer for his approval and the material supplied under his contract shall be of the standard equal to that of the samples so submitted and approved. Samples will remain the property of the Contractors, who shall remove them when called upon to do so by the Engineer."

ADD THE FOLLOWING AT THE END OF SUB-CLAUSE 3.1:

"All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified to be in accordance with SABS Specifications shall bear the SABS mark."

ADD THE FOLLOWING NEW SUB-CLAUSE:

"PS A 3.3 **ORDERING OF MATERIALS:**

ADD THE FOLLOWING:

The quantities set out in the Schedule of Quantities have been clearly determined 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 be solely responsible for determining, from the drawings issued or approved by the Engineer for construction purposes, the actual quantities of materials required for the execution of the Works. No liability or responsibility whatsoever shall be attached to the Employer or the Engineer in respect of materials ordered by the Contractor except when ordered in accordance with the drawings issued or approved by the Engineer for construction purposes."

A 4 PLANT

PS A 4.1 SILENCING OF PLANT

REPLACE THE CONTENTS OF SUB-CLAUSE 4.1 WITH THE FOLLLOWING:

"The Contractor's attention is drawn to the applicable regulations pertaining to noise and hearing conservation, framed under the Occupational Health and Safety Act (Act No. 85 of 1993) as amended.

The Contractor shall at all times and at its own cost, be responsible for implementing all necessary steps to ensure full compliance with such regulations, including but not restricted to the provision and use of suitable and effective silencing devices for pneumatic tools and other Plant which would otherwise cause a noise level in excess of that specified in the said regulations.

Where appropriate, the Contractor shall further, by means of temporary barriers, effectively isolate the source of such noise in order to comply with the said regulations."

PS A 4.2 CONTRACTOR'S OFFICES, STORES AND SERVICES

ADD THE FOLLOWING PARAGRAPH BEFORE THE EXISTING FIRST PARAGRAPH IN SUB-CLAUSE 4.2:

"The Contractor's buildings, sheds and other facilities erected or utilized on the Site for the purposes 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. The facilities shall always be kept in a neat and orderly condition.

A Night-watchman may be on Site after hours."

*DELETE "*and first-aid services" *IN THE SECOND PARAGRAPH OF SUB-CLAUSE 4.2 AND ADD THE FOLLOWING:*

"The Contractor shall provide on the Site and in close proximity to the actual locations where the work is being executed, one toilet per 10 workmen, which toilets shall be effectively screened from public view and their use enforced. Such toilets shall be relocated from time to time as the location of the work being executed changes, so as to ensure that easy access to the toilets is maintained.

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

ADD THE FOLLOWING NEW SUB-CLAUSE:

"PS A 4.3 CONSTRUCTION PLANT

Construction plant, where the use thereof is permitted, shall be of a suitable type for carrying out the work for which it is required. Its capacity shall be sufficient to meet the requirements of the work within the contract time. It shall be kept in full working order and repair at all times."

A 5 CONSTRUCTION

A 5.1 SURVEY

PS A 5.1.1 SETTING OUT OF THE WORKS

ADD THE FOLLOWING TO SUB-CLAUSE 5.1.1:

"Setting out of works shall not be measured and paid directly and any costs involved herein shall be deemed as included in the tendered Fixed Price of work that is included in the Contract.

Further to the above, the Contractor shall timeously, before commencement of construction, check all levels in a specific area to provide for both the accurate measurement of quantities for payment purposes and should any discrepancies occur, to give the Engineer ample time to check levels and to make adjustments, if necessary.

Should the Contractor neglect to do so, the levels as shown on the Engineers drawings will be used for measurement and payment purposes.

Setting out details of all the works are defined by offsets from pegs and benchmarks established by the Engineer. The Contractor shall be responsible for the setting out of the works with reference to these pegs and benchmarks. The Contractor will survey the area after completion of the works and supply the data to the Engineer."

PS A 5.1.2 PRESERVATION AND REPLACEMENT OF SURVEY BEACONS AND PEGS SUBJECT TO THE LAND SURVEY ACT

DELETE THE WORDS "in the vicinity of boundaries" *IN THE SECOND SENTENCE OF SUB-CLAUSE 5.1.2 AND REPLACE THE WORDS:* "under the direction of" *IN THE SAME SENTENCE WITH* "in consultation and liaison with."

ADD THE FOLLOWING AFTER THE SECOND SENTENCE OF SUB-CLAUSE 5.1.2:

*"*The Contractor and the Engineer shall record on the said list, their concurrence or disagreement, as the case may be, regarding the completeness and accuracy of the details recorded therein."

REPLACE THE THIRD SENTENCE OF SUB-CLAUSE 5.1.2 WITH THE FOLLOWING:

"At the completion of the Contract, the Contractor shall expose all pegs that were listed at the commencement of the construction as being in order and the Contractor shall arrange with a registered Land Surveyor for the checking of the positions of all such pegs and the replacement of any thereof which the Land Surveyor's check reveals have become disturbed or damaged. The Contractor shall, as a precedent to the issue of the Certificate of Completion, provide to the Engineer, a certificate from the registered Land Surveyor, certifying that all the pegs listed at the commencement of construction in accordance with the provisions of this Clause, have been checked and that those found to have been disturbed, damaged or destroyed have been replaced in their correct positions, all on accordance with the provisions of the said Act.

The costs of all checking, replacement and certification as aforesaid shall be entirely for the Contractor's account; provided always that the Contractor shall not be held liable for the cost of preplacement of pegs which:

a) Cannot reasonably be re-established in their original positions by reason of the finished dimensions of the permanent works; and
b) The Contractor can prove beyond reasonable doubt to the satisfaction of the Engineer, were disturbed, damaged or destroyed by others beyond his control."

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."

PS A 5.4 **PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES**

REPLACE THE HEADING AND THE CONTENTS OF THIS SUB-CLAUSE WITH THE FOLLOWING:

PS A 5.4 **LOCATION AND PROTECTION OF EXISTING SERVICES**

PS A 5.4.1 LOCATION OF EXISTING SERVICES

Before commencing with any work in an area, the Contractor shall ascertain the presence and actual position of all services which can reasonably be expected by and experienced and competent Contractor to be present on, under, over or within the Site.

Without in any way limiting its liability in terms of the Conditions of Contract in relation to damage to property and interference with services, the Contractor shall, in collaboration with the Engineer, obtain the most up-to-date plans as are available, showing the positions of services existing in the area where it intends to work. Neither the Employer nor the Engineer offer any warranty as to the accuracy or completeness of such plans and because services can often not be reliably located from plans, the Contractor shall ascertain the actual location of services depicted on such plans by means of careful inspection of the Site and the provision and utilization of suitable detecting and testing equipment.

Thereafter, the Contractor shall, by the use of appropriate methodologies carefully expose the services at such positions as are agreed to by the Engineer, for the purposes of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements of Sub-Clauses 4.4 and 5.1.2.2 of SABS 1200 D, as amended, shall apply.

The aforesaid procedure shall also be followed in respect of services not shown on the plans, but which may reasonably be anticipated by an experienced Contractor to be present or potentially present on the site.

All services, the positions of which have been determined as aforesaid at the critical points, shall henceforth be designated as 'Known Services' and their positions shall be indicated by the Contractor on a separate set of drawings, a copy of which shall be furnished to the Engineer without delay.

As soon as any service which has not been identified and located as described above is encountered on, under, over or within the Site, it shall henceforth be deemed to be 'Known Service' and the aforesaid provisions pertaining to locating, verifying and recording its position on the balance of the site shall apply. The Contractor shall notify the Engineer immediately any such service is encountered or discovered on the site.

Whilst it is in possession of the site, the Contractor shall be liable for all loss of or damage as may occur to:

a) 'Known Services' anywhere along the entire lengths of their routes, as may reasonably be deducted from the actual locations at which their positions were verified as aforesaid, due cognizance being taken of such deviations in line and level which may reasonably be anticipated; and

b) Any other service which ought reasonably to have been a 'Known Service' in accordance with the provisions of this Clause; as well as for consequential damage, whether caused directly by the Contractor's operations or by the lack of proper protection;

Provided always that the Contractor will not be held liable in respect of damages occurring to services not being 'Known Services'.

No separate payment will be made to the Contractor in respect of its costs of providing, holding available on the site and utilizing the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer the drawings as aforesaid and these costs shall be deemed included in the tendered Fixed Price.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

PS A 5.4.2 PROTECTION DURING CONSTRUCTION

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

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

PS A 5.4.3 ALTERATIONS AND REPAIRS TO EXISTING SERVICES

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

When the Contractor damages existing services, he shall immediately inform the Engineer or the relevant authority and obtain instructions as to who should carry out repairs. In urgent cases the Contractor shall take the necessary steps to minimize damage to and interruption of the service. No repairs of telecommunication cables or electric power lines and cables shall be attempted.

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

PS A 5.7 **SAFETY**

ADD THE FOLLOWING:

"Before acceptance of the Contract, an Occupational Health and Safety Management File must be handed over to the Engineer, acceptable to Department of Labour and maintained for the duration of the project.

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

a) Provide to its Employees on the site of the Works, all safety materials, clothing and equipment necessary to ensure full compliance with the provisions of the Occupational Health and Safety Act (Act No, 85 of 1993) as amended, hereinafter referred to as the Act, at all times and shall institute appropriate and effective measures to ensure the proper usage of such safety materials, clothing and equipment, at all times; and

b) Provide, install and maintain on 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

c) 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

d) Implement all necessary measures as to ensure compliance of the Act by all Sub-Contractors engaged by the Contractor and their employees engaged on the Works; and
e) Comply fully with all other requirements pertaining with safety as may be specified in the Contract.

The Employer 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 requirements 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 inspections 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 provisions of Clause 5.11 of the General Conditions of Contract, be entitles to suspend progress on the Works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, that such 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 of 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 5.13.1 of the General Conditions of Contract should the Contractor fail to complete the Works on or before the specified Due Date for Completion in consequence of the suspensions.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this Clause shall constitute grounds for the Engineer to act in terms of Clause 9.2 of the General Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said Clause 9.

All work and particularly work carried out in the proximity of buildings, bridges, tanks or other structures shall be carried out in conformance with the regulations framed under the Occupational Health and Safety Act, 1993 and the Minerals Act (Act 50 of 1991), including shoring where necessary, to ensure the safety of structures that are at risk.

The Contractor shall make available for the duration of the contract safety helmets, gumboots and any other necessary safety equipment for sole use by the Engineer and his representative(s)."

ADD THE FOLLOWING NEW SUB-CLAUSES TO CLAUSE 5:

"PS A 5.9 **CONTRACTUAL INSPECTION**

Written inspections must be obtained for each house in the following phases:

a) Floor
b) Brick work to roof
c) Roof
d) Practical completion
e) Final completion

Failing to comply with the written request on such house might stop until satisfactory inspection was done. Failing any inspection more than 5 (five) items on a list of defaults will result in a re-inspection and an **R 700-00** fine."

PS A 5.10 **SECURITY**

PS A 5.10.1 SECURITY OF CONTRACTOR'S PLANT AND PRESONNEL

"The Contractor shall note that, notwithstanding any insurance which may be by the Employer, the Contractor shall be responsible for the effecting of safety and security of plant and personnel on and around the site of the works and that no claims in this regard will be entertained by the Employer.

Provision must be made by the Contractor in the Schedule of Quantities for effecting of safety and security of plant and personnel on and around the site of the Works and shall be deemed to include full compensation for all necessary to effect the safety and security, including, where necessary, the employment of the services of a security organization."

PS A 5.11 **SITE MEETINGS**

"The Contractor or its authorized agent will be required to attend regular site meetings, which shall normally be held twice a month on dates and at times determined by the Engineer, but in any case whenever reasonably required by the Engineer. Unless otherwise indicated in the Contract or instructed by the Engineer, such meetings shall be held at the Contractor's offices on the Site. At such monthly meetings, matters such as general progress on the Work, quality of work, problems, claims, payments and safety, etc. shall be discussed but no matters concerning the day-to-day running of the Contract."

A 6 TROLERANCES

ADD THE FOLLOWING SUB-CLAUSE TO CLAUSE 6:

"PS A 6.1 **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 for measurement and payment shall be determined from the 'authorized' dimensions. These specified dimensions or those shown on the Drawings or, if changed, as finally prescribed by the Engineer, without any allowance for the specified tolerances. Except if otherwise specified, all measurements for determining quantities for payment will be based on the 'authorized' dimensions.

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

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

A 7 TESTING

PS A 7.1 PRINCIPLES

PS A 7.1.2 STANDARD OF FINISHED WORK NOT TO SPECIFICATION

INSERT THE WORDS "or checks by an approved laboratory…" *AFTER THE WORDS* "Where the Engineer's checks …" *IN THE FIRST LINE OF SUB-CLAUSE 7.1.2.*

PS A 7.2 APPROVED LABORATORIES

REPLACE THE CONTENTS OF SUB-CLAUSE 7.2 WITH THE FOLLOWING:

"Unless otherwise specified in the relevant Specification or elsewhere in the Project Specifications, the following shall be deemed to be approved laboratories in which design work, or testing required in terms of a Specification for the purposes of acceptance by the Engineer of the quality of materials used and/or workmanship achieved, may be carried out:

a) Any testing laboratory certified by the South African National Accreditation System (SANAS) in respect of the nature and type of testing to be undertaken for the purposes of the Contract;

b) Any testing laboratory owned, managed or operated by the Employer or the Engineer;

c) Any testing laboratory established and operated on the site by or on behalf of the Employer or the Engineer.

SANS 1200 AB: ENGINEER'S OFFICE

AB 3 MATERIALS

PS AB 3.2 **OFFICE BUILDINGS**

The contractor shall provide one board room with a table and chairs to accommodate at least 10 people for site meeting purposes.

AB 4 PLANT

PS AB 4.1 **TELEPHONE**

The Contractor's contract manager and site agent must have a cellular phone available as contact between him and the engineer. The site agent must always be available on his cellular phone except during long weekends and the Christmas break where special arrangements will be required.

AB 5 CONSTRUCTION

PS AB 5.5 **SURVEY ASSISTANTS**

Two semi-skilled labourers with relevant experience will be required to assist the engineer if required.

PS AB 5.6 **SURVEY EQUIPMENT**

The Contractor shall provide the following tested and approved survey equipment (a certificate will be required) on site for the duration of the contract and for the use of the Engineer whenever needed:

a) one automatic level plus tripod and level staff.

b) one 5m and one 50m measuring tape

c) Diverse surveyor's necessities like paint, pegs, etc.

The above-mentioned equipment may by arrangement be shared between the Contractor and the Engineer's representative. It must be maintained and kept in good working order for the duration of the contract.

SANS 1200 C: SITE CLEARANCE

PS C 5 CONSTRUCTION

PS C 5.2 **CUTTING OF TREES**

PS C 5.2.3 PRESERVATION OF TREES

PS C 5.2.3.2 Individual Trees

The Contractor shall pay a penalty of R5,000 for each Kameeldoring (Acacia Erioloba) tree damaged or removed by him without the written permission of the Engineer and permit issued to do so.

PS C 5.4 **GRUBBING**

Grubbing shall consist of the grubbing out of roots and stumps to a depth of at least 600 mm below cleared surface level.

SABS 1200 D: EARTHWORKS

PS D 5 CONSTRUCTION

PS D 5.1.2 **EXISTING SERVICES**

PS D 5.1.2.4 DETECTION, LOCATION AND EXPOSURE

ADD THE FOLLOWING SUB-CLAUSE TO D 5.1.2.2

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 drawing or not, such services shall be deemed to be known services and the contractor shall be liable for all costs and subsequently 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.

PS D 5.2 **METHODS AND PROCEDURES**

PS D 5.2.3 **PLACING AND COMPACTION**

PS D 5.2.3.1 DETECTION, LOCATION AND EXPOSURE

SUBSTITUTE THE FOLLOWING SUB-CLAUSE TO D 5.2.3.1

The material of each embankment shall, unless otherwise approved, be deposited in layers of thickness, before compaction, not exceeding 300mm.

With

The material of each embankment shall, unless otherwise approved, be deposited in layers of thickness, before compaction, not exceed **150mm.**

SABS 1200 DB: EARTHWORKS (PIPE TRENCHES)

DB 3 MATERIALS

PS DB 3.1 **CLASSES OF EXCAVATION**

ADD THE FOLLOWING:

"In case of hand excavation, the following classification method will be used:

PS DB 3.1.1 SOFT EXCAVATION

Soft excavation is classified as material that can be removed with a shovel and pick. Should this material be subjected to a DCP test, the density will be such that penetration will not be less than 10 mm per impact for a layer of 150 mm thick.

PS DB 3.1.2 INTERMEDIATE EXCAVATION

Intermediate excavation is classified as material that can be removed with a pick and shovel where penetration of a DCP apparatus is less than 10 mm per impact.

PS DB 3.1.3 HARD EXCAVATION

Hard excavation is classified as material that can only be removed with pneumatic equipment, edges, splitting or explosives."

PS DB 3.7 **SELECTION**

ADD THE FOLLOWING:

"Where suitable backfill material occurs in layers of 150 mm or more, this material should be separated during excavation from unsuitable material and used for backfilling. Should this material not be utilized in this manner, an estimate will be made of the available quantities and deducted from the imported backfill material."

DB 5 CONSTRUCTION

PS DB 5.6 **BACKFILLING**

PS DB 5.6.4 REMOVAL OF INTERMEDIATE AND HARD ROCK MATERIAL

ADD THE FOLLOWING:

"It is the responsibility of the Contractor to flatten out any spoil heaps and to dump subsequent loads on top. The Contractor will not be allowed to just dump spoil material on the horizontal surface."

SABS 1200 G: CONCRETE (STRUCTURAL)

G 3 MATERIALS

PS G 3.2 **CEMENT**

PS G 3.2.2 ALTERNATIVE TYPES OF CEMENT

REPLACE THE CONTENTS OF THIS SUB-CLAUSE WITH THE FOLLOWING:

"Only ordinary Portland cement shall be used.

If the Contractor wishes to use any other type of cement, he shall obtain the Engineer's prior written approval."

PS G 3.2.3 STORAGE OF CEMENT

ADD THE FOLLOWING:

"Cement shall not be stored for longer than 12 (twelve) weeks without the Engineer's permission."

PS G 3.4 **AGGREGATES**

ADD THE FOLLOWING:

"All aggregates used must comply with SABS 1083. No aggregates with a shrinkage exceeding 130% will be allowed."

PS G 3.4.1 *ADD THE FOLLOWING TO SUB-CLAUSE G 3.4.1:*

"PS G 3.4.1.1 COURSE AGGREGATES

PS G 3.4.1.1.1 Coarse aggregates must comply with the 10% FACT requirement for durability."

PS G 3.4.1.1.2 The nominal aggregate size is the smaller of the 37,5 mm maximum particle size and 25% of slab thickness.

PS G 3.4.1.1.3 Should the nominal aggregate size exceed 26,5 mm, the coarse aggregate shall be a mixture of *b*-aggregate greater than 26,5 mm and an *a*-aggregate smaller than 26,5 mm."

PS G 3.4.1.2 FINE AGGREGATES

PS G 3.4.1.2.1 Fine aggregate may not contain silicone particles in excess of 40%.

PS G 3.4.1.2.2 Should the FM of the fine aggregate vary by more than ± 0,2 during construction, modifications to the mix design should be done.

PS G 3.4.1.3 MIX DESIGN

Special consideration should be given to the minimizing of bleeding during the mix design. If bleeding is foreseen, special attention should be given to the fine aggregate.

PS G 3.4.1.4 ADMIXTURES

The use of admixtures should be limited. Should admixtures be utilized, special attention should be given to possible shrinkage. The uses of any admixtures are to be approved by the Engineer. See also G 3.5.

G 4 PLANT

PS G 4.1 **GENERAL**

ADD THE FOLLOWING NEW SUB-CLAUSE:

"PS G 4.1.1 MINIMUM PLANT

The Contractor shall have the following minimum plant available and in sound working order:

a) 2 (Two) concrete mixers, each of sufficient capacity to complete a section of floor slabs between construction joints within 4 (four) hours without interruption.

If the plant used for placing concrete for the structure is electrically or mechanically powered, the Contractor shall also provide some other approved non-electrical powered standby means for placing concrete at an adequate rate in the event of a power or mechanical failure of the main plant.

When the Contractor elects to utilize a crane during the construction period, he shall communicate with the Engineer in good time to allow for such positioning of the crane."

PS G 4.5 **FORMWORK**

PS G 4.5.1 DESIGN

ADD THE FOLLOWING:

"All formwork or scaffolding required for any part of the Works shall be designed by the Contractor and before commencing with the erection of any formwork or scaffolding, the Contractor shall submit the methods he proposes to use to the Engineer for approval. The Engineer has the authority to order alterations to the design or the sizes of any part of the formwork or scaffolding. The Contractor shall check the safety and suitability of all such alterations. The fact that the Engineer has approved or altered any part of the formwork or scaffolding shall not be construes as relieving the Contractor of his responsibility with regard to the strength and stability of the formwork or scaffolding."

PS G 4.5.3 TIES

ADD THE FOLLOWING:

"No plugs, bolts, ties or clamps of any description used to hold the formwork will be allowed to project into or through the concrete unless expressly approved by the Engineer.

Only approved tie-rods consisting of solid rods (that remain embedded in the concrete) and with removable ends shall be used to hold the formwork of the walls. The removable tie-rod ends shall facilitate removal without damage to the concrete and no permanently embedded parts of such tie-rods shall have less than 50 mm of cover to the finished concrete surface.

The cavities left in the concrete when the tie-rod end cones are removed shall be soundly caulked with a cement mortar to which an approved shrinkage-reducing agent has been added and shall be neatly finished to a smooth surface uniform with that of the surrounding concrete.

The cost of supplying special tie-rods as well as the filling of cavities left by the tie-rod cones shall be included in the tendered Fixed Price.

On no account shall formwork be secured to reinforcing bars."

G 5 CONSTRUCTION

PS G 5.1 REINFORCEMENT

PS G 5.1.2 FIXING

ADD THE FOLLOWING:

"The Engineer will inspect the reinforcing after it has been fixed in place, the formwork has been cleaned, cover blocks have been positioned and before concreting commences.

Welding of reinforcing steel will not be permitted."

PS G 5.1.3 COVER

ADD THE FOLLOWING:

"The distance between pipes in the concrete and the reinforcing steel shall nowhere be less than:

a) 40 mm or

b) 5 mm plus the maximum size of the coarse aggregate, whichever is the largest."

PS G 5.2 FORMWORK

PS G 5.2.1 CLASSIFICATION OF FINISHES

c) SPECIAL

ADD THE FOLLOWING:

"This finish is obtained by first giving the surface a smooth finish with the joints between formwork panels forming an approved regular pattern suitable for the appearance of the structure. All projections shall then be removed, irregularities repaired and the surface rubbed or otherwise treated until it is smooth with an even texture, appearance and colour.

If the finish of exposed surfaces does not comply with the requirements for uniformity of the texture and appearance, the Contractor shall, when instructed to do so by the Engineer, rub down the exposed surfaces of the entire structure or any part thereof as specified below, entirely at his own cost. All repairs must be completed before the rubbing commences.

The surface shall be saturated with water for at least 1 (one) hour. The initial rubbing of the face shall be carried out with a medium coarse carborundum stone, together with a small amount of mortar of the same cement/sand ratio as the concrete being repaired. Rubbing shall continue until all form marks, projections and irregularities have been removed and a uniform surface has been obtained. The paste produced by the rubbing shall be kept in place. The final rubbing shall be carried out with a fine carborundum stone and water. This rubbing shall continue until the entire surface has a smooth, even texture and is uniform in colour. The surface shall subsequently be washed with a brush to remove surplus paste and powder."

PS G 5.3 HOLES, CHASE AND FIXING BLOCKS

ADD THE FOLLOWING:

"Cover blocks for reinforcing and fixtures may be placed into the concrete provided that neither the strength nor any other desirable characteristic (such as the appearance) of the concrete section is affected or impaired in the opinion of the Engineer."

PS G 5.5 **CONCRETE**

PS G 5.5.1 QUALITY

PS G 5.5.1.5 DURABILITY

ADD THE FOLLOWING:

"The exposure conditions of the concrete are classified as 'severe'."

PS G 5.5.1.7 STRENGTH CONCRETE

ADD THE FOLLOWING:

"The concrete mixes for the works shall be designed by the Portland Cement Institute or a similar approved laboratory."

PS G 5.5.3 MIXING

PS G 5.5.3.2 READY-MIX CONCRETE

ADD THE FOLLOWING:

"Ready-mixed concrete may be used on the site. The Contractor shall take samples for testing from every load delivered to the Site."

G 6 TOLERANCES

PS G 6.2 **PERMISSIBLE DEVIATIONS**

PS G 6.2.3 SPECIFIED PERMISSIBLE DEVIATIONS (PDs)

ADD THE FOLLOWING:

"Degree-of-accuracy 1 is applicable.

Every specified permissible deviation is binding in itself. The cumulative effect of permissible deviations will not be considered. The maximum permissible vertical deviation is subject to the other permissible deviations."

REPLACE SUB-CLAUSE 6.2.3(d)(5) WITH THE FOLLOWING:

Vertically, subject to a maximum of:

Permissible Deviation		
Degree of Accuracy		
III	II	1
mm	mm	mm
5 50	3 30	2 10

G 7 TESTS

PS G 7.1 FACILITIES AND FREQUENCY OF SAMPLING

PS G 7.1.1 FACILITIES

ADD THE FOLLOWING:

"The Contractor shall provide sufficient storage capacity for the concrete cubes and shall test the cubes by means of an approved, calibrated cube testing press in a manner approved by the Engineer or shall arrange to have them tested by an approved laboratory.

The cost of testing, including the cost of sampling, storage and transport of samples shall be included in the tendered Fixed Price."

PS G 7.3 ACCEPTANCE CRITERIA FOR STRENGTH CONCRETE

ADD THE FOLLOWING:

"Test results obtained from the Supplier of ready-mixed concrete will not be acceptable for evaluation on terms of Sub-Clause 7.3 but samples for testing shall be taken of such concrete at the point of placing."

SABS 1200 L: MEDIUM PRESSURE PIPES

L 2 INTERPRETATION

PS L 2.4 **ABBREVIATIONS**

ADD THE FOLLOWING TO SUB-CLAUSE L 2.4:

"FC: Fibre Cement

HDPE: High density Polyethylene pipes"

PS L 3.8.4 LOOSE FLANGES

ADD THE FOLLOWING:

"Bolts shall be to SANS 135."

L 3 MATERIALS

PS L 3.10 **VALVES**

ADD THE FOLLOWING NEW SUB-CLAUSE:

"PS L 3.10.1 GATE VALVES

All gate valves are to comply with SABS 1200 LK; must be of the "waterworks" type and be suitable for a working pressure of 16 Bar. All valves to be clockwise (right hand) closing and the direction of opening and closing should be permanently displayed on the valve casing. Valves should be of the non-rising spindle type and be equipped with a square cap-top suitable for use with a valve spanner. All valves will be tested for water tightness. One valve spanner is to be provided for every 10 (ten) valves or less."

PS L 5.1.4 DEPTH AND COVER

ADD THE FOLLOWING NEW SUB-CLAUSE:

"PS L 5.1.4.6 A minimum cover of 500 mm is required over the top of pipes inside erven; 800 mm in street reserves, underneath roads or as specified by levels on long sections and plans. Where instructed, pipes are to be encased in concrete."

L 7 TESTING

PS L 7.3 **STANDARD HYDRAULIC PIPE TEST**

PS L 7.3.1 TEST PRESSURE AND TIME OF TEST

PS L 7.3.1.1 TEST PRESSURE

ADD THE FOLLOWING:

"Before any connections are made, pipes are to be tested to 1.5 times the working pressure of the specific class of pipe. After connected to existing pipelines or fittings, all costs associated with the excavation, removal of fittings, cutting in, joining, labour and complete finishing are deemed to be included in the tendered price."

SABS 1200 LB: BEDDING PIPES

LB 3 MATERIAL

PS LB 3.1 **SELECTED GRANULAR MATERIAL**

ADD THE FOLLOWING:

"Notwithstanding the provisions in Sub Clause LB 3.1, the selected granular material shall be singularly graded between 0,6 mm and 13 mm."

PS LB 3.2 **SELECTED FILL MATERIAL**

ADD THE FOLLOWING:

"Notwithstanding the requirements of Sub Clause LB 3.2, the selected fill material for storm water pipelines in all areas, excluding roadways, shall have a PI not exceeding 18. This amendment is not applicable to sewers and water mains."

PS LB 3.3 **BEDDING**

ADD THE FOLLOWING:

"Class C bedding as applicable to rigid pipes is required. Material for the Class C bedding will only be imported where insufficient suitable material is obtainable from the excavated material.

Where large diameter UPVC pipes (> 300 mm diameter) are utilized, compaction on either side of the pipe should be carefully done in layers not exceeding 100 mm in thickness to ensure that the bedding and pipe act as a "pipe-soil system" to prevent ovality of the pipes occurring during backfilling.

The Contractor shall be responsible for finding a source of suitable bedding material."

LB 3.4 **SELECTION**

PS LB 3.4.2 SUITABLE MATERIAL NOT AVAILABLE FROM THE TRENCH EXCAVATION

ADD THE FOLLOWING:

"Should there, during selective excavation methods with the correct tools, still be insufficient suitable material available for the bedding, material must be imported. The Contractor will find a suitable source of bedding material and submit it to the Engineer for approval.

The finding of a suitable source/quarry/ borrow pit, loading, placement and compaction of the imported material is deemed to be included in the rate tendered by the Contractor."

LB 5 CONSTRUCTION

PS LB 5.1.4 COMPACTION

ADD THE FOLLOWING:

"After excavation of the trench, the trench bottom will be levelled by means of a rake and compacted. Compaction may be conducted by hand tools. The required compaction to be achieved must exceed or equal 90% MAASHTO density.

After installation of the pipes, similar compaction must be applied to the blanket material. Now the final backfilling to 50 mm above the adjacent soil levels may be carried out. The total working area shall then be finished off. Only when specified by the Engineer will sidewalks be finished to specific standards and levels.

Where streets and roads are crossed, compaction of the bedding and backfill must be conducted by mechanical means to achieve a density of 98% MAASHTO density."

PS LB 5.2.1(c) CLASS A BEDDING

AMEND THE SUB-CLAUSE WITH THE FOLLOWING:

"The main fill shall not be placed in any section until the bedding cradle in that section has achieved a compressive strength of at least 15 MPa or a period of 5 days has elapsed after the placing of the concrete in that section, whichever occurs first."

SANS 1200 LD: SEWER

LD 3 MATERIALS

PS LD 3.5 **MANHOLES, CHAMBERS, ETC.**

PS LD 3.5.2 PRE-CAST CONCRETE SECTIONS

ADD THE FOLLOWING TO SUB-CLAUSE LD 3.5.2:

"The joint between the manhole and the cement cover must be effectively sealed with a sealant so that no ground water or storm water can filter in. The lifting holes in the manholes must be sealed with epoxy after installation but before back filling.

Benching must be made from concrete fabricated from dolomitic aggregate."

PS LD 3.5.3 PRE-FABRICATED FC MANHOLES

REPLACE SUB-CLAUSE LD 3.5.3 WITH THE FOLLOWING:

"Pre-fabricated FC-manholes must comply with the requirements of fibre strengthened cement sewer pipes according to SANS 819 with inside diameter of 1 000 mm. All manholes must be dipped in bitumen.

The joint between the manhole and the cement cover must be effectively sealed with a sealant so that no ground water or storm water can filter in. The lifting holes in the manholes must be sealed with epoxy after installation but before back filling.

Benching must be made from concrete fabricated from dolomitic aggregate."

PS LD 3.5.7 STEP IRONS

REPLACE SUB-CLAUSE LD 3.5.7 WITH THE FOLLOWING:

"Step irons shall be manufactured of at least 12 mm tensile strength armour-plated steel with a polypropylene casing. Attaching of step irons in manholes must be done according to the instructions and requirements of the Manufacturers."

PS LD 3.6 **MARKER POSTS**

ADD THE FOLLOWING TO SUB-CLAUSE LD 3.6:

"Marker posts consisting of a 1 m length kerbing that is planted vertically above the end cap of the erf connection. The end of the kerbing must be 400 mm above natural ground level and painted red, while the bottom is connected to the end cap with a 3 mm wire."

LD 5 CONSTRUCTION

PS LD 5.4 **CONNECTIONS TO MANHOLES**

ADD THE FOLLOWING TO SUB-CLAUSE LD 5.4:

"Where a pipe lies at a gradient of 1:10 (that is 5,71°) an 11¼° bend cannot be used as a bend with an angle greater than the gradient of the pipe will produce a low point. It is the Contractor's responsibility to shorten the bend to form the desirable angle.

For pipes with a gradient of 1:10 the angle can be taken up by a coupling in the manhole and, where necessary, also by a coupling between the short length and first full pipe."

LD 5.6 **MANHOLES, INSPECTION CHAMBERS, ETC.**

PS LD 5.6.1 GENERAL

REPLACE SUB-CLAUSE LD 5.6.1(A) WITH THE FOLLOWING:

"Manholes on new pipes shall be of FC, brick or concrete and built as indicated on the drawings.

Final cover levels of manholes must be as follows:

1.	In roads and on pavements	:	level with the road or pavement
2.	All other areas	:	50 mm above final level

If the position of a manhole is such that it is situated in a low or a hole where there is a danger of storm water filtering into the cover, the final level of the manhole must be elevated to such a level where storm water infiltration is no longer a danger, or to a level previously approved by the Engineer.

If the manhole cover for FC or concrete manholes must be elevated with more than 300 mm, FC or concrete rings with the same diameter as the manhole, and attached to the fibre cement or concrete manhole with epoxy, must be used."

PS LD 5.6.2 BENCHING

ADD THE FOLLOWING TO SUB-CLAUSE LD 5.6.2.3:

"Benching will be constructed and finished off as indicated on the drawings."

PS LD 5.9 **CONNECTING SEWERS**

ADD THE FOLLOWING TO SUB-CLAUSE LD 5.9.1:

"Plot connections must be installed in the exact position as indicated on the drawings. Where mains go through plots the erf connection must end 1 m from where the manifold and 45° bend ends on the erf. Where mains are outside the plot the erf connection must be 1 m inside the plot border, and sealed with an end cap.

Unless stipulated differently on the drawings or specified by the Engineer, all connecting sewers must be laid with a gradient of 1:60."

LD 7 TESTING

PS LD 7.1 **GENERAL**

ADD THE FOLLOWING TO SUB-CLAUSE LD 7.1.5:

"All tests shall be repeated after back filling of pipe trenches has been completed."

PS LD 7.2.6 WATERTIGHTNESS OF MANHOLES

ADD THE FOLLOWING TO SUB-CLAUSE LD 7.2.6:

"On completion of a manhole, the Engineer might call for a water tightness test, at the Contractor's expense, as follows:

Manholes must be filled to the brim with water and left to stand for 60 minutes. After the water loss has been filled up again, the water measured over 60 minutes may not be more than the volume given in the comparison below. The water level must be filled up every 20 minutes. Filling up volume must be measured. Loss must be determined with comparison 1, also see Table below.

I = 0,6.D – (1)

I = Water loss in l/hour/metre depth

D = manhole diameter in m.

Should the manhole leak more water than given in comparison 1, the manhole must be water proofed and re-tested. The Contractor cannot claim any additional compensation.

Manhole must be tested for water proofing **prior** to starting back filling.

Manhole diameter (mm)	Water loss over 60 minutes/m depth (ℓ)
750	0,405
1 000	0,630
1 200	0,720

SANS 1200 LF: ERF CONNECTIONS (WATER)

PS LF 3 MATERIAL

LF 3.1 **PIPES, FITTINGS AND COUPLINGS**

PS LF 3.1.1 COPPER PIPE

SCRAP SUB-CLAUSE LF 3.1.1 AND REPLACE WITH THE FOLLOWING:

"Copper pipe shall be "Maksel" or similar approved Class O according to SANS 460 with coupling of capillary silver flux."

PS LF 3.1.3 GALVANIZED SOFT STEEL PIPES (GSS)

SCRAP SUB-CLAUSE LF 3.1.3 AND REPLACE WITH THE FOLLOWING:

"All wrought iron pipe sleeves shall comply with SANS 509 and the hot dip galvanizing process to SANS 763. All screw-threads shall be supplied in in accordance with BS 21.1973/ISO-R7".

PS LF 3.1.4 HIGH-DENSITY POLYETHYLENE PIPES (HDPE)

SCRAP SUB-CLAUSE LF 3.1.4 AND REPLACE WITH THE FOLLOWING:

"High-density polyethylene pipe (HDPE) Type IV (Class 10) with compression accessories for HDPE pipe shall be used for water distribution on plots. The HDPE pipes must comply with SANS 533 and accessories to ISO/DIS 3458 (Class 16)".

PS LF 3.1.5 OPVC OR MPVC PIPES

SCRAP SUB-CLAUSE LF 3.1.5 AND REPLACE WITH THE FOLLOWING:

"PVC pipes and accessories shall comply with the applicable requirements of SANS 966 for, in the case of pipes, the class specified or mentioned in the Bill of Quantities and shall have applicable approved welded or PVC compression type couplings. Cast-iron accessories shall comply with SANS 664. There will be specified in the Bill of Quantities if OPVC or MPVC pipes must be used".

PS LF 3.1.7 SADDLES

ADD THE FOLLOWING TO SUB-CLAUSE LF 3.1.7:

"Saddles shall be of polypropylene or similar approved alternatives for pipes not smaller than 63 mm in diameter. Compression T-pieces shall be used for erf connections from HDPE pipes".

PS LF 3.1.8 FIBRE CEMENT (FC) PRESSURE PIPES

ADD NEW SUB-CLAUSE LF 3.1.8:

"C.I.D and C.O.D. fibre cement (FC) pressure pipes shall be supplied according to SANS 1223".

PS LF 3.1.9 LIGHT-WEIGHT HDPE PIPES

ADD NEW SUB-CLAUSE LF 3.1.9:

"Light-weight low pressure HDPE pipe shall comply with ISO 9002, ISO DP 9969, ISO / DIS 6259 and SANS 533 and supplied to the minimum stiffness as specified.

The laying of pipes must be **strictly** according to the Manufacturer's specifications. "Waterproof" or similar approved sockets must be used up to 800 mm diameter pipe in-situ welded pipes must be used for larger than 800 mm".

PS LF 5 CONSTRUCTION

PS LF 5.2 **LAYING OF MAIN LINE TO ERF**

PS LF 5.2.2 PIPE LAYING

"Erf connections shall be bedded on Class B bedding, with the thickness of the bedding cradle 100 mm.

Erf connections must not be laid shallower than 450 mm and deeper than 600 mm under the final road level or kerb height.

Under roads trenches shall be backfilled according to PS DB 3.6."

C 3.3:

ENGINEERING DRAWINGS

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 3.3: ENGINEERING DRAWINGS

C 3.3.1 DRAWINGS ISSUED WITH THIS DOCUMENT

The drawing list on the next page are applicable to the Contract and are issued with this tender document and will form part of the Contract Documents as **Volume 2.**

C 3.3.1.1 DESIGN BY ENGINEER

The Engineer, on behalf of the Employer, has designed the permanent works to be executed under this Contract. **Where specifications on the drawings deviate from the minimum housing specifications as stated in clause C 3.1.10 of the Scope of works, the contractor shall adhere to the specifications as per clause C3 3.1.10.**

C 3.3.1.2 DESIGN BY THE CONTRACTOR

It is the responsibility of the Contractor to provide designs by a Professional Engineer of his choice, to be approved by the Client's Engineer and the NHBRC. The appointed engineer will enrol the houses with the NHBRC and he will also certify the foundation, superstructure and roof of the houses, and he will act as the responsible person for the buildings. The cost to adhere to the above must be included in the tendered Fixed Price.

The Contractor shall supply the Engineer of CoGHSTA with all relevant drawings for his approval **before any works are executed.**

C 3.3.1.3 "RECORD" DRAWINGS

The Contractor shall record all amendments and deviations from the drawings. This shall be done on a set of drawings specially allocated for this purpose. These drawings shall be handed to the Engineer on completion of the Works. The Completion Certificate **will not be issued** without this information having been submitted to the Engineer.

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

LIST OF DRAWINGS

2/16/006/14/U001	40m^2 BNG House: Plans, Sections and Elevations
	45m^2 BNG House: Plans,
MV-SD-100:	Sewer Details
MV-WD-100:	Water Details

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

C 3.4:

MANAGEMENT

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 3.4 MANAGEMENT

C 3.4.1 **CONSTRUCTION PROGRAMME**

C 3.4.1.1 FORMAT

In addition to the requirements of the General Conditions of Contract, the Contractor's programme shall:

a) Be in a bar chart form;
b) Show the various activities related to a time-chart indicating the sequence of performing the works comprising the contract;
c) Indicate critical path activities.

C 3.4.1.2 ALLOWANCES

The Contractor's programme shall take the following into consideration:

a) Expected weather conditions;
b) Special non-working days as stipulated in the Tender;
c) The accommodation and safeguarding of traffic.

C 3.4.2 **PROCEDURES DURING CONSTRUCTION**

The Contractor to supply, keep up to date and keep the following documents on site:

C 3.4.2.1 A full set of the latest construction drawings to be on site permanently for use by the Engineer and others.

C 3.4.2.2 The Contractor to supply and keep on site an A4 triplicate Site Instruction Book.

C 3.4.2.3 The Contractor to supply an A4 duplicate diary on Site. The Contractor to keep daily dairy, with at least the following information:

(i) Weather conditions;
(ii) Record of any accidents and details;
(iii) Record of construction activities of the day;
(iv) Information of any strikes;
(v) Any other relevant information.

C 3.4.3 SITE FACILITIES AVAILABLE

C 3.4.3.1 SOURCE OF WATER SUPPLY

The Contractor shall make his own arrangements with the relevant Authorities for obtaining water for construction and domestic purposes as well as toilet facilities as required by the Health and Safety Regulations. The Contractor shall pay for the water at the rates and tariffs as determined by the Local Authority, including the cost of supplying a temporary standpipe as required.

C 3.4.3.2 SOURCE OF POWER SUPPLY

The Contractor shall make his own arrangements for obtaining power and be responsible for all costs involved.

C 3.4.3.3 LOCATION OF CAMP AND DEPOT

The Contractor must make his own arrangements for a Camp Site at the location of the Works. The location of the Contractor's camp, including the material storage areas, will be subject to the Engineer's approval.

The Contractor shall make his own arrangements for the accommodation of labour.

C 3.4.3.4 SPOIL SITES

No indiscriminate spoiling of material will be allowed.

All unsuitable surplus material shall be removed from the Site and the Contractor shall make his own arrangements with regard to a suitable spoil site.

C 3.4.4 ABNORMAL RAINFALL

Refer to C 3.1.6.3.10

C 3.4.5 TIME RELATED ITEMS

An approved extension of time (other than an extension of time granted in terms of the Special Conditions of Contract) will entitle the Contractor to submit a claim for additional payment. Any such approved additional payment will be made for proven additional costs for each relevant time related item.

C 3.4.6 NAMEBOARD

No name board will be provided.

C 3.4.7 PROTECTION FROM STORMS AND FLOODS

The tendered Fixed Price shall be deemed to be full compensation for any damage to the Works due to storms, rain, floods, storm water or subsurface water.

Under no circumstances shall the Contractor be entitled to any additional payment in this regard. The Contractor shall accept full responsibility and costs to handle water from any source on his Site.

C 3.4.8 EXISTING SERVICES

The Engineer will provide information regarding the location of existing utility services, but the Engineer does not accept responsibility for the accuracy of this information. The Contract shall make further investigations to determine the exact locality, size and depth of existing services before commencing construction to ensure that no damage is done to any service.

The Contractor shall take all reasonable precautions to protect existing services during construction and during relocation of such services.

Any pipe, cable, conduit or other services of any nature whatsoever indicated to the Contractor and subsequently damaged as a result of the Contractor's operations shall be repaired and reinstated forthwith by the Contractor or by the authority concerned, all at the expense of the Contractor and to the satisfaction of the Engineer.

Whenever services are encountered which interfere with the execution of the works and which require to be moved and relocated, the Contractor shall advise the Engineer, who will determine the extent of the work, if any, to be undertaken by the Contractor in removing, relocating and reinstating such services.

The Contractor shall work in close co-operation with private owners or public authorities controlling services, which have to be protected, removed or relocated. No undertaking can be given as to the exact time of commencement or of completion of the relocation, removal or protection of services, which have to be carried out by the owners or controlling authorities themselves. The Contractor is to make allowance in his programme for this contingency.

Where services have to be removed or relocated or protected, the Engineer will at the request of the Contractor, notify or negotiate with the owners or Authorities controlling those services, but the Engineer does not accept liability for any costs resulting from delays in the relocation, removal or protection of any service, or delays as a result of delays in negotiations.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

C 3.4.9 ACCOMMODATION OF TRAFFIC AND PUBLIC ACCESS

During all his operations and when using his machinery, plant and equipment, the Contractor shall at all times take the necessary cate to protect the public and to facilitate the traffic flow.

C 3.4.10 SETTING OUT OF WORKS

All setting out required to carry out the work shall be undertaken by the Contractor. Setting out of the Works to be included in the tendered Fixed Price.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

C 3.4.11 SANITARY CONDITIONS

The Contractor shall ensure that, during the period of construction, sanitary conditions prevail on the site and surrounding areas. Unhygienic behaviour that may cause contamination of the works or the surrounding area is strictly prohibited.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

C 3.4.12 CONSTRUCTION IN CONFINED AREAS

It may be necessary for the Contractor to work within confined areas and no additional payment will be made for work done in restricted areas. The method of construction in these confined areas will depend largely on the Contractor's construction plant.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

C 3.4.13 DENSITY TESTS / CONCRETE CUBES

The Contractor shall carry out his own density tests on each compacted layer and these tests shall be submitted to the Engineer for scrutiny and approval before commencing with the construction of the following layer.

The Contractor also needs to do his own concrete cube tests, which is to be handed to the Engineer for scrutiny and approval. The Engineer may order that further, control tests are to be taken.

The Engineer may order that control tests be taken by his own or another independent laboratory. Cube/density tests carried out by the Contractor in the normal course of his work shall be carried out at his own expense.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. No additional payment will be made by the Client.

C 3.4.14 HEALTH AND SAFETY SPECIFICATION

C 3.4.14.1 PURPOSE

In terms of the Occupational Health and Safety Act (Act 85 of 1993) (OHSA) or as amended, and the Construction Regulations 2014 or as amended, the Employer must provide the Contractor with a Health and Safety Specification to which the Contractor must respond with a Health and Safety Plan for approval by the Employer.

The purpose of this Specification is to ensure that the Principal Contractors entering into a contract with the Employer maintain an acceptable level of performance with regard to health and safety issues during the performance of the contract. In this regard the OHSA Specification form an integral part of the Contract and the Principal Contractor shall ensure that their Contractors and/or Suppliers comply with the requirements of this Specification.

C 3.4.14.2 SCOPE

This Contract comprises of LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON.

The Contractor, in complying with the OHS Act and the Construction Regulations, shall consider all aspects of the Works described and take into account the construction methods and materials to be used.

C 3.4.14.3 GENERAL

The Contractor is referred to and shall comply with the full text of the Occupational Health and Safety Act (Act 85 of 1993) (OHSA) or as amended and to the Construction Regulations 2014 or as amended, promulgated there under.

In this regard refer also to the Health and Safety Agreement and Conditions attached to these Contract documents (See Part C 1.4)

The following Specification covers health and safety matters applicable during construction.

All the work included in this Contract shall, for the purpose of complying with OHSA and the Construction Regulations, be deemed to be “construction work”.

It should be noted that, with a few exceptions, the Model Preambles and the Project Specifications are “end product specifications” and not “method Specifications”. As the

methods of construction to be used are generally determined by the Contractor, detailed safety requirements applicable to all the operations to be carried out on Site are not provided in the project documentation. The Contractor shall apply all the relevant regulations and requirements to the work methods and materials used.

The Principal Contractor shall give the required notice to the Provincial Department of Labour before commencement of any work on Site. This notice shall include the information as required by the Construction Regulations and shall be signed by the Contractor and the Employer.

The Principal Contractor shall ensure current registration and good standing with the Compensation Commissioner and shall provide evidence to this effect to the Employer.

It is the responsibility of the Principal Contractor and his Contractors to provide for all costs and expenses related to the management of and compliance with the OHSA and this Specification.

It will be accepted that the Tenderer made provision in his tendered Fixed Price for the cost of the above. <u>No</u> additional payment will be made by the Client.

C 3.4.14.4 EXISTING SITE CONDITIONS

The Contractor shall take into account, *inter alia*, the following existing conditions when complying with the OHSA:

a) Existing utility services;
b) Existing site conditions. The Contractor shall be deemed to have visited the site and examined the site conditions applicable for the Works;
c) The traffic accommodation requirements;
d) Surrounding land use;
e) Anticipated weather conditions for the area; and
f) Access to the public and the use of the facility during construction.

C 3.4.14.5 DESIGN INFORMATION

Design information provided for safety planning purposes, such as design loads for structures, foundation conditions, etc. is available from the Engineer where required.

C 3.4.14.6 CONSTRUCTION MATERIALS

The following commonly used construction materials and substances potentially pose health and safety hazards:

a) All materials contained in pressurized containers;
b) Bitumen and tar products;
c) Cement;
d) Epoxies;
e) Lime and other stabilizing agents;
f) Paints;
g) Timber preservatives; and
h) Asbestos cement products.

The materials to be used to construct the Works are described in the following:

a) The Project Specification

The Contractor shall take appropriate measures to manage the risks associated with the use of all materials required to complete the “Works, i.e. not only those listed above, and shall, *inter alia*, implement all the precautionary measures provided by Manufacturers and Suppliers for the storage, use and application of materials used.

C 3.4.14.7 SITE ACCESS AND ENVIRONMENTAL CONDITIONS

a) Site access, egress, deliveries and vehicular and pedestrian routes

The requirements regarding the control of access to and egress from the Site and vehicular and pedestrian routes are to be noted by the Contractor and provision is to be made to ensure the safety of all pedestrians and vehicular traffic at all times.

b) Environment

The Contractor shall ensure compliance with all current environmental legislation applicable to the Works and the Site. The Contractor is advised of the existing asbestos cement products and all necessary environmental precautions and requirements shall be adhered to in this regard.

C 3.4.14.8 USE OF SITE BY THE EMPLOYER

Any continues use of the Site required by the Employer to maintain traffic flows or to allow work to be done by other Contractors or Authorities is a requirement of this contract and the Contractor shall take due precaution in this regard.

C 3.4.14.9 SITE RULES

a) Way leaves, permissions and permits:

The Contractor shall be responsible for obtaining all the way leaves, permissions or permits applicable to working near any existing services or other infrastructure on Site and shall abide by the safety conditions imposed by such way leaves, permissions or permits.

b) Reporting of incidents:

All incidents shall be reported strictly in accordance with the requirements of the OHSA and the General Conditions of Contract.

C 3.4.14.10 HEALTH AND SAFETY PLAN

In compliance with the Construction Regulations the Contractor shall, after performing a risk assessment, prepare a Health and Safety Plan for approval by the Employer.

The Health and Safety Plan shall include, but not be limited to, the following:

a) The Safety Management Structure, including the names of all designated persons such as the Construction Supervisor and any other competent persons;

b) Safety Method Statements and procedures to be adopted to ensure compliance with the OHSA. Aspects to be dealt with shall include:

(i) Public vehicular and pedestrian traffic accommodation measures;
(ii) Control of the movement of construction vehicles;
(iii) The storage and use of materials;
(iv) The use of tools, vehicles and plant;

(v) Environmental conditions and safety requirements in working hazardous materials, including asbestos cement products;
(vi) Security, access control and the exclusion of unauthorised persons
(vii) The provision and use of temporary services;
(viii) Compliance with the way leaves, permissions and permits;
(ix) Safety equipment, devices and protective clothing to be employed;
(x) Emergency procedures;
(xi) Provision of welfare facilities;
(xii) Induction and training;
(xiii) Provision and maintenance of the Health and Safety file and other documentation;
(xiv) Arrangements for monitoring and control to ensure compliance with the safety plan.

C 3.4.14.11 AUDITS BY THE EMPLOYER

The Contractor shall permit the Employer to regularly audit, at an agreed interval, the implementation and maintenance of the approved Health and Safety Plan and shall co-operate and provide all the required documentation, as may be required, in this regard.

C 3.4.14.12 VARIATIONS

Should any variations be ordered or design amendments issued, the Engineer shall inform the Contractor of all associated potential hazards to ensure that the health and safety aspects of the work ordered are taken into account.

C 3.4.14.13 INSPECTIONS

Setting Out
Excavation
Steel (footings & Raft)
Post casting inspection
Brickwork / Super structure
Roof trusses and roof ties
Plaster
Electrical Installation and materials
Paint
Sanitary Fittings
Carpentry and Ironmongery

Approval of these approvals must be done and obtained in writing

C 3.4.14.14 INSPECTION SIGN OFF LIST

The contractor shall prepare a check list to be signed off by the responsible person to verify that each of the following items has been inspected and found meeting the specifications

- Setting out
- Excavations foundations
- Excavations for services
- Backfilling on foundations
- Backfilling on services
- Plumbing pressure and leakage testing
- Certification of Foundation
- Certification of Surface bed
- Certification of Super Structure
- Certification of Roof structure
- COC for electrical installation

- Plaster work
- Paint work
- Glazing
- Carpentry and Ironmongery
- Concrete cube tests

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

C 3.5

ANNEXURES

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 3.5 ANNEXURES

ANNEXURE A	**MONTHLY FORMS TO BE COMPLETED**
ANNEXURE B	**OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS**
ANNEXURE C	**GEOTECHNICAL INVESTIGATION & GFSH-2**

V3 CONSULTING ENGINEERS

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Human Settlement & Traditional Affairs

ANNEXURE A
MONTHLY FORMS TO BE COMPLETED

Participant's Registration Form 1 of 2

Participant's personal details

No	First Name	Initials	Surname	ID number	Gender (F/M)	Disability (Y/N)	Education level	Start Date	End Date	Cell Number

Participant's Registration Form 2 of 2

	Grants			Experience /Literacy	Location Details			Contacts & Nationality		Household Details		
No.	Beneficiary Code	Beneficiary Project Link Code	Government Grant (Y/N) and Type	First Language	District	Municipality	Physical address	Cell Number	Nationality (RSA/ Non-RSA)	Number of people in Household	Number of Dependants in Household	Number of Children attending school

Registration and Business Form

Reference No	
Profile ID	
Project Name	
PROJECT DETAILS	
Project Name	
Project Reference Number	
Project description	
Project Start Date	
Project End Date	
Estimated Budget	
Project Location	
Province	
District/Metro Municipality	
Local Municipality/Metro Region	
Latitude (in decimal format)	
Longitude (in decimal format)	
PUBLIC BODY DETAILS	
Public body sphere	
Reporting public body that is the project owner (and will report on the project)	
Implementing public body type	
Public body that will implement the project	
IDP reference number allocated to the project	
EPWP DETAILS	
EPWP Sector	
EPWP Program	
EPWP Sub programme	
Budget Amount	
April 2014/March 2015	
April 2015/March 2016	
Total Budget Amount	
Wages	
UIF	
COIDA	

Training	
Administration	
Equipment and materials	
Other	
Describe other	
OUTPUTS AND TRAINING	
Output	
Description	
Target Quantity	
Number of persons to be trained	
CONTACT PERSON	
Title	
Initials	
First Name	
Surname	
Email	
Tel (Office)	
Fax Number	
Cell Number	
Physical Address 1	
Physical Address 2	
Physical Address 3	
Physical Address 4	
Postal Address 1	
Postal Address 2	
Postal Address 3	
Postal Address 4	

Beneficiary Details

First Name	Initials	Surname	ID number	Nationality	Gender	Disability	Education	Start Date	End Date	Language ID	Address	Cell Number	Government Grant

Experience/Literacy				Location Details				Household Details		
First Language	Other Language I	Other Language 2	Highest Level of Education	Province	District	Muncipality /Village	Ward Name/Number	Number of people in Household	Number of Dependants in Household	Number of Children attending school

Payment Upload														
Initials	Surname	ID number	Date of Birth	Wage Rate	Total Paid Days	Amount Paid	Work Days	Training Days Paid	Training Days Non-Paid	Total Training Days	Training Course Id	Project Profile Id	Month	Year

Training										
ID	Course Name	Code	Type	Start	End	Number of Trainees	Number of Days	Cost	Status	Training Provider

V3 CONSULTING ENGINEERS

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ANNEXURE B
OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

HEALTH AND SAFETY SPECIFICATION

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

1. HEALTH AND SAFETY SPECIFICATION

1.1 Scope

This Health & Safety Specification has been developed to address all aspects of occupational health and safety, as affected by the proposed construction work in accordance with the provisions in the Construction Regulations.

The specification provides the requirements that the Principle Contractor and other Contractors shall have to comply with to reduce the risks associated with the construction work to a level as low as reasonably practicable.

1.2 Introduction

In terms of Construction Regulation 5(1) (b) and (c) of the Occupational Health and Safety Act, No. 85 of 1993, the Client, or his Health and Safety Agent, is required to compile a Site-Specific Health & Safety Specification for any intended project and provide such specification to the Designer as well as to any prospective tenderers.

The Client's further duties are stipulated in Clause 3, and in the Construction Regulations, published in Government Gazette No 37305 of 2014. This specification has an objective to ensure that Principle Contractors and other Contractors entering in to a Contract with the Client, achieve an acceptable level of Occupational Health & Safety performance. This document forms an integral part of the Contract and Principle Contractors should make it part of any Contracts that they may have with Contractors and/or Suppliers.

Compliance with this document does not absolve the Principle Contractor and other Contractors from complying with minimum legal requirements. All Contractors remain responsible for the health & safety of his employees, persons other than his employees in terms of Section 9 of the Occupational Health and Safety Act, No. 85 of 1993 and those of his Mandatory's

1.3 General Occupational Health and Safety Provisions

1.3.1 Hazard Identification & Risk Assessment

*1.3.1.1 **Development of Risk Assessments***

Every Contractor shall appoint a competent person in writing to perform a Risk Assessment before the commencement of any Construction work. This Risk Assessment shall form part of the Occupational Health and Safety Plan and be implemented and maintained as contemplated in Construction regulation 5(1).

The Risk Assessment shall include at least the following:

- the identification of the risks and hazards to which persons may be exposed to
- the analysis and evaluation of the identified risks and hazards
- a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified
- a monitoring plan, and
- a review plans
- material safety data sheets

Based on the Risk Assessments, the Contractor must develop a set of site-specific Occupational Health & Safety rules that will be applied to regulate the Occupational Health & Safety aspects of the construction. The Risk Assessments, together with the site-specific Occupational Health & Safety rules shall be submitted to the Client before mobilisation on site commences.

The Contractor is required to conduct a baseline Risk Assessment of the risks he anticipates encountering during the project. The baseline Risk Assessment must include the Standard Working Procedures (SWP) and the applicable Method Statements based on the Risk Assessments.

1.3.1.2 ***Review of Risk Assessments***

The Contractor is to review the Hazard Identification, Risk Assessments and Safe Work Procedure's at each Production Planning and Progress Report meeting as the Contract work develops and progresses and each time changes are made to the designs, plans and construction methods and processes [monthly].

The Contractor shall provide the Client, other Contractors and all other concerned-parties with copies of any changes, alterations or amendments brought about by the above.

1.3.2 Legal Requirements

All Contractors entering into a Contract with the Client**,** shall, as a minimum, comply with the:

- Occupational Health & Safety Act and Regulations (Act 85 of 1993). **A current, up-to-date copy of the Occupational Health Safety Act shall be available on site always**.
- Compensation for Occupational Injuries & Diseases Act (Act 130 of 1993). The principle Contractor will be required to submit a letter of Registration and "good-standing" from the Compensation Insurer before being awarded the Contract. **A current, up-to-date copy of the Compensation for Occupational Injury and Diseases Act (COIDA) shall be available on site at all times.**
- The Client must determine the competency of Contractors/persons he allows (authorise) to enter such premises.

1.3.3 Structure and Responsibilities

1.3.3.1 ***Overall Supervision and Responsibility for Occupational Health and Safety***

- The Client is to ensure that the Contractor, appointed in terms of Construction Regulation 5(1) (k), implements and maintains the agreed and approved Occupational Health & Safety Plan.

- The Chief Executive Officer of the Contractor, in terms of Section 16(1) of the Act, is to ensure that the Employer (as defined in the Act) complies with the Act. Annexure 5. "Audit System" may be used for this purpose.

- It is a requirement that the Contractor, when he appoints Contractors in terms of Construction Regulations 7 includes an Occupational Health & Safety Act Section 37(2) agreement (“Agreement with Mandatory”) in his agreement with such Contractors.

- Every project must have an Occupational Health & Safety Act (85 /1993), Section 16(2) Appointee.

- The client must ensure that the contractor appoints a Construction Supervisor and Assistant Construction Supervisor in terms of Construction Regulation 8(8).

1.3.3.2 ***Further (Specific) Supervision Responsibilities for Occupational Health & Safety***

The Contractor shall appoint designated competent employees and/or other competent persons as required by the Act and Regulations. The appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information must be communicated and agreed with the appointees.

1.3.3.3 ***Designation of* Occupational Health & Safety *Representatives* (Section 18 of the Occupational Health & Safety Act)**

The Contractors shall ensure Occupational Health & Safety Representatives are appointed for every workplace where employees (including the employees of other Contractors) are exposed to risk.

Occupational Health & Safety Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

The Contractor shall ensure that the designated OH&S Representatives conduct an inspection of their respective areas of responsibility using a checklist and report thereon.

Occupational Health & Safety representatives shall be included in accident/incident investigations and must attend all Occupational Health & Safety committee meetings.

1.3.4 Administrative Controls and the Occupational Health & Safety File

1.3.4.1 ***The* Occupational Health & Safety *File***

As required by Construction Regulation 7(1)(b), the Principal Contractor and other Contractors will each keep an updated Occupational Health & Safety File on site containing the following documents as a minimum:

- Permit to construct Notification of Construction Work (Construction Regulations 4)
- Copy of Occupational Health & Safety Act (updated) (Gen Administrative Regulation 4)
- Proof of Registration and good standing with a COID Insurer (Construction Regulation 5(1) (j)
- Occupational Health & Safety Programme/Plan agreed with the Client including the underpinning Risk Assessment/s & Method Statements (Construction Reg 5(1)(q)
- Copies of Occupational Health & Safety Committee and other relevant Minutes
- Designs/drawings
- A list of Contractors including copies of the agreements between the parties (Section 37(2) agreement in terms of the OHS act) and the type of work being done by each Contractor
- Appointment/Designation forms (For example H&S rep, first aider etc.)
- Electrical Installations, -Equipment & -Appliances including temporary certificate of compliance
- All other applicable records

1.3.5 OH&S Goals & Objectives & Arrangements for Monitoring & Review of Occupational Health and Safety Performance

The Contractor is required to report all incidents to the Project Manager/Client. The Project manager must also submit an up to date report regarding all incidents to the Head, OHS.

1.3.6 Notification of Construction Work

The Contractors shall, where the Contract meets the requirements laid down in Construction Regulation 4, notify the Department of Labour at least 7 days before the commencement of work of the intention to carry out construction work.

A copy must be held on the Occupational Health & Safety File and included into the project file.

1.3.7 Training, Awareness and Competence

1.3.7.1 ***General Induction Training***

All persons on site are to attend a general induction session presented by the Contractor.

All persons on the site shall be in possession of documentation/proof that they have undergone General Induction training.

The Contractor will be required to develop project specific induction training based on the Risk Assessments for the Contract work and train all employees and other Contractors and their employees in this.

1.3.7.2 ***Other Training***

All operators, drivers and users of construction vehicles, mobile plant and other equipment (for example overhead cranes) shall be in possession of documentation proving that they have undergone training to operate said vehicles, plant and equipment.

All employees in jobs requiring training in terms of the Act and Regulations shall be in possession of valid proof of training as required in the portfolio of evidence of the contractor.

1.3.7.3 ***Awareness & Promotion***

The Contractor is required to have scheme in place to promote an Occupational Health & Safety awareness and culture in employees. The following are some of the methods that may be used:

- Toolbox Talks
- Occupational Health & Safety Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as Occupational Health & Safety circles.

1.3.7.4 ***Competence***

The Contractor shall ensure that all appointed staff is competent and that all training required to do the work safely and without risk to health, has been completed before work commences.

The Contractor shall ensure that follow-up and refresher training is conducted as the contract work progresses and the work situation change. Records of all training shall be kept on the Health & Safety file for auditing purposes.

1.3.8 Consultation, Communication and Liaison

Occupational Health & Safety Liaison between the Client, Principal Contractor, other Contractors, Designer and other concerned parties will be through the Client/Project Manager. In addition to the above, communication may be directly with the Client or his appointed Agent, verbally or in writing, as and when the need arises.

The Principle Contractor will be required to do Site Safety Audits with the Client/Project Manager on a basis to be determined between the two parties.

1.3.9 Checking, Reporting and Corrective Actions

3.3.9.1 ***Monthly Audit by Client*** **(Construction Regulation 4(1)(d)**

The **Client or his agent** will conduct minimum monthly audits to comply with Construction Regulation 5(1) (o) to ensure that the Contractor has implemented and is maintaining the agreed and approved Occupational Health & Safety Plan.

The Contractor is to conduct his own minimum monthly internal audits to verify compliance with his own Occupational Health & Safety plan.

The Occupational Health & Safety Representative is to conduct monthly inspections of their areas of responsibility and report thereon to their supervisor

All the results of the abovementioned inspections shall be in writing, reviewed, endorsed and placed on the Occupational Health & Safety File.

1.3.10 Incident Reporting and Investigation

1.3.10.1 ***Reporting of Accidents and Incidents***

The Contractor shall report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

to the **Client** and to the Provincial Director of the Department of Labour forthwith (Section 24 of the Act & General Administrative Regulation 8.)

The Contractor is required to provide the **Client** with copies of all internal and external accident/incident investigation as well as all statutory reports required in terms of the Act within 7 days of the incident occurring.

1.3.10.2 ***Accident and Incident Investigation***

The Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic and the results of the investigation shall be entered into the Accident/Incident Register.

The Contractor is responsible for the investigation of all minor, non-injury incidents and near misses. The Client reserves the right to hold its own investigation into an incident or call for an independent external investigation.

1.3.11 Operational Control

1.3.11.1 **Emergency Preparedness, Contingency Planning and Response**

The Contractor shall appoint a competent person to act as Emergency Coordinator.

The Contractor shall conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures.

1.3.11.2 **First Aid**

The Contractor shall provide relevant First Aid equipment and have qualified First Aider/s on site as required by General Safety Regulation 3 of the Occupational Health & Safety Act.

1.3.11.3 **Security**

The Contractor shall develop, implement and maintain Security- and Site Access Control rules and procedures throughout the construction period. Access control shall include the rule that non-employees will not be allowed on site unaccompanied.

1.3.11.4 **Fall Protection (Working in Elevated Positions)**

Any work undertaken at height above ground level higher than two metres or any floor level will be classified as "Work in Elevated Positions" and a pre-emptive Risk Assessment shall be carried out.

Workers working in elevated positions shall be trained to do this safely, without risk and compliant with legislation.

Risk Assessment shall take the possibility into account of persons falling through fragile material, skylights and other openings in the roof.

1.3.11.5 **Structures**

The Contractor shall ensure that:

- Steps are taken to ensure that no structure becomes unstable or collapses due to construction work being performed on it or in the vicinity of it
- No structure is overloaded to the extent where it becomes unsafe
- He/she has received from the designer the following information:
- Information on known or anticipated hazards relating to the construction work and the relevant information required for the safe execution of the construction work.
- A geo-scientific report (where applicable)
- The loading the structure is designed to bear
- The methods and sequence of the construction process
- All drawings pertaining to the design are on site and available for inspection

1.3.11.6 **Temporary Works**

Temporary work shall be carried out under the supervision of a competent person designated in writing to do so.

All drawings pertaining to the temporary work shall be kept available on site. A competent person shall check all equipment used in the erection of temporary work before it is used.

1.3.11.7 **Access Scaffolding**

Access Scaffolding shall be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 085 entitled, "The Design, Erection, Use & Inspection of Access Scaffolding.

Detailed consideration shall be given to all scaffolding to ensure that it is properly planned to meet the working requirements.

Scaffolding may only be erected, altered or dismantled by a person who has adequate training and experience in this type of work or under the supervision of such a person (Proof of competence to be put on the OHS File).

1.3.11.8 **Construction Vehicles & Mobile Plant (CV&MP)**

All Construction Vehicles and Mobile Plant shall be inspected by the Contractor prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the Occupational Health & Safety Act and Regulations.

No unauthorised persons are to be allowed to drive CV&MP. Operators/drivers of CV&MP shall be competent to operate the equipment safely and be in possession of a valid medical certificate issued by an Occupational Medicine Practitioner testifying that the holder is physically and psychologically fit to operate the equipment.

1.3.11.9 **Electrical Installations**

Temporary electrical installations shall be carried out by competent persons, and controlled by a competent person that has been appointed to do so in writing, in accordance with Construction Regulation 24 and the Electrical Installation Regulations. Temporary electrical installations shall be inspected at least once per week by a competent person and a record of the inspections kept in the Occupational Health & Safety File.

The Contractor shall ensure that:

- existing electrical services are located and marked before construction commences and during the progress thereof. Where this is not possible, workers with jackhammers etc. are to be protected against electric shock by the use of suitable protective equipment like insulated handles, rubber mats etc.

- electrical installations and -machinery are sufficiently robust to withstand working conditions on site.
- all electrical machinery used on site are inspected before start-up on a daily basis by a competent person and that a record of the inspection is kept in the Occupational Health & Safety File.

An electrical and mechanical lock-out procedure for the construction site shall be developed by the Principle Contractor and submitted for approval by the Project Manager before construction commences. This lock-out procedure shall be adhered to by all Contractors on site.

1.3.11.10 **Housekeeping**

The Contractor shall ensure that good housekeeping practises are implemented so that:

- an unimpeded work space is maintained for every employee.
- the walls and roof of every indoor workplace is sound and leak-free.
- every workplace is kept clean, orderly and free of tools and materials that is not required for the work being done.
- every floor, walkway, stair, passage and gangway is kept in a good state of repair, skid-free and free of obstruction, waste and materials.
- catch platforms or -nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects.
- openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling through or off them.
- materials and equipment are stored properly.
- materials ready for use is placed safely and not allowed to accumulate or cause an obstruction to pedestrian and vehicular traffic.
- Scrap, waste and debris is removed regularly and in a safe manner.
- construction sites are fenced off to prevent entry by unauthorised persons.

1.3.11.11 **Eating-, Changing-, Washing- and Toilet Facilities**

Eating facilities should be provided in a location that is sheltered from the elements.
Adequate changing-, washing – and toilet facilities shall be provided for both sexes.
At least 1 shower per 15 workers and 1 toilet per 30 workers shall be provided. Chemical toilets may be used instead of the water borne sewerage type.

1.3.11.12 **Personal & Other Protective Equipment**

The Contractor shall identify the hazards in the workplace and endeavour to eliminate them. Where this is not possible, suitable steps shall be taken to protect workers from these hazards. Engineering- and other solutions to mitigate the hazard(s) should be attempted before the issue of **personal protective equipment (PPE)** is considered.

The Contractor is required to inform employees of health and safety hazards and issue them with suitable equipment to protect them from these hazards. It is a further requirement that the Contractor maintains the equipment and instructs and train employees in the use of the equipment. Employees do not have the right to refuse to use/wear safety equipment.

1.3.11.13 **Portable Electrical Tools & Equipment**

Portable electrical tools and equipment is defined as units taking electrical power from 220Volt 15 Amp power outlets and is moved around the workplace to perform work like drilling, sawing, grinding etc. and also include portable lights. Electrical appliances, on the other hand, include items like fridges, stoves and heaters.

1.3.11.14 **Public Health & Safety**

The Contractor is responsible for ensuring that non-employees affected by the construction work, like visitors, the surrounding community and passers-by, are made aware of the dangers likely to arise from the construction work as well as the precautionary measures to be observed to avoid or minimise these dangers. Appropriate signage must be posted to this effect and all employees on site shall be instructed to ensure that non-employees are protected at all times. All non-employees entering the site must receive induction into the hazards and risks and the control measures.

Annexure "A"

CONSTRUCTION OCCUPATIONAL HEALTH - SAFETY – RISK ASSESSMENT

Denotes items applicable to both Construction sites and Contractors Plant/Storage Yards

ELEMENT	REMARKS
1. Administrative & Legal Requirements	• Dept. of labour will be notified – Annexure 2 • Updated copy of OHS Act will be available on site • All legally required appointments will be made as specified in the OHS Act and Construction Regulations • Site specific health and safety specification will be drawn up and provided to all prospective tendering contractors • Site specific risk assessment will be conducted and monitored and reviewed on a regular basis • Written proof of registration and good standing of contractor with COID will be obtained • Health and safety committee will be established and meetings conducted • All contractors will be required to enter into a Section 37(2) agreement • All incidents/accidents will be reported and investigated as required • Detailed and site-specific fall protection plan will be drawn up and implemented – Employees fitness to work at heights will be determined and records kept • Cherry pickers will be load tested and valid load test certificates will be kept on file – Regular safety inspections by competent persons done and records kept • Only persons medically tested in the form of Annexure 3 of the Construction Regulations and declared medically fit for the type of construction work to be done will be allowed to work on site • All excavations will be inspected by a competent person before every shift as required, edges will be sloped to at least the angle of repose, the excavations will be substantially barricaded and egress will be provided at least every 6 metres • Demolition work will be carried out under the supervision of a competent person, detailed and site specific risk assessment will be carried out and engineering survey and method statement will be available on site

	• Inspections to prevent premature collapse will be carried out by competent person before each shift. Inspection register kept • Cranes/Lifting Machines & equipment will be operated under the supervision of a competent person • Valid load test certificates and 3 monthly inspection records of all lifting tackle will be kept on site • Emergency and fire protection plan will be drawn up and displayed, emergency teams trained and available • All the legally required first aid equipment will be provided and clearly located - Trained and qualified first aiders available on site • Assessment will be conducted to determine the personal protective equipment requirements, all equipment issued free of charge and the wearing of the equipment will be strictly enforced • Gas welding/cutting equipment only used by competent persons and equipment placed on register and inspected regularly to ensure its safety • Alphabetical list of all chemicals on site will be drawn up and material safety data sheets for all hazardous substances obtained – first aiders will be trained in the correct first aid measures to be taken in case of injury or illness caused by hazardous chemicals • All construction vehicles will be inspected daily before start up and only operated by operators who are competent and medically fit to do so
2. Education, Training & Promotion	• **All employees entering the site will be required to undergo a site specific health and safety induction training programme – A copy of the site rules will also be made available to them** • **Relevant employees will receive specific safety training such a training in the safe work procedures for plant, equipment and substances they are required to use** • **All visitors to the site will be given induction training and will only be allowed on the site if they are accompanied by a member of the site staff** • **Specific training will include inter alia first aid training, general safety training, firefighting training, operator training**

3. Public Safety & Emergency Preparedness	• **Signage will be used to limit access to the site – "No unauthorised entry", "Visitors to report to site office" and other relevant signage will be used** • **General signage warning of overhead work and other hazards on site will be deployed** • **Netting or other measures will be used to protect persons from falling objects** • **Security measures such as patrols to prevent unauthorised entry as well as an entry register will placed in use**
4. Personal Protective Equipment	• Assessment will be conducted to determine the personal protective equipment required on site • All equipment will be issued free of charge and the wearing thereof strictly enforced – this will also count for visitors to the site
5. Housekeeping	• Removal of rubble will form part of the project – Rubble to be crushed and removed by truck to predetermined dump site • High standards of housekeeping will be enforced on all contractors
6. Scaffolding, Formwork & Support work	All legal requirements to be addressed and adhered to
7. Ladders	All legal requirements to be addressed and adhered to
8. Electrical Safeguarding	All legal requirements to be addressed and adhered to
9. Emergency/Fire Prevention & Protection	• Sufficient firefighting equipment will be provided, correctly located and clearly signposted • Emergency plan will be formulated for evacuation and published
10. Excavations & Demolition	• Demolition work will be carried out under the supervision of a competent person, detailed and site specific risk assessment will be carried out and engineering survey and method statement will be available on site • Inspections to prevent premature collapse will be carried out by competent person before each shift. Inspection register kept • All excavations will be inspected by a competent person before every shift as required, edges will be sloped to at least the angle of repose, the excavations well be substantially barricaded and egress will be provided at least every 6 metres

	• All excavations will be inspected by a competent person before every shift as required, edges will be sloped to at least the angle of repose, the excavations will be substantially barricaded and egress will be provided at least every 6 metres
11. Tools	• All hand tools will be in good condition and will be inspected regularly for safety – Findings will be entered into a register kept for this purpose
12. Cranes	• Cranes/Lifting Machines & equipment will be operated under the supervision of a competent person • Valid load test certificates and 3 monthly inspection records of all lifting tackle will be kept on site
13. Personnel & Material Hoists	• Cherry pickers will be load tested and valid load test certificates will be kept on file – Regular safety inspections by competent persons done and records kept – Only persons medically tested for physical and psychological fitness and declared competent will be allowed to work on cherry pickers
14. Transport & Materials Handling	• All construction vehicles will be inspected daily before start up and only operated by operators who are competent and medically fit to do so
15. Site Plant & Machinery	• All construction vehicles will be inspected daily before start up and only operated by operators who are competent and medically fit to do so
16. Plant & Storage Yards/Site Workshops Specifics	• Good housekeeping practices and environmental protection to be practiced as far as is reasonably practicable
17. Health & Hygiene	• All hygiene facilities such as toilets, eating areas, change rooms and the like will be provided in line with the Facilities Regulations and the Construction Regulations and will be kept in a clean and hygienic condition

1. ADMINISTRATIVE & LEGAL REQUIREMENTS

OHS ACT SECTION / REGULATION	SUBJECT	REQUIREMENTS	YES / NO
Construction. Regulation 4	**Notice of carrying out Construction work**	Department of Labour notified Copy of Notice available on Site	Yes
General Admin. Regulation 4	***Copy of OH&S Act (Act 85 of 1993)**	Updated copy of Act & Regulations on site. Readily available for perusal by employees.	Yes
COID Act Section 80	***Registration with Compensation Insurer**	Written proof of registration/Letter of good standing available on Site	Yes
Construction. Regulation 5, 6 & 7	**A.1.1 OH&S Specification & Programme**	OH&S Spec received from Client OH&S programmed developed Updated regularly	Yes
Section 8(2)(d) Construction. Regulation 5, 6 & 7	**A.1.2 *Hazard Identification & Risk Assessment**	Hazard Identification carried out/Recorded Risk Assessment and – Plan drawn up/Updated RA Plan available on Site Employees/Sub-Contractors informed/trained	Yes
Section 16(2)	***Assigned duties (Managers)**	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.	Yes
Construction. Regulation 7	**Designation of Person Responsible on Site**	Competent persons appointed in writing as Construction Managers and Supervisors	Yes
Section 17 & 18 General Administrative Regulations 6 & 7	***Designation of Occupational Health & Safety Representatives**	More than 20 employees - one OH&S Representative, one additional OH&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful OH&S Rep. reports. Reports actioned by Management.	Yes
Section 19 & 20 General Administrative Regulations 5	***Occupational Health & Safety Committee/s**	OH&S Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by Management.	Yes
Section 37(1) & (2)	***Agreement with Mandataries/ Sub-Contractors**	Written agreement with(Sub- Contractors) List of (Sub-) Contractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Supervisor designated Written arrangements re. OH&S Reps & OH&S Committee Written arrangements re. First Aid	Yes

Section 24 & General Admin. Regulation 8 COID Act Sect.38, 39 & 41	***Reporting of Incidents (Dept. of Labour)**	Incident Reporting Procedure displayed. All incidents in terms of Sect. 24 reported to the Provincial Director, Department of Labour, within 3 days. (Annexure 1)(WCL 1 or 2) Cases of Occupational Disease Reported Copies of Reports available on Site Record of First Aid injuries kept	Yes
General Admin Regulation 9	***Investigation and Recording of Incidents**	All injuries which resulted in the person receiving medical treatment other than first aid, recorded and investigated by investigator designated in writing. Copies of Reports (Annexure 1) available on Site Tabled at OH&S Committee meeting Action taken by Site Management.	Yes
Construction. Regulation 10	**Fall Prevention & Protection**	Competent person appointed to draw up and supervise the Fall Protection Plan Proof of appointees competence available on Site Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site	Yes
Construction. Regulation 10(5)	**A.1.3 Roof work**	Competent person appointed to plan & supervise Roof work. Proof of appointees competence available on Site Risk Assessment carried out Roof work Plan drawn up/updated Roof work inspect before each shift. Inspection register kept Employees medically examined for physical & psychological fitness. Written proof on site	Yes
Construction. Regulation 11	**Structures**	Information re. the structure being erected received from the Designer including: - geo-science technical report where relevant - the design loading of the structure - the methods & sequence of construction - anticipated dangers/hazards/special measures to construct safely Risk Assessment carried out Method statement drawn up All above available on Site Structures inspected before each shift. Inspections register kept	Yes

Construction. Regulation 12	**Temporary work**	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of Support & Formwork Design drawings available on site Risk Assessment carried out Support & Formwork inspected: - before use/inspection - before pouring of concrete - weekly whilst in place - before stripping/dismantling. Inspection register kept	Yes
Construction. Regulation 16	**A.1.4 Scaffolding**	Competent persons appointed in writing to: - erect scaffolding (Scaffold Erector/s) - act as Scaffold Team Leaders - inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Written Proof of Competence of above appointees available on Site Copy of SABS 085 available on Site Risk Assessment carried out Inspected weekly/after bad weather. Inspection register/s kept	Yes
Construction. Regulation 17	**A.1.5 Suspended Platforms**	Competent persons appointed in writing to: - control the erection of Suspended platforms - act as Suspended platforms Team Leaders - inspect Suspended Scaffolding weekly and after inclement weather Risk Assessment conducted. Certificate of Authorisation issued by a registered professional engineer available on Site and a copy forwarded to the Department of Labour. The following inspections of the whole installation carried out by a competent person - after erection and before use - daily prior to use. Inspection register kept The following tests to be conducted by a competent person: - load test of whole installation and working parts every 12 months - hoisting ropes/hooks/load attaching devices quarterly. Tests log book kept. Employees working on Suspended Platform shall be medically examined for physical & psychological fitness and written proof thereof shall be available.	Yes

Construction. Regulation 13	**A.1.6 Excavations**	Competent person/s appointed in writing to supervise and inspect excavation work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used	Yes
Construction. Regulation 14	**A.1.7 Demolition Work**	Competent person/s appointed in writing to supervise and control Demolition work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Engineering survey and Method Statement available on Site Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept	Yes
Construction. Regulation 19	**A.1.8 Materials Hoist**	Competent person appointed in writing to inspect the Material Hoist Written Proof of Competence of above appointee available on Site. Materials Hoist to be inspected weekly by a competent person. Inspections register kept.	Yes
Construction. Regulation 22/ Driven Machinery Regulations 18 & 19	**A.1.9 Cranes & Lifting Machines Equipment**	Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment. Written Proof of Competence of above appointee available on Site. Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - **daily by operator** - Tower Crane/s - **after erection/6monthly** - Other cranes - **annually by comp. person** - Lifting tackle(slings/ropes/chain slings etc.) - **3 Monthly**	Yes

Construction. Regulation 24/Electrical Machinery Regulations 9 & 10/ Electrical Installation Regulations	***Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)**	Competent person appointed in writing to inspect/test the installation and equipment. Written Proof of Competence of above appointee available on Site. Inspections: - Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools and -lights and extension leads identified/numbered. Monthly visual inspection by User/Issuer/ Storeman. Register kept.	Yes
Construction. Regulation 28/ General Safety Regulation 8(1)(a)	***Designation of Stacking & Storage Supervisor**.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site	Yes
Construction. Regulation 29/ Environmental Regulation 9	**A.1.10 *Designation of a Person to Co-ordinate Emergency Planning** **A.1.11 And Fire Protection**	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on ***register***. Inspected weekly. Inspection Register kept Serviced annually	Yes
General Safety Regulation 3	***First Aid**	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aiders and Certificates Name of person/s in charge of First Aid box/es displayed. Location of F/Aid box/es clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries.	Yes
General Safety Regulation 2	**Personal Safety Equipment (PSE)**	PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PSE	Yes

General Safety Regulation 9	***Inspection & Use of Welding/Flame Cutting Equipment**	Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site Equipment identified/numbered and entered into a register Equipment inspected monthly. Inspection Register kept	Yes
Hazardous Chemical Substances **(HCS)** Regulations Construction Regulation 29	***Control of Storage & Usage of HCS and Flammables**	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of **HCS** (including Flammables) Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site	Yes
Vessels under Pressure Regulations	**Vessels under Pressure (VUP)**	Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP's Written Proof of Competence of above appointee available on Site Risk Assessment carried out Certificates of Manufacture available on Site Register of VUP's on Site Inspections & Testing by Approved Inspection Authority (AIA): - after installation/re-erection or repairs - every 36 months. - Register/Log kept of inspections, tests. Modifications &repair	
Construction. Regulation 23	**Construction Vehicles & Earth Moving Equipment**	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site Record of Daily inspections kept	Yes
General Safety Regulation 13A	***Inspection of Ladders**	Competent person appointed in writing to inspect Ladders Ladders inspected at arrival on site and monthly thereafter. Inspections register kept	Yes
General Safety regulation 13B	**A.1.12 Ramps**	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.	N/A

2. EDUCATION & TRAINING

SUBJECT	REQUIREMENT	YES / NO
***Company OH&S Policy Section 7(1)	Policy signed by CEO and published/Circulated to Employees Policy displayed on Employee Notice Boards Management and employees committed.	Yes
***Company/Site OH&S Rules (Section 13(a)	Rules published Rules displayed on Employee Notice Boards Rules issued and explained to employees: written proof Follow-up to ensure employees understand/adhere to the rules.	Yes
***Induction & Task Safety Training (Section 13(a)	All new employees receive OH&S Induction Training. Training includes Task Safety Instructions. Employees acknowledge receipt of training. Follow-up to ensure employees understand/adhere to instructions.	Yes
***General OH&S Training (Section 13(a)	All employees receive basic OH&S training: written proof Operators of Plant & Equipment receive specialised training Follow-up to ensure employees understand/adhere to instructions.	Yes
***Occupational Health & Safety Promotion	<u>Incident Experience Board indicating e.g.</u> Number of hours and days worked without an Injury Star Grading - Board kept up to date. Safety Posters displayed & changed regularly Employee Notice Board for OH&S Notices. Site OH&S Competition. Company OH&S Competition. Participation in Regional OH&S Competition. Suggestion scheme.	Yes

3. PUBLIC SAFETY, SECURITY MEASURES & EMERGENCY PREPAREDNESS

SUBJECT	REQUIREMENT	YES /NO
***Notices &Signs**	Notices & Signs at entrances / along perimeters indicating **"No Unauthorised Entry".** Notices & Signs at entrance instructing visitors and non - employees what to do, where to go and where to report on entering the site/yard with directional signs. e.g. **"Visitors to report to Office"** Notices & Signs posted to warn of overhead work and other hazardous activities. e.g. **General Warning Signs**	Yes
SUBJECT	**REQUIREMENT**	**YES /NO**
Site Safeguarding	Nets, Canopies, Stulls, Fans etc. to protect members of the public passing / entering the site.	Yes
***Security Measures**	Access control measures/register in operation Security patrols after hours/weekends Sufficient lighting after dark Guard has access to telephone/other means of emergency communication	Yes
***Emergency Preparedness**	Emergency contact numbers displayed near Telephone Emergency Evacuation instructions posted up on all notice boards (including employees' notice boards) Emergency contingency plan available on site/in yard Doors open outwards/unobstructed Emergency alarm audible all over (including in toilets)	Yes
***Emergency Drill & Evacuation**	Adequate No. of employees trained to use Fire Equipment. Emergency Evacuation Plan available displayed and practised.	Yes

4. PERSONAL PROTECTIVE EQUIPMENT

Subject	Requirement	Yes/No
*****PPE needs analysis	Need for PPE identified and prescribed in writing.	Yes
*****Head Protection	All persons on site wearing Safety Helmets including Sub-contractors and Visitors (where prescribed)	Yes
*****Foot Protection	All persons on site wearing Safety Footwear including Gumboots for concrete / wet work and non-slip shoes for roof work.	Yes
*****Eye and Face Protection	Eye and Face Protection (Goggles, Face Shields, Welding Helmets etc.) used when operating the following: * Cable jointing (lead sweating only) * Jack/ Kango Hammers * Angle / Bench Grinders * Electric Drills (Overhead work into concrete / cement / bricks * Explosive Powered tools * Concrete Vibrators / Pokers * Hammers & Chisels * Cutting / Welding Torches * Arc Welding Equipment * Skill / Bench Saws * Spray Painting Equipment etc.	Yes
*****Hearing Protection	Hearing Protectors (Muffs, Plugs etc.) used when operating the following: * Jack / Kango Hammers * Explosive Powered Tools * Wood/Aluminium Working Machines e.g. saws, planers, routers	Yes
*****Hand Protection	Protective Gloves worn by employees handling / using: using: * Cable jointing * Cement / Bricks / Steel / Chemicals * Welding Equipment * Hammers & Chisels * Jack / Kango Hammers etc.	Yes

*****Respiratory Protection	Suitable/efficient Respirators worn correctly by employees handling / using: * Cable jointing (lead fumes) * Dry cement * Dusty areas * Hazardous chemicals * Angle Grinders * Spray Painting etc.	Yes
*****Fall Prevention Equipment	Suitable Safety Belts / Fall Arrest Equipment correctly used by persons working on / in unguarded, elevated positions e.g.: * Scaffolding * Riggers * Lift shafts * Edge work * Ring beam edges etc. Other methods of fall prevention applied e.g. catch nets	Yes
*****Protective Clothing	All jobs requiring protective clothing (Overalls, Rain Wear, Welding Aprons etc.) Identified and clothing worn. Fire retardant and flash proof clothing for all work inside a substation.	Yes
*****PPE Issue & Control	Identified Equipment issued free of charge. All PPE maintained in good condition. (Regular checks). Workers instructed in the proper use & maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on file.	Yes

5. HOUSEKEEPING

Subject	Requirement	Yes / No
*****Scrap Removal System	All items of Scrap / Unusable Off cuts / Rubble and redundant material removed from working areas on a regular basis. (Daily). Scrap / Waste removal from heights by chute / hoist / crane. (Nothing thrown / swept over sides). Scrap disposed of in designated containers / areas. Removal from site/yard on a regular basis.	Yes
Stacking & Storage **(See Section 1 for Designation & Register)**	<u>Stacking:</u> * Stable/* On firm level surface / base. * Not leaning / collapsing. * Irregular shapes bonded. * Not exceeding 3 x the base. * Stacks accessible * Removal from top only <u>Storage:</u> * Adequate storage areas provided. * Functional - e.g. demarcated storage areas/racks / bins etc. * Special areas identified and demarcated. E.g. Flammable Gas, Cement etc. * Neat, safe, stable and square. * Store/storage areas clear of superfluous material. * Storage behind sheds etc. neat/under control * Storage areas free from weeds, litter etc.	Yes
*****Waste Control/Reclamation	Re-usable Off cuts and other re-useable material removed daily and kept to a minimum in the work areas. All re-useable materials neatly stacked / stored in designated areas. (Nails removed / bent over in re-useable timber). Issue of hardware / nails / Screws / cartridges etc. controlled and return of unused items monitored.	Yes
Sub-Contractors (Housekeeping)	Sub-contractors required complying with Housekeeping requirements.	Yes

6. WORKING AT HEIGHTS (including Roof work)

Subject	Requirement	Yes/No
Openings	Unprotected openings adequately guarded/fenced/barricaded/catch nets installed	Yes
	Roof work discontinued when bad/hazardous weather Fall protection measures (including warning notices) when working close to edges or on fragile roofing material Covers over openings in roof of robust construction/secured against displacement	Yes

7. SCAFFOLDING / FORMWORK / SUPPORT WORK

Subject	Requirement	Yes/No
Access/System Scaffolding	Foundation firm / stable Sufficient bracing. Tied to Structure/prevented from side or cross movement Platform boards in good condition/sufficient/secured. Handrails and toe boards provided. Access ladders / stairs provided. Area/s under scaffolding tidy. Safe/unsafe for use signs Complying with OH&S Act/SABS 085	Yes
Free Standing Scaffolding	Foundation firm / stable Sufficient bracing. Platform boards in good condition/sufficient/secured. Handrails and toe boards provided. Access ladders / stairs provided. Area/s under scaffolding tidy. Safe/unsafe for use signs Height to base ratio correct Outriggers used /tied to structure where necessary Complying with OH&S Act/SABS 085	Yes

*****Mobile Scaffolding	Foundation firm / stable Sufficient bracing. Platform boards in good condition/sufficient/secured. Handrails and toe boards provided. Access ladders / stairs provided. Area/s under scaffolding tidy. Safe/unsafe for use signs	Yes
*****Mobile Scaffolding	Wheels / swivels in good condition Brakes working and applied. Height to base ratio correct. Outriggers used where necessary Complying with OH&S Act/SABS 085	Yes
Suspended Scaffolding	Outriggers securely supported and anchored. Correct No. of steel wire ropes used. Platform as close as possible to the structure. Handrails on all sides All winches / ropes / cables / brakes inspected regularly. Scaffolding complies with OHS Act (Act 85/93) Winches maintained by competent person	Yes
Temporary Work	All components in good condition. Foundation firm / stable. Adequate bracing / stability ensured. Good workmanship / uprights straight and plumb. Good cantilever construction. Safe access provided. Areas under support work tidy. Same standards as for system scaffolding.	Yes
Special Scaffolding	Special Scaffolding e.g. Cantilever, Jib and Truss-out scaffolds erected to an acceptable standard and inspected by specialists.	Yes
Edges & Openings	Edges barricaded to acceptable standards. Manhole openings covered / barricaded. Openings in floor / other openings covered, barricaded/fenced. Stairs provided with handrails. Lift shafts barricaded / fenced off.	Yes

8. LADDERS

Subject	Requirement	Yes/No
*****Physical Condition / Use & Storage	Stepladders - hinges/stays/braces/stiles in order. Extension ladders - ropes/rungs/stiles/safety latch/hook in order. Extension / Straight ladders secured or tied at the bottom / top. No joined ladders used All ladders stored on hooks / racks and not on ground. Ladders protrude 900 mm above landings / platforms / roof. Fixed ladders higher than 5 m have cages/Fall arrest system	Yes

9. ELECTRICITY

Subject	Requirement	Yes/No
***Electrical Distribution Boards & Earth Leakage	Colour coded / numbered / symbolic sign displayed. Area in front kept clear and unobstructed. Fitted with inside cover plate / openings blanked off / no exposed "live" conductors / terminals/Door kept close Switches / circuit breakers identified. Earth leakage protection unit fitted and operating. Tested with instrument: Test results within 15 – 30 milli-amps Aperture/Opening/s provided for the plugging in and removal of extension leads without the need to open the door	Yes
***Electrical Installations & Wiring	Temporary wiring / extension leads in good condition / no bare or exposed wires. Earthing continuity / polarity correct: **" Brown is live, Blue is not, Green and Yellow earth the lot"** Cables protected from mechanical damage and moisture. Correct loading observed e.g. no heating appliance used from lighting circuit etc. Light fittings/lamps protected from mechanical damage/moisture.	Yes
***Physical condition of Electrical Appliances & Tools	Electrical Equipment and Tools: (includes all items plugging in to a 15 Amp supply socket) Insulation / casing in good condition. Earth wire connected/intact where not of double insulated design Double insulation mark where no earth wire. Cord in good condition/no bare wires/secured to machine & plug. Plug in good condition, connected correctly and correct polarity.	Yes

10. EMERGENCY/FIRE PREVENTION AND PROTECTION

Subject	Requirement	Yes/No
*****Fire Extinguishing Equipment	Fire Risks Identified and on record Fire Extinguishing Equipment available for: * Offices * General Stores * Flammable Store * Fuel Storage Tank/s * Gas Welding / Cutting operations * Where flammable substances are being used / applied.	Yes
*****Maintenance	Fire equipment serviced minimum annually/preferably 6 monthly	Yes
*****Location & Signs	Fire Extinguishing Equipment: * Clearly visible * Unobstructed * Sign posted including “No Smoking” / “No Naked Lights” where required. (Flammable store, Gas store, Fuel tanks etc.)	Yes
***** Storage Issue & Control of Flammables (incl. Gas cylinders	Storage Area provided for flammables with suitable doors, ventilation, bund etc. Flammable store neat / tidy and no Class A combustibles. Decanting of flammable substances carried out in ignition free and adequately ventilated area. Container bonding principles applied Only sufficient quantities issued for one day’s usage Special gas cylinder store/storage area. Gas Cylinders stored / used / transported upright and secured in trolley/cradle/structure and ventilated. Types of Gas Cylinders identified/stored separately Full cylinders stored separately from empty cylinders	Yes
*****Storage, Issue & Control of Hazardous Chemical Substances (HCS)	HCS storage principles applied: products segregated Provision made for leakage/spillage containment Emergency showers/eye wash facilities provided HCS under lock & key controlled by designated person Decanted/issued in containers with information/warning labels Disposal of unwanted HCS by recognised disposal agent	Yes

11. EXCAVATIONS

Subject	Requirement	Yes/No
Excavations deeper than 1.5 m.	Shored / Braced to prevent caving / falling in. Provided with an access ladder. Excavations guarded/barricaded/lighted after dark in public areas Soil dumped at least 1 m away from edge of excavation On sloping ground soil dumped on lower side of excavation	Yes

12. TOOLS

Subject	Requirement	Yes/No
*****Hand Tools	Shovels / Spades / Picks: * Handles free from cracks and splinters * Handles fit securely * Working end sharp and true Hammers: * Good quality handles, no pipe or reinforcing steel handles. * Handles free from cracks and splinters Handles fit securely Chisels: * No mushroomed heads / heads chamfered * Not hardened * Cutting edge sharp and square Saws: * Teeth sharp and set correctly * Correct saw used for the job	Yes
*****Explosive Powered Tools.	Only used by trained / authorised personnel. Prescribed warning signs placed / displayed where tool is in use. Inspected at least monthly by competent person and results recorded. Issue and return recorded including cartridges / nails and unused cartridges / nails / empty shells recorded. Cleaned daily after use.	Yes

13. CRANES

Subject	Requirement	Yes/No
Tower Crane	Only operated by trained authorised operator with valid certificate of training Structure - no visible defects Electrical installation good/safe Crane hook: Throat pop marked/safety latch fitted/functional SWL/MML displayed Limit switches fitted/operational Access Ladder fitted with backrests/Fall arrest system installed Lifting tackle in good condition/inspection colour coding current	Yes
*****Mobile Crane	Only operated by trained authorised operator with valid certificate of training Rear view mirrors Windscreen visibility good Windscreen wipers operating effectively Indicators operational Hooter working Tyres safe/sufficient tread/pressure visibly sufficient No missing Wheel nuts Headlights, taillights operational Grease nipples and grease on all joints No Oil leaks Hydraulic pipes visibly sound/no leaks No corrosion on Battery terminals Boom visibly in good condition/no apparent damage Cable/sheaves greased/no visible damage/split wires/corrosion Brakes working properly Crane hook: Throat pop marked/safety latch fitted/functional SWL/MML displayed By-pass valves operational Deflection chart displayed/visible to operator/driver Outriggers functional used	Yes
*****Gantry Crane	Only operated by trained authorised persons Correct slinging techniques used Recognised/displayed on chart signals used Log book kept/up to date Prescribed inspections conducted on crane &lifting tackle “Crane overhead” signage, where applicable Crane hook: Throat pop marked/safety latch fitted/functional SWL/MML displayed/load limiting switches fitted/operational	Yes

14. BUILDER'S HOIST

Subject	Requirement	Yes/No
Builder's Hoist	**"Hoist In Operation"** - sign displayed. General construction strong and free from patent defects. Tower: * Adequately secured / braced. * At least 900 mm available for over travel. * Barricaded at least 2 100 mm high at ground level and floors. * Landing place provided with gate at least 1 800 high. Platform: * No persons conveyed on platform * Steel wire ropes with breaking strain of six times max. weight. * Signal systems used. * Goods prevented from moving / falling off. * Effective brake capable of holding max. weight.	Yes

15. TRANSPORT & MATERIALS HANDLING EQUIPMENT

Subject	Requirement	Yes/No
*****Site Vehicles	All Site Vehicles, Dumpers, Bobcats, Loaders etc; checked daily before used by driver / operator. Inventory of vehicles used/operated on site Inspection by means of a checklist / results recorded. No persons may ride on equipment not designed for passengers. Site speed limit posted and not exceeded. Drivers / Operators trained / licensed. No unauthorised persons allowed to drive/operate equipment.	Yes
Conveyors	Conveyor belt nip points and drive guarded. Emergency stop/lever/brake fitted, clearly marked & accessible.	Yes

16. SITE PLANT AND MACHINERY

Subject	Requirement	Yes/No
Brick Cutting Machine	Operator Trained. Only authorised persons use the machine. Emergency stop switch clearly marked and accessible. Area around the machine dry and slip/trip free/clear of off cuts All moving drive parts guarded/electrical supply cable protected Operator using correct PPE - eye/face/hearing/foot/hands/body.	Yes
*****Electric Arc Welder	Welder Trained. Only authorised / trained persons use welder. Adequately earthed. Electrode holder in good condition/safe Cables, clamps & lugs/connectors in good condition. Area in which welding machine is used is dry/protected from wet. Welder using correct PPE - eye/ face/foot/body/respirator. Screens & warning signs placed	Yes
*****Woodworking Machines	Operators Trained. Only authorised persons use machines. Provided with guards. Guards used. Operators using correct PPE - eye/face/foot/hearing	Yes
*****Compressors	Relief valves set and locked / sealed. Maximum Safe Working Pressure (MSWP) indicated on face of pressure gauge face: not on glass cover. All drives adequately guarded. Receiver/lines drained daily Hoses good condition/clamped, not wired	Yes
Concrete Mixer / Batch Plant	Top platform provided with guardrails. Dust abatement methods in use. Operators using correct PPE - eye / hands / respirators. All moving drive parts guarded. Emergency stops identified / indicated and accessible. Area kept clean/dry/and free from tripping and slipping hazards. Banksman identified and crane signals displayed and used.	Yes
*****Gas Welding / Flame Cutting Equipment	Only authorised/trained persons use the equipment. Torches and gauges in good condition. Flashback arrestors fitted at cylinders and gauges. Hoses in good condition/correct type/all connections with clamps Cylinders stored, used and transported in upright position, secured in trolley / cradle / to structure. Fire prevention/control methods applied/hot work permits	Yes

17. PLANT & STORAGE YARDS/SITE WORKSHOPS SPECIFICS

Subject	Requirement	Yes/No
Section 8(2) (1)General Machinery Regulation 2(1): **Supervision: Person appointed for supervision of the Use & Maintenance of Machinery**	Person/s with specific knowledge and experience designated to Supervise the Use & Maintenance of Machinery Critical items of Machinery identified/numbered/placed on register/inventory Inspection/maintenance schedules for abovementioned Inspections/maintenance carried out to above schedules Results recorded	Yes
General Machinery Regulation 9(2): **Notices re. Operation of Machinery**	Schedule D Notice posted in Work areas	Yes
V Pressure Vessel Regulation 13(1)(b): **Supervision of the Use & Maintenance of Pressure equipment (PE)**	Person/s with specific knowledge and experience designated to Supervise the Use & Maintenance of VUP's VUP's identified/numbered/placed on register/Manufacturers plate intact Inspection/maintenance schedules for abovementioned Inspections/maintenance carried out to above schedules Results recorded/Test certificates available.	Yes

Lock–out Procedure	Lock-out procedure in operation	Yes
Ergonomics	Ergonomics survey conducted – results on record Survey results applied	Yes
Demarcation & Colour Coding	Demarcation principles applied All services, pipes, electrical installation, stop-start controls, emergency controls etc. colour coded to own published or SABS standard Employees trained to identify colour coding	Yes
Portable & Bench Grinders	Area around grinder clear/trip/slip free Bench grinders mounted securely/grinder generally in good condition/No excessive vibration On/Off Switch/button clearly demarcated/accessible Adequate guards in place Tool rest – secure/square/max. 2 mm gap Stone/disk - correct type and size/mounted correctly/dressed Use of Eye protection enforced	Yes
Battery Storage & Charging	Adequately ventilated, ignition free room/area/no smoking sign/s Batteries placed on rubber/wooden surface Emergency shower/eye wash provided No acid storage in area	Yes
Ancillary Lifting Equipment	Chain Blocks/Tirfors/jacks/mobile gantries etc. identified/ numbered on register Chains in good condition/links no excessive wear Lifting hooks – throat pop marked/safety latch fitted SWL/MML marked/displayed	Yes
Presses/Guillotines/ Shears	Only operated by trained/authorised persons Interlocks/lock-outs fitted	Yes

18. WORKPLACE ENVIRONMENT, HEALTH AND HYGIENE

Subject	Requirement	Yes/No
***Lighting**	**Adequate lighting in places where work is being executed e.g. stairwells and basements.** **Light fittings placed / installed causing no irritating/blinding glare.**	**Yes**
***Ventilation**	Adequate ventilation / extraction / exhausting in hazardous areas e.g. chemicals / adhesives / welding / petrol or diesel/ motors running and in confined spaces / basements.	Yes
***Noise**	Tasks identified where noise exceeds 85 dBa. All reasonable steps taken to reduce noise levels at the source. Hearing protection used where noise levels could not be reduced to below 85 dBa.	Yes
***Heat Stress**	Measures in place to prevent heat exhaustion in heat stress problem areas e.g. steel decks, when the WBGT index reaches 30. (See Environmental Regulation 4) Cold drinking water readily available when extreme temperatures are experienced.	Yes
***Ablutions**	Sufficient toilets provided - 1 per 30 employees (National Building Regulations prescribe chemical toilets for Construction sites) Toilet paper available. Sufficient showers provided. Facilities for washing hands provided Soap available for washing hands Means of drying hands available Changing facilities / area provided. Ablution facilities hygienic and clean.	Yes
***Eating / Cooking Facilities**	Adequate storage facilities provided. Weather protected eating area provided, separate from changing area Refuse bins with lids provided. Facilities clean and hygienic.	Yes
***Pollution of Environment**	Measures in place to minimize dust generation. Accumulation of empty cement pockets, plastic wrapping / bags, packing materials etc. prevented. Spillage / discarding of oil, chemicals and dieseline into storm water and other drains prevented.	Yes
***Hazardous Chemical Substances**	All substances identified and list available e.g. acids, flammables, poisons etc. Material Safety Data Sheets (MSDS) indicating hazardous properties and emergency procedures in case of incident on file and readily available. Substances stored safely.	

Comments:

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_____

I, ……. the responsible person for the principal contractor have received this health and safety specification for the project: **LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON** together with the tender document and will use this specification as a guideline from which to formulate my site specific health and safety plan and risk assessment for the above mentioned project.

_____ _____

SIGNATURE DATE

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

Annexure "B"

LIST OF CONTRACTORS

NAME OF PROJECT ……

CONTRACTOR NAME	SUMMARY OF SERVICES	SECTION 37(2) AGREEMENT IN PLACE	LETTER OF GOOD STANDING IN PLACE	RISK ASSESSMENT, HEALTH AND SAFETY PLAN AND FILE IN PLACE

V3 CONSULTING ENGINEERS

COGHSTA
Co-operative Governance
Human Settlement & Traditional Affairs

ANNEXURE C
GEOTECHNICAL REPORT & GFSH-2

REPUBLIC OF SOUTH AFRICA

National Department of Housing

GEOTECHNICAL SITE INVESTIGATIONS FOR HOUSING DEVELOPMENTS

Project Linked Greenfield Subsidy Project Developments

Generic Specification GFSH-2
September 2002

PROJECT LINKED GREENFIELD SUBSIDY HOUSING PROJECTS	**Generic specification GFSH-2** (September 2002)	**Geotechnical Site Investigations for Housing Developments**

INTRODUCTION

The National Housing Code in Chapter 3 of Part 3 makes provision for the conducting of a geotechnical investigation in three phases, namely:

*The applicant for housing subsidies commissions the **preliminary investigation** when project descriptions are required. Such an investigation comprises the gathering of all known information relating to geotechnical conditions of the land and the interpretation of this information leading to a preliminary determination of the suitability of the land for a project-linked greenfield project development*

*The **Phase 1** investigation is commissioned by the developer (i.e. a municipality or a provincial housing department) when feasibility reports are required. Such an investigation comprises a stability investigation, if underlain by dolomites or undermined ground, or in undulating terrain where there is a potential for slope instability, and an investigation into the foundation characteristics of the near surface horizons in accordance with the NHBRC requirements for the enrolment of a project in the Warranty Scheme under the provisions of the Housing Consumer Protection Measures Act, 1998 (Act No, 95 of 1998) and the Joint Structural Division of the South African Institution of Civil Engineering and Institution of Structural Engineers' code of practice for foundations and superstructures for single storey residential buildings of masonry construction.*

*The **Phase 2** investigation is commissioned by the developer during the installation of township services. Such an investigation comprises observations, and in some instances, additional investigations, after the township has been pegged, to confirm the site class designations of individual erven in accordance with the NHBRC requirements for the enrolment of top structures in the Warranty Scheme under the provisions of the Housing Consumer Protection Measures Act, 1998 (Act No, 95 of 1998) and the Joint Structural Division of the South African Institution of Civil Engineering and Institution of Structural Engineers' code of practice for foundations and superstructures for single storey residential buildings of masonry construction.*

A critical outcome of the Phase 1 and Phase 2 investigations are the residential site class and dolomitic area designations in respect of the site and individual erven, respectively. The interpretation of these designations in accordance with the aforementioned code of practice may be summarized as follows:

RESIDENTIAL SITE CLASS DESIGNATIONS	TYPICAL FOUNDING MATERIAL	CHARACTER OF FOUNDING MATERIAL	SINGLE STOREY MASONRY HOUSE CONSTRUCTION TYPE
R	Rocks	Stable	Normal
H	Clays, silty clays, clayey silts and sandy clays.	Expansive soils	Normal
H1			Modified normal / soil raft
H2			Stiffened or cellular raft / piled or split construction / soil raft
H3			Stiffened or cellular raft / piled construction / soil raft.
C	Silty sands, sands, sandy and gravely soils	Compressible and potentially collapsible soils	Normal
C1			Modified normal / compaction of in-situ soils below individual footings / deep strip foundations / soil raft.
C2			Stiffened strip footings, stiffened or cellular raft / deep strip foundations / compaction of in-situ soils below individual footings / piled or pier foundations / soil raft.
P	Contaminated soils, controlled fill, dolomitic areas, landslip, landfill, marshy areas, mine waste fill, mining subsidence, reclaimed areas, uncontrolled fill, very soft silts / silty clays.	Variable	Variable
S	Clayey silts, clayey sands of low plasticity, sands, sandy and gravely soils	Compressible soils	Normal
S1			Modified normal / compaction of in-situ soil below individual footings / deep strip foundations / soil raft.
S2			Stiffened strip footings, stiffened or cellular raft / deep strip foundations / compaction of in-situ soils below individual footings / piled or pier foundations / soil raft.

DOLOMITIC AREA DESIGNATION	DESCRIPTION	SINGLE STOREY MASONRY HOUSE CONSTRUCTION TYPE
D1	No site and service precautionary measures required	As for site class R, H – H3, C – C2 and S – S2
D2	General site and service precautionary measures required	As for site class R, H – H3, C – C2 and S – S2
D3	Precautionary measures in addition to D2 are required	Special foundations e.g. fill mattresses, rafts spanning near surface pinnacles.
D4	Unsuitable for housing developments	-

This generic specification was prepared by the Task Team: Implementation of National Housing Programmes to facilitate compliance with the requirements of Chapter 3 of Part 3 of the National Housing Code.

CONTENTS

1. SCOPE

This specification contains requirements applicable to three phases of Geotechnical Site Investigations in townships, which may be underlain by dolomites or undermined land, where unoccupied land or undeveloped parcels of land are to be utilised for housing development purposes.

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2. NORMATIVE REFERENCES

Buttrick, D.B, Van Schalkwyk, A, Kleywegt R.J, and Watermeyer, R.B. Proposed method for dolomite land hazard and risk assessment in South Africa. Journal of the South African Institution of Civil Engineering. No 43. 2001.

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Partridge T.C., Wood C.K. and Brink A.B.A. Priorities for urban expansion within the PWV metropolitan region. The primary of geotechnical constraints. South African Geographical Journal: Vol. 75, 1973.

South African Institution of Engineering Geologists. Report on the SAIEG sub-committee for standard percussion borehole logging. Ground Profile Number 69, July 1989.

Watermeyer R.B. and Tromp B.E. A systematic approach to the design and construction of single storey residential masonry structures on problem soils. The Civil Engineer in South Africa. March 1992.

Wagener F von M. Dolomites. The Civil Engineer in South Africa. 1985.

3. DEFINITIONS

Collapsible Soil: a soil with a collapsible soil structure (open textured with a low density) that, when subjected to a combination of an applied load and an increase in soil moisture content, will experience sudden or rapid settlement.

Competent Person (Geotechnics): a person registered as a professional engineer in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000) or a person who has a BSc degree, or higher, in geology or engineering geology and is registered in terms of Section 11 of the Natural Scientific Professions Act 1993 (Act No. 106 of 1993), who has the following experience in relation to the category of work contemplated:

- **Category of Work 1:** (preliminary Geotechnical Site Investigations in all areas and Phase 1 and Phase 2 Geotechnical Site Investigations of near surface soil horizons): not less than 1 200 hours per annum

experience over the last 6 years in Geotechnical Site Investigations in Southern Africa in partially saturated soils.

- **Category of Work 2:** (Geotechnical Site Investigations in undermined ground and or Contaminated Land): not less than 1200 hours per annum experience over the last 10 years in Geotechnical Site Investigations in Southern Africa in partially saturated soils.

- **Category of Work 3:** (Geotechnical Site Investigations in Dolomitic Areas): not less than 1200 hours per annum experience over the last 10 years in Geotechnical Site Investigations in Southern Africa with not less than 600 hours per annum experience over the last 4 years in Geotechnical Site Investigations involving areas underlain by dolomites and the investigation of sinkholes and dolines and the rehabilitation of sinkholes and dolines or an accumulative experience of 25 000 hours in Geotechnical Site Investigations in Southern Africa in partially saturated soils with not less than 3 500 hours experience in dolomitic related work.

Compressible Soil: soil that experiences gradual settlement as its volume decreases when subjected to an applied load.

Contaminated Land: any land in a condition, by reason of substances in, or under the land, which presents an unacceptable risk to the health and safety of occupants of housing units constructed on such land.

Council: the National Home Builders Registration Council.

Data: facts collected and assembled during the Geotechnical Site Investigation.

Development Risk: the likelihood and extent of loss of life, loss or damage to property or financial loss.

Differential Heave: the expected relative surface displacement between:

- the centre and edge of the mound formed by heave movements (doming/hogging), or
- the centre and edge of the dish formed by heave movements (edge heave or dishing/sagging) of the soil beneath a structure before allowances for heave suppression due to loading are made.

Differential Movement: Differential Heave or Differential Settlement.

Differential Settlement: the relative displacement (vertical) due to uneven settlement of different portions of a structure.

Dolomitic Areas: geographical areas underlain by dolomite or limestone rock directly or at shallow depth less than:

- 30 metres in areas underlain by limestone;
- 60 metres in areas underlain by dolomites where no de-watering has taken place and the local authority has jurisdiction, is monitoring and has control over the groundwater levels over the areas under consideration; or
- 100 metres in areas underlain by dolomites where de-watering has taken place or where the local authority has no jurisdiction or control over ground water levels.

Expansive Soil: a fine grained soil whose clay mineralogy is such that it changes in volume to varying degrees in response to changes in moisture content i.e., the soil may increase in volume (heave or swell) upon wetting and decrease in volume (shrink) upon drying out.

Factual Data: materials, statistics and properties that can be seen, measured or identified by means of accepted or standardized criteria, classifications and tests.

Founding Horizon: a stratum of soil that exhibits similar geotechnical and engineering properties and characteristics and supports a structure.

Foundation Indicator Tests: verification tests in the form of basic physical characteristics of disturbed samples.

Geotechnical: pertaining to the nature, condition and physical properties of the earth's crust (whether soil or rock and including water and gases therein) which affect its performance in civil engineering and building works.

Geotechnical Site Investigation: the process of evaluating the geotechnical character of a site in the context of existing or proposed works or land usage, which may include one or more of the following:

a) Evaluation of the geology and hydrogeology of the site.
b) Examination of existing geotechnical information pertaining to the site.
c) Excavating or boring in soil or rock.
d) In-situ assessment of geotechnical properties of materials.
e) Recovery of samples of soil or rock for examination, identification, recording, testing or display.
f) Testing of soil or rock samples to quantify properties relevant to the purpose of the investigation.
g) Evaluation of geotechnical properties of tested soils
h) Reporting of the results.

Hazard: inherently dangerous quality of a substance, procedure or an event.

Heave / Shrinkage : the anticipated (vertical) surface movement produced by an expansive soil horizon caused by seasonal cyclic fluctuation in moisture content within the horizon.

Identified Land Parcel: a tract of land, comprising one or more farm portions or erven registered in a Deeds Registry, identified for the purpose of housing development under the Subsidy Scheme.

Inherent Risk: the chance, in Dolomitic Areas, for a certain size sinkhole or doline to occur within the postulated scenario of land use and dewatering or non-dewatering situation.

Interpretative Data: information derived from Factual Data using accepted and proven techniques, or from reasonable judgment exercised in the assessment of geological conditions or processes evident at the site.

In-situ: in its original place.

Land Slip: The sudden movement of a soil/rock slope, or gradual creep of a slope (typically with both a vertical and horizontal movement component) over a period of time.

Opinion: conclusions or recommendations derived by the Competent Person (Geotechnics) from consideration of Factual and Interpretative Data, and from the exercise of judgment.

Risk Management Plan: a comprehensive programme of action to be implemented by a responsible group, who have a direct interest in the sustainability of a specific housing development that is in a Dolomitic Area which addresses all aspects of good governance on such land including storm water management, pro-active maintenance, monitoring and emergency reaction planning.

Settlement: The (vertical) movement within a structure due to the distribution or re-distribution of loading and stresses within the various elements of construction or the downward movement of a structure under applied load.

Site Class: areas which are designated as having common foundation and engineering characteristics

Soil Profile: a record of the vertical succession of the different soil (rock) horizons as they occur at any particular location on site.

Subsidence: The downward movement of a foundation caused by loss of support beneath the foundations.

Variability: the change in the properties or conditions of common materials or horizons in the soil profile with time or over short lateral and/or vertical distances.

4 OBJECTIVES

4.1 Objective of the preliminary Geotechnical Site Investigation

The objective of the preliminary Geotechnical Site Investigation is to make an initial determination for an Identified Land Parcel as to whether or not such land is:

a) fit for human settlements; and
b) suitable for project linked subsidy housing development.

Note: The preliminary Geotechnical Site Investigation is incorporated in the project descriptions that form part of the submission to a Provincial Government for the conditional approval of housing subsidies against the selected parcel of land.

4.2 Objective of the Phase 1 Geotechnical Site Investigation

The objective of a Phase 1 Geotechnical Site Investigation is, with respect to the identified parcel of land for which a Provincial Government has granted conditional approval of housing subsidies, to:

a) identify any potential Hazards;
b) define the ground conditions and provide Site Classifications including detailed soil profile and groundwater occurrences within the zone of influence of foundation work;
c) determine the suitability of Dolomitic Land for subsidy housing developments;
d) provide the geotechnical basis for safe and appropriate land use planning, infrastructure design, housing unit design, and the formulation of precautionary measures and risk management procedures;
e) broadly classify the land which is to be developed for subsidy housing in terms of the Council's residential Site Class designations;
f) designate Dolomitic Land in accordance with the Council's dolomitic area designations and to obtain the Council's in principle acceptance of such designations;
g) gather certain Factual Data which has a bearing on the determination of housing subsidy variations and the installation of township services; and
h) obtain necessary information for the Council's in principle approval for the enrolment of the project in terms of the Housing Consumers Protection Measures Act (Act 95 of 1998).

Note: The Phase 1 Geotechnical Site Investigation is undertaken after a Provincial Government has granted conditional approval of housing subsidies. The Report of the Phase 1 Geotechnical Site Investigation forms part of the feasibility study report which is required for the confirmation of housing subsidies.

4.3 Objective of the Phase 2 Geotechnical Site Investigation

The objective of a Phase 2 Geotechnical Site Investigation is, with respect to the Identified Land Parcel for which a Provincial Government has confirmed housing subsidies, to:

a) confirm and refine the residential Site Class designations in respect of each erf so that the necessary documentation required for the enrolment of individual houses with the Council can take place; and
b) confirm and refine, in sites with D2 and D3 dolomitic area designations, that the mandatory precautions have been observed.

Note: Work associated with Phase 2 can only be undertaken once the erven have been pegged. This phase of the Geotechnical Site Investigation must be co-ordinated with the installation of township services. The Phase 2 investigation in Dolomitic Areas is **essentially** a risk management and verification process.

5 REQUIREMENTS

5.1 General requirements

5.1.1 Geotechnical Site Investigations shall satisfy the objectives stated in section 4 for the particular investigation that is undertaken.

5.1.2 Geotechnical Site Investigations shall be undertaken under the direction of a Competent Person (Geotechnics), who has the necessary experience in relation to the Category of Work that is required. Such a person shall spend not less than 50% of the professional person-hours allocated to such investigation in the design of the investigation, the gathering of Data, the evaluation of Factual Data, the determination of Interpretative Data, and the drafting of reports and any interactions which may be required with the Council for Geoscience, the Government Mining Engineer and the Council.

5.1.3 The Competent Person (Geotechnics) shall formulate all Opinions.

5.1.4 The Competent Persons (Geotechnics) shall document and formulate all Opinions in such a manner that a peer review, if conducted on the same Data and Factual Data, will arrive at substantially similar Opinions.

5.1.5 Sites underlain by dolomites, which are recommended for housing developments shall have an Inherent Risk class, determined in accordance with Tables 1 and 2, of between 1 and 4.

5.1.6 Sites on former mine land shall have specific activities of ^{226}Ra, ^{228}Ra, ^{nat}Th and ^{nat}U of less than 200 becquerels / kilogram.

NOTE: Levels of specific and total activity of radioactive material and the radiation dose is governed by the provisions of the Nuclear Energy Act of 1993.

5.1.7 The Competent Person (Geotechnics) shall demonstrate in the case of Contaminated Land that the risk to the health and safety of occupants of subsidy housing is acceptable.

Table 1: Inherent risk of doline and a specified-size sinkhole forming (Buttrick, Van Schalkwyk, Kleywegt and Watermeyer, 2001)

INHERENT RISK CLASS	**SMALL SINKHOLE**	**MEDIUM SINKHOLE**	**LARGE SINKHOLE**	**VERY LARGE SINKHOLE**	**RISK OF DOLINE FORMATION #**
SINKHOLE DIAMETER	**< 2m**	**2 – 5 m**	**5 – 15 m**	**> 15 m**	
Class 1	Low	Low	Low	Low	Low NDS or DS
Class 2	Medium	Low	Low	Low	Medium NDS
Class 3	Medium	Medium	Low	Low	Medium NDS
Class 4	Medium	Medium	Medium	Low	Medium NDS
Class 5	High	Low	Low	Low	High NDS
Class 6	High	High	Low	Low	High NDS
Class 7	High	High	High	Low	High NDS
Class 8	High	High	High	High	Low-High NDS or DS

NDS = Non Dewatering Scenario and DS = Dewatering Scenario

Table 2: Inherent risk characterisation and anticipated number of ground-movement events (Buttrick, Van Schalkwyk, Kleywegt and Watermeyer, 2001)

INHERENT RISK CHARACTERISATION	**GROUND-MOVEMENT EVENTS PER ha IN A 20-YEAR PERIOD AFTER AN INITIAL 20-YEAR PERIOD (STATISTICS BASED ON INAPPROPRIATE AND POOR SERVICE DESIGN)**
Low	$0 \leq 0,1$
Medium	$>0,1 \leq 1,0$
High	$> 1,0$

5.2 Preliminary Geotechnical Site Investigation

5.2.1 Minimum requirements

5.2.1.1 The Competent Person (Geotechnics) shall, as a minimum, in order to satisfy the objectives of the preliminary Geotechnical Site Investigation stated in 4.1:

a) approach the following organisations, as necessary, in order to gather data:
   i) Mining Houses;
   ii) the Council for Geoscience;
   iii) the Deeds Office ;
   iv) the Department of Land Affairs;
   v) the Department of Water Affairs;
   vi) the District Councils;
   vii) the Government Mining Engineer;
   viii) the Local Authority or regional databank of geotechnical data;
   ix) the National Home Builders Registration Council;
   x) the Surveyor General; and
   xi) consultants;
b) gather and assimilate available data pertaining to the site from the following sources, as necessary:
   i) orthophotographic coverage (Scale 1:10 000);
   ii) aerial photographic coverage;
   iii) geological data and mapping concerning the site and immediate environs;
   iv) topographic maps;
   v) geohydrological data (regional and local in the case of dolomitic areas);
   vi) mining data;
   vii) geotechnical reports from surrounding developments, infrastructure and the like;
   viii) geotechnical problems previously recorded in the area e.g. sinkholes in Dolomitic Areas, seismic activity and the like;
   ix) any available regional geophysical data, such as regional gravity surveys, aeromagnetic surveys and the like; and
   x) seismological data.
c) review published geotechnical literature for the region;
d) make appropriate enquiry to the office of Government Mining Engineer in regard to any and all land rezoning applications where release of land is provided in areas of acknowledged mining work;
e) analyse data and identify and categorise terrain types in accordance with Table 3;
f) verify terrain types in the field and examine all visible data, including ground profile exposures, and the results, of large scale ground excavation and or alteration by means of borrow pits, quarrying, mining, construction and related remedial works and rehabilitation that can be viewed and reasonably annotated on orthophotos or aerial photographs;
g) indicate appropriate land uses;
h) comment on potential sources of construction materials; and
i) establish in principle whether the site is, or in future will be, influenced by underground or surface mining operations by making tentative enquiries to the Government Mining Engineer.

5.2.1.2 The Competent Person (Geotechnics) shall where the land ownership history includes a mining operator, provide a properly documented record or site plan in which the surface footprint of the mining or quarrying or material borrow area (opencast pit) or the (underground) mining plan is indicated on fully-coordinated drawings, based on the Government Mining Engineers records, on aerial photographs or ortho-mapping, as appropriate.

5.2.2 Reporting requirements

5.2.2.1 The Competent Person (Geotechnics) shall document and report all findings and Opinions in a written report using the following standard headings:

Executive summary
1 Introduction
2 Information
   2.1 Description and list of the information assimilated and used in the study
   2.2 General location and description of site
   2.3 Evaluation procedures used in the investigations
   2.4 Geology and geohydrology of the site

2.5 Geotechnical conditions and constraints
2.6 Terrain mapping units
3 Impact of the geotechnical character of the site on subsidy housing developments
3.1 Land usage
3.2 Installation of services
3.3 House construction
3.4 Housing subsidy variations
4 Conclusions and recommendations.

Table 3: Geotechnical Classification for Urban Development (after Partridge, Wood and Brink)

CONSTRAINT		Most favourable (1)	Intermediate (2)	Least favourable (3)
A	Collapsible Soil	Any collapsible horizon or consecutive horizons totaling a depth of less than 750mm in thickness*	Any collapsible horizon or consecutive horizons with a depth of more than 750mm in thickness	A least favourable situation for this constraint does not occur
B	Seepage	Permanent or perched water table more than 1,5m below ground surface	Permanent or perched water table less than 1,5m below ground surface	Swamps and marshes
C	Active Soil	Low soil-heave potential anticipated*	Moderate soil heave potential anticipated	High soil-heave potential anticipated
D	Highly compressible soil	Low soil compressibility anticipated*	Moderate soil compressibility anticipated	High soil compressibility anticipated
E	Erodability of soil	Low	Intermediate	High
F	Difficulty of excavation to 1,5m depth	Scattered or occasional boulders less than 10% of the total volume	Rock or hardpan pedocretes between 10 and 40% of the total volume	Rock or hardpan pedocretes more than 40% of the total volume
G	Undermined ground	Undermining at a depth greater than 240m below surface (except where total extraction mining has not occurred)	Old undermined areas to a depth of 90-240 m below surface where stope closure has ceased	Mining within less than 90-240 m of surface or where total extraction mining has taken place
H	Stability: (Dolomite & Limestone)	Possibly stable. Areas of dolomite overlain by Karoo rocks or intruded by sills. Areas of Black Reef rocks. Anticipated Inherent Risk Class I	Potentially characterised by instability. Anticipated Inherent Risk Classes 2 – 5.	Known sinkholes and dolines. Anticipated Inherent Risk Classes 6 –8.
I	Steep slopes	Between 2 and 6 degrees (all regions)	Slopes between 6 and 18 degrees and less than 2 degrees (Natal and Western Cape) Slopes between 6 and 12 degrees and less than 2 degrees (all other regions)	More than 18 degrees (Natal and Western Cape) More than 12 degrees (all other regions)
J	Areas of unstable natural slopes	Low risk	Intermediate risk	High risk (especially in areas subject to seismic activity)
K	Areas subject to seismic activity	10% probability of an event less than 100 cm/s² within 50 years	Mining-induced seismic activity more 100 cm/s²	Natural seismic activity more than 100 cm/s²
L	Areas subject to flooding	A "most favourable" situation for this constraint does not occur	Areas adjacent to a know drainage channel or floodplain with slope less than 1%	Areas within a known drainage channel or floodplain

* These areas are designated as 1A, 1C, 1D, or 1F where localised occurrences of the constraint may arise.

Example: A sub-area designated as Zone 2BF would be an intermediate class with anticipated seepage and excavation problems. A sub-area designated as Zone 3B would be designated as least favourable and not recommended for development due to surface water inundation.

5.2.2.2 The report must:

a) include a discussion of the process followed to arrive at the Terrain Mapping Units as outlined and defined in Table 3;
b) include a locality plan of the site complete with site boundaries, co-ordinates and property descriptions;
c) indicate topographic and geological conditions clearly on appropriately co-ordinated and scaled maps with superimposed or overlaid property boundaries;
d) discuss ground conditions in terms of the presence of outcrop, and likely cover soils, the origin of which may be initially interpreted from maps, aerial photos, orthophotos, available information and observations from the walk-over survey or inspection;
e) provide a physical description of the surface soil condition, eg in alluvial floodplains, side gullies, undrained depressions or talus slopes, supported with photographic documentation of features of significance;

f) contain appropriate comments on the presence of prominent water-courses and preferred drainage routes;
g) present interpretations of groundwater seepage indications;
h) contain comments on the structural conditions of any buildings or improvements on the land as an indicator of the influence of ground conditions; and
i) include a drawing of the site showing terrain mapping units in accordance with the provisions of Table 3, complete with approximate co-ordinates.

5.2.2.3 The report and all drawings must also be available in an electronic format.

5.3. Phase 1 Geotechnical Site Investigations

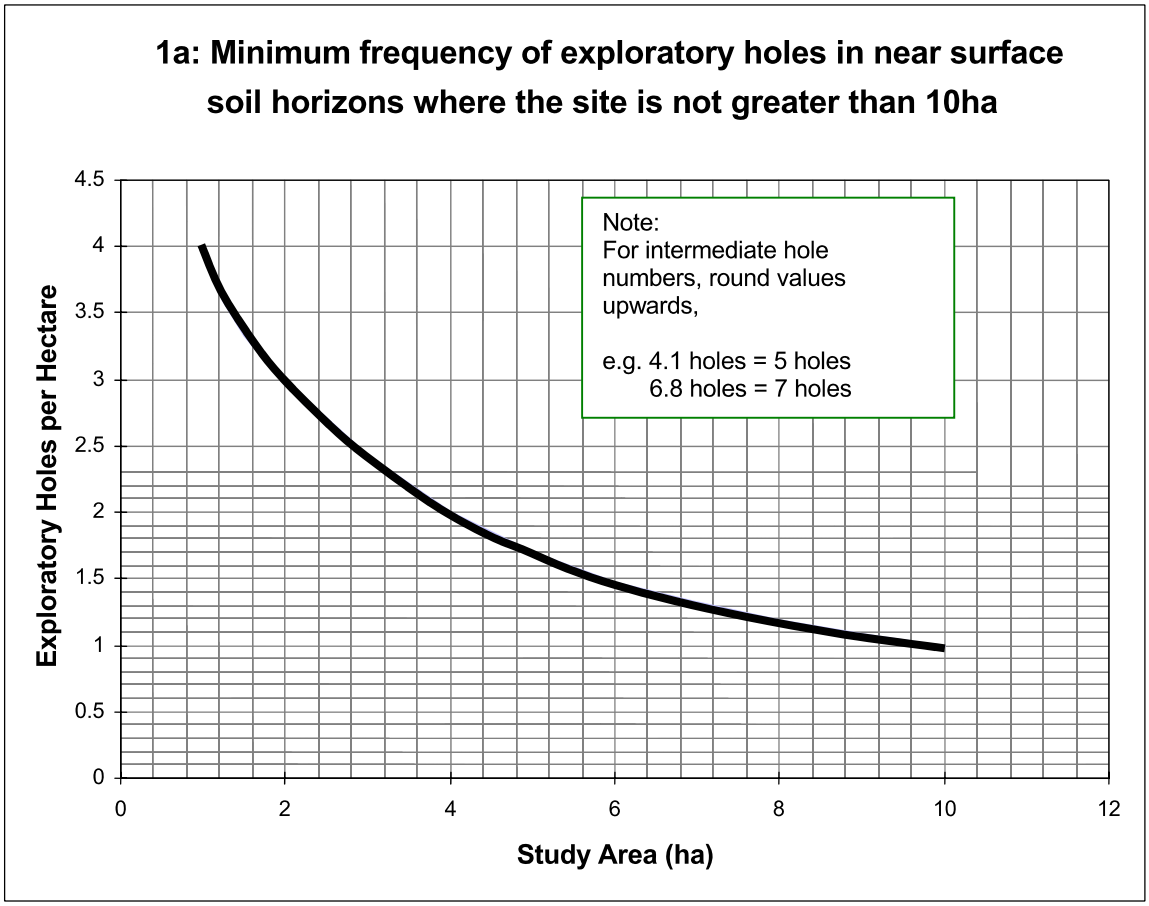
5.3.1 Requirements for near surface soil horizons investigations

5.3.1.1 Minimum requirements

The Competent Person (Geotechnics) shall, as a minimum, in order to satisfy the objectives of the Phase 1 Geotechnical Site Investigation in non-Dolomitic Land, or areas underlain by dolomites where the risk of sinkhole and doline formation is acceptable, as stated in 4.2:

a) conduct a detailed Geotechnical Site Investigation involving an in-situ evaluation of the ground profile to a minimum depth of 3,0 m or to the machine refusal depth at a frequency derived from Figures 1a and 1b, representative sampling, laboratory testing and the analysis of physical and (basic) chemical properties of all representative soil horizons which can be expected to influence improvements to the land relating to the subsidy housing development at the frequency derived from Table 4, including:
    i) foundations and structural nature of residential housing;
    ii) construction of roads (surfaced and gravel);
    iii) excavations for and construction of buried services including appropriate trench backfills;
    iv) landslip (slope instability); and
    v) present and past mining activities;
b) judge, in mine related land, the long-term prognosis for excessive settlement and particularly differential settlement which has the potential to give rise to unacceptable development due to factors such as:
    i) water-bearing service disruptions arising from loss of positive gradients, rupture due to ground settlement;
    ii) loss of positive stormwater run-off from zones of substantial settlement and resulting flooding, infiltration and exacerbated water-induced settlement;
    iii) loss of serviceability in structures due to rotation / tilt or settlement even where structural distress is controlled by adequate foundation stiffness; and
    iv) restrictions that will inevitably be placed on housing development to mitigate the negative impacts of the settlement process;
c) prepare a comprehensive geotechnical report which:
    i) provides the township description and defines the extent and boundaries of the township;
    ii) describes the local geology;
    iii) describes soil profile by Site Classification unit;
    iv) provides geotechnical interpretation of each soil profile unit;
    v) provides a provisional Site Classifications of the site in accordance with Table 5;
    vi) contains foundation recommendations by Site Classification unit;
    vii) contains earthworks (materials) and excavation classifications;
    viii) assesses the stability and related (geotechnical) parameters;
    ix) identifies conditions and constraints such as mining related problems, areas of outcrop, slope instability, contaminated land, unconsolidated fill etc; and
    x) provides information on the drainage of the site.

Note: The minimum extent of fieldwork and laboratory testing required is intended to give a minimum requirement of input data on the basis of which realistic engineering judgements may be made and site classification boundaries drawn, which provide the developer with a realistic sampling of the ground conditions. Clearly, where complex geological and topographic conditions exist eg in mine related land, uncontrolled fills (made up ground without controlled compaction), unstable slopes etc, or where the soils are highly Variable, supplementary work can be anticipated requiring additional input, deeper drilling or subsequent stages of investigation.



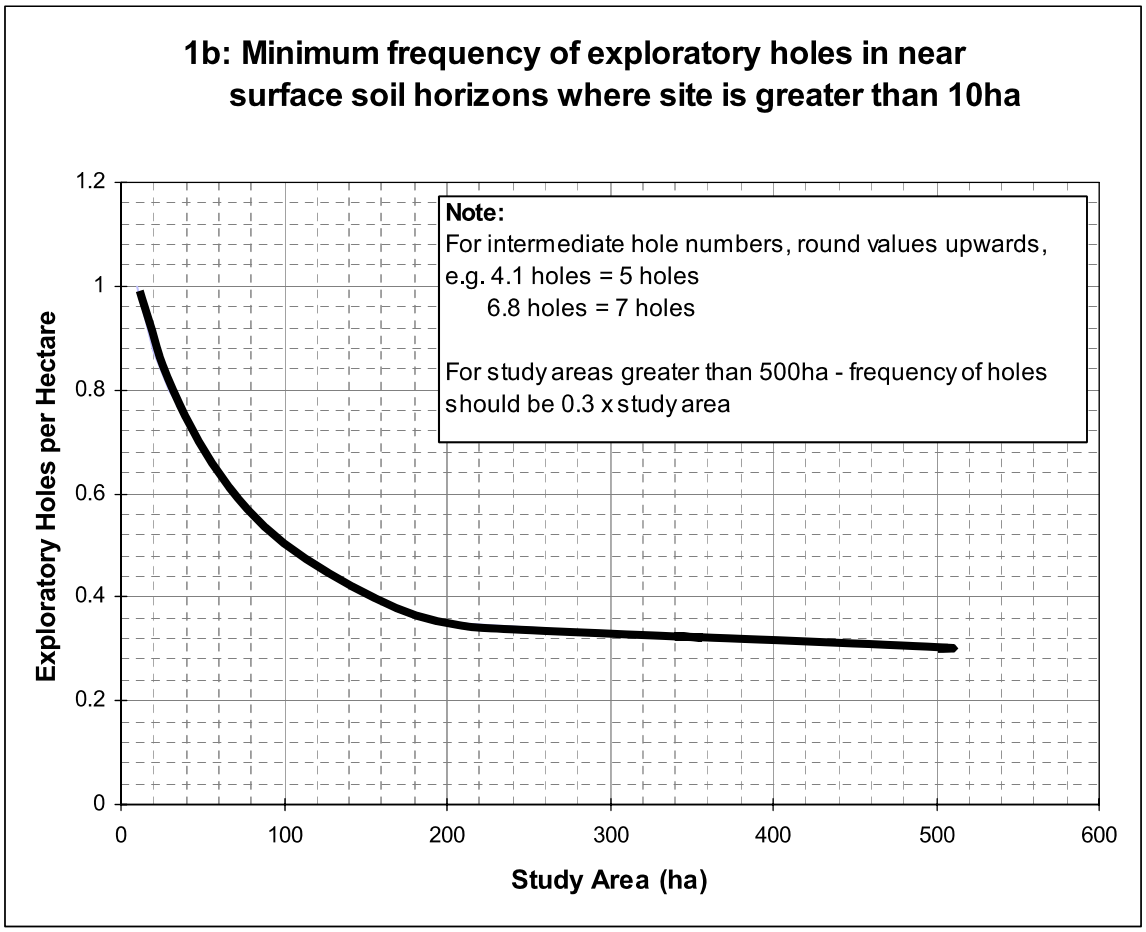


Figure 1: Minimum frequency of exploratory holes in near surface soil horizons

Table 4: Minimum Quantities of Laboratory Testing for Different Sizes of Study Areas

Study Area (ha)	Foundation Indicator / MC	Consolidometer/ Swell	Chemistry
<5	3	2	2
5 to 10	4	3	2
11 to 20	6	4	3
21 to 50	10	5	5
51 to 100	15	6	10
101 to 200	20	10	10
201 to 500	50	20	10

5.3.1.2 Field work requirements

5.3.1.2.1 Exploratory holes shall be set out using a hand held GPS, coordinated by survey or position using locally referenced landmarks or survey pegs.

5.3.1.2.2 Fieldwork shall consist of the excavation of the exploratory holes, in-situ profiling or sampling holes in a fashion appropriate to the ground conditions, groundwater, sampling requirement, personnel safety considerations and the like, using one or more of the following methods:

a) TLB or excavator pits or trenches;
b) penetrometer probes (continuous standard penetrometer test and / or dynamic probe super heavy penetrometer tests) with sample recovery;
c) large diameter (not less than 750mm) auger holes;
d) hand held DCP's supplemented by methods a) and c);
e) hand dug pits supplemented by other methods;
f) percussion drilling with sample recovery supplemented by other methods; and
g) rotary core drilling with sample recovery.

5.3.1.2.3 All In-situ Soil Profiling shall be in accordance with the provisions Jennings, Brink and Williams (1973) procedure and the Guidelines for Soil and Rock Logging. The Soil Profile shall record and be described in the following terms for each individual soil horizon exposed in the exploratory holes:

a) moisture;
b) colour;
c) consistency;
d) structure;
e) soil type;
f) origin; and
g) any other detail relevant to the engineering assessment of the in-situ soil conditions.

5.3.1.2.4 Zones of seepage and presence of water tables must be recorded, as well as the nature of the water table, ie perched or permanent.

5.3.1.2.5 The Competent Person (Geotechnics) shall take reasonable steps to ensure that all the provisions of the Code of Practice on the Safety of Men Working in Small Diameter Shafts and Test Pits for Civil Engineering Purposes are observed.

5.3.1.3 Laboratory testing requirements

The Competent Person (Geotechnics) shall arrange for the following laboratory test procedures to be undertaken by an accredited soil mechanics test laboratory on representative bulk, disturbed and / or undisturbed samples of all significant ground profile variants, in order to provide Interpretative Data for judging ground response to foundations, earthworks construction, excavation stability, chemical aggressiveness towards buried services and the like:

a) particle size distribution / grading;
b) Atterberg Limits;
c) Moisture content;
d) Compressibility / potential collapse;
e) Swell under load;
f) pH and conductivity;
g) Compaction (moisture : density relationship); and

h) CBR.

Table 5: Residential site class designations (After Watermeyer and Tromp (1992) and the Joint Structural Division)

TYPICAL FOUNDING MATERIAL	CHARACTER OF FOUNDING MATERIAL	EXPECTED RANGE OF TOTAL SOIL MOVEMENTS (mm)	ASSUMED DIFFERENTIAL MOVEMENT (% OF TOTAL)	SITE CLASS
Rock (excluding mud rocks which may exhibit swelling to some depth)	STABLE	NEGLIGIBLE	-	R
Fine grained soils with moderate to very high plasticity (clays, silty clays, clayey silts and sandy clays)	EXPANSIVE SOILS	< 7,5 7,5 – 15 15 – 30 > 30	50% 50% 50% 50%	H H1 H2 H3
Silty sands, sands, sandy and gravely soils	COMPRESSIBLE AND POTENTIALLY COLLAPSABLE SOILS	<5 5-10 >10	75% 75% 75%	C C1 C2
Fine grained soils (clayey silts and clayey sands of low plasticity), sands, sandy and gravely soils	COMPRESSIBLE SOILS	<10 10-20 >20	50% 50% 50%	S S1 S2
Contaminated soils, Controlled fill, Dolomitic areas, Landslip, Landfill, Marshy areas Mine waste fill, mining subsidence Reclaimed areas, Uncontrolled fill, Very soft silts/silty clays	VARIABLE	VARIABLE		P

NOTE:

1) The classifications, C, H, R and S are not intended for dolomitic areas unless specific investigations are carried out to assess the stability (risk of sinkholes and doline formation) of the dolomites. Where the risk is found to be acceptable, the site shall be designated in accordance with note 10.
2) Site classes are based on the assumption that differential movements, experienced by single-storey residential structures, expressed as a percentage of the total soil movements are approximately equal to 50% for soils that exhibit expansive or compressive characteristics and 75% for soils that exhibit bath compressible and collapse characteristics. Where this assumption is incorrect or inappropriate, the total soil movements must be adjusted so that the resultant differential movement implied by the Table is equal to that which is expected in the field.
3) In some instances, it may be more appropriate to use a composite description to describe a site more fully e.g., C1/H2 or S1 and/or H2. Composite site classes may lead to higher differential movements and result in design solutions appropriate to a higher range of differential movement e.g., a Class R/S1 may be described as a Class S2 site. Alternatively, a further site investigation may be necessary as the final design solution may depend on the location of the housing unit on a particular site
4) Where it is not possible to provide a single site designation and a composite description is inappropriate, sites may be given multiple descriptions to indicate the range of possible conditions, e.g. H1-H2 or C1-C2.
5) Soft silts and clays usually exhibit high consolidation and low bearing characteristics. Structures founded on these horizons may experience high settlements and such sites should be designated as Class S1 or S2, as relevant and appropriate.
6) Sites containing contaminated soils include those associated with reclaimed mine land; land down slope of mine tailings and old land fills.
7) Where a site is classified as being P, full particulars relating to the founding conditions on the site must be provided.
8) Where sites are designated as being Class P; the reason for such classification shall be placed in brackets immediately after the suffix, i.e. P (contaminated soils). Under certain circumstances composite description may be appropriate.
9) Certain fills may contain contaminants, which present a health risk. The nature of such fills should be evaluated and should be clearly demarcated as such.
10) Dolomitic Areas should be designated as being Class P (Dolomites-D2/H2) or Class P (Limestones- D2/H2) where the first designation after dolomites / limestones is the designation obtained from Table 6 and the second designation is form Table 5.

5.3.1.4 Reporting requirements

5.3.1.4.1 The Competent Person (Geotechnics) shall document and report all findings and Opinions in a written report using the following standard headings:

Executive summary
1 Introduction and Terms of Reference
2 Information used in the study
3 Site Description
4 Nature of Investigation
5 Site Geology and Groundwater Conditions
  5.1 General
  5.2 Soil Profile
  5.3 Water Table
6 Geotechnical Evaluation
  6.1 Engineering and Material Characteristics

6.2 Slope Stability and Erosion
6.3 Excavation Classification with respect to Services
6.4 Impact of the Geotechnical Character of the Site on Subsidy Housing Developments
7 Site Classification
8 Foundation Recommendations and Solutions
9 Drainage
10 Special Precautionary Measures
11 Conclusions
Appendices

5.3.1.4.2 The report must:

a) describe and list the information assimilated and used in the study in Section 2 (Information used in the study);
b) provide particulars of site boundaries and a description of the property in Section 3 (Site Description);
c) describe the field investigation procedures used and laboratory tests undertaken in Section 4 (Nature of Investigation);
d) state engineering and material characteristics which will affect the development and construction including the identification of conditions and constraints such a mining related problems, areas of outcrop, slope instability, contaminated land, unconsolidated fill, etc in Subsection 6.1 (Engineering and Material Characteristics);
e) evaluate and establish the potential for lateral soil movement arising from surface erosion, soil creep, talus movement and slope instability in Subsection 6.2 (Slope Stability and Erosion);
f) establish, for the purposes of broadly estimating subsidy variations (see Annexure 1) the presence and extent of:
    i) permanent or perched water table less than 1,0 below ground surface;
    ii) permanent or perched water table less than 1,5 below ground surface;
    iii) the Unified Soil Classification of the uppermost soil horizon (0 to 750mm) where the average slope is steeper than or equal to 1:7,5; and
    iv) the presence of hard rock and / or boulder class excavation (see Annexure 2) in future service trenches up to a depth of 1,5 metres;
g) assess the suitability of the material in accordance with Annexure 2 in the upper 1,5 m of the site for excavation by hand in Subsection 6.3 (Excavation Classification with respect to Services);
h) discuss foundation recommendations in relation to Watermeyer and Tromp (1992) and the Joint Structural Division's Code of Practice) and provide geotechnical engineering data associated with the design of such foundations in Section 8 (Foundation Recommendations and Solutions) ;
i) discuss the effect of both surface water (flooding and ponding) and groundwater (marshy conditions, underground erosion, hydrostatic pressure and fluctuating water levels on the development and comment on whether or not the groundwater will be potentially harmful with respect to buried concrete and steel in Section 9 (Drainage);
j) contain all soil profiles and the results of laboratory and in situ field tests including penetrometer test results in an orderly manner in the Appendices;
k) include the following drawings:
    i) a locality plan of site;
    ii) a site plan showing positions of exploratory holes; and
    iii) a soil map defining approximate boundaries of areas with common Site Class designations.

5.3.1.4.3 The Competent Person (Geotechnics) shall, where the land ownership history includes a mining operator, provide in the report details of depths of shallowest mining, backfill method and materials, the Government Mining Engineer's requirements and / or conditions of future land use and / or development and any investigation studies required to proceed with housing development.

5.3.1.4.4 Drawings shall be to a common scale, legible and easily reviewed. All drawings shall be correctly referenced with a clear indication of co-ordinates.

5.3.1.4.5 The report and all drawings must also be available in an electronic format.

5.3.2 Requirements for stability investigations in Dolomitic Areas

5.3.2.1 Minimum requirements

The Competent Person (Geotechnics) shall, as a minimum in order to satisfy the general requirements for a Phase 1 Geotechnical Site Investigations in Dolomitic Areas as stated in 4.2:

a) map the basic geology and geomorphological features of the site as well as any sinkholes and dolines within or in close proximity to the site;
b) formulate an Opinion as to risk characterisation and land use of the site in terms of Table 1, using geophysics, the assessment of the morphology, subsurface profile from ground surface to dolomite bedrock and the geohydrological regime conditions and groundwater compartmentalization;
c) conduct a detailed Geotechnical Site Investigation comprising a gravity survey in accordance with the provisions of 5.3.2.2 and drilling in accordance with the provisions of 5.3.2.3 to a minimum depth of 6,0 into the bedrock at a frequency derived from Figures 2a and 2b;
d) prepare a comprehensive geotechnical report which:
    i) provides the township description and defines the extent and boundaries of the township;
    ii) establishes the geological changes over the site;
    iii) establishes the nature, fluctuations, compartmentalisation, and original ground water levels from geohydrological Data;
    iv) describes and interprets the local geology by Site Classification Unit;
    vi) provides appropriate land use proposals by Site Classification unit in accordance with Table 1;
    v) provides a Site Classifications of the site in accordance with Table 6;
    vi) contains recommendations for geotechnical and structural solutions in sites designated as D3 by Site Classification unit with reference to Wagener and Buttrick, Van Schalkwyk, Kleywegt and Watermeyer (2002);
    x) presents appropriate water precautionary measures;
    xi) identifies precautionary measures in addition to the mandatory measures contained in the Home Building Manual; and.
    xii) outlines an appropriate Risk Management Plan.

Note: Multiple remote sensing techniques in addition to the mandatory gravity survey may be required, depending on the geology , e.g. . electro magnetics to establish the contact between dolomite and conductive material such as Karoo shale.

Table 6: Dolomitic Area designations (After Joint Structural Division and Buttrick, Van Schalkwyk; Kleywegt and Watermeyer, 2001)

Dolomitic Area Class	Description
D1	No precautionary measures are required to permit the construction of housing units due to an adequate overburden thickness.
D2	The risk of sinkhole and doline formation is adjudged to be such that only general precautionary measures, which are intended to prevent the concentrated ingress of water into the ground, are required to permit the construction of housing units.
D3	The risk of sinkhole and doline formation is adjudged to be such that precautionary measures in addition to those pertaining to the prevention of concentrated ingress of water into the ground, are required to permit the construction of housing units.
D4	The risk of sinkhole and doline formation is such that precautionary measures cannot adequately reduce such risks to acceptable limits so as to permit the construction of housing units or the precautionary measures which are required are impracticable to implement.

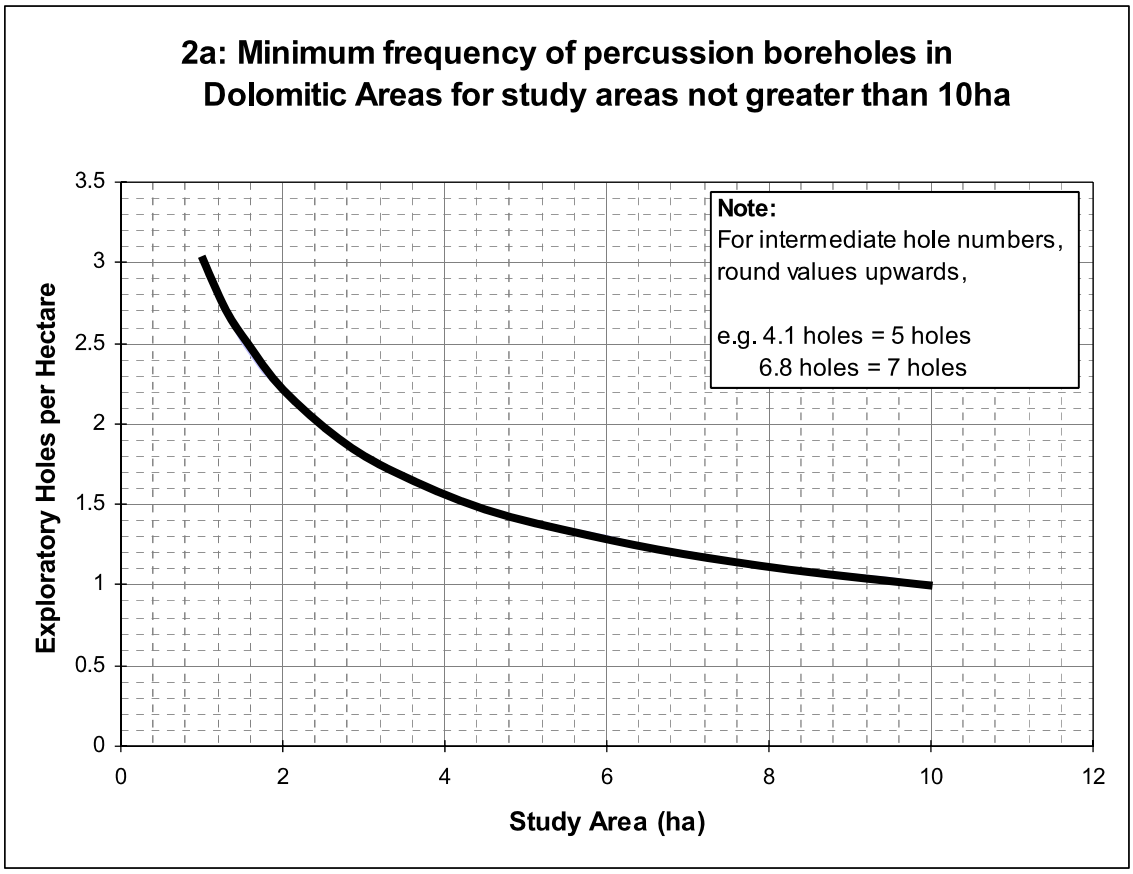
5.3.2.2 Gravity survey requirements

5.3.2.2.1 The gravity survey shall be undertaken by a suitably qualified geophysicist, with at least 3 years total working experience in dolomite environments of South Africa. Observations may be undertaken by a suitably qualified and experienced geotechnician under the direction of an experienced geophysicist.

5.3.2.2.2 The grid spacing for gravity surveys shall not exceed the lesser of 30 metres and the anticipated thickness of the overburden above the dolomites or limestones.

5.3.2.2.3 Five to ten percent of observations shall be repeated for control purposes.

5.3.2.2.4 A residual gravity map shall be produced and utilised to determine initial borehole positions. After an initial phase of drilling, a provisional residual gravity map shall be produced. The final residual gravity map shall only be produced after drilling is completed.



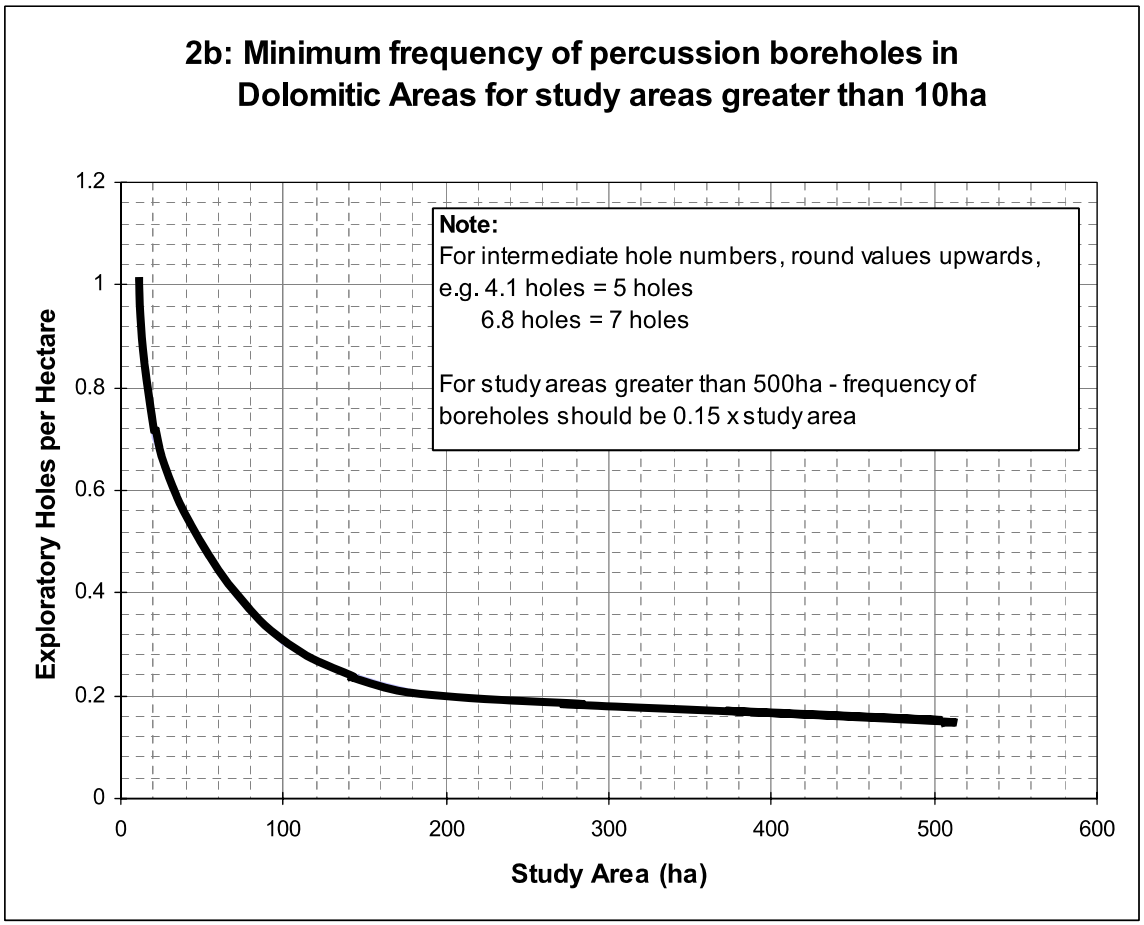


Figure 2: Minimum frequency of percussion boreholes in Dolomitic Areas

5.3.2.2.5 The accuracy of reduced observations on a relative basis shall be at least 0,01 mgal or better.

5.3.2.2.6 Contour intervals of not more than 0.1 milligals are to be used.

5.3.2.2.7 A geophysical report shall be produced describing the work procedures, interpretation and conclusions of the survey.

5.3.2.3 Drilling work requirements

5.3.2.3.1 Rotary percussion boreholes shall be drilled on the site utilising geophysical data to select the positions. Retrieve samples for every 1m drilled shall be retrieved.

5.3.2.3.2 Boreholes shall be drilled at least 6m into solid dolomite or limestone bedrock.

5.3.2.4.3 Drilling equipment shall comprise of the following mobile units:

a) Compressor unit with measured and calibrated constant air delivery rating at 750 cfm and 16 Bar minimum.
b) Pneumatic percussion drilling rig with 165mm nominal diameter button bit capable of drilling in all soil and rock types.

5.3.2.3.4 The following minimum information shall be recorded on the Drilling Sheet during the drilling of each borehole:

a) Driller/drilling contractor;
b) Date of drilling borehole;
c) Drilling rig;
d) Compressor type, capacity and delivery;
e) Hammer size;
f) Depth intervals for sampling (1m);
g) Penetration times;
h) Formation e.g. cavity, very soft, soft, reasonably hard, hard, solid;
i) Hammer tempo e.g. highly irregular, irregular, regular;
j) Air loss e.g. none, partial, total;
k) Moisture condition e.g. water intercepted, wet, moist, dry;
l) Borehole ravelling/collapsing;
m) Water or foam added;
n) Casing used;
o) Sample retrieval e.g. good, medium, poor, none; and
p) Other remarks or comments.

5.3.2.3.5 The depth range of use of water or foam to enhance sample recovery shall be clearly indicated on the drillers field report.

5.3.2.3.6 Boreholes shall be backfilled with soil, recovered from drilling, suitably moistened to form a flowing slurry. The borehole shall be capped using a 400mm x 400mm x 150mm 15MPa wood floated concrete cap with 100mm concrete down the hole. The borehole number, drilling date and direction of inclination shall be marked in the wet concrete.

5.3.2.4 Requirements for descriptions of borehole chip sample

5.3.2.4.1 The method of borehole chip sample description shall be in accordance with the published recommendations of the South African Institution of Engineering and environmental Geologists.

5.3.2.4.2 Descriptions of borehole chip samples recovered shall include the following:

a) Soil component:
   i) Colour
   ii) Soil type
b) Rock component:
   i) Chip shape e.g. angular, sub angular, sub rounded, rounded, etc.
   ii) Colour
   iii) Weathering described in terms of unweathered, slightly, medium, highly and completely weathered.
   iv) Rock type.

5.3.2.4.3 The major portion of the sample is to be described first followed by the description of the sub-ordinate material. Subordinate portions are to be described using descriptions outlined below:

i) Trace.
ii) Minor.
iii) Abundant.
iv) Equal amounts.

5.3.2.4.4 The name of the driller, date of drilling, date of logging, loggers name, compressor capacity and delivery, drill rig type, hammer size, penetration times, level at which water is struck, groundwater rest level, ground elevation and co-ordinates shall be recoded on the profile sheet together with any problematic conditions such as air loss, sample loss and cavitation.

5.3.2.5 Requirements for gathering of geohydrological Data

5.3.2.5.1 The available geohydrological data shall be obtained from the Department of Water Affairs.

5.3.2.5.2 Where groundwater is encountered in a borehole, the level shall be established at least 24 hours after completion of the borehole. Two readings shall be taken within a week thereafter.

5.3.2.6 Requirements for the determination of Hazard and Risk Zones

Hazard, Inherent Risk and Development Risk shall be determined in accordance with the procedure outlined by Buttrick, Van Schalkwyk, Kleywegt and Watermeyer (2001) as summarized in Annexure 3.

5.3.2.7 Reporting requirements

5.3.2.7.1 The Competent Person (Geotechnics) shall document and report all findings and Opinions in a written report using the following standard headings:

Executive summary
1 Introduction and Terms of Reference
2 Information used in the study
3 Site Description
4 Nature of Investigation
5 Site Geology and Groundwater Conditions
  5.1 General
  5.2 Profile
  5.3 Ground water levels
6 Stability Evaluation
  6.1 Dolomite stability characterisation
  6.2 Characterisation procedure.
  6.3 Stability characterisation of the site.
7 Conclusions and Recommendations
  7.1 Summary of Risk Zonation
  7.2 Appropriate land use recommendations
  7.3 Water and foundation precautionary measures
  7.4 Development densities and types
  7.4 Dolomite Area Designations for each Inherent Risk Zone.
  7.5 Specific founding measures in D3 areas.
  7.7 Outline of the preliminary Risk Management Plan.
Appendices

5.3.2.7.2 The report must:

a) describe and list the information assimilated and used in the study in Section 2 (Information used in the study);
b) provide particulars of site boundaries and a description of the property in Section 3 (Site Description);
c) describe the field investigation procedures used and laboratory tests undertaken in Section 4 (Nature of Investigation);
d) discuss the geology and geohydrology in both the regional and site specific context in Section 5 (Site Geology and Groundwater Conditions);

e) explain and motive the risk characterisation of the site in Section 6 (Stability Evaluation);
f) specify water precautionary and special founding measures for each risk zone in Subsection 7.3 (Water and foundation precautionary measures);
g) assess the impact of the Site Classes on subsidy housing developments;
h) discuss foundation recommendations in D3 zones in relation to Wagener (1985) and Buttrick, van Schalkwyk, Kleywegt and Watermeyer (2002) and provide geotechnical engineering data associated with the design of such foundations in Subsection 7.5 (Specific founding measures in D3 areas);
i) contain all Data from the gravity survey, boreholes and the results of laboratory and in situ field tests in an orderly manner in the Appendices;
j) include the following drawings:
   i) Locality plan of site.
   iii) Site plan showing positions of boreholes and gravity contours.
   iii) Zone map defining approximate boundaries of areas with common Site Class designations.

5.3.2.7.3 Drawings shall be to a common and appropriate scale, legible and easily reviewed. All drawings shall be correctly referenced with a clear indication of co-ordinates.

5.3.2.7.4 The report and all drawings must also be available in an electronic format.

5.4 Phase 2 Geotechnical Site Investigations

5.4.1 Requirements for Non-Dolomitic Areas

5.4.1.1 Minimum requirements

The Competent Person (Geotechnics) shall, as a minimum in order to satisfy the general requirements for a Phase 2 Geotechnical Site Investigations non-Dolomitic Areas as stated in 4.3:

a) established formal profiling procedures with the person responsible for the installation of township services so that the available trenching is optionally utilized within the construction framework and programme for profiling purposes;
b) co-ordinate activities associated with the profiling procedures;
c) observe and record soil profiles in exposed services trenches at not more than 100m intervals or wherever soil type changes occur;
d) undertake where justified supplementary Geotechnical Site Investigations;
e) arrange for undisturbed samples to be taken for a set of Foundation Indicator Tests at a frequency of not more than one set for every five points profiled; and
f) record data on field sheets and the points in the trenches which were profiled on a site layout plan.

5.4.1.2 Reporting

5.4.1.2.1 The Competent Person (Geotechnics) shall prepare a brief report as an addendum to the Phase 1 report which shall contain:

a) a drawing indicating the location of the points profiled in the service trenches;
b) records of all profiles and tests; and
c) a marked up township layout drawing which confirms the Site Classes of each individual erf

5.4.1.2.2 The report and all drawings must also be available in an electronic format.

5.4.2 Requirements for Dolomitic Areas

5.4.2.1 Minimum requirements

The Competent Person (Geotechnics) shall satisfy the requirements of 5.4.1 and, as a minimum in order to satisfy the general requirements for a Phase 2 Geotechnical Site Investigations Dolomitic Areas as stated in 4.3:

a) interact with the town planners, civil engineers and the developer concerning appropriate planning, design of infrastructure and housing units;
b) develop a Risk Management Plan specific to the development (refer to Annexure 3);
c) establish formal inspection procedures with the person responsible for the installation of township services so that the available trenching is optimally utilized within the construction framework and programme for inspection purposes;

d) co-ordinate activities associated with the inspection procedures;
e) inspect the service trenches to verify the Phase 1 stability zonation and to check for paleofeatures;
f) investigate potential paleosinkhole structures wherever they are exposed; and
g) undertake where justified supplementary Geotechnical Site Investigations.

5.4.2.2 Reporting requirements

5.4.2.2.1 The Competent Person (Geotechnics) shall prepare a brief report as an addendum to the Phase 1 report which shall contain:

a) a drawing indicating the location of the points profiled in the service trenches;
b) records of all profiles and tests; and
c) a township layout drawing which confirms the Site Classes of each individual erf;

5.4.2.2.2 The report and all drawings must also be available in an electronic format.

Annexure 1: Schedule of generic subsidy variations for site and founding conditions

CATEGORY OF SUBSIDY VARIATION	VERIFICATION CRITERIA	FACTORS TO CONSIDER IN ESTABLISHING QUANTUM OF SUBSDIY VARIATION
II: SITE CONDITIONS		
1 Seepage / ground water		
1.1 Category 1	Permanent or perched water table less than 1,0 m below ground surface.	Subsurface drainage / improved damproofing measures to houses; service trenches to be dewatered during construction.
1.2 Category 2	Permanent or perched water table less than 1,5 m below ground surface.	Service trenches to be dewatered during construction.
2 Erodability of soil	Uppermost soil horizon (0 to 750mm) over erf is classified in terms of the Unified Soil Classification as SP, SM, CL or CH and average slope of erf measured in any direction is steeper than or equal to 1:7,5.	Provision of retaining wall and earthworks required to reduce slopes. .
3 Difficulty of servicing of land due to slopes		
3.1 Type 1 site	Average slope measured along a 100 metre line in any direction from any of the boundaries of the erf is flatter than 1:100.	Difficulties associated the provision of waterborne sanitation and the drainage of sites/ provision of pump stations.
3.2 Type 2 site	Average slope measured across the erf in any direction exceeds 1:20 but is flatter than or equal to 1:10.	Terracing for houses/ additional masonry units in foundation walls required.
3.3 Type 3 site	Average slope measured across the erf in any direction exceeds 1:10 but is flatter than or equal to 1:7,5.	Terracing for houses required. Additional earthworks to roads and storm water control measures
3.4 Type 4 site	Average slope measured across the erf in any direction exceeds 1:7,5 but is flatter than or equal to 1:5.	Terracing for houses required. Additional earthworks to roads and storm water control measures.
3.5 Type 5 site	Average slope measured across the erf in any direction exceeds 1:5.	Terracing for houses required. Additional earthworks to roads and storm water control measures.
4 Difficulty of excavation		
4.1 Type 1 condition	Average slope measured across the erf in any direction is flatter than or equal to 1:10 and between 10 and 40% of material to a depth of 1,5 metres below pre-development level is classified as hard rock excavation.	Additional cost of trench excavation.
4.2 Type 2 condition	Average slope measured across the erf in any direction is flatter than or equal to 1:10 and in excess of 40% of material to a depth of 1,5 metres below pre-development level is classified as hard rock excavation.	Additional cost of trench excavation.
4.3 Type 3 condition	Average slope measured across the erf in any direction is steeper than 1:10 and the material to a depth of 1,5 metres below pre-development level is classified as Boulder Class B excavation.	Additional cost of trench excavation. Additional cost of road excavation.
4.4 Type 4 condition	Average slope measured across the erf in any direction is steeper than 1:10 and the material to a depth of 1,5 metres below pre-development level is classified as Boulder Class A or Hard Rock excavation.	Additional cost of trench excavation. Additional cost of road excavation.
5 Precautionary measures in sites underlain by dolomites/ limestones	Class P(dolomites/limestones- D2/D3) site class designation in accordance with 2.5 and 2.8 of Part 1 of Section 2 of the NHBRC Home Building Manual.	The design and construction of township services will need to be in accordance with 2.8.3 of Part 1 of Section 2 of the NHBRC Home Building Manual.

CATEGORY OF SUBSIDY VARIATION	VERIFICATION CRITERIA	FACTORS TO CONSIDER IN ESTABLISHING QUANTUM OF SUBSDIY VARIATION
III: FOUNDING CONDITIONS#		
1 Expansive soils		
1.1 Class H1		
1.2 Class H2		
1.3 Class H3		
2 Compressible and potentially collapsible soil	Site class designations classified in accordance with 2.5 of Part 1 Section 2 of the NHBRC Home Building Manual	Masonry houses will require foundation design, building procedures and precautionary measures to be in accordance with Tables 5, 6 and 7 of Part 1 Section 2 of the NHBRC Home Building Manual
2.1 Class C1		
2.2 Class C2		
3 Compressible soils		
3.1 Class S1		
3.2 Class S2		
4 Variable		
4.1 Class P (Dolomites /Limestones– D2)	Class P site class designation in accordance with 2.5 and 2.8 of Part 1 of Section 2 of the NHBRC Home Building Manual.	Houses will require precautionary measures in accordance with NHBRC requirements.
4.2 Class P (Dolomites / Limestones– D3		
4.3 Class P (Mining subsidence)	Class P site class designation in accordance with 2.5 of Part 1 of Section 2 of the NHBRC Home Building Manual.	Precautionary measures will need to be in accordance with specialist literature.

Sites designated as Class P (contaminated), Class P (controlled fills), Class P (marshy areas), Class P (mine waste fill), Class P (uncontrolled fill), Class P (landfill) and Class P (landslip), Class P (reclaimed areas) and Class P (very soft silts / silty clays) are not generally considered appropriate for development in the subsidy scheme.

Annexure 2: Earthworks classifications for service trenches

Earthworks for service trenches are classified in terms of Tables 2.1 and 2.2.

Table 2.1: Classification of material for machine excavation (SANS 1200 D)

CLASSIFICATION	DESCRIPTION
Restricted excavation	
Soft	Material which can be efficient removed by a back-acting excavator of fly wheel power >0,10 kW for each mm of tined bucket width.
Intermediate	Material which can be removed by a back-acting excavator having a fly wheel power > 0,10kW for each mm of tined-bucket width or with the use of pneumatic tools before removal by a machine capable of removing soft material.
Hard Rock	Material that cannot be removed without blasting or wedging and splitting.
Non-restricted excavation	
Soft	Material which can be efficiently removed or loaded, without prior ripping, by any of the following plant: a bulldozer or a track type front end loader having an approximate mass of 22 tonne and a fly wheel power of 145 kW. a tractor-scraper unit having an approximate mass of 28 tonne and fly wheel power of 245 kW, pushed during loading by a bulldozer equivalent to that described above.
Intermediate	Material which can be efficiently ripped by a bulldozer having an approximate mass of 35 tonne and a fly wheel power of 220 kW.
Hard Rock	Material that cannot be efficiently ripped by a bulldozer having an approximate mass of 35 tonne and a fly wheel power of 220 kW.
Boulder class A	Material containing more than 40% by volume of boulders of size between 0,03 m^3 and 20m^3 , in a matrix of soft material or smaller boulders.
Boulder class B	Material containing 40% or less by volume of boulders of size between 0,03 m^3 and 20m^3 , in a matrix of soft material or smaller boulders.

Table 2.2 Classification for material for hand excavation (Watermeyer, RB. Mobilising the Private Sector to Engage in Labour Based Infrastructure Works: A South African Perspective. Sixth Regional Seminar for Labour-Based Practitioners. Ministry of Works, Transport and Communications in collaboration with ILO/ASIST, Jinja, Uganda, October, 1997.)

Criteria for classifying material as soft excavation Class A *		
Dynamic cone penetrometer - minimum number of blows required to penetrate 100 mm	Granular materials	Cohesive materials
	7-15 +	6 to 8 +
Consistency	Dense - high resistance to penetration by the point of a geological pick; several blows required for removal of material.	Stiff / Very stiff Stiff - can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers. Very stiff - indented by thumb-nail with difficulty; slight penetration of point produced by blow of geological pick.

* Soft excavation Class A is material which, using a pick or equivalent hand swing tool, can only be excavated with difficulty.

\+ Only applicable to materials comprising not more than 10% gravel (Particles having dimensions ; 2.5 mm) of size less than 10 mm and materials containing no isolated small boulders.

Annexure 3: Summary of Buttrick, Van Schalkwyk, Kleywegt and Watermeyer's Method for dolomite land hazard and risk assessment in South Africa

Using the geomorphological, geological, borehole, gravity and geohydrological information, the site shall be zoned in terms of eight Inherent Risk Classes and four Development Risk Categories as described in Tables 3.1 and 3.2.

Inherent Risk Classes are to be determined through the evaluation of the following parameters using the borehole information:

- Receptacle development
- Mobilisation agencies
- Potential development space
- Nature of the blanketing layer
- Bedrock morphology

The procedural guidelines for site characterization are as follows:

Step 1: Undertake preliminary zoning of the site into morphological units using geophysical tools (particularly gravity surveys), remote sensing techniques and field information (geological and topographic mapping). These zones are areas that are anticipated to have similar subsurface geological conditions (rock types, depth to bedrock, extent of weathering, residual materials etc).

Step 2: Boreholes are drilled to investigate the preliminary zones. The stability characterisation procedures are as described / briefly outlined above. The method requires hypothesising the probable impact of a development on the dolomite environment. The potential stability of the land is reviewed in the context of both a dewatering or non-dewatering scenario. Factors to be evaluated are mobilising agencies, receptacle development, potential development space, natural blanketing layer, mobilisation potential of the blanketing layer and bedrock morphology.

Step 3: The individual borehole characterisations and all available information is integrated. The spatial representation of the individual boreholes is decided on. It is essential that the lateral continuity of the conditions represented by individual boreholes is established. Borehole information represents point data and geological conditions vary between boreholes. The use of the geological mapping, gravity survey data and the borehole information will prove invaluable in the process of refining zonal boundaries. Particular subsurface conditions will provide the risk characterisation of a zone. The subsurface conditions represented by the various boreholes are used in conjunction with geophysical, karst and bedrock morphology and geohydrology to determine the boundaries of areas of similar geotechnical characteristics and to develop a 'composite' Inherent Risk characterisation for each particular zone.

Step 4: The finalised risk zonation of the site must be described in terms of the eight Inherent Risk Classes (as outlined in Table 3.1).

Step 5: The appropriate development types are to be selected for each zone and suitable precautionary and remedial measures provided. The particular type of development selected determines the Development Risk, indicating long term safety.

Dolomite Area "D" Designation is to be assigned to each Inherent Risk Class on the site. These "D" designations and related typical precautionary measures are outlined below.

General

1. The site and surrounding area shall be shaped to permit the ready drainage of surface water and to prevent ponding.
   Drainage ports should be incorporated in boundary walls particularly at the lowest point of the site, to permit the passage of surface runoff.
2. Natural ponds and water courses located within 10m of any structure shall be rendered impervious.
3. Sanitation systems shall not incorporate soak aways.
4. Backwash and other water from swimming pools, shall be discharged into either the storm water or drainage systems as required by the local authority.
   The dolomitic stability over the route of any bulk water bearing service should be evaluated.

Table 3.1: Characterisation: Inherent Risk of doline and a specified-size sinkhole forming.

Inherent Risk Class	*Small sinkhole*	*Medium sinkhole*	*Large sinkhole*	*Very large sinkhole*	*Risk of doline formation*	*Recommended type of development in order to maintain acceptable Development Risk.*
Sinkhole diameter	**< 2m**	**2 – 5m**	**5 – 15m**	**> 15m**		
Class 1	Low	Low	Low	Low	Low # NDS or DS	Residential, light industrial and commercial development provided that appropriate water precautionary measures are applied. Other factors affecting economic viability such as excavatability, problem soils, etc. must be evaluated.
Class 2	Medium	Low	Low	Low	Medium #NDS	Residential development with remedial water precautionary measures. No site and service schemes. May consider for commercial or light industrial development
Class 3	Medium	Medium	Low	Low	Medium #NDS	Selected residential development with exceptionally stringent precautionary measures and design criteria. No site and service schemes. May consider for commercial or light (dry) industrial development with appropriate precautionary measures.
Class 4	Medium	Medium	Medium	Low	Medium #NDS	Selected residential development with exceptionally stringent precautionary measures and design criteria. No site and service schemes. May utilise for commercial or light (dry) industrial development with appropriate stringent precautionary measures.
Class 5	High	Medium	Low	Low	High #NDS	These areas are usually not recommended for residential development but under certain circumstances selected residential development (including lower-density residential development, multi-storied complexes, etc.), may be considered, commercial and light industrial development. The risk of sinkhole and doline formation is adjudged to be such that precautionary measures, in addition to those pertaining to the prevention of concentrated ingress of water into the ground are required to permit the construction of housing units.
Class 6	High	High	Medium	Low	High #NDS	These areas are usually not recommended for residential development but under certain circumstances highrise structures or gentleman's estates (stands 4 000m^2 with 500m^2 proven suitable for placing a house) may be considered, commercial or light industrial development. Expensive foundation designs may be necessary. Sealing of surfaces, earth mattresses, water in sleeves or in ducts, etc.
Class 7	High	High	High	Low	High #NDS	No residential development. Special types of commercial or light industrial (dry) development only (eg. bus or trucking depots, coalyards, parking areas). All surfaces sealed. Suitable for parkland.
Class 8	High	High	High	High	Low-High *NDS or DS	No development, nature reserves or parkland.

* = Number of anticipated events per hectare over a period of 20 years with poor design & management
# = Non Dewatering Scenario and Dewatering Scenario

Table 3.2: Dolomitic Area Designations

Dolomitic Area Class	Description	Typical Foundation Solutions (Masonry Structures)
D1	**No precautionary measures** are required to permit the construction of housing units due to an adequate overburden thickness.	Foundations in accordance with the Joint Structural Division's Code of Practice (1995)
D2	The risk of sinkhole and doline formation is adjudged to be such that only **general precautionary measures**, which are intended to prevent the concentrated ingress of water into the ground, are required to permit the construction of housing units.	Foundations in accordance with Joint Structural Division's Code of Practice (1995).
D3	The risk of sinkhole and doline formation is adjudged to be such that precautionary measures in **addition** to those pertaining to the prevention of concentrated ingress of water into the ground, are required to permit the construction of housing units.	Possible solutions where sinkholes occur include the provision of: • reinforced concrete grids incorporating floor spanning between exposed pinnacles (Wagener, 1985) • mattresses of improved material (Wagener, 1985) • raft foundations to allow occupants to escape and limit damage in the event of a sinkhole occurring (JSD 2000) Possible solutions where dolines are expected include split construction and raft construction in accordance with the Joint Structural Divisions Code of Practice (1995).
D4	The risk of sinkhole and doline formation is such that precautionary measures cannot adequately reduce such risks to acceptable limits so as to permit the construction of housing units or the precautionary measures which are required are impracticable to implement.	-

Township services

5. Underground services shall be designed and constructed so as to minimise maintenance requirements and any potential leakage points in wet services and shall, as far as possible, be designed to avoid possible disturbance of the underground environment.
6. The relevant provision of SANS 1200 DB, L, LB, LC, LD and LE shall be observed in the installation of all underground services.
7. The backfilling to service trenches and other excavations shall, except in rock, not be more permeable than the surrounding material.
8. The stormwater drainage and sewerage system shall incorporate measures to ensure watertightness of conduits and other compartments. Whenever possible, storm water should be channeled in lined, surface canals.
   Concrete non-pressure pipes should be of the spigot and socket type with rubber ring seals. Joints in box culverts, channels, etc. should be sealed.
9. Storm water drainage conduits shall be constructed at gradients, which will not permit the deposition of silt, or sand, of the type present in the catchment area.
10. Water mains shall be laid only in road reserves.
11. Water piping materials shall be one or more of the following:
    pipes of 75mm and larger diameter:
    high impact PVC pipes with vitaulic joints.
    steel pipes with internal and external corrosion protection or other flexible (as defined in SANS 10102 Part 1) water pipes with flexible, self anchoring connections.
    pipes having a diameter of less than 75mm:
    PE-63 or PE-80 piping in accordance with the provisions of SANS 4427 ISO 4427
    polypropylene piping
    The piping used in mains and communication pipes should be flexible, joints should be minimal in number and, be of the flexible, self anchoring type, i.e. not reliant on thrust blocks or friction for their anchorage.
12. Provision for future connections shall be made in order to minimise the cutting into pipes to provide such connections.
13. Provision shall be made in all water bearing pipelines to accommodate any potential differential movements without causing the pipeline or joints to leak.
14. Road surfaces shall be located sufficiently low so as to permit the drainage of erven onto them.
15. Roadways, which have a gradient of less than 1:80, shall be surfaced/sealed.

16. Where un-surfaced roads are the sole storm water system in a township, the roadways, which act as major storm water collectors, shall be surfaced.
17. The velocity of the 1 in 20 year storm water, flowing along un-surfaced roadways shall not exceed 1,5 m/s.

Plumbing

18. Water pipe entries into the buildings shall be in accordance with Figure 3.1.
19. All sewer and water pipes and fittings shall be provided with flexible, watertight joints.
20. No plumbing and drainage pipes shall be placed under floor slabs, as far as is practicable.
21. The fall of the trenches shall be away from the buildings.
22. Pipes through walls shall be sleeved to permit relative movement.
23. WC pans shall be provided with a flexible connection at the junction with the outlet pipe.
24. The selection of piping material shall take cognisance of corrosion (both external and internal).
25. Water pipes shall have a minimum cover of 500mm.
26. Wherever practical, service trenches shall not be excavated along the length of housing units within the first 3,0m beyond the perimeter of such units.

Site precautions

27. Down pipes, if provided, shall discharge into concrete line drainage channels, which discharge the water at least 1,5m away from buildings.
28. Where guttering is not provided, a 1,5m wide impervious apron slab shall be provided.
29. The ground immediately against the buildings shall be shaped to fall in excess of 75mm over the first 1,5m beyond the perimeter of the building, from where it shall drain freely away from housing units. Apron slabs, where provided shall have the same fall.

The matters to be considered when establishing and maintaining a Risk Management Plan include:

1 New Townships

1.1 Bulk and internal services in new townships must be installed in accordance with the aforementioned precautionary measures and any additional provisions provided in the geotechnical report.

1.2 A register of townships in areas designated as being D1, D2, D3 and D4 (Risk Classes 1 to 8) should be opened. Specified precautionary measures should be entered into the register where they differ from the aforementioned precautionary measures.

1.3 The local authority must ensure that bulk services are upgraded appropriately in relation to increasing residential densification.

2. Raising awareness

2.1. A map of all known dolomite areas within the local authorities area of jurisdiction should be prepared and maintained. This map should provide a composite stability zonation based on the Dolomite Area Designations and the related Dolomite Risk Class e.g. D2 (Risk Class 1) and D3 (Risk Class 4). The Dolomite Area Designation will be of immediate importance to civil engineers involved in service design and maintenance, whereas the Dolomite Risk Class will be of value to the dolomite risk specialists from a development perspective.

2.2 The sections / departments of local authorities responsible for the maintenance of the water, sewer and electrical reticulation and bulk services as well as the building control section should be issued with maps showing the D2, D3 and D4 (Risk Classes 1 to 8) areas and must be informed of the potential risks and maintenance requirements for services in these areas.

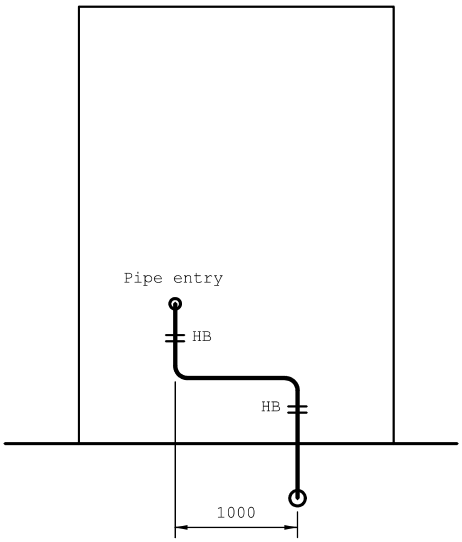
2.3 Councillors whose wards fall within D1, D2, D3 and D4 (Dolomite Risk Class 1 to 8) areas, as well as leaders of community structures and organisations whose constituents reside in D2 (Classes 1 to 4) and D3 (Classes 3 to 5) areas should be informed of the potential risks and maintenance requirements for services in these areas and the necessity to report any leakage / blockages / ponding of water in these areas to designated Council officials.

2.4 Officials who receive and log reports from the public on disruptions in services etc. must be provided with contingency plans including maps showing D2 (Classes 1 to 5), D3 (Classes 3 to 5) and D4 (Classes 6 to 8) areas and must be briefed on the implications of leaks and the like in these areas. Special reporting procedures must be established to ensure that maintenance teams are promptly advised of leaks and the like in areas designated as being D2, D3 and D4.

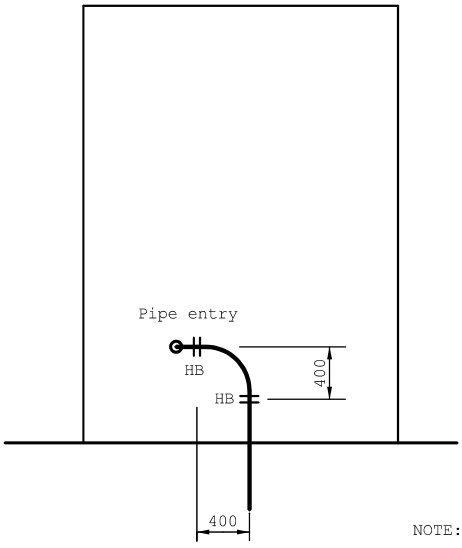
2.5 The local authority should inform residents in areas designated D2 (Classes 1 to 5) and D3 (Classes 3 to 5), every two years in a written communication, of the risks and their responsibilities which will include:

* Prompt reporting of leaks and any subsidence.

* Refraining from making illegal connections and proceeding with the erection of new buildings on properties and the installation of swimming pools without permission.



RIGID / SEMI FLEXIBLE PIPE



FLEXIBLE PIPING

NOTE:

HB - Holderbats.

Clamp type holderbat not to be fully tightened to allow for movement.

Figure 3.1
Water pipe entry points

* Ensure that water does not dam up on their properties.

3. Maintenance of services

3.1 A pro-active maintenance strategy for water bearing infrastructure should be developed. This can be readily done by superimposing the waterbearing infrastructure on the stability risk zonation map described in Section 2.1 above. Priority in terms of vigilance, general maintenance, repair of leaks and expenditure of funds for upgrading or service replacement can be assigned on the basis of risk exposure. In this manner a prioritised, co-ordinated and pro-active strategy for maintenance and review of waterbearing infrastructure can be developed by the local authority.

3.2 Areas designated as being D2, D3 and D4 (Dolomite Risk Classes 1 to 8) must receive priority in the repair of leaks arising from the sewer and water reticulation.

3.3 Sewer mains in areas designated as D2, D3 or D4 (Dolomite Risk Classes 1 to 8) should be checked for water tightness by means of an air test at intervals not exceeding two years and repairs undertaken where necessary.

3.4 The stormwater systems in areas designated as being D2, D3 or D4 (Risk Classes 1 to 8) should be inspected for blockages and leaks at intervals not exceeding one year and repairs / cleaning undertaken where required.

3.5 All bulk services which are located in areas designated as being D2, D3 and D4 should be inspected for water tightness / blockages at intervals not exceeding one year and cleared/repaired where required.

3.6 Priority should be given to the upgrading of services in areas designated as being D2, D3 and D4 in order to minimise sewer overflows, ponding of water, bursts, water losses, etc.

4. Management of improvements to properties

4.1 Building control officers must in areas designated as being D2 and D3, enforce any restriction regarding swimming pools and must ensure that alterations and additions are in accordance with the NHBRC requirements.

4.2 Building control officers should once every two years visually inspect properties in areas designated as being D2 and D3 to ensure that water is not damming up on properties.

4.3 Building control officers must not permit any densification of properties in areas designated as being D1, D2 or D3 unless it is confirmed by a competent person that such densification does not change the area designation.

5. Measures to prevent land invasion

The local authority must put in place a policy and measures to preclude land invasions and to act positively where such invasions have occurred.

6. Ground water control measures

Artificially induced fluctuations in the dolomite ground water level, particularly where shallow, may trigger sinkhole or doline formation. Consequently, it is essential that local authorities liaise with the Department of Water Affairs and set up appropriate groundwater monitoring procedures. Depending on the Dolomite Risk Class and Dolomite Area Designation (e.g. D4 or Class 7 and 8) of an area, in certain sensitive groundwater compartments, an outright ban on the sinking of abstraction boreholes may be required.

7. Emergency reaction plan in the event of a sinkhole or doline occurring.

The local authority should set in place an emergency reaction plan to be followed in the event of a sinkhole or doline occurring in their area of jurisdiction. Managers of emergency services should be provided with the dolomitic zone designation and risk map and briefed on the implications thereof. It is essential that these managers and emergency services personnel fully understand what a sinkhole is, possible stages of development and how large an area to evacuate around a potential event.

8. Data base of ground subsidence events and structural damage.

The local authority should establish a data base of ground subsidence events and reported structural damage. Detailed records of this nature are useful in developing a clear perspective of the stability situation in a township, highlight areas of weakness and assists in the installation and management of a pro-active maintenance strategy.

NOTE: *The policy should not cause residents to be concerned to live in dolomitic areas. It is perfectly safe to do so provided that certain precautionary measures are observed.*

GEOTECHNICAL REPORT

PROPOSED LOW-COST HOUSING PROJECT IN LOXTON, NORTHERN CAPE PROVINCE

MARCH 2011

Prepared by:

OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

Prepared for:

Ubuntu Local Municipality

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Outeniqua Geotechnical Services cc

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Tax Invoice

VAT Registration No.	Tax Date	Invoice No.
4250186055	2011/04/14	8761

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Ubuntu Municipality P/Bag X329 VICTORIA WEST 7070 VAT Reg No: 4870197581

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Attn:	Order No	Terms	Account No	Project
F Dignon		30 days	1164	Loxton

Description	Qty	Unit	Rate	Amount
Additional Informal Area Phase 1 Geotechnical report -				
Site work				
Engineering Geologist	6	/hour	600.00	3,600.00
Technician	6	/hour	275.00	1,650.00
Lab Assistant	6	/hour	90.00	540.00
DCP (0-2)m	10	/test	850.00	8,500.00
Travel Costs	1	sum	592.00	592.00
Hire of TLB	8	/hour	300.00	2,400.00
Low-bed hire	1	sum	4,500.00	4,500.00
Disbursements	1	sum	500.00	500.00
Laboratory Work				
Foundation Indicator	4	/test	500.00	2,000.00
Mod / CBR / Indicator	4	/test	850.00	3,400.00
pH & Conductivity test	8	/test	350.00	2,800.00
Report				
Engineering Geologist	6	/hour	600.00	3,600.00
CAD/GIS	4	/hour	400.00	1,600.00

VAT SUMMARY		
4,995.48 @ 14.0% ;	SUBTOTAL	R35,682.00
	VAT TOTAL	R4,995.48
	Total	R40,677.48

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Quality Control

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Date:	22.03.11	24.03.11	25.03.11
Signature:			

The author of this report, Iain Paton of Outeniqua Geotechnical Services cc (OGS), is an independent professional engineering geologist and not have any vested interest in the project, other than remuneration for work associated with the compilation of this report.

EXECUTIVE SUMMARY

Outeniqua Geotechnical Services has been appointed by the Ubuntu Municipality to undertake a geotechnical site investigation of two low-cost housing sites (Areas A and B) in Loxton in the Northern Cape Province.

The geotechnical nature of the sites was investigated by conducting a series of test pits, *in situ* penetrometer tests and laboratory tests.

The general topography of the sites is characterised by gentle slopes and small natural drainage lines which flow in a south-westerly direction. Vegetation cover is thicker in Area A which is a vacant property. Vegetation is sparse in Area B which is an existing informal dwelling area.

The typical *in situ* soil types consist of gravelly, clayey and sandy transported soil overlying slightly to moderately weathered, fractured, fine grained argillaceous siltstone rock. Significant accumulations of fill (rubble and soil) were identified in Area A.

Lightly reinforced foundations for single and double storey structures should be constructed on compacted *in situ* soils or shallow rock where practical. It is recommended that all structural fill material and road layerworks be imported for all sites.

There are no insurmountable geotechnical constraints on the proposed development and the sites appear to be suitable, but certain precautionary measures are advocated in the report.

Table of Contents

1. Introduction and terms of reference

Outeniqua Geotechnical Services has been appointed by Ubuntu Municipality to undertake a geotechnical site investigation for a proposed low-cost housing project on two sites in Loxton in the Northern Cape Province (see **Figure 1** for locality map).

The physical and geotechnical nature of the sites need to be understood in order to facilitate the town planning process and the civil engineering design.

The investigation is conducted with reference to the GFSH-2 specification published by the Department of Housing (2002).

The scope of work is as follows:

- Describe the soil types and expected founding conditions;
- Highlight any problem soils, slope stability or drainage issues;
- Estimate the bearing capacity, settlement and/or swell potential of the soil;
- Classify the excavations in terms of SABS 1200;
- Make recommendations for the design of earthworks, foundations and services.

2. Information available

The following maps and plans were available for reference purposes and are reproduced in this report:

- 1:50 000 Topographic map and contour data of the area, published by the Directorate of Surveys & Mapping;
- Aerial photographs of the site obtained from Google Earth;
- 1:250 000 Geological map of the area published by the Council for Geoscience;
- Cadastral plans obtained from Planet GIS.

3. Nature of the investigation

An initial desk-top study was conducted to determine the physical and geological nature of the sites using available maps, aerial photos and site plans. The site work involved conducting a series of test pits using a back-actor (TLB), which excavated to a depth of approximately 2m or shallower refusal on underlying rock.

A total of 19 test pits were excavated across the two sites at the positions indicated on **Figure 4.**

Selected representative soil horizons were sampled from the test pits for:

- Foundation Indicator tests (TMH1 and ASTM) to determine gradings, Atterberg limits and potential expansiveness (tested at Outeniqua Lab (Pty) Ltd in George – SANAS-17025 Accredited).

- MOD/CBR/Indicator tests (TMH1) to determine the suitability for possible road pavement materials use (tested at Outeniqua Lab (Pty) Ltd in George – SANAS-17025 Accredited).
- pH and Conductivity tests (tested at Soillab in Cape Town – SANAS-17025 Accredited).

No consolidometer tests were performed due to the presence of shallow rock and the friable nature of the soils which prevented the collection of undisturbed samples. Disturbed remoulded samples for consolidometer tests are deemed to be of limited value and for this reason were not collected.

Handheld Dynamic Cone Penetrometer (DCP) tests were only conducted at selected test positions due to the presence of shallow rock or coarse fill encountered in many test pits.

Due to the informative outcome of the investigation at this stage of the project, there was no need to carry out further investigations.

4. Site description

Area A

This is a vacant site which has been earmarked for development of low-cost housing. The site has a gentle gradient and the slopes drain to the southwest. Vegetation is generally thin and sporadic but slightly denser along the natural drainage line that transects the site. There are signs of significant accumulations rubble dumping on the site.

Area B

This site is an existing informal residential area which is being investigated for an upgrade. The site slopes very gently to the south-west and drains into the natural drainage line running into a marshy area to the south of the site next to the road (see **Figure 4**).

5. Geology

The official geological map of the region (see **Figure 3**) indicates that the sites are underlain by rocks of the Abrahamskraal Formation (Adelaide Subgroup → Beaufort Group → Karoo Supergroup). The Abrahamskraal Formation consists of green and grey mudstone and subordinate sandstone which were deposited in a fluvial (river) environment during the Permian Era (280-225 million years ago).

6. Geotechnical Evaluation

6.1 Engineering and material characteristics

6.1.1 Topography, slopes and vegetation cover

Results of the investigation

All the sites generally have low slope gradients and the vegetation cover is generally sparse.

Effect on the proposed development

Minor earthworks will be required to create access roads. Houses can be generally be constructed on the natural ground level without significant levelling. All sites are easily accessible via municipal roads. Minor vegetation clearing is required on Area A.

6.1.2 Soil types and rock

Results of the investigation

Significant accumulations of uncontrolled imported fill were detected in Area A. This fill generally consists of silty sandy gravel and varying amounts of building rubble and rubbish. The typical natural soil profile encountered on this site consists of medium dense to dense transported silty sandy gravel or gravelly silty sand alluvium/colluvium of approximately 1-2m thick. Similar transported soils were encountered in Area B but the soil cover is generally thinner and refusal on the underlying residual weathered rock was noted in all of the test pits in this area. The bedrock is generally a dark red brown to dark olive grey, soft to medium hard, moderately fractured and weathered, siltstone of the Abrahamskraal Formation.

The thickness of the different soil horizons that were encountered in test pits is summarised in **Table 1**.

Table 1: Summary of soil profile data

Test pit No.	Thickness of Imported (fill) soil (mm)	Thickness of transported soil (mm)	Thickness of residual soil or rock (mm)	Total depth of Test Pit (mm)
Area A				
1	350	1750	-	2100
2	-	2100	-	2100
3	1000	1000	-	2000
4	300	1700	-	2000
5	-	2200	-	2200
6	900	1400	-	2300
7	500	1500	-	2000
8	1500	1000	-	2500
9	1200	1000	-	2200
Area B				
10	-	100	800	900
11	-	450	50	500
12	-	800	100	900
13	-	1200	100	1300
14	200	900	400	1500
15	200	1200	100	1500
16	-	1100	100	1200
17	-	1400	200	1600
18	-	1300	100	1400
19	-	900	200	1100

Effect on the proposed development

The uncontrolled fill should be removed from all sites. This will require competent supervision. The fill material can selectively be reused, but this will be difficult to supervise and is not recommended. Once the fill has been removed, structures can be founded on compacted, dense *in situ* soils or weathered rock. The excavation of deep service trenches in Area B may require power-assisted tools (Montebert-type peckers) to excavate through the rock.

6.1.3 Grading, Atterberg limits and potential expansiveness

Results of the investigation

Four samples of *in situ* transported soil were taken from each site and subjected to grading and Atterberg limits tests (Foundation Indicator tests) in order to determine their geotechnical properties, potential expansivity and their suitability as founding mediums. Abbreviated results of the tests are shown in **Table 2**.

Table 2: Grading and Atterberg limits test results summary

Test Pit No	Sample Depth (mm)	Atterberg Limits			Particle Analysis (%)				MC[1]	PE[2]	USC[3]
		PI	LL	LS	Clay	Silt	Sand	Gravel			
AREA A											
4	300-500	13	29	6	12	45	28	15	6.8	LOW	CL
5	400-2200	4	17	2	18	40	37	5	4	LOW	CL-ML
7	500-1700	6	19	3	12	49	32	7	5.4	LOW	CL-ML
9	1200-2200	13	27	7	4	14	56	26	6.3	LOW	SC
AREA B											
12	0-400	15	25	7.5	28	26	37	9	10.2	LOW	CL
14	200-600	16	29	8	30	23	34	13	8.6	LOW	CL
15	200-1400	14	25	7	13	30	41	16	12.6	LOW	SC
19	0-900	15	27	7	22	26	28	24	6.6	LOW	SC

Notes: 1 *In situ* moisture 2 Potential expansiveness-Van der Merwe method 3 Unified Soil Classification System

Based on the Universal Soil Classification, the transported soil cover is dominantly classified as follows:

CL - Inorganic clay of low to medium plasticity, gravelly clays, sandy clays or silty clays; or
ML - Inorganic silts and very fine sands, rock flour or clayey fine sands"; or
SC – Clayey sands, poorly graded sand-clay mixtures.

The soils contain highly variable percentages of clay, silt, sand and gravel-sized particles. The Plasticity Index for all samples is less than 16% and the potential expansivity is low for all samples tested, according to the Van der Merwe method.

Effect on the proposed development

The tests indicate that the soil texture and properties are not considered to be significantly problematic for the proposed construction of low-rise housing units and roads and the transported soil cover is considered to be a suitable founding medium. However, due to the presence of clay in all samples, caution should be exercised when wetting and compacting the soil.

The transported soils will likely not meet the SABS 1200 LB specification for selected granular material for pipe bedding or blanket and these materials should be imported.

6.1.4 Moisture/density relationship and CBR

Results of the investigation

Two samples of *in situ* transported soils were collected from each site for Mod/CBR/Indicator tests in order to determine the suitability of the material as a potential natural construction material. The results of the tests are summarised in **Table 3**.

Table 3: CBR test results summary

Test Pit No	Sample Depth (mm)	CBR at					Swell (%)	PI (%)	GM	MDD/ OMC	TRH14 Class
		100 %	98%	95%	93%	90%					
AREA A											
2	450-2100	46	39	29	22	11	0.14	6	1.88	1996/8.2	G7
6	900-2300	23	22	20	19	17	0.15	3	1.55	1896/6.3	G7
AREA B											
13	0-900	33	27	18	12	3	0.39	9	1.07	2134/7.9	G10
18	200-1300	22	19	16	14	10	0.13	10	1.43	2122/8.7	G10

The tests indicate that the *in situ* soil is variable in terms of TRH14 quality, ranging from G7 to G10. The soaked CBR fails marginally on the samples from Area B, thus rendering it a lower class.

Effect on the proposed development

All road layerworks from SSG upwards should be imported from commercial quarries. *In situ* material can probably be used for backfilling under floors, provided the contractor can control the moisture content required for adequate compaction. This material is moisture sensitive and it is recommended that imported material be used for all structural applications if the budget allows. Detailed recommendations for road construction are given in **Chapter 8.2**.

6.1.5 pH and conductivity

Results of the investigation

Samples of *in situ* soils were collected for soil chemistry tests (pH & Conductivity) in order to determine the aggressiveness of the soil which can affect buried services and concrete foundations. A summary of the results of the pH and conductivity tests are shown in **Table 4**.

Table 4: pH and conductivity test results summary

Test Pit No.	*Sample depth (mm)*	*pH*	*Conductivity (S/m)*	*Soluble Salts %*
AREA A				
4	300-500	8.11	0.05	0.01
5	400-2200	8.85	0.20	0.05
7	500-1700	7.72	0.04	0.01
9	1200-2200	8.02	0.12	0.03
AREA B				
12	0-400	8.43	0.04	0.01
14	200-600	7.86	0.12	0.03
15	200-1400	8.16	0.11	0.03
19	0-900	8.46	0.05	0.01

The tests indicate that the pH of the soil is neutral to slightly alkaline with low conductivity (dissolved salts).

Using TMH 1 Method A21T, the total dissolved salts are estimated from the conductivity results at less than 0.1%.

Effect on the proposed development

Corrosion of metallic pipe fittings and other construction materials will be negatively influenced by low or high pH, and high conductivity (indicating high concentration of dissolved salts in the soils). The influence of pH and conductivity on the corrosiveness of soil is explained in **Table 5**.

Table 5: Influence of pH and conductivity on the corrosiveness of soil

pH	*Conductivity (S/m)*	*Corrosiveness*
6-8	<0.1	Non corrosive
5-6 or 8-9	0.1-0.3	Mildly corrosive
4-5 or 9-10	0.3-0.5	Corrosive
<4 or >10	>0.5	Highly corrosive

Test results indicate non corrosive conditions. HDPE or uPVC pipe products should be acceptable under these conditions. Metallic fittings should be powder coated as a precaution.

6.1.6 Compressibility, collapse potential and bearing capacity

Results of the investigation

No consolidometer tests were undertaken due to the friable nature of the soils which prevented the collection of undisturbed samples. DCP tests were undertaken where practical in order to assess the consistency of the soil in an attempt to estimate compressibility and bearing capacity. The tests indicate medium dense to dense *in situ* soil, but this may be misleading as the soils are slightly cemented. Pin-holing is also typical in these cemented transported soils, indicating a collapse potential. Judging by the DCP results, the overlying imported fill is quite obviously loose and highly compressible. The fill also has a voided structure and is considered to be highly collapsible.

Effect on the proposed development

Uncontrolled fill should be removed from the footprint of structures and roads.

Foundations for structures should be lightly reinforced and placed on compacted *in situ* soil. A maximum design bearing capacity of 100kPa is recommended, but adequate compaction is important. Settlement for low-rise structures is likely to be less than 10mm with adequate compaction. Foundation solutions are dealt with in more detail in **Chapter 9**.

6.1.7 Swell / heave

Results of the investigation

The transported soil cover has a low-medium PI. Clay heave is likely to be low due to low soil moistures and low permeability. All sites are classified as H.

Effect on the proposed development

A light steel reinforcement of foundations will accommodate the anticipated heave.

6.1.8 Soil moisture, permeability and groundwater

Results of the investigation

The site is located in a semi-arid climatic area (Weinert N-number >10) and soil moistures are typically low. The majority of the sites are underlain by soils with a low permeability, estimated at 10^{-5} – 10^{-8}m/s. No seepage or perched water tables were noted in test pits.

Effect on the proposed development

No additional measures are required to compensate for groundwater or seepage problems. No subsoil drains along roads are anticipated.

6.1.9 Existing structures

Results of the investigation

Area B has existing informal structures on it. Area A is vacant with minor ruins on it.

Effect on the proposed development

Some demolition works and rubble removal will be required in Area B.

6.2 Slope stability and erosion

No steep slopes or geological instability is anticipated.

6.3 Excavation classification with respect to services

Excavation for shallow foundations can be accomplished with a TLB in all areas. In Area B, the rock is shallower than 1m in localised areas and this may affect the installation of deep services in this area.

A summary of the depths of machine refusal in the test pits is given in **Table 6**.

Table 6: Summary of TLB refusal depths

Test pit No.	Refusal depth (mm)
AREA A	
1	*
2	*
3	*
4	*
5	*
6	*
7	*
8	*
9	*
AREA B	
10	900
11	500
12	900
13	1300
14	1500
15	1500
16	1200
17	1600
18	1400
19	1100
Ave	1200

*No refusal

A broad guideline for planning purposes, in terms of the SABS 1200D, is given in **Table 7**.

Table 7: Guideline for excavations in terms of the SABS 1200D

Terrain Unit	Excavation classification to 0.5m	Excavation classification from 0.5m to 1m	Excavation classification from 1 to 1.5m
Area A	Soft (TLB)	Soft (TLB)	Soft (TLB)
Area B	Soft (TLB)	Soft (TLB)	Intermediate (Excavator with rock bucket)

6.4 Impact of the geotechnical character of the site on subsidy housing developments

The sites are classified in accordance with the new guidelines set out in the document titled: "Policy and implementation manual on the adjustment of the subsidy amount to cater for extraordinary development conditions and the required precautionary measures", issued by the Department of Housing in March 2007. This classification is shown in **Table 8**.

Table 8: Site specific subsidy variations (All areas)

Geotechnical Conditions	Category or type	Criteria	Precautionary measures	Affected areas	Comment
Seepage / groundwater	Category 1	Permanent or perched water tables less than 1.0m below ground surface	Subsurface drainage/improved damproofing measures to houses, service trenches to be dewatered during construction	None	Perched water tables may occur at the base of the fill but will only be temporary and fill should be removed anyway
	Category 2	Permanent or perched water tables more than 1m but less than 1.5m below ground level	Service trenches to be dewatered during construction	None	
Erodability of soil	Category 1	High risk (Erodability index 1-8)	Retaining walls & earthworks to reduce slopes & surface drainage	None	
	Category 2	Medium risk (Erodability index 9-15)	Retaining walls & earthworks to reduce slopes	All areas	
Hard excavation	Category 1	Hard rock excavation to a depth of 1.5m	Additional cost of trench and foundation excavation	None	
	Category 2	Boulder excavation to a depth of 1.5m	Additional cost of trench, foundation and road excavation	Area B	Intermediate excavations from 1.0-1.5m
Dolomite	Category 1	Risk class 1&2 (Dolomite area class D2)	Additional cost of foundations	None	
	Category 2	Risk class 3&4 (Dolomite area class D3)	Additional cost of foundations	None	
Expansive Clays	Category 1	H1	Foundation design, building procedures and precautionary measures: Modified normal	None	
	Category 2	H2	Foundation design, building procedures and precautionary measures: Light/medium raft	None	
	Category 3	H3	Foundation design, building procedures and precautionary measures: Heavy raft	None	
Compressible and Collapsible soils	Category 1	C1	Foundation design, building procedures and precautionary measures: Modified normal	Area B	*In situ* soils are moderately compressible and potentially collapsible
	Category 2	C2	Foundation design, building procedures and precautionary measures: Light or heavy raft	Area A	Uncontrolled fill is highly collapsible.

Geotechnical Conditions	Category or type	Criteria	Precautionary measures	Affected areas	Comment
Compressible soils	Category 1	S1	Foundation design, building procedures and precautionary measures: Modified normal	None	All sites are classified as collapsible and compressible (C1)
	Category 2	S2	Foundation design, building procedures and precautionary measures: Light or heavy raft	None	
Mining subsidence	Category 1	Old undermining to a depth of between 90-240m below surface where stope closure has ceased	Additional cost of foundations: Compaction below footings or raft	None	
	Category 2	Old undermining to a depth of between 90-240m below surface where total extraction has taken place	Additional cost of foundations: additional earthworks or soil reinforcement	None	
Seismic activity	Category 1	Mining induced seismic activity > 100cm/s^2	Additional cost of foundations: Stiffened strip footings or raft	None	
	Category 2	Natural seismic activity > 100cm/s^2	Additional cost of foundations: Stiffened strip footings or raft	None	
Topography	Category 1	Average ground slope flatter than 1:20	Increased depth of sewer lines on site	All areas	
	Category 2	Average ground slope of between 1:10 and 1:20	Terracing for houses & additional earthworks to roads & storm water control measures	None	
	Category 3	Average ground slope of between 1:7 and 1:10	Terracing for houses & additional earthworks to roads & storm water control measures	None	
	Category 4	Average ground slope of between 1:4 and 1:7	Terracing for houses & additional earthworks to roads & storm water control measures	None	
	Category 5	Average ground slope steeper than 1:4	Terracing for houses & additional earthworks to roads & storm water control measures	None	
SCCCA	Southern Cape Coastal Conden-sation Area	Area subjected to severe condensation conditions	Plaster and paint on all external walls & 6.4mm gypsum plasterboard ceilings & 80mm thick glass fibre insulation	None	
Location of site		Site more than 20km from major centres	Additional cost of transportation	All areas	Victoria West 80km

7. Site classification

In terms of the South African Institution of Civil Engineering (SAICE) Code of Practice for Single Storey Structures of Masonry Construction (1995), the site classifications are shown in **Table 9**.

Table 9: SAICE site classification

Terrain Unit	*Geotechnical Constraint*	*Expected movement (mm)*	*NHBRC Site Classification*
AREA A	Compressible or collapsible soil	>10	C2
	Clayey soil	<7.5	H
	Uncontrolled fill		P
AREA B	Compressible or collapsible soil	5-10	C1
	Clayey soil	<7.5	H
	Rock within 1.5m depth		R

8. Foundation recommendations and solutions

The following recommendations are given as a guideline based on the information at hand. The design of structures and services remains the responsibility of the appointed engineer.

8.1 Earthworks and structural foundations

All earthworks should be conducted as per SABS 1200D or COLTO 3300. The construction of foundations and superstructures should be carried out as per the NHBRC Home Builders Manual.

The recommended foundation method for single and double-storey structures is lightly reinforced rafts, or lightly reinforced strip foundations on *in situ* soils compacted to 95% of the Mod AASHTO density or on linearly continuous rock (where practical). Structural filling material under floor slabs should be imported and compacted to a minimum of 95% of the Mod AASHTO density or as directed by the engineer. Floor slabs should be reinforced.

Founding conditions for structures exceeding double storey height should be assessed by a professional geotechnical engineer to determine settlement potential based on individual loads and soil/rock conditions.

The following additional recommendations are provided:

- Remove all organic material and imported fill under footprint areas.
- No structures should be placed on uncontrolled fill.
- Uncontrolled fill should be spoiled or treated as directed by the engineer.
- All foundations should be placed on the same soil or rock type.
- Localised depressions requiring filling should be filled with suitable local or imported material and compacted to the same degree and level as the surrounding density.
- Do not try to compact saturated soil. Rather remove and replace.
- The finished floor level of all houses should be a minimum of 250mm above final ground level to prevent flooding.
- Trenches for structural foundations should be tested and/or inspected by the engineer to assess founding conditions, such as soil types, consistency in density and moisture levels.

8.2 Road pavements

Road construction should be carried out according to SABS 1200 or COLTO 3000 specifications.

Preparation of the subgrade:

- Cut roadbed to line and level;
- Proof roll to identify soft areas;
- Scarify or remove soft or wet soil and reinstate with imported G7 gravel or suitably drier *in situ* gravel;
- The *in situ* subgrade/roadbed is unsuitable as a selected subgrade (SSG) layer.
- Compact roadbed to a minimum depth of 150 mm to 90% of Mod. AASHTO density. Recommended moisture content before rolling is optimum moisture content (OMC) minus 2-3%.

The layerworks recommendations are provided in **Table 10** as a guide for the design of minor access roads.

Table 10: Road layerworks recommendations

Layer	***Material***	***Thickness***	***Required Compaction***
Roadbed	*In situ* soil		90% Mod AASHTO
Selected Subgrade	Imported G7	150mm	93% Mod AASHTO
Subbase	Imported G4/5 Gravel	150mm	95% Mod AASHTO
Base	Imported G2	150mm	98% Mod AASHTO
Seal	Cape Seal		TBD by engineer
OR			
Selected Subgrade	Imported G7	150mm	93% Mod AASHTO
Subbase	Imported G4/5 Gravel stabilised with cement (C4)	150mm	95% Mod AASHTO
Bedding	Clean bedding sand	20mm	100% Mod AASHTO
Paving	Interlocking Concrete Pavers	60-80mm	-

9. Stormwater drainage

Design and construction of stormwater drainage should be carried out according to SABS 1200LE or COLTO 2000 specifications.

Raised barrier kerbs, mountable or semi-mountable kerbs along roads are recommended in order to aid the drainage of the site during heavy downpours. The kerbs will also protect the road shoulder from erosion. Regularly spaced catch-pits leading into buried stormwater pipes are recommended along roads to prevent run-off from flooding properties. Ponding of storm water around the exterior of houses can be avoided by constructing a 1m wide a concrete apron with a 10% fall away from the house.

Subsoil drains are typically not required along roads due to very low soil moistures.

The southern portion of Area B is low-lying and becomes marshy near the road (see **Figure 4**). Improved drainage is recommended in this area. No housing should be planned in the area immediately to the southeast of the small dam to prevent flooding due to overflowing or dam wall failure.

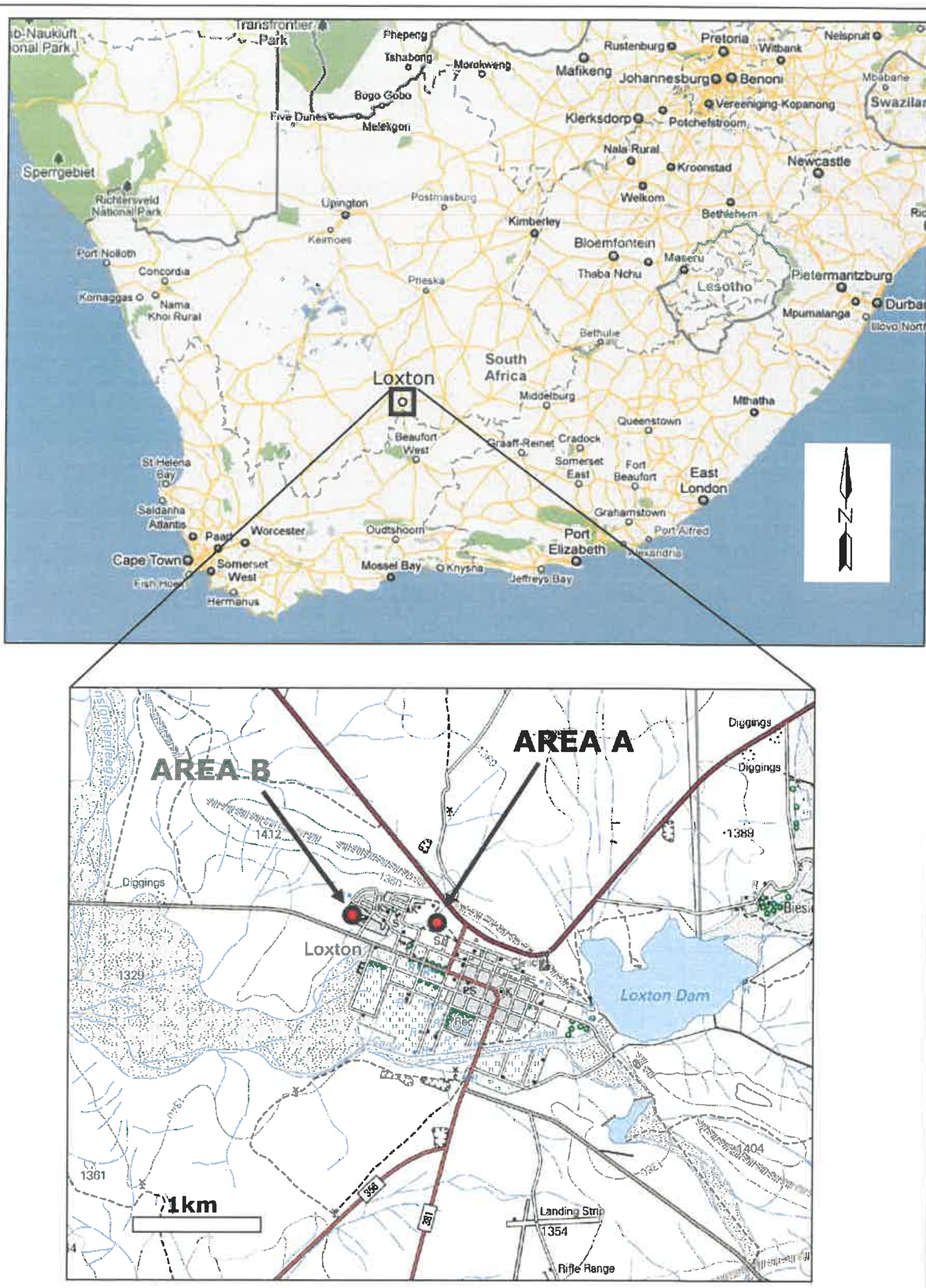
10. Special precautionary measures

The following special measures are recommended as a precaution:

- The position of geotechnical test pits should be provided to the contractor who can locate and reinstate to a satisfactory level of compaction where these may occur below structures and roads.

11. Conclusions

The sites which have been identified for possible development are deemed to be suitable for such purpose but certain precautionary measures are advocated in this report for the attention of the civil and structural engineers.



TITLE:
Figure 1: Locality and topographical map of sites

SCALE:
As shown

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TITLE:
Figure 2: Aerial photo of Loxton showing two areas proposed for development

SCALE:
As shown

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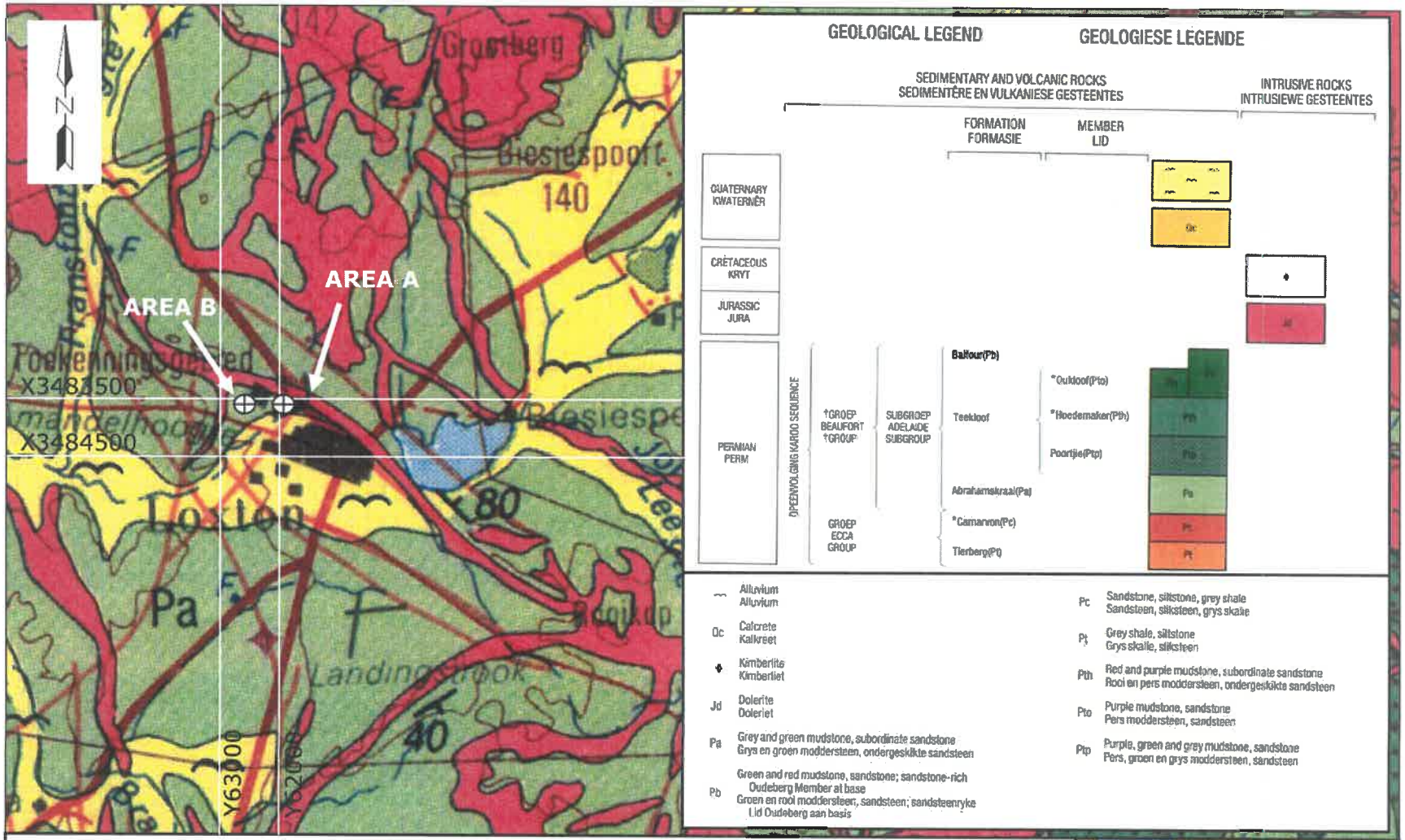

TITLE:
Figure 3: Geological map of Loxton area

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As shown

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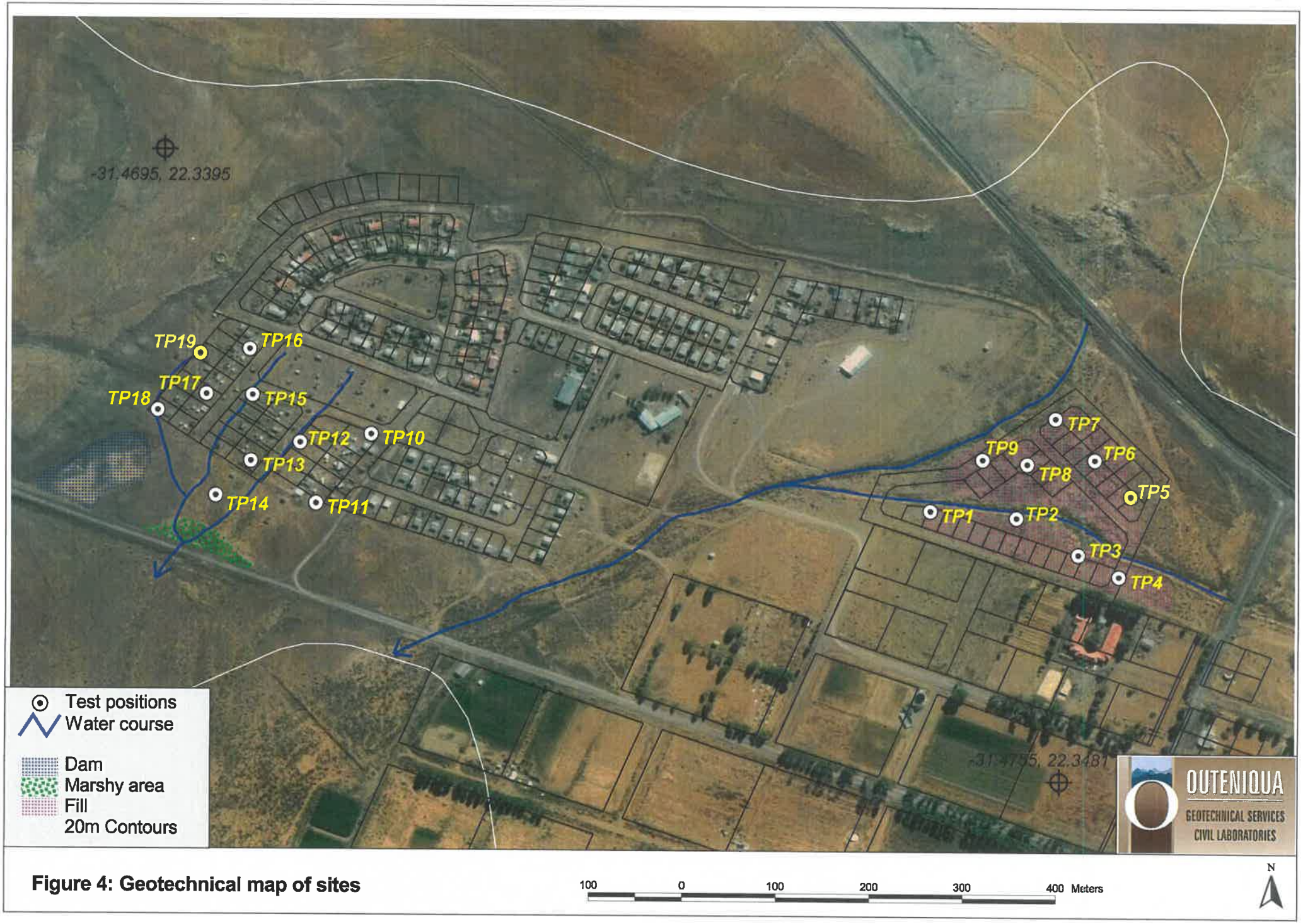


Figure 4: Geotechnical map of sites

Appendix 1

Test Pit Profiles

OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

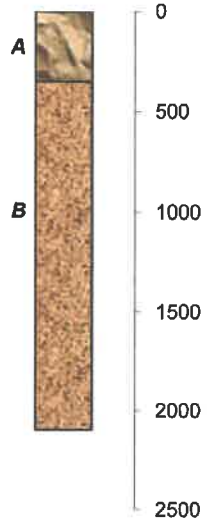
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 1

Datum: NGL | Co-ords: 23 Y00 62066 X34 83595

Key to symbols: O Sample taken ▽ Water seepage



(0 to 350) Slightly moist, dark reddish orange, medium dense, intact, ***SILTY SANDY GRAVEL***, imported

(350 to 2100) Dry, dark to light reddish orange, medium dense to dense, pinholed, ***GRAVELLY SILTY SAND***, transported

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

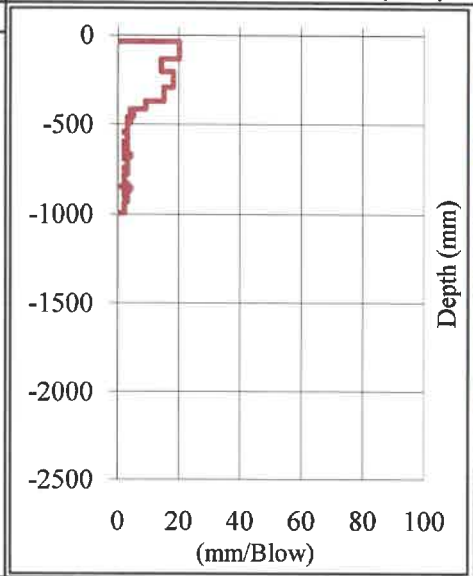
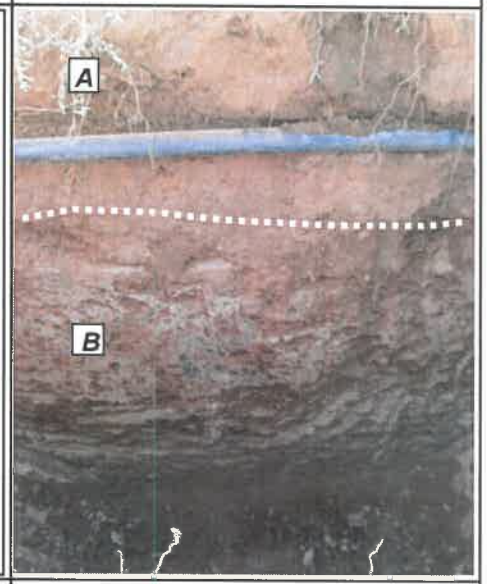


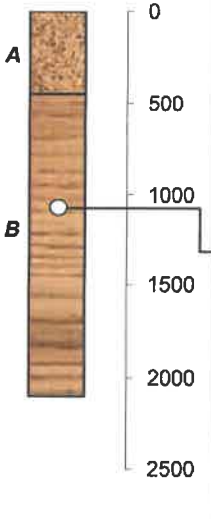
Photo of Test Pit



LTP 2

Datum: NGL | Co-ords: 23 Y00 61987 X34 83602

Key to symbols: O Sample taken ▽ Water seepage



(0 to 450) Slightly moist, dark reddish orange, medium dense, intact, ***GRAVELLY SILTY SAND***, transported

(450 to 2100) Slightly moist to dry, dark to light reddish orange, dense, pinholed, ***SILTY SAND GRAVEL***, transported

MOD/CBR/Indicator

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

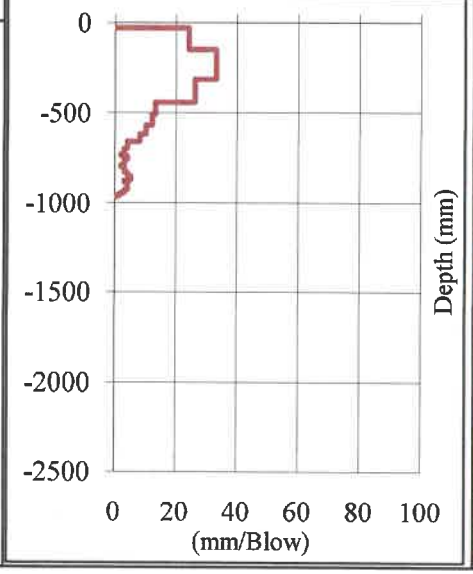
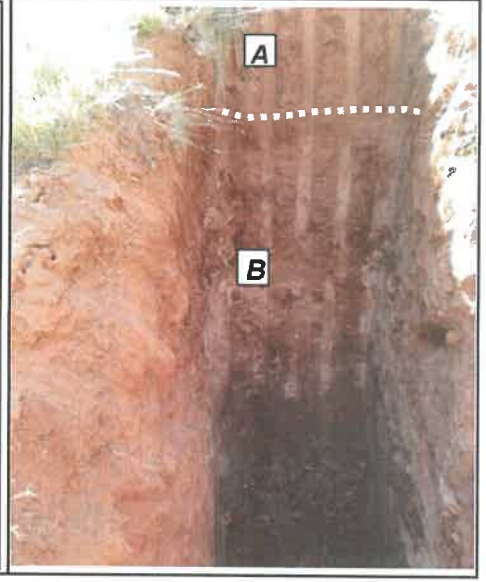


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

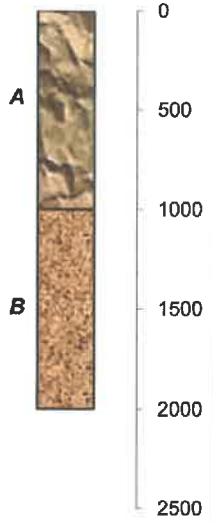
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 3

Datum: NGL | Co-ords: 23 Y00 61930 X34 83641

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 1000) Slightly moist, dark reddish orange, medium dense, intact, ***SILTY SANDY GRAVEL & BRICKS***, imported (Fill).

(1000 to 2000) Dry, light reddish orange, medium dense to dense, intact, ***GRAVELLY SILTY SAND***, transported

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

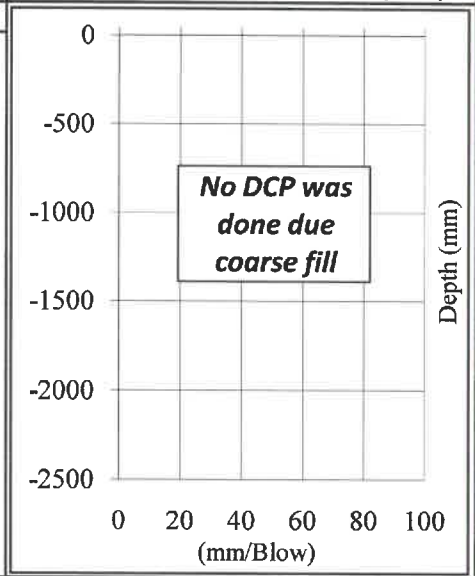
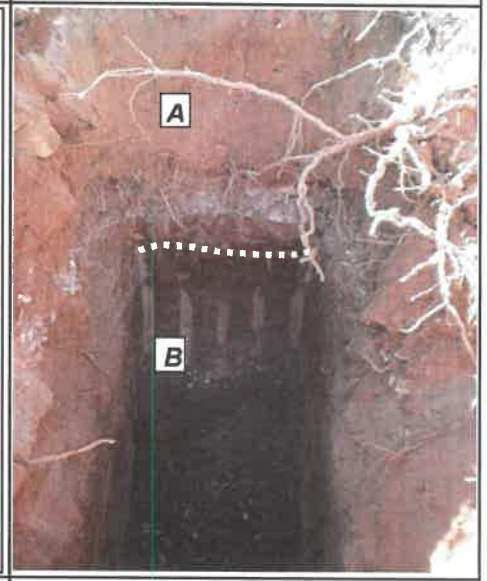


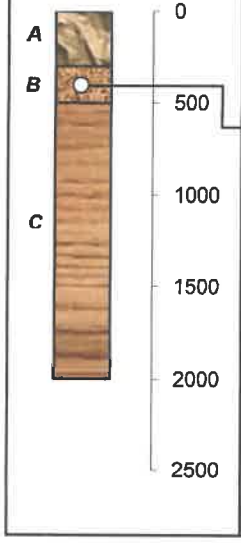
Photo of Test Pit



LTP 4

Datum: NGL | Co-ords: 23 Y00 61893 X34 83664

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 300) Dry, dark reddish orange, medium dense, intact, ***GRAVELLY SILTY SAND & BRICKS***, imported (Fill).

(300 to 500) Dry, dark reddish orange, medium dense, intact, ***GRAVELLY CLAYEY SANDY SILT***, transported

Foundation Indicator

(500 to 2000) Dry, light reddish orange, dense to very dense, intact, ***GRAVELLY SILTY SAND***, transported

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

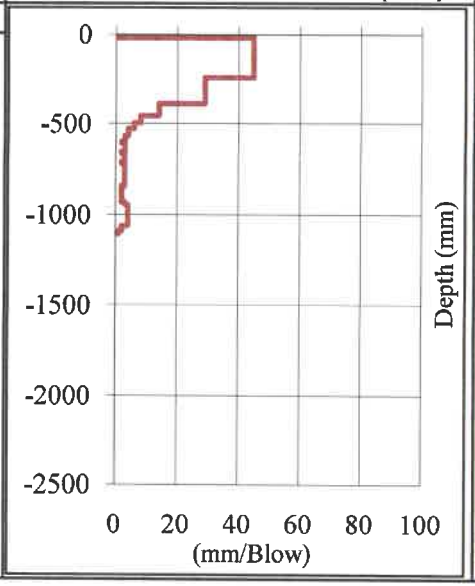


Photo of Test Pit

OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

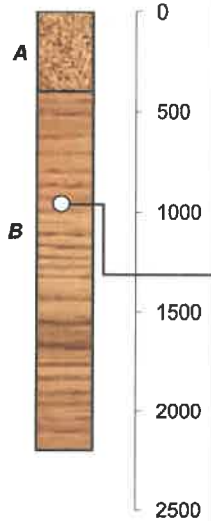
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 5

Datum: NGL | Co-ords: 23 Y00 61882 X34 83578

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 400) Slightly moist, dark reddish orange, medium dense, intact, ***SILTY SAND***, transported

(400 to 2200) Slightly moist to dry, dark to light reddish orange, medium dense to dense, intact, ***GRAVELLY CLAYEY SILTY SAND***, transported

Foundation Indicator

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

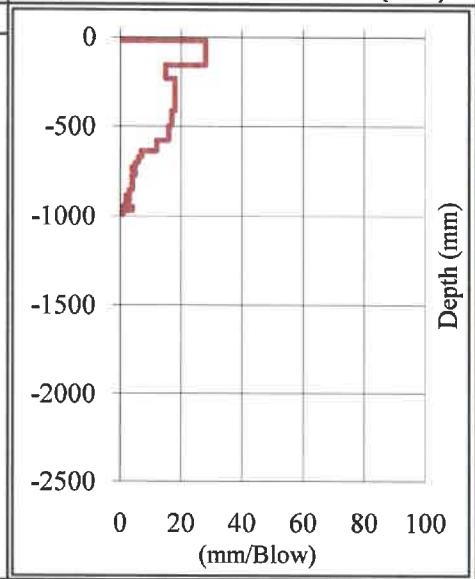
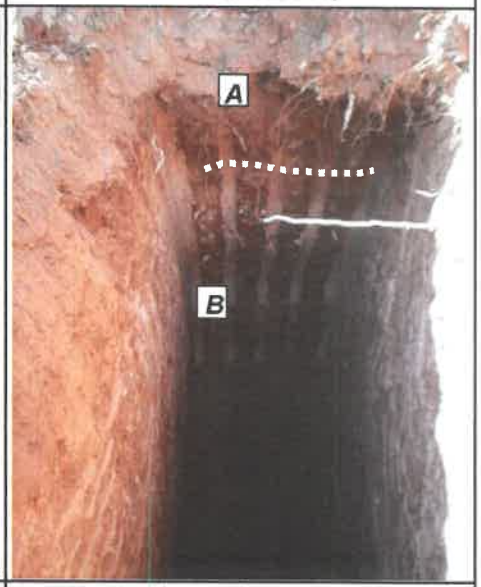


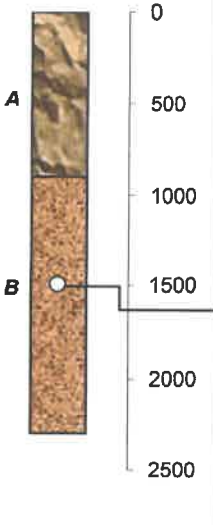
Photo of Test Pit



LTP 6

Datum: NGL | Co-ords: 23 Y00 61915 X34 83541

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 900) Slightly moist, dark reddish orange to grey, loose, voided, ***SILTY SANDY GRAVEL, BRICKS & RUBBISH***, imported (Fill).

(900 to 2300) Slightly moist to dry, dark reddish orange to light olive, dense, pinholed, ***GRAVELLY SILTY SAND***, transported

MOD/CBR/Indicator

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

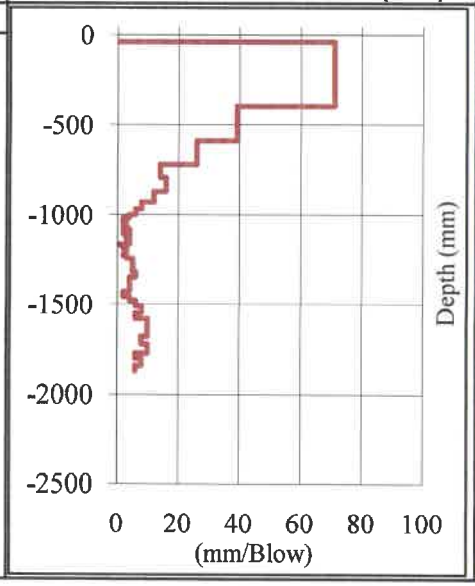
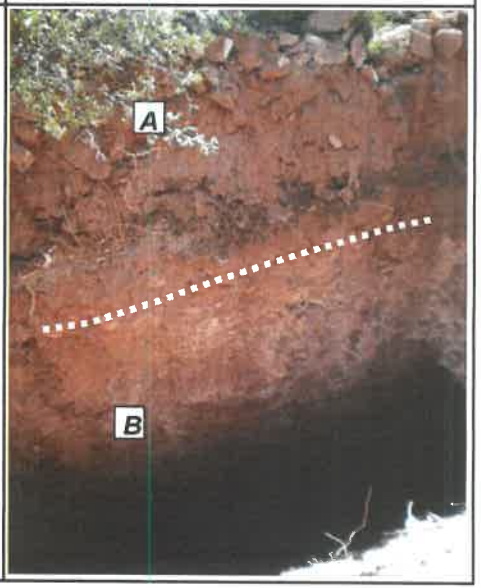


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

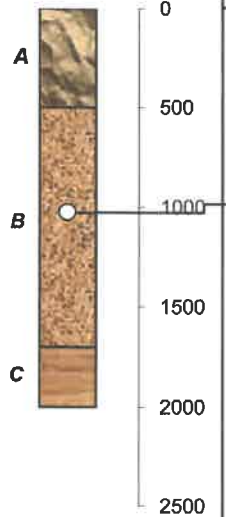
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 7

Datum: NGL | Co-ords: 23 Y00 61951 X34 83497

Key to symbols: O Sample taken ⏚ Water seepage



(0 to 500) Slightly moist, dark reddish orange, loose, voided, ***SILTY SAND GRAVEL***, imported

(500 to 1700) Slightly moist to dry, light reddish orange, medium dense to dense, intact, ***GRAVELLY CLAYEY SANDY SILT***, transported

Foundation Indicator

(1700 to 2000) Dry, dark reddish orange, dense, intact, ***SILTY SANDY GRAVEL***, transported

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

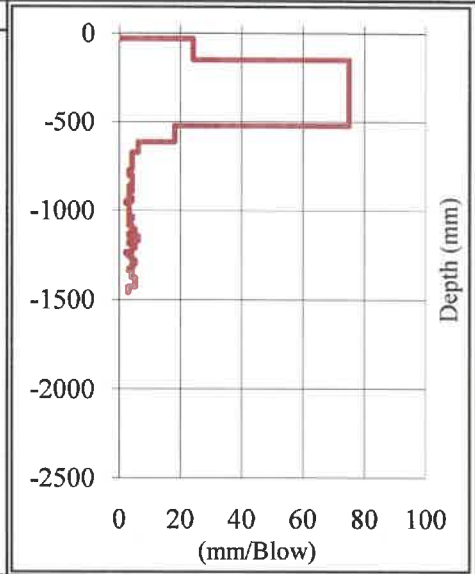
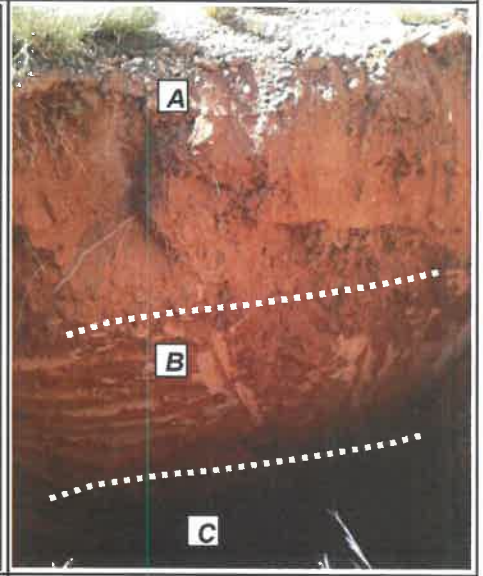


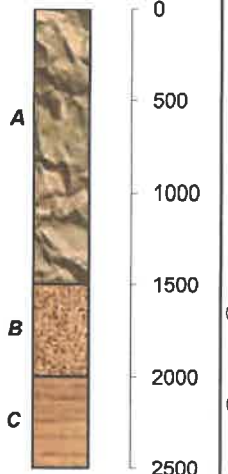
Photo of Test Pit



LTP 8

Datum: NGL | Co-ords: 23 Y00 61977 X34 83545

Key to symbols: O Sample taken ⏚ Water seepage



(0 to 1500) Dry, dark brown, loose, intact, ***SILTY SANDY GRAVEL, BRICKS & RUBBISH***, imported (Fill).

(1500 to 2000) Dry, light brownish orange, medium dense to dense, intact, ***SILTY SAND GRAVEL***, transported

(2000 to 2500) Dry, light brownish orange, medium dense, intact, ***GRAVELLY SILTY SAND***, transported

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

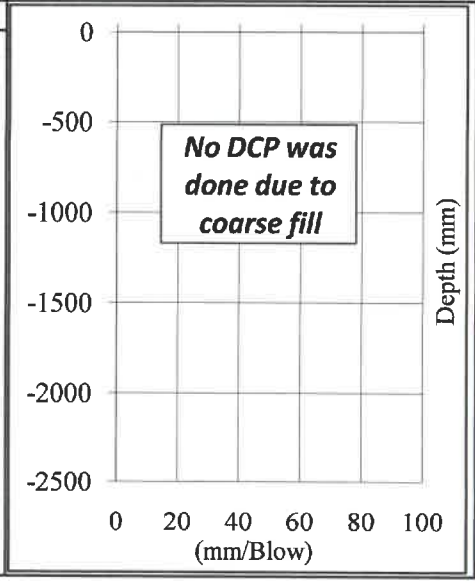
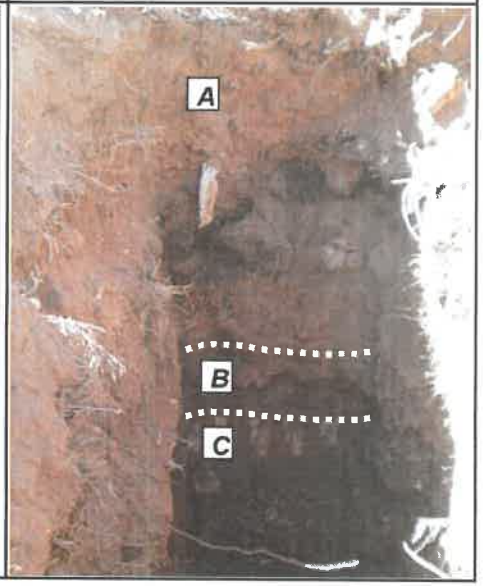


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

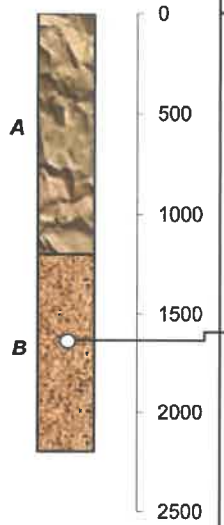
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 9

Datum: NGL | Co-ords: 23 Y00 62018 X34 83541

Key to symbols: O Sample taken ⩧ Water seepage



(0 to 1200) Dry, dark reddish orange to light grey, loose, intact, ***SILTY SANDY GRAVEL***, imported (Fill).

(1200 to 2200) Dry, dark to light reddish orange to light grey, medium dense to dense, intact, ***SILTY GRAVELLY SAND***, transported

Foundation Indicator

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

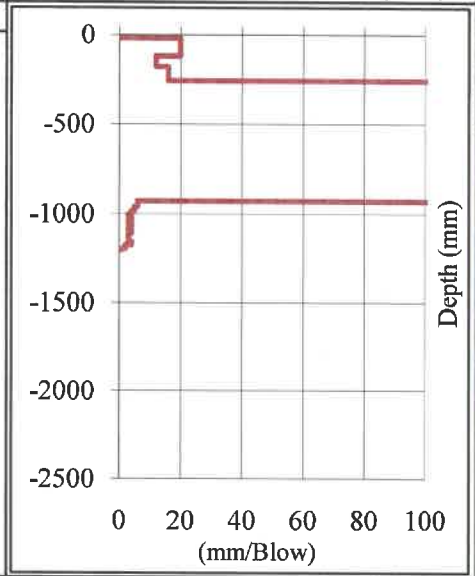
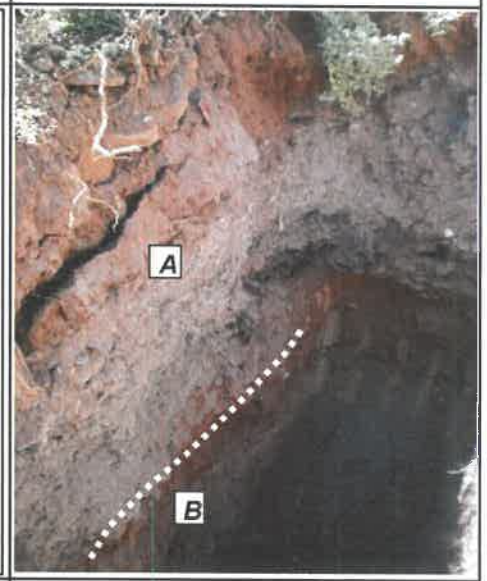


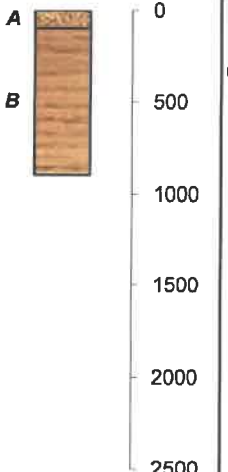
Photo of Test Pit



LTP 10

Datum: NGL | Co-ords: 23 Y00 62578 X34 83519

Key to symbols: O Sample taken ⩧ Water seepage



(0 to 100) Slightly moist, dark red orange, loose, intact, **SILTY SANDY GRAVEL**, transported

(100 to 900) Dark reddish brown, very soft to soft, highly weathered, highly fractured, ***SILTSTONE ROCK***

Machine refusal @ 900mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

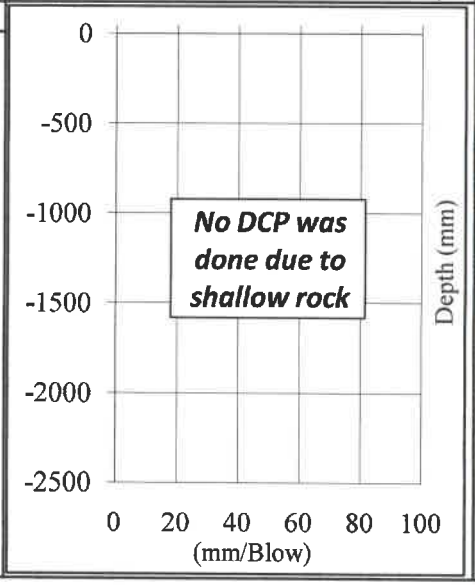
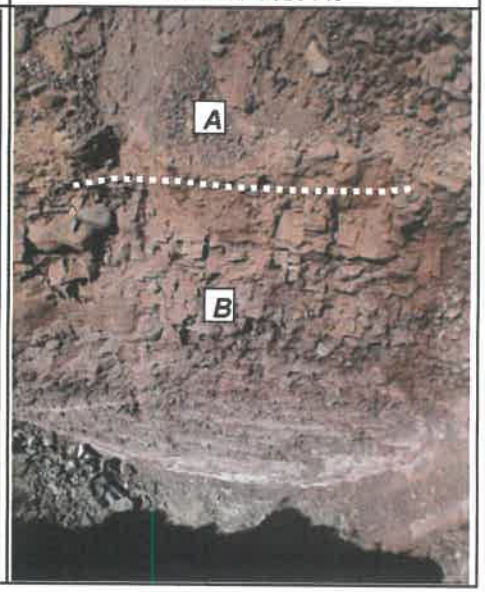


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

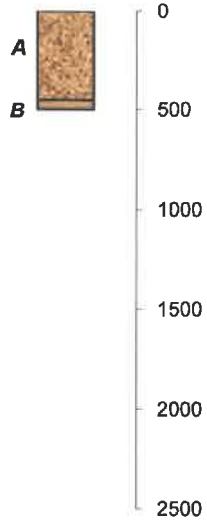
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 11

Datum: NGL | Co-ords: 23 Y00 62628 X34 83592

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 450) Slightly moist, dark reddish orange, dense, intact, ***SILTY SANDY GRAVEL***, transported

(450 to 500) Dark reddish brown, soft, moderately weathered, moderately fractured, ***SILTSTONE ROCK***

Machine refusal @ 500mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

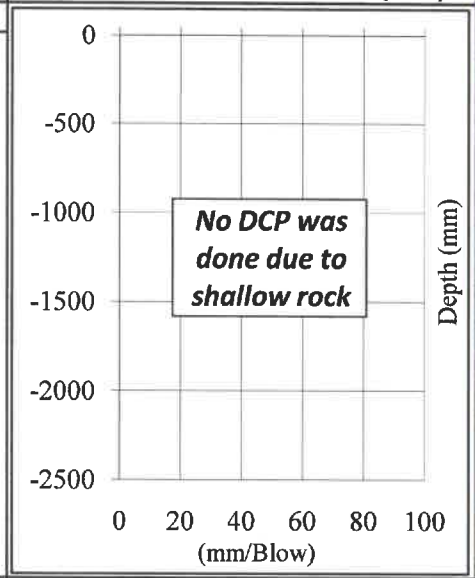
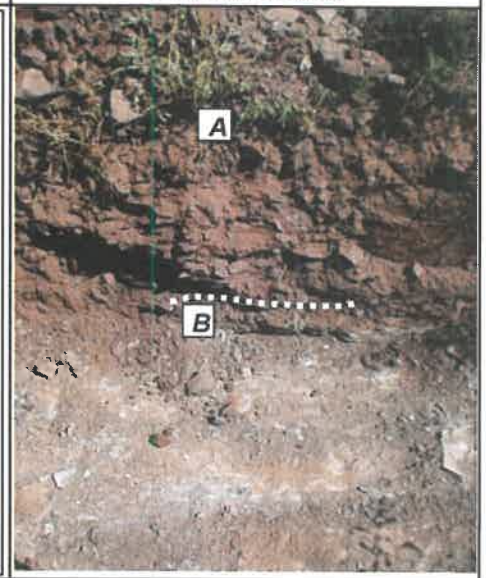


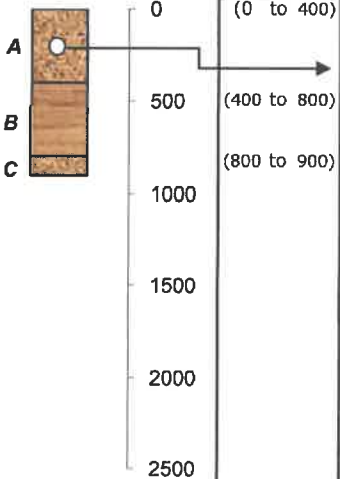
Photo of Test Pit



LTP 12

Datum: NGL | Co-ords: 23 Y00 62643 X34 83528

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 400) Slightly moist, dark reddish orange, medium dense, intact, ***GRAVELLY SILTY CLAYEY SAND***, transported
Foundation Indicator

(400 to 800) Slightly moist, dark reddish orange, medium dense, intact, ***SILTY SANDY GRAVEL***, transported

(800 to 900) Dark reddish brown, soft to medium hard, moderately weathered, moderately fractured, ***SILTSTONE ROCK***

Machine refusal @ 900mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

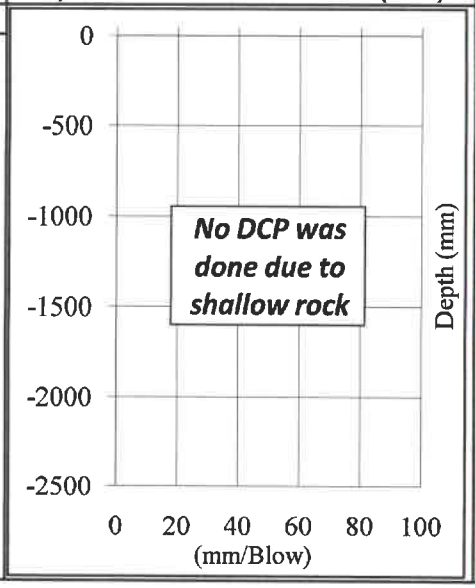
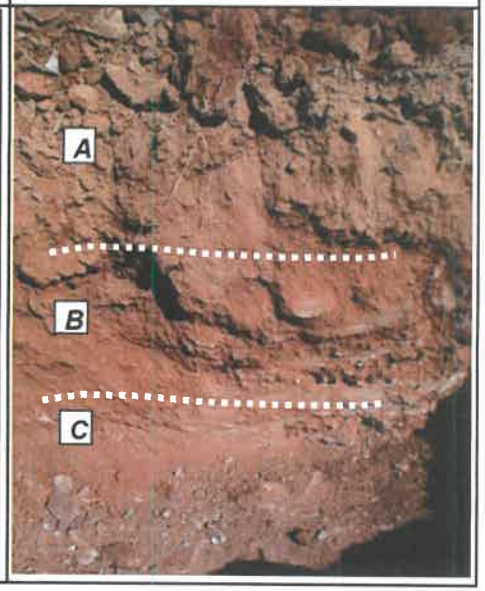


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

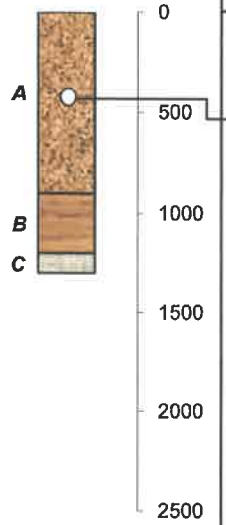
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 13

Datum: NGL | Co-ords: 23 Y00 62688 X34 83548

Key to symbols: O Sample taken ⏚ Water seepage



(0 to 900) Slightly moist, dark reddish orange, medium dense, intact, ***GRAVELLY SILTY CLAYEY SAND***, transported

Mod/CBR/Indicator

(900 to 1200) Slightly moist, dark red orange, dense, intact, ***SILTY SANDY GRAVEL***, transported

(1200 to 1300) Dark grey, soft to medium hard, moderately weathered, moderately fractured. ***SILTSTONE ROCK***

Machine refusal @ 1300mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

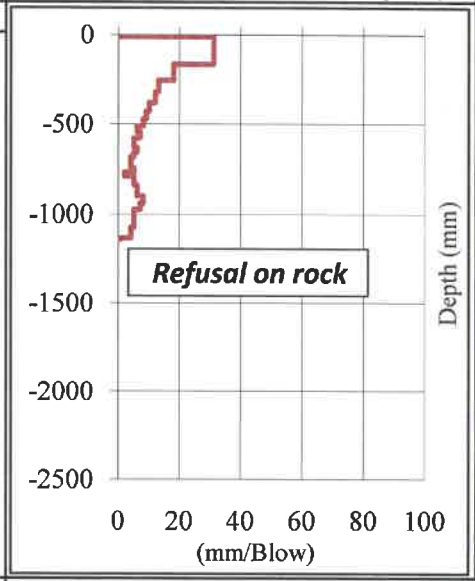
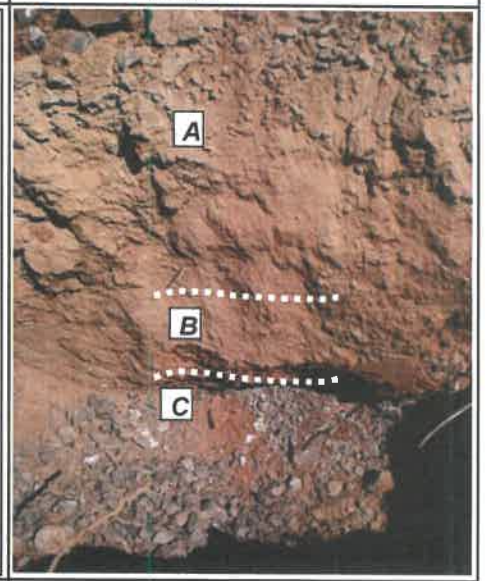


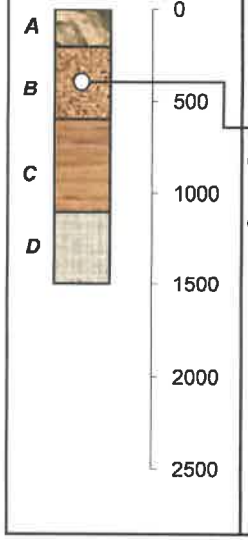
Photo of Test Pit



LTP 14

Datum: NGL | Co-ords: 23 Y00 62720 X34 83585

Key to symbols: O Sample taken ⏚ Water seepage



(0 to 200) Slightly moist, dark reddish orange, loose, intact, ***GRAVELLY SILTY SAND & RUBBISH***, imported (Fill).

(200 to 600) Slightly moist, dark reddish orange, medium dense, intact, ***GRAVELLY SILTY CLAYEY SAND***, transported

Foundation Indicator

(600 to 1100) Slightly moist, dark reddish orange, medium dense, intact, ***SILTY CLAYEY SANDY GRAVEL***, transported

(1100 to 1500) Dark olive, soft to medium hard, moderately weathered, moderately fractured. ***SILTSTONE ROCK***

Machine refusal @ 1500mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

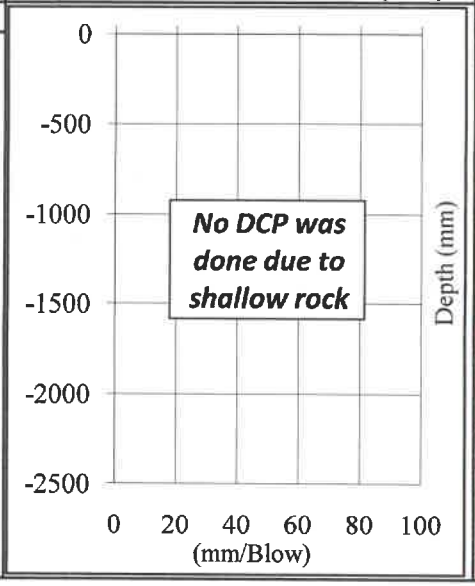
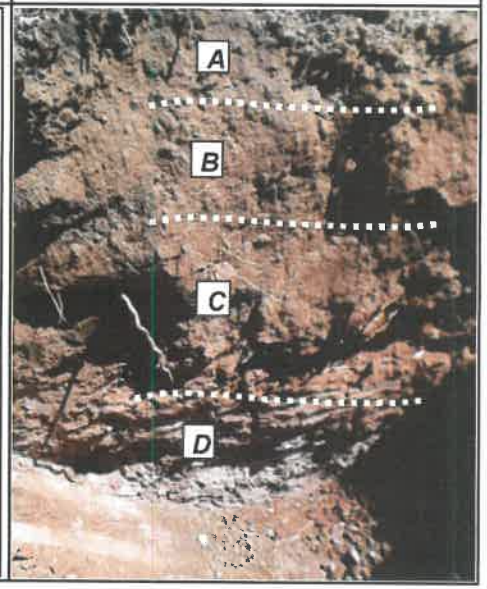


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

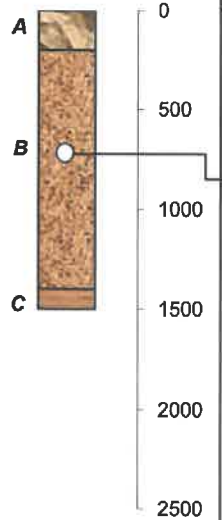
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 15

Datum: NGL | Co-ords: 23 Y00 62687 X34 83478

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 200) Slightly moist, dark reddish orange, loose, intact, ***GRAVELLY SILTY SAND***, imported (Fill)

(200 to 1400) Slightly moist, dark reddish orange, medium dense to dense, intact, ***CLAYEY GRAVELLY SILTY SAND***, transported

Foundation Indicator

(1400 to 1500) Dark red orange, soft to medium hard, moderately weathered, moderately fractured, ***SILTSTONE ROCK***

Machine refusal @ 1500mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

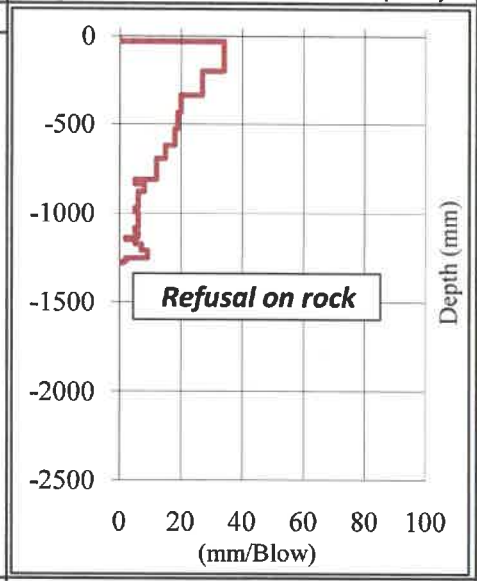
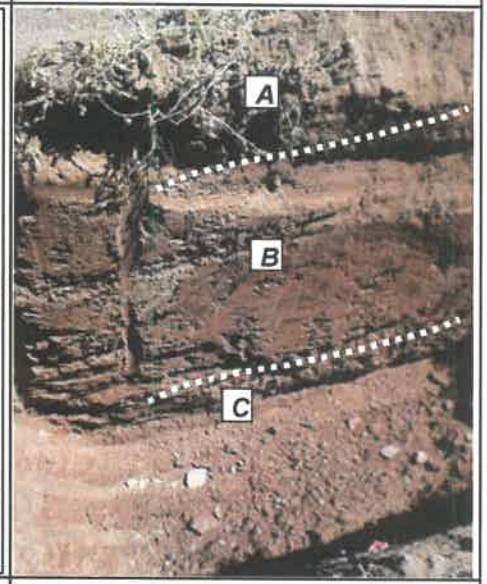


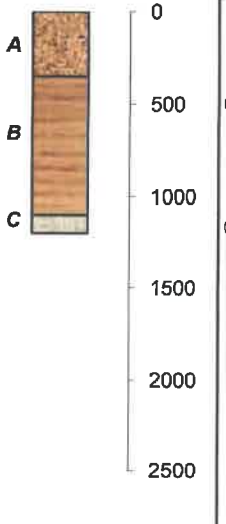
Photo of Test Pit



LTP 16

Datum: NGL | Co-ords: 23 Y00 62690 X34 83430

Key to symbols: O Sample taken ⩢ Water seepage



(0 to 350) Dry, dark reddish orange, dense, intact, ***GRAVELLY SILTY SAND***, transported

(350 to 1100) Dry, light reddish orange, dense, intact, ***SILTY SANDY GRAVEL***, transported

(1100 to 1200) Dark olive, soft to medium hard, moderately weathered, moderately fractured, ***SILTSTONE ROCK***

Machine refusal @ 1200mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

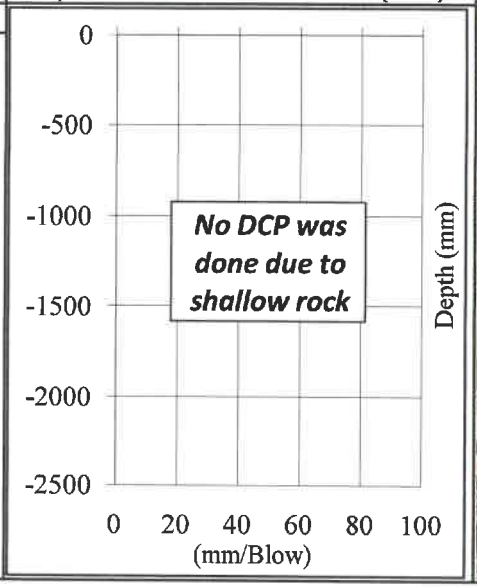
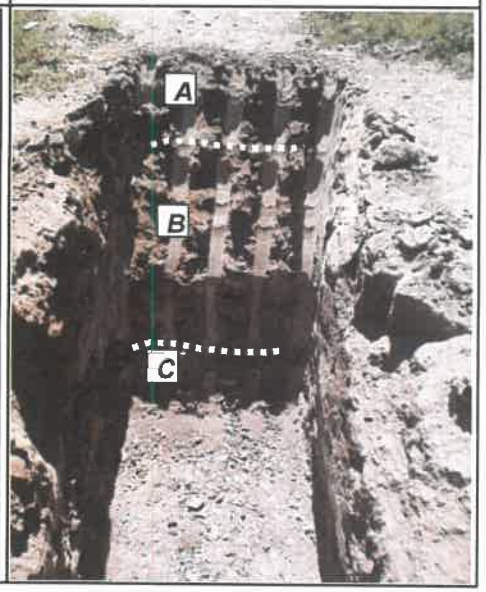


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

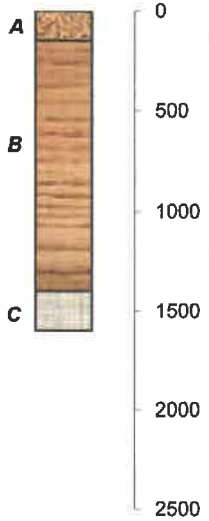
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 17

Datum: NGL | Co-ords: 23 Y00 62730 X34 83477

Key to symbols: O Sample taken ⩧ Water seepage



(0 to 150) Slightly moist, dark reddish orange, medium dense, intact. ***SILTY SAND GRAVEL*** . transported

(150 to 1400) Slightly moist, dark reddish orange, medium dense, intact. ***CLAYEY SILTY SANDY GRAVEL*** . transported

(1400 to 1600) Dark grey, soft, moderately weathered, moderately fractured. ***SILTSTONE ROCK***

Machine refusal @ 1600mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

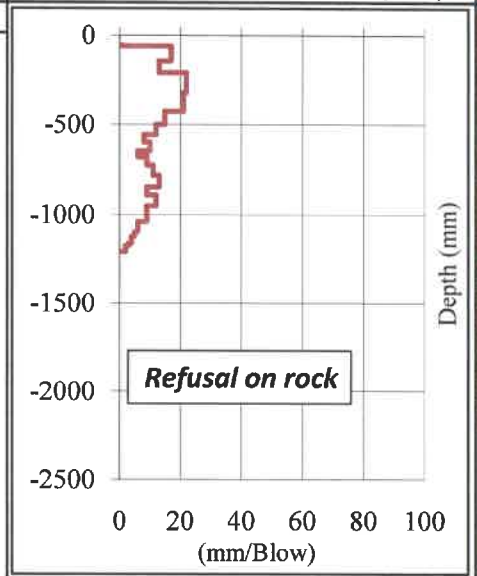
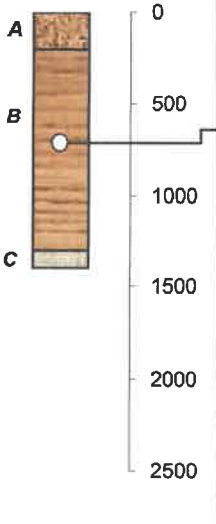


Photo of Test Pit

LTP 18

Datum: NGL | Co-ords: 23 Y00 62774 X34 83495

Key to symbols: O Sample taken ⩧ Water seepage



(0 to 200) Slightly moist, dark reddish orange, medium dense, intact. ***SILTY SANDY GRAVEL*** . transported

(200 to 1300) Dry, DARK TO light reddish orange, dense, intact, ***GRAVELLY SILTY SAND*** . transported

MOD/CBR/Indicator

(1300 to 1400) Dark olive, soft, moderately weathered, moderately fractured. ***SILTSTONE ROCK***

Machine refusal @ 1400mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

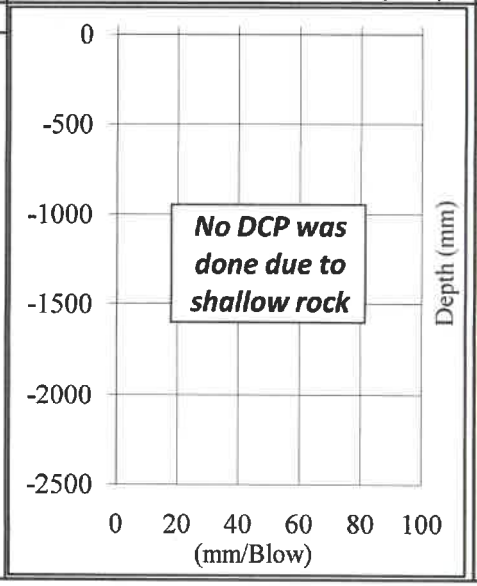
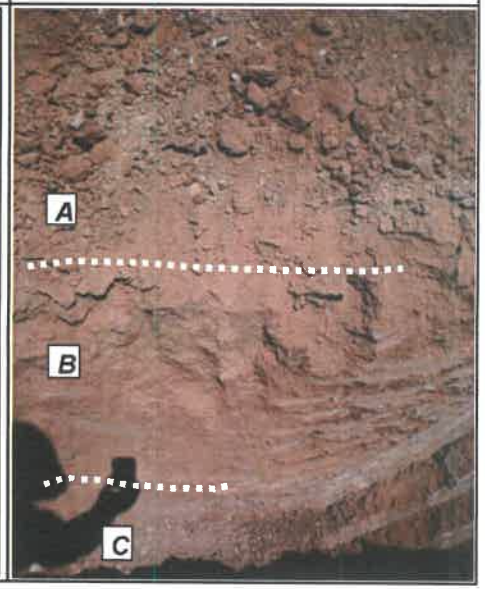


Photo of Test Pit



OUTENIQUA
GEOTECHNICAL SERVICES
CIVIL LABORATORIES

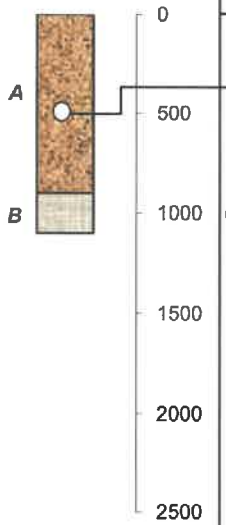
Geotechnical Soil Profile

Client:	UBUNTU Municipality
Project:	Low-Cost Housing
Area:	Loxton
Date:	24/02/2011
Excavator:	CAT 422E TLB

LTP 19

Datum: NGL | Co-ords: 23 Y00 62736 X34 83434

Key to symbols: O Sample taken ⏚ Water seepage



(0 to 900) Dry, dark reddish orange, medium dense, intact, ***CLAYEY GRAVELLY SILTY SAND***, transported
Foundation Indicator

(900 to 1100) Dark olive, soft, moderately weathered, moderately fractured, ***SILTSTONE ROCK***

Machine refusal @ 1100mm on siltstone rock

NO PERCHED WATER TABLE PRESENT

Dynamic Cone Penetrometer (DCP)

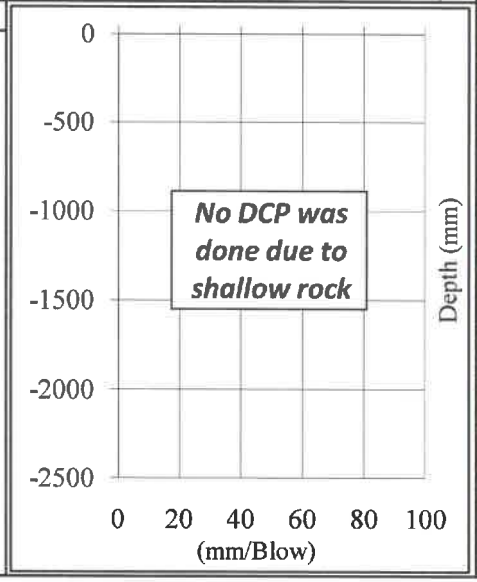
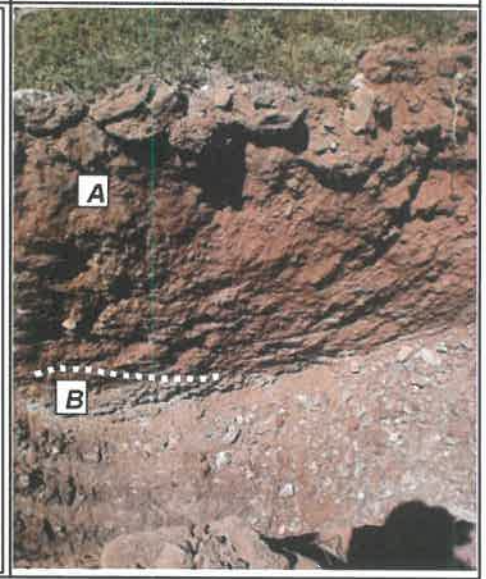


Photo of Test Pit



Appendix 2

Lab Test Results

OUTENIQUA LAB (Pty) Ltd
Materials Testing Laboratory
Registration No. 95/07742/07
6 Mirrorball Street, George : PO Box 3186, George Industria, 6536
Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

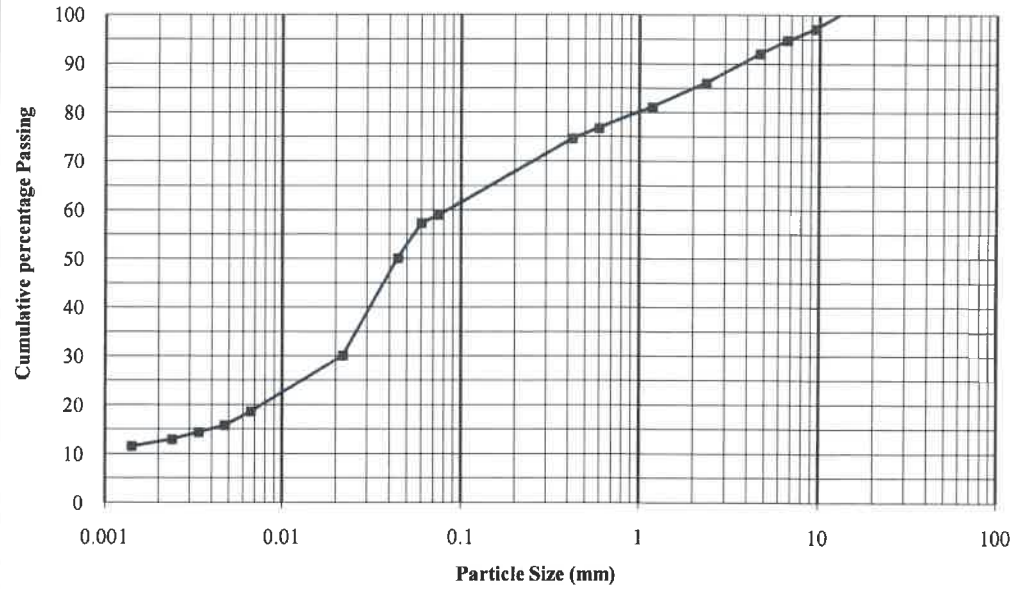
Customer :	Ubuntu Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low Cost Housing
		Date Received :	25/02/11
		Date Reported :	10/03/11
		Req. Number :	379/11
Attention :	Mr Fillis	No. of Pages :	1/8

TEST REPORT
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

Material Description:	Silty Sand	Sample Number:	42053		
Position:	LTP4	Liquid Limit	29	Linear Shrinkage	6
Depth:	300-500	Plasticity Index	13	Insitu M/C%	6.8

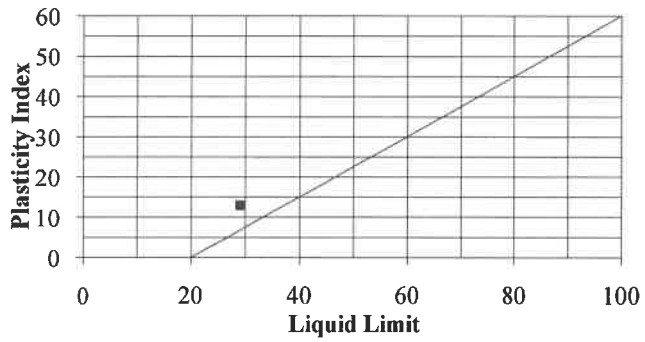
Sieve Size(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	97
6.7	95
4.75	92
2.36	86
1.18	81
0.600	77
0.425	75
0.075	59
0.0603	57
0.0446	50
0.0220	30
0.0067	19
0.0048	16
0.0034	14
0.0024	13
0.0014	11

Particle Size Distribution

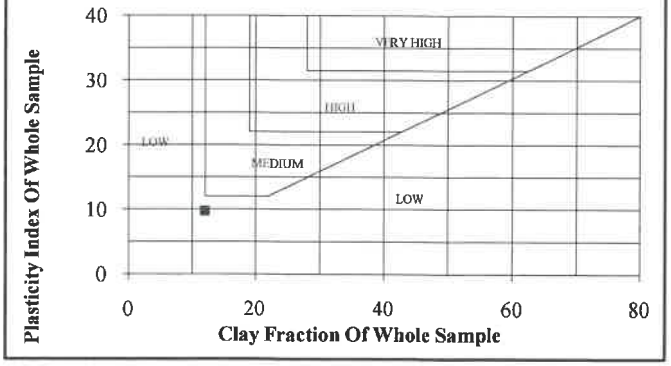


% Clay	12	% Silt	45	% Sand	28	% Gravel	15
Unified Soil Classification		CL		PRA Soil Classification		A-6	

Plasticity Chart
A Line



Potential Expansiveness



Notes:

- **Specimens delivered to Outeniqua Lab in good order.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd.

1. **Sampling falls outside the scope of Outeniqua Lab's SANAS accreditation.**
2. The test results are reported with an approximate 95% level of confidence.
3. This report (with attachments) is the correct record of all measurements made, and may not be reproduced other than with full written approval from the Technical Director of Outeniqua Lab (Pty) Ltd.
4. Results reported in this Test Report relate only to the items tested and are an indication only of the sample provided and/or taken.
5. Measuring Equipment, traceable to National Standards is used where applicable.
6. While every care is taken to ensure the correctness of all tests and reports, neither Outeniqua Lab nor its employees shall be liable in any way whatever for any error made in the execution or reporting of tests or any erroneous conclusions drawn therefrom or for any consequence thereof.

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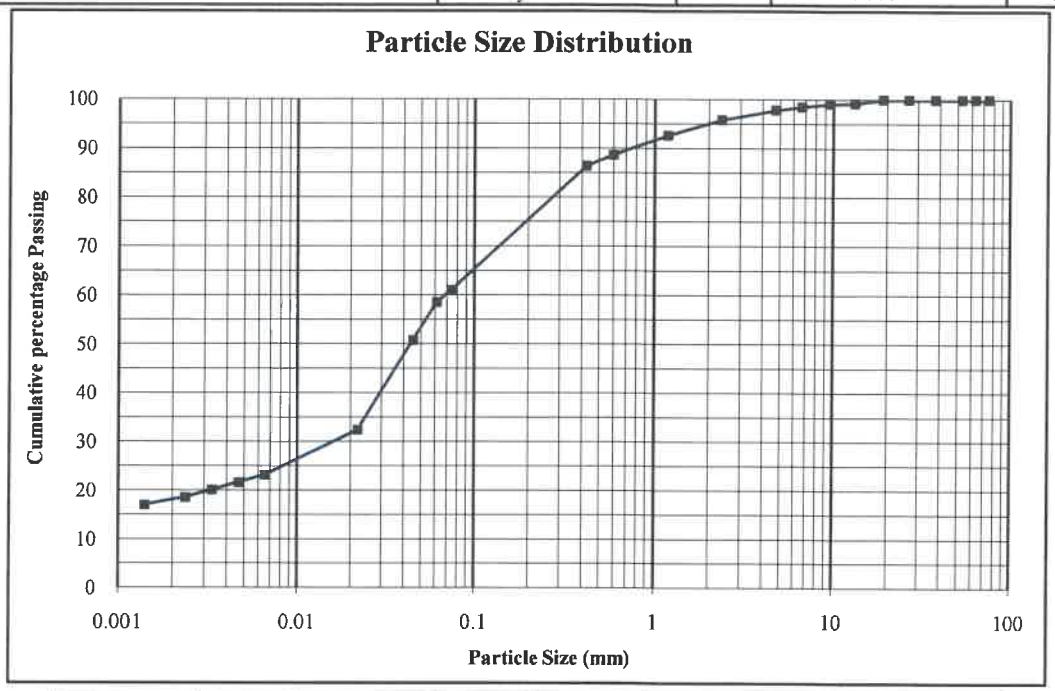
Registration No. 95/07742/07
6 Mirrorball Street, George : PO Box 3186, George Industria, 6536
Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

Customer :	Ubuntu Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low Cost Housing
		Date Received :	25/02/11
		Date Reported :	10/03/11
		Req. Number :	379/11
Attention :	Mr Fillis	No. of Pages :	2/8

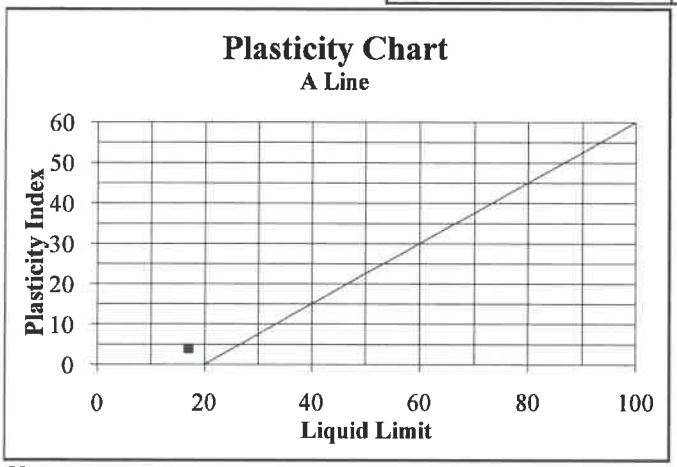
TEST REPORT
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

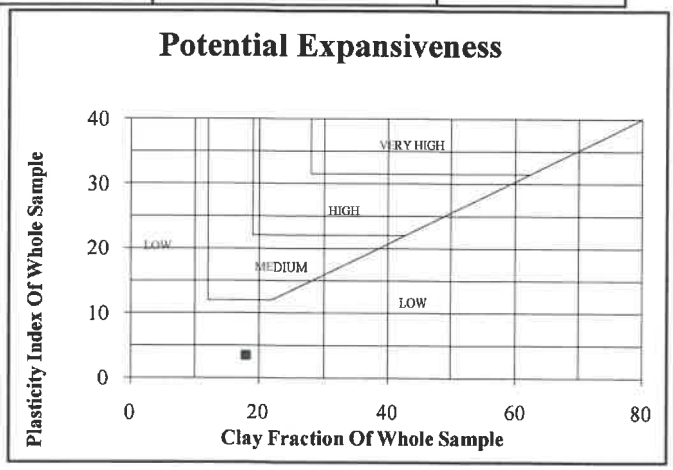
Material Description:	Gravelly Silty Sand	Sample Number:	42054		
Position:	LTP5	Liquid Limit	17	Linear Shrinkage	2
Depth:	400-2200	Plasticity Index	4	Insitu M/C%	4

Sieve Size(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	99
9.5	99
6.7	99
4.75	98
2.36	96
1.18	93
0.600	89
0.425	86
0.075	61
0.0615	58
0.0452	51
0.0220	32
0.0066	23
0.0047	22
0.0033	20
0.0024	18
0.0014	17



% Clay	18	% Silt	40	% Sand	37	% Gravel	5
Unified Soil Classification		CL-ML		PRA Soil Classification		A-4	





Notes:

- **Specimens delivered to Outeniqua Lab in good order.**

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For Outeniqua Lab (Pty) Ltd.

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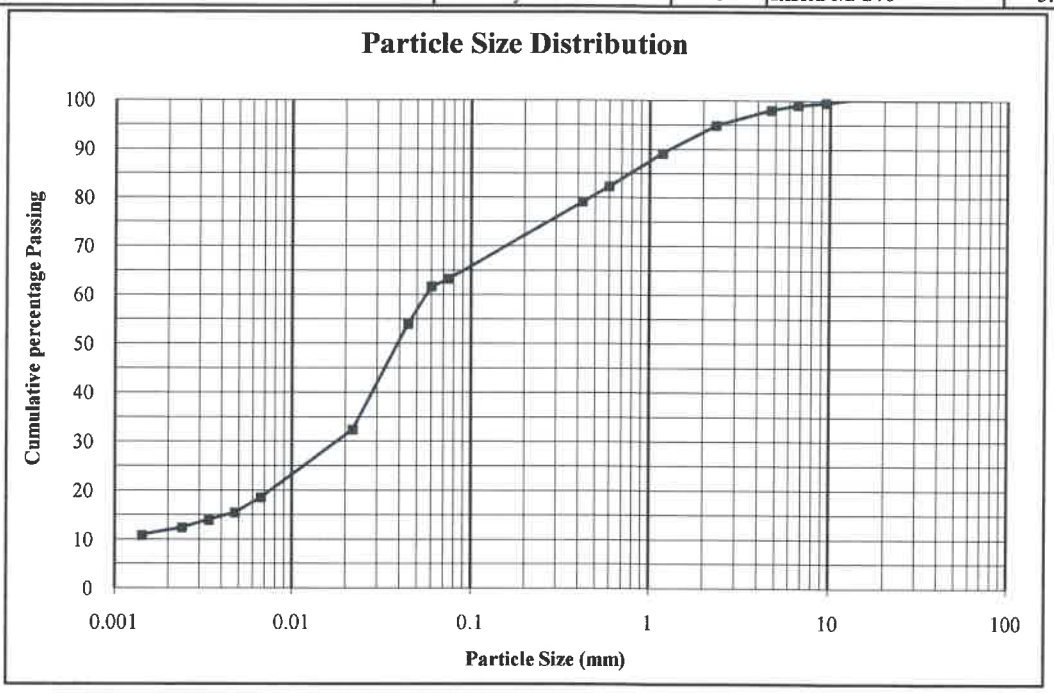
OUTENIQUA LAB (Pty) Ltd
Materials Testing Laboratory
Registration No. 95/07742/07
6 Mirrorball Street, George : PO Box 3186, George Industria, 6536
Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

Customer :	Ubuntu Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low Cost Housing
		Date Received :	25/02/11
		Date Reported :	10/03/11
		Req. Number :	379/11
Attention :	Mr Fillis	No. of Pages :	3/8

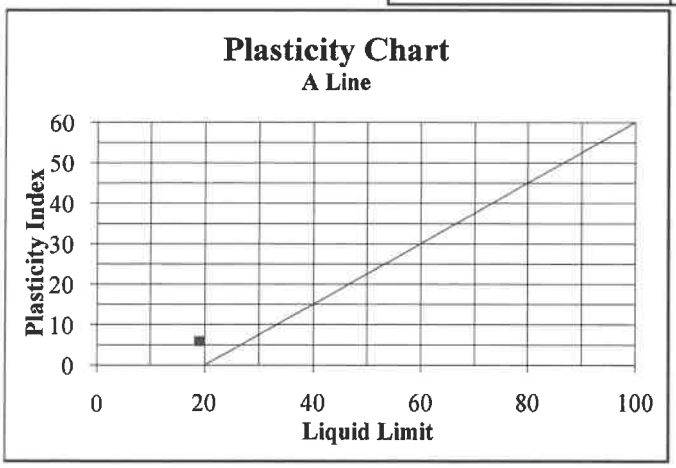
TEST REPORT
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

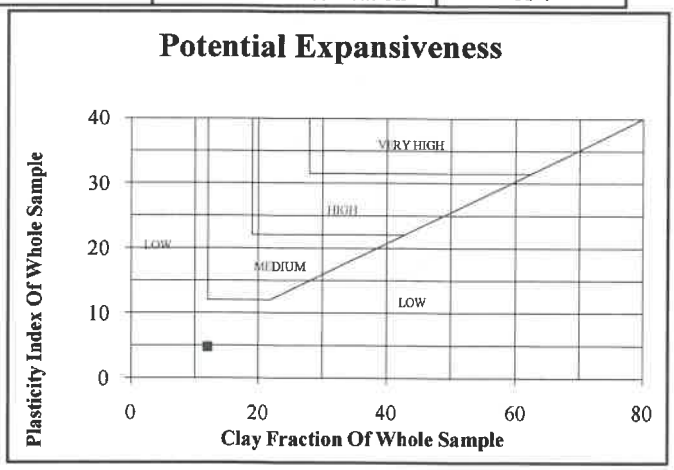
Material Description:	Light Red Orange	Sample Number:	42056		
Position:	LTP7	Liquid Limit	19	Linear Shrinkage	3
Depth:	500-1700	Plasticity Index	6	Insitu M/C%	5.4

Sieve Size(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	100
6.7	99
4.75	98
2.36	95
1.18	89
0.600	82
0.425	79
0.075	63
0.0603	62
0.0446	54
0.0220	32
0.0067	18
0.0048	15
0.0034	14
0.0024	12
0.0014	11



% Clay	12	% Silt	49	% Sand	32	% Gravel	7
Unified Soil Classification		CL-ML		PRA Soil Classification		A-4	





Notes:

- **Specimens delivered to Outeniqua Lab in good order.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd.

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Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

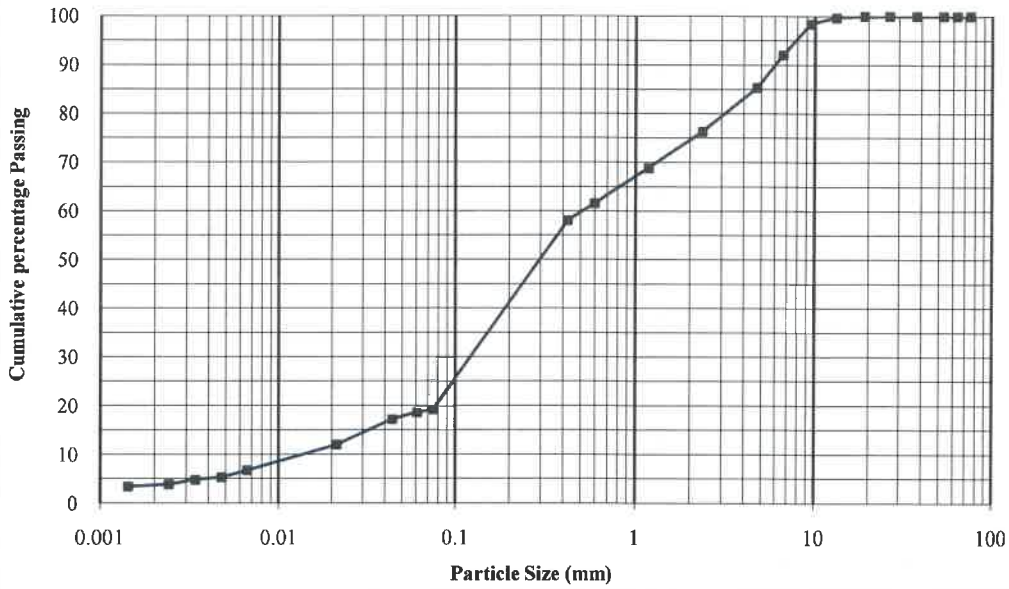
Customer :	Ubuntu Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low Cost Housing
		Date Received :	25/02/11
		Date Reported :	10/03/11
		Req. Number :	379/11
Attention :	Mr Fillis	No. of Pages :	4/8

TEST REPORT
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

Material Description:	0	Sample Number:	42057		
Position:	LTP9	Liquid Limit	27	Linear Shrinkage	7
Depth:	1200-2200	Plasticity Index	13	Insitu M/C%	6.3

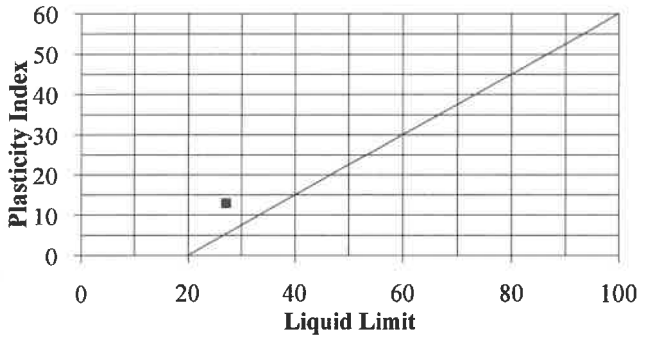
Sieve Size(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	98
6.7	92
4.75	85
2.36	76
1.18	69
0.600	62
0.425	58
0.075	19
0.0609	19
0.0441	17
0.0214	12
0.0066	7
0.0048	5
0.0034	5
0.0024	4
0.0014	3

Particle Size Distribution

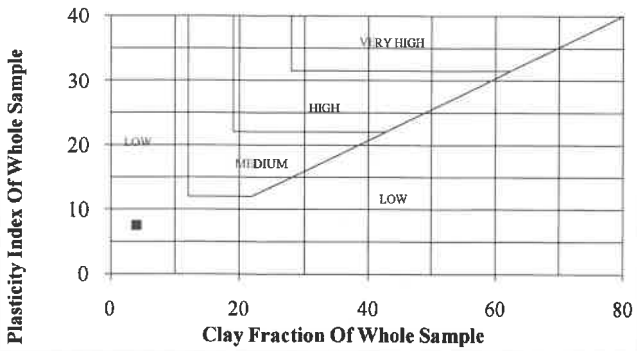


% Clay	4	% Silt	14	% Sand	56	% Gravel	26
Unified Soil Classification		SC		PRA Soil Classification		A-2-6	

Plasticity Chart
A Line



Potential Expansiveness



Notes:

- **Specimens delivered to Outeniqua Lab in good order.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd.

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Materials Testing Laboratory
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6 Mirrorball Street, George : PO Box 3186, George Industria, 6536
Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

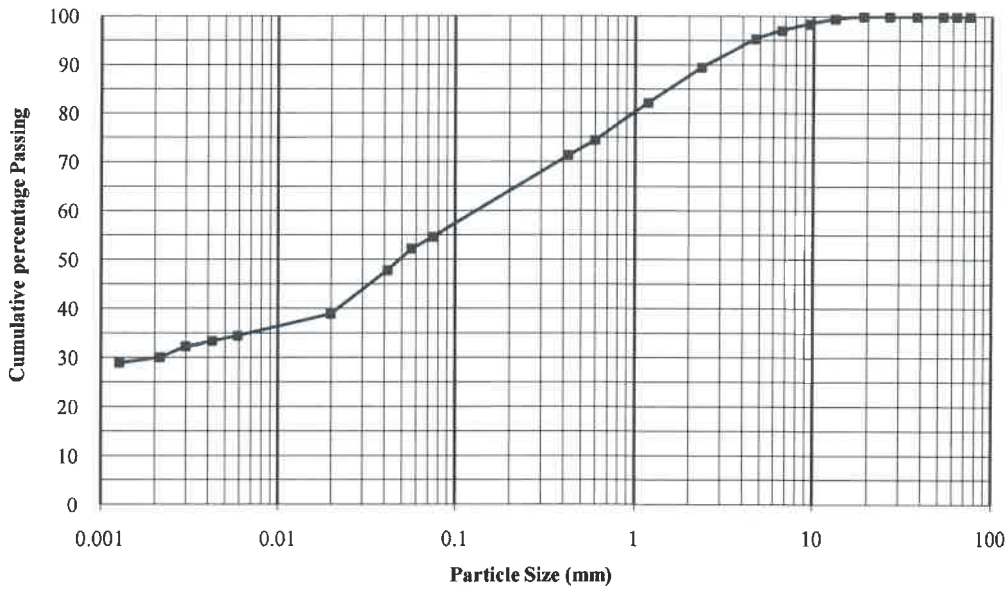
Customer :	Ubuntu Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low Cost Housing
		Date Received :	25/02/11
		Date Reported :	10/03/11
		Req. Number :	379/11
Attention :	Mr Fillis	No. of Pages :	6/8

TEST REPORT
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

Material Description:	Gravelly Silty Sand	Sample Number:	42060		
Position:	LTP14	Liquid Limit	29	Linear Shrinkage	8
Depth:	200-600	Plasticity Index	16	Insitu M/C%	8.6

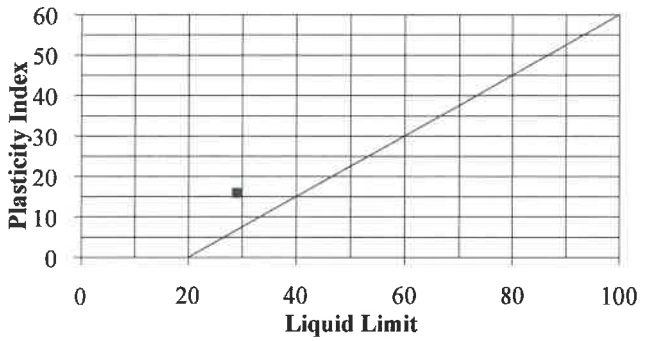
Sieve Size(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	99
9.5	98
6.7	97
4.75	95
2.36	89
1.18	82
0.600	74
0.425	71
0.075	55
0.0568	52
0.0415	48
0.0199	39
0.0059	34
0.0042	33
0.0030	32
0.0022	30
0.0013	29

Particle Size Distribution

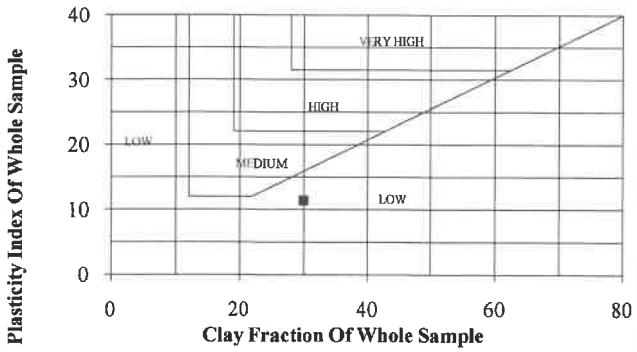


% Clay	30	% Silt	23	% Sand	34	% Gravel	13
Unified Soil Classification		CL		PRA Soil Classification		A-6	

Plasticity Chart
A Line



Potential Expansiveness



Notes:

- **Specimens delivered to Outeniqua Lab in good order.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd.

1. **Sampling falls outside the scope of Outeniqua Lab's SANAS accreditation.**
2. The test results are reported with an approximate 95% level of confidence.
3. This report (with attachments) is the correct record of all measurements made, and may not be reproduced other than with full written approval from the Technical Director of Outeniqua Lab (Pty) Ltd.
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Materials Testing Laboratory
Registration No. 95/07742/07
6 Mirrorball Street, George : PO Box 3186, George Industria, 6536
Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

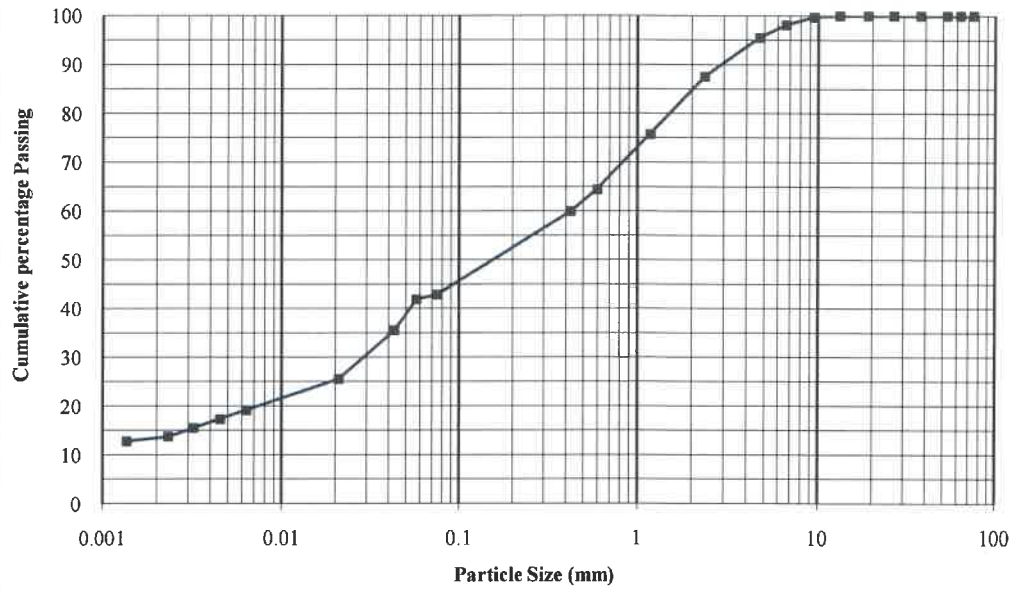
Customer :	Ubuntu Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low Cost Housing
		Date Received :	25/02/11
		Date Reported :	10/03/11
		Req. Number :	379/11
Attention :	Mr Fillis	No. of Pages :	7/8

TEST REPORT
FOUNDATION INDICATOR - (TMH 1 Method A1(a),A2,A3,A4,A5) & (ASTM Method D422)

Material Description:	Silty sandy Gravel	Sample Number:	42061		
Position:	LTP15	Liquid Limit	25	Linear Shrinkage	7
Depth:	200-1400	Plasticity Index	14	Insitu M/C%	12.6

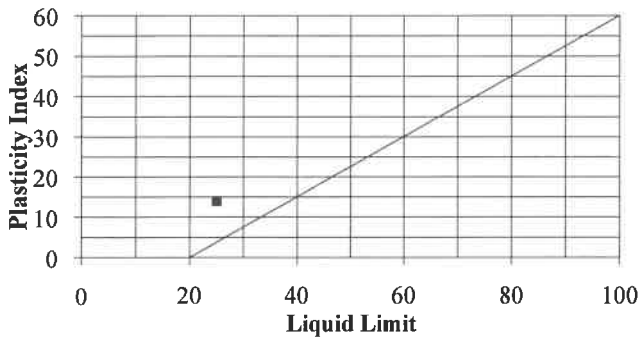
Sieve Size(mm)	% Passing
75.0	100
63.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	100
6.7	98
4.75	96
2.36	88
1.18	76
0.600	64
0.425	60
0.075	43
0.0574	42
0.0431	35
0.0209	25
0.0063	19
0.0045	17
0.0032	15
0.0023	14
0.0014	13

Particle Size Distribution

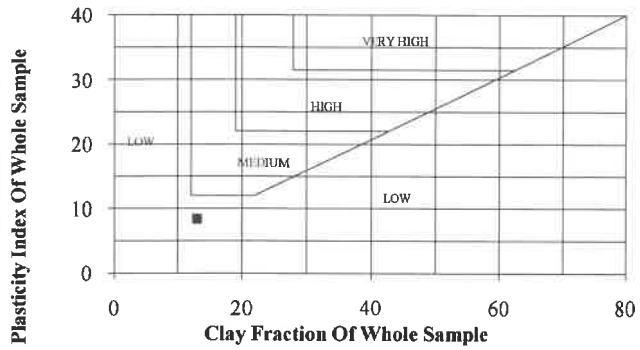


% Clay	13	% Silt	30	% Sand	41	% Gravel	16
Unified Soil Classification		SC		PRA Soil Classification		A-6	

Plasticity Chart
A Line



Potential Expansiveness



Notes:

- **Specimens delivered to Outeniqua Lab in good order.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd.

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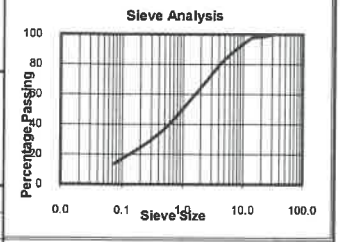
Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

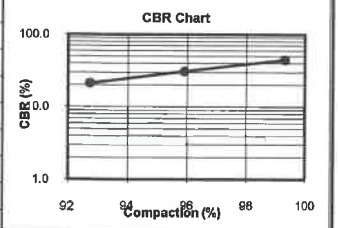
Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
		Date Received :	25/02/11
		Date Reported :	09/03/11
		Req. Number :	0379/11
Attention :	MF Fillis	No. of Pages :	1/2

TEST REPORT
CALIFORNIA BEARING RATIO - (TMH 1 Method A1(a),A2,A3,A4,A5,A7,A8)

Material Indicators								
Sample Position (SV)		LTP 2	Spec. G7 - TRH 14	Opinion	LTP 6	Spec. G7 - TRH 14	Opinion
Depth (mm)		450 - 2100			900 - 2300		
Sample No		42052			42055		
Materials Description	Source	Trial Pit			Trial Pit		
	Colour	Dark to Light Reddish Orange			Dark Reddish Orange to Light Olive		
	Soil Type	Silty Sandy Gravel			Gravelly Silty Sand		
	Classification	In situ			In situ		
Max. Stone size in hole (mm)							
Percentage Passing	75.0 mm	100			100		
	63.0 mm	100			100		
	53.0 mm	100			100		
	37.5 mm	100			100		
	26.5 mm	99			100		
	19.0 mm	98			99		
	13.2 mm	97			97		
	4.75 mm	82			83		
	2.00 mm	64			72		
	0.425 mm	34			53		
	0.075 mm	13.7			19.2		
Soil Mortar & Constants							
Grading Modulus		1.88	≥0.75	✓	1.55	≥0.75	✓
Coarse Sand <2.0 >0.425		46.8			26.4		
Med. <0.250 >0.150		31.9			47.0		
Silt <0.075		21.3			26.6		
Liquid Limit (%)		23			19		
Plasticity Index (%)		6	≤12	✓	3	≤12	✓
Linear Shrinkage (%)		3.0			1.0		
CBR / Density Relationship							
MOD	Max Dry Density (kg/m³)	1996			1896		
	Opt Moisture Content (%)	8.2			6.3		
	Mould Moisture Con. (%)	8.5			6.6		
	@100% Mod AASHTO	99.3			98.6		
	Swell (%)	0.14	≤1.5	✓	0.15	≤1.5	✓
NRB	100% NRB	95.9			94.4		
	Swell (%)	0.17			0.17		
Proc	100% Proctor	92.7			91.8		
	Swell (%)	0.31			0.38		
CBR	@ 100% Mod AASHTO	46			23		
	@ 98% Mod AASHTO	39			22		
	@ 95% Mod AASHTO	29			20		
	@ 93% Mod AASHTO	22	≥15	✓	19	≥15	✓
	@ 90% Mod AASHTO	11			17		
Insitu Moisture Content (%)							
Soil Classification							
TRH 14		G7			G7		
PRA System		A-1-b / A-2-4			A-2-4		
Unified System		SM-SC			SM		

42052





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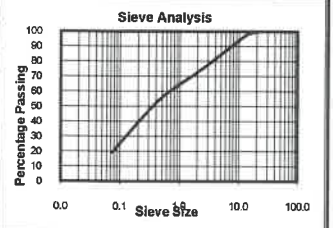
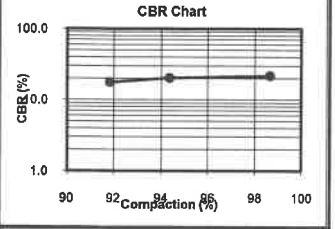
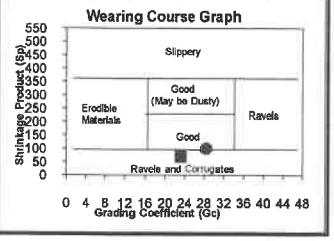




● 42052 ■ 42055



- **Specimens sampled by Outeniqua Lab according to sampling Plan TMH 5 Methods MB1 & MC1**
- **Specimens sampled by : L Malgraff**
- **The weather conditions are such that there is no detrimental effect on the sample taken.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd
Technical Signatory

1. **Sampling falls outside the scope of Outeniqua Lab's SANAS accreditation.**
2. **Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.**
3. The opinion column is an interpretation of the direct comparison between the quoted specification and the single test sample results obtained. The compliant (✓), non compliant (×) and uncertain (*) opinion indicators are based on an approximate 95% level of confidence with reference to SAMM GUIDANCE 1, Issue 2 : 20 June 2007 Section 2.
4. The uncertain (*) indicates that the test result is either equal to or is above / below the specified limit by a margin less than the measurement uncertainty, it is therefore not possible to state compliant (✓) or non compliant (×) based on a 95% level of confidence with reference to SAMM GUIDANCE 1, Issue 2 : 20 June 2007 Section 2.
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Tel: 044 8743274 : Fax: 044 8745779 : e-mail: llewelyn@outeniqualab.co.za

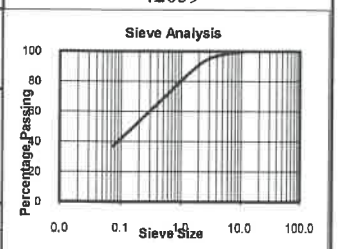
T0347

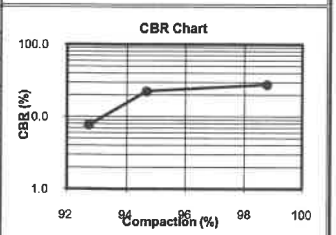
Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
		Date Received :	25/02/11
		Date Reported :	09/03/11
		Req. Number :	0379/11
Attention :	MF Fillis	No. of Pages :	2/2

TEST REPORT
CALIFORNIA BEARING RATIO - (TMH 1 Method A1(a),A2,A3,A4,A5,A7,A8)

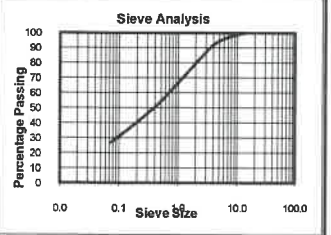
Material Indicators								
Sample Position (SV)		LTP 13	Spec. G10 - TRH 14	Opinion	LTP 18	Spec. G10 - TRH 14	Opinion
Depth (mm)		0 - 900			200 - 1300		
Sample No		42059			42062		
Materials Description	Source	Trial Pit			Trial Pit		
	Colour	Dark Reddish Orange			Dark to Light Reddish Orange		
	Soil Type	Gravelly Silty Sand			Silty Sandy gravel		
	Classification	In situ			In situ		
Max. Stone size in hole (mm)							
Percentage Passing	75.0 mm	100			100		
	63.0 mm	100			100		
	53.0 mm	100			100		
	37.5 mm	100			100		
	26.5 mm	100			100		
	19.0 mm	100			100		
	13.2 mm	100			100		
	4.75 mm	98			94		
	2.00 mm	91			79		
	0.425 mm	66			51		
	0.075 mm	36.8			26.7		
Soil Mortar & Constants							
Grading Modulus		1.07			1.43		
Coarse Sand	<2.0 >0.425	27.5			35.1		
Med.	<0.250 >0.150	31.9			31.2		
Silt	<0.075	40.5			33.7		
Liquid Limit (%)		20			21		
Plasticity Index (%)		9			10		
Linear Shrinkage (%)		4.5			5.0		
CBR / Density Relationship							
MOD	Max Dry Density (kg/m³)	2134			2122		
	Opt Moisture Content (%)	7.9			8.7		
	Mould Moisture Con. (%)	8.2			9.0		
	@100% Mod AASHTO	98.8			98.8		
	Swell (%)	0.39	≤1.5	✓	0.13	≤1.5	✓
NRB	100% NRB	94.7			94.7		
	Swell (%)	0.45			0.23		
Proc	100% Proctor	92.7			91.8		
	Swell (%)	0.46			0.47		
CBR	@ 100% Mod AASHTO	33			22		
	@ 98% Mod AASHTO	27			19		
	@ 95% Mod AASHTO	18			16		
	@ 93% Mod AASHTO	12			14		
	@ 90% Mod AASHTO	3	≥3	*	10	≥3	✓
Insitu Moisture Content (%)							
Soil Classification							
TRH 14		G10			G10		
PRA System		A-4			A-2-4		
Unified System		SC			SC		

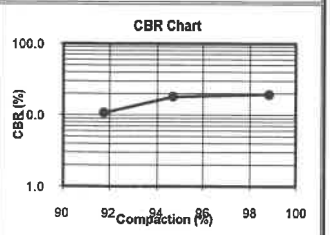
42059



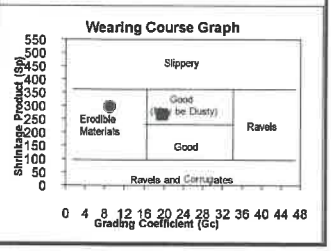


42062





● 42059 ■ 42062



- **Specimens sampled by Outeniqua Lab according to sampling Plan TMH 5 Methods MB1 & MC1**
- **Specimens sampled by : L Malgraff**
- **The weather conditions are such that there is no detrimental effect on the sample taken.**

L Heathcote (Director)
For Outeniqua Lab (Pty) Ltd
Technical Signatory

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SOILLAB
WESTERN CAPE

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4 HEX RIVER STREET, KRAAIFONTEIN 7570

(EDMS) BPK
(PTY) LTD

Reg. No.
2006/003519
/07

ONDERSOEK EN TOETS VAN PAD EN FONDASIE MATERIALE
INVESTIGATION & TESTING OF ROAD & FOUNDATION MATERIALS

P.O.BOX 6627, KRAAIFONTEIN NORTH. 7572
TEL (021) 9887410
TELEFAX (021) 9886919
E-mail: kraaifontein@soillab.co.za

sanas
T0293

SK0865

11.03.2011

Outeniqua Lab.
P.O. Box 3186
GEORGE INDUSTRIA
6536

ATTENTION: A. Govender

Dear Sir

CLIENT: UBUNTU MUNICIPALITY

PROJECT: LOXTON LOW-COST HOUSING

GEORGE : PH & CONDUCTIVITY TEST

TEST METHOD: pH – TMH 1: A20 : CONDUCTIVITY: TMH 1: A21 T
Buffer solution checks: PH 4.01 – 4.00, PH 7,01 – 7,00, Ph10.01 – 10.00
KCL solution checks: Cup A – 0.14, Cup B – 0.14

Herewith test results of samples delivered to us on: 19.11.2010

SAMPLE	TP	DEPTH	DESCRIPTION	pH	CONDUCTIVITY S/m	SOLUBLE SALTS %
42053	TP4	300-500	Silty Sand	8.11	0.05	0.01
42054	TP5	400-2200	Gravelly Silty Sand	8.85	0.20	0.05
42056	TP7	500-1700	Gravelly Silty Sand	7.72	0.04	0.01
42057	TP9	1200-2200	Silty Sandy Gravel	8.02	0.12	0.03
42058	TP12	0-400	Gravelly Silty Sand	8.43	0.04	0.01
42060	TP14	200-600	Gravelly Silty Sand	7.86	0.12	0.03
42061	TP15	200-1400	Silty Sandy Glayey gravel	8.16	0.11	0.03
42063	TP19	0-900	Silty Sandy Gravel	8.48	0.05	0.01

Yours faithfully

SOILLAB (PTY) LIMITED

Appendix 3

DCP tests

Outeniqua Geotechnical Services cc.

Geotechnical Engineering Consultants

Registration No. 1999/062743/23

26 Cove Street, Knysna : PO Box 3186, George Industria, 6536

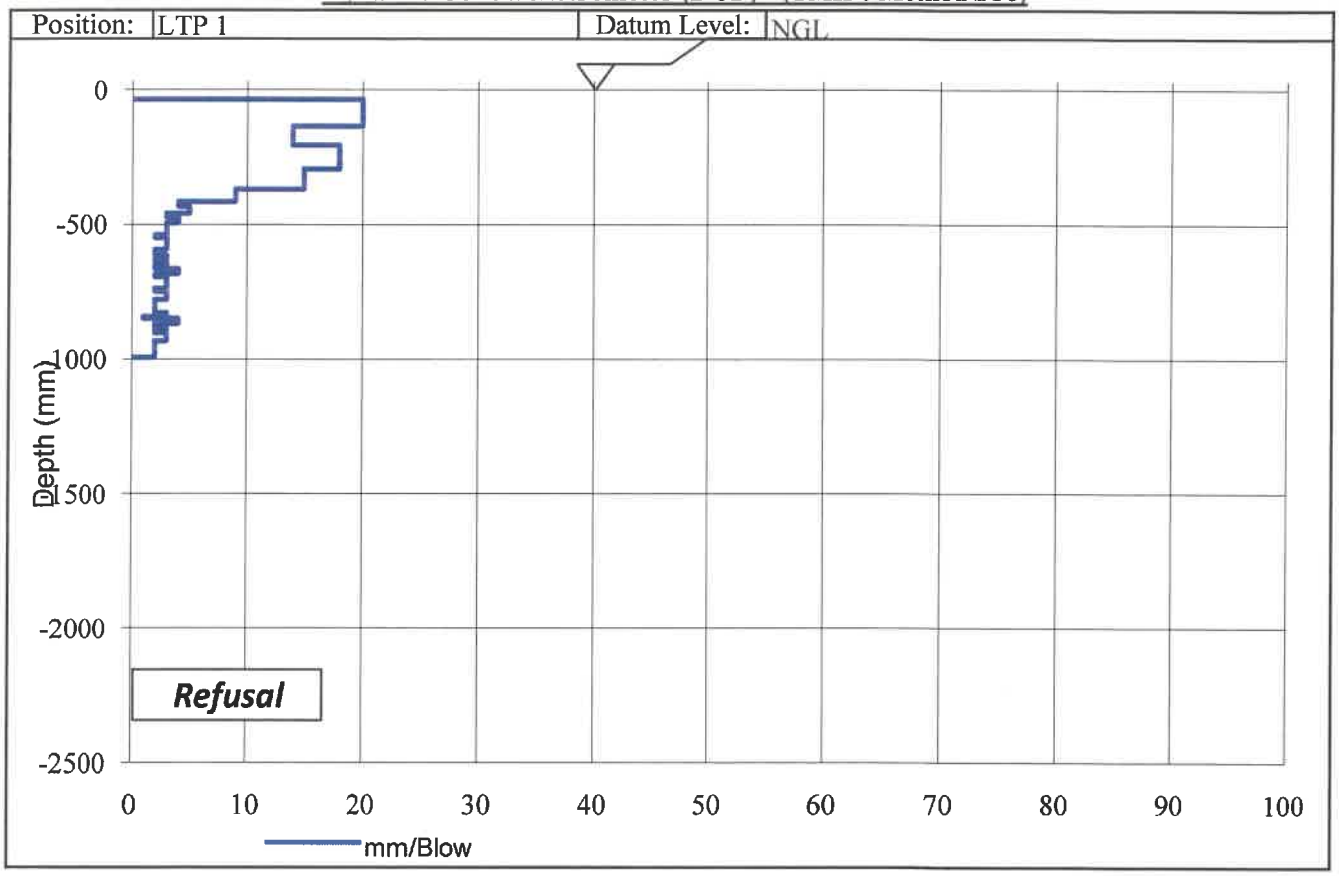
Tel: 044 3820502 : Fax: 044 3820503 : e-mail: iain@outeniqualab.co.za

Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
		Date Received :	27/01/11
		Date Reported :	01/03/11
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	1 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 1 Datum Level: NGL



Notes:

L Heathcote (Member)
For Outeniqua Geotech. Services cc.

Outeniqua Geotechnical Services cc.

Geotechnical Engineering Consultants

Registration No. 1999/062743/23

26 Cove Street, Knysna : PO Box 3186, George Industria, 6536

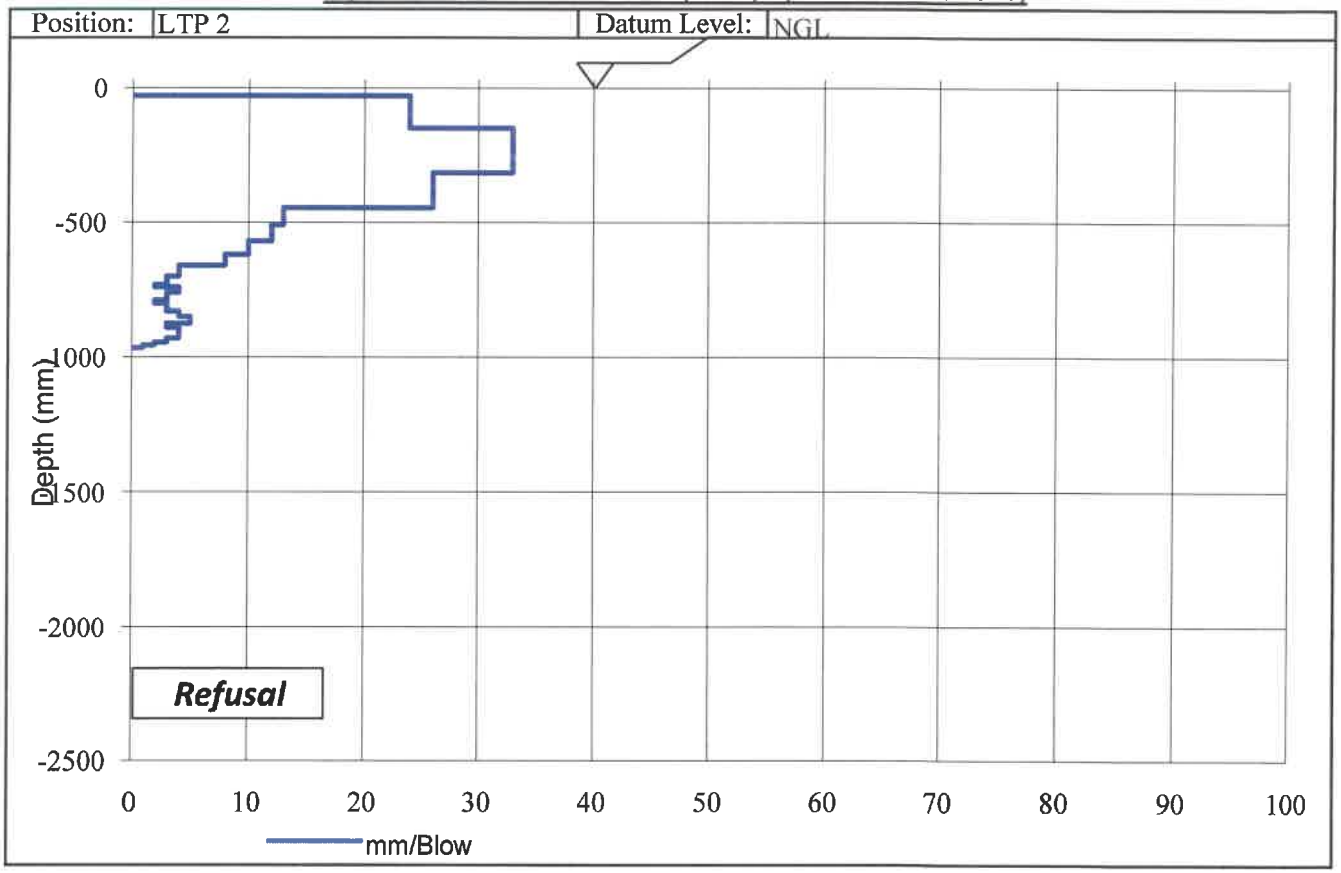
Tel: 044 3820502 : Fax: 044 3820503 : e-mail: iain@outeniqualab.co.za

Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
		Date Received :	27/01/11
		Date Reported :	01/03/11
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	2 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 2 Datum Level: NGL



Notes:

L Heathcote (Member)
For Outeniqua Geotech. Services cc.

Outeniqua Geotechnical Services cc.

Geotechnical Engineering Consultants

Registration No. 1999/062743/23

26 Cove Street, Knysna : PO Box 3186, George Industria, 6536

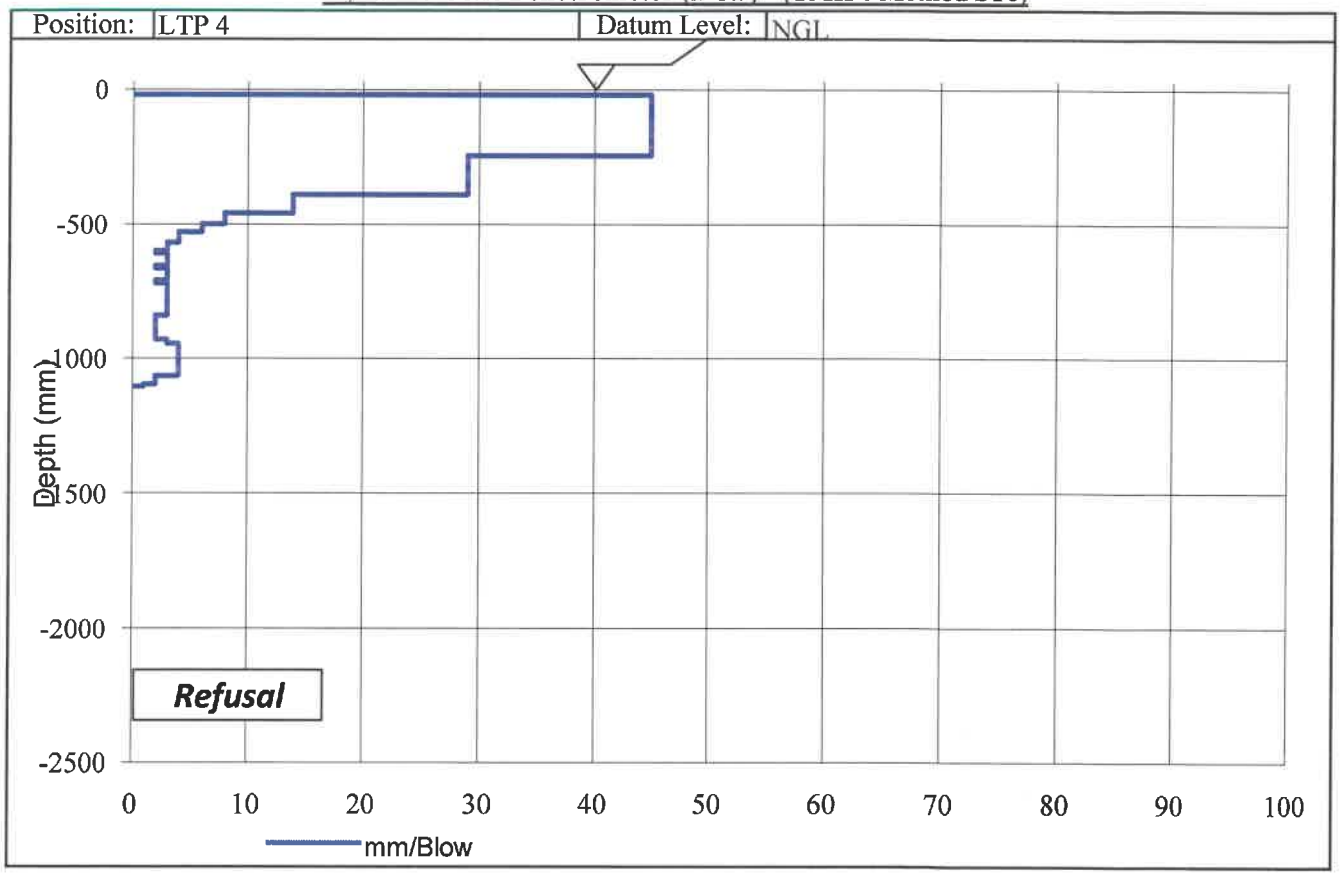
Tel: 044 3820502 : Fax: 044 3820503 : e-mail: iain@outeniqualab.co.za

Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
		Date Received :	27/01/11
		Date Reported :	01/03/11
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	3 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 4 Datum Level: NGL



Notes:

L Heathcote (Member)
For Outeniqua Geotech. Services cc.

Outeniqua Geotechnical Services cc.

Geotechnical Engineering Consultants

Registration No. 1999/062743/23

26 Cove Street, Knysna : PO Box 3186, George Industria, 6536

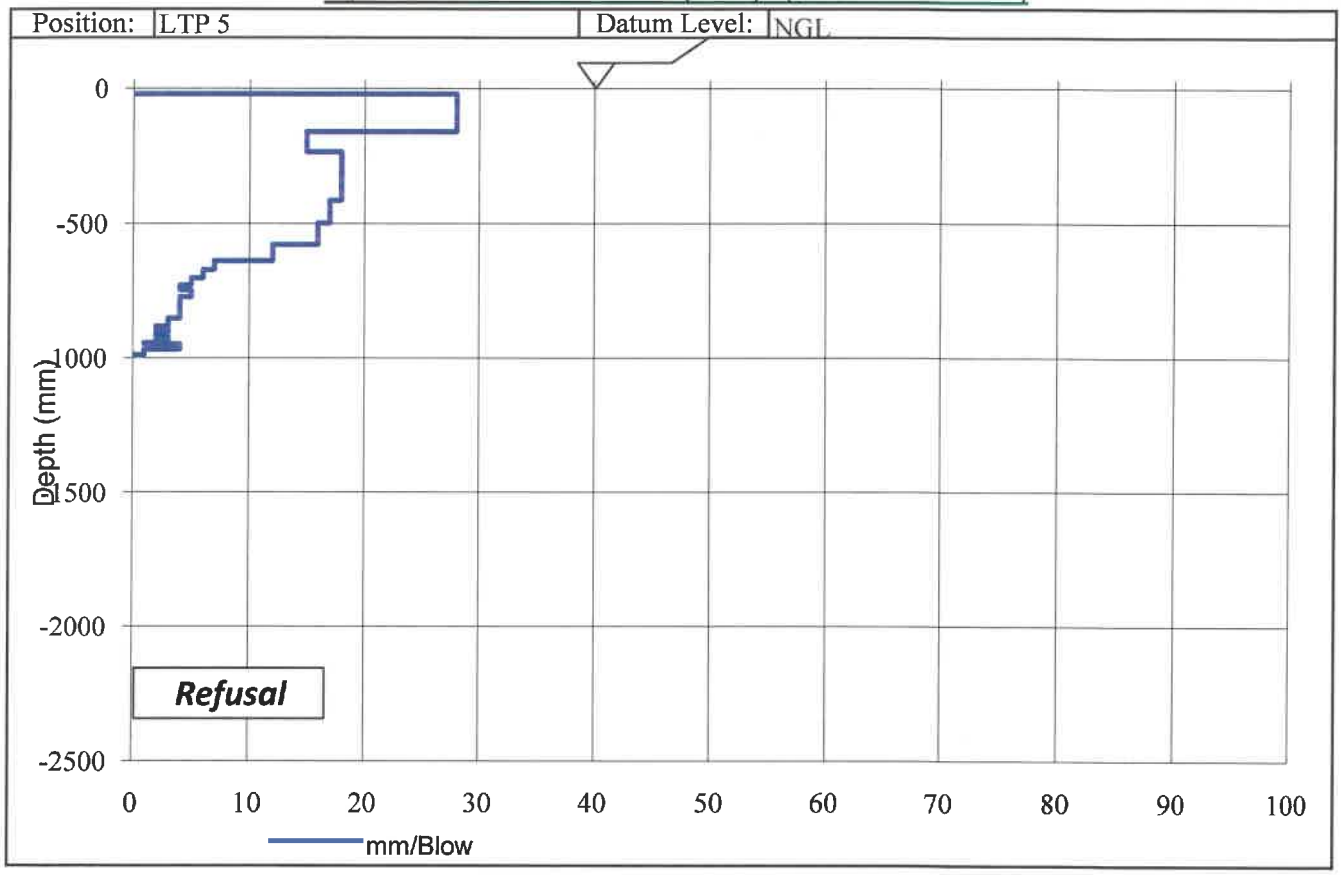
Tel: 044 3820502 : Fax: 044 3820503 : e-mail: iain@outeniqualab.co.za

Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
		Date Received :	27/01/11
		Date Reported :	01/03/11
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	4 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 5 Datum Level: NGL



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		Date Received :	27/01/11
		Date Reported :	01/03/11
		Req. Number :	379/11
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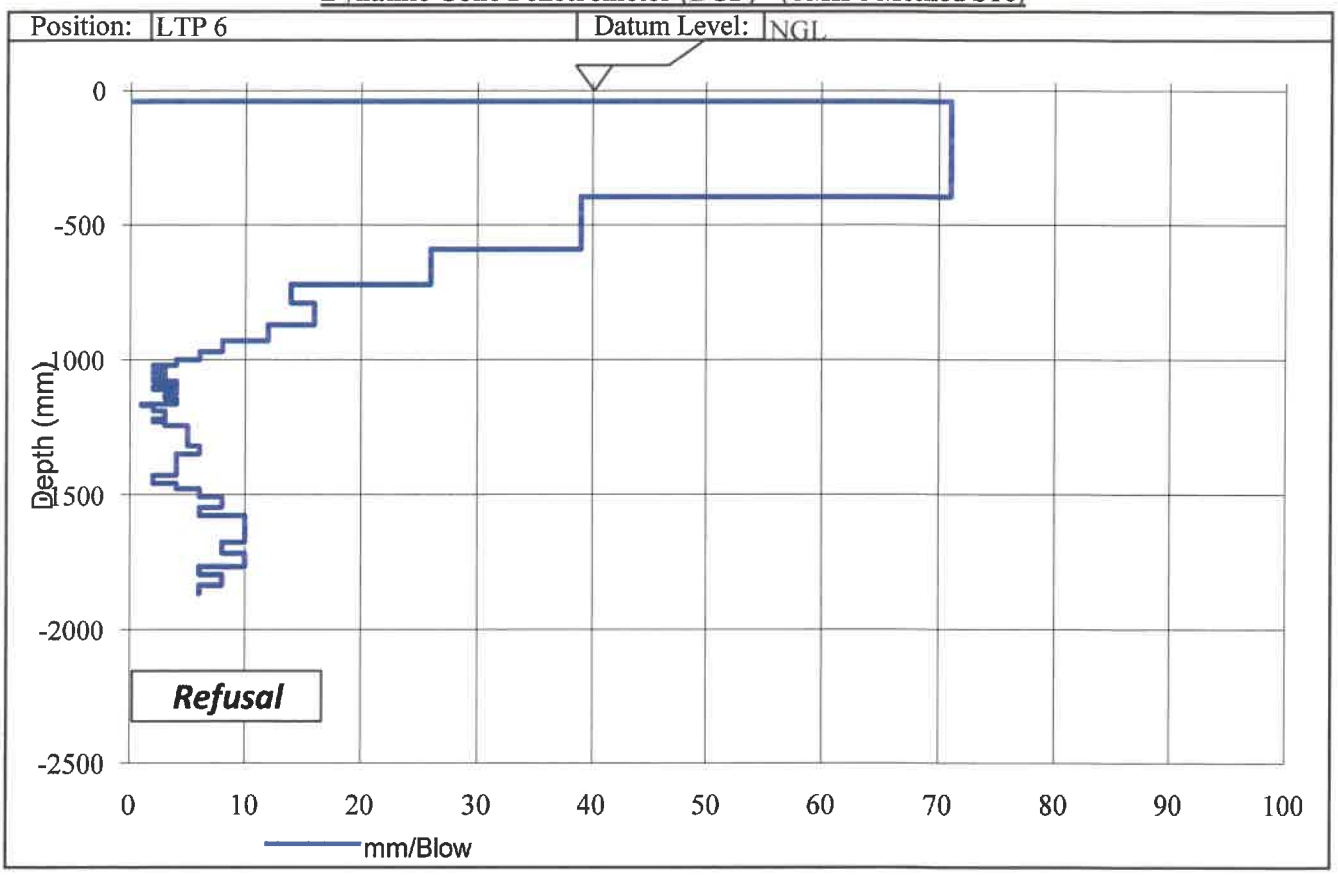
TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 6 Datum Level: NGL



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Customer :	UBUNTU Municipality Private Bag X329 Victoria West 7070	Project :	Loxton Low-Cost Housing
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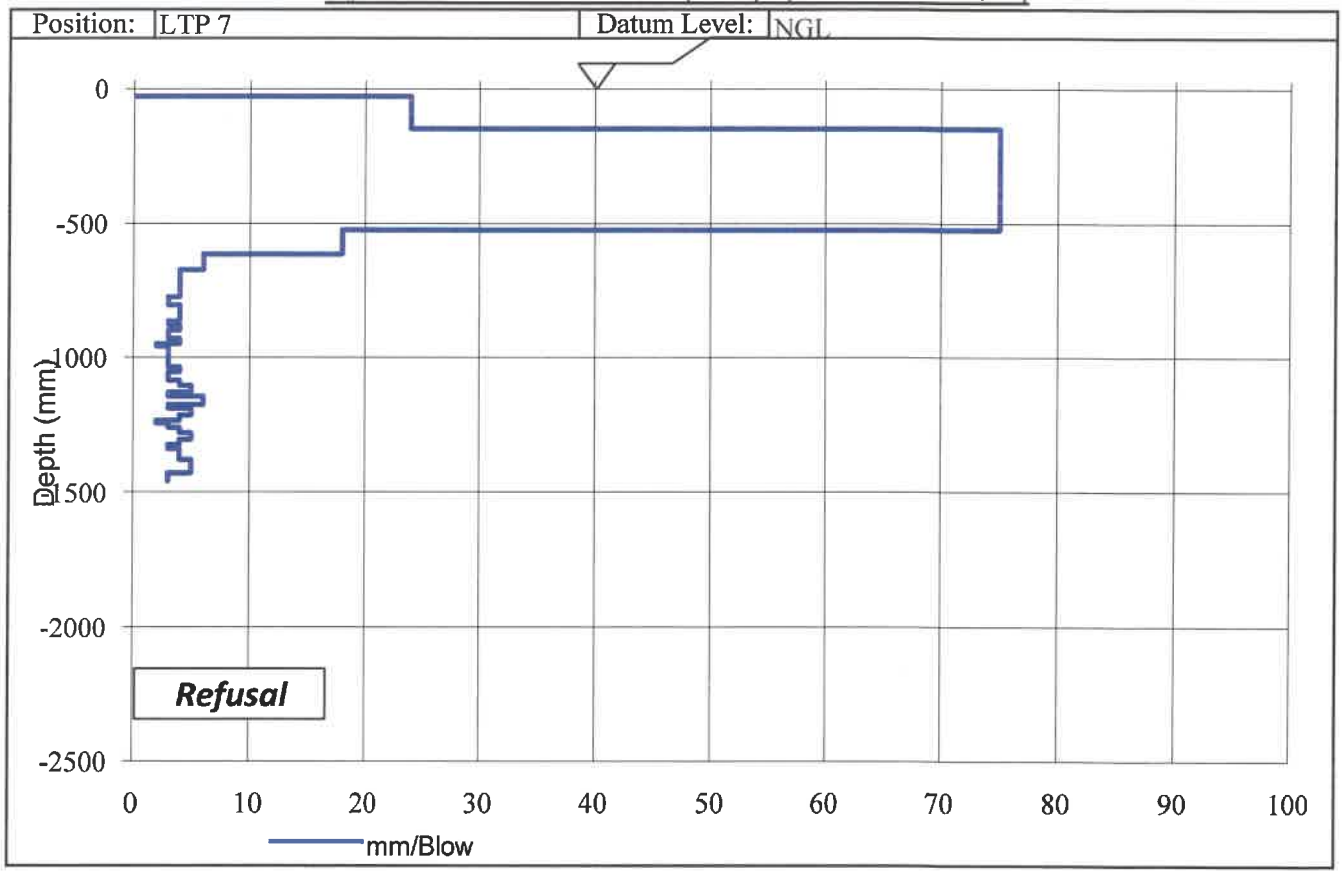
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	6 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 7 Datum Level: NGL



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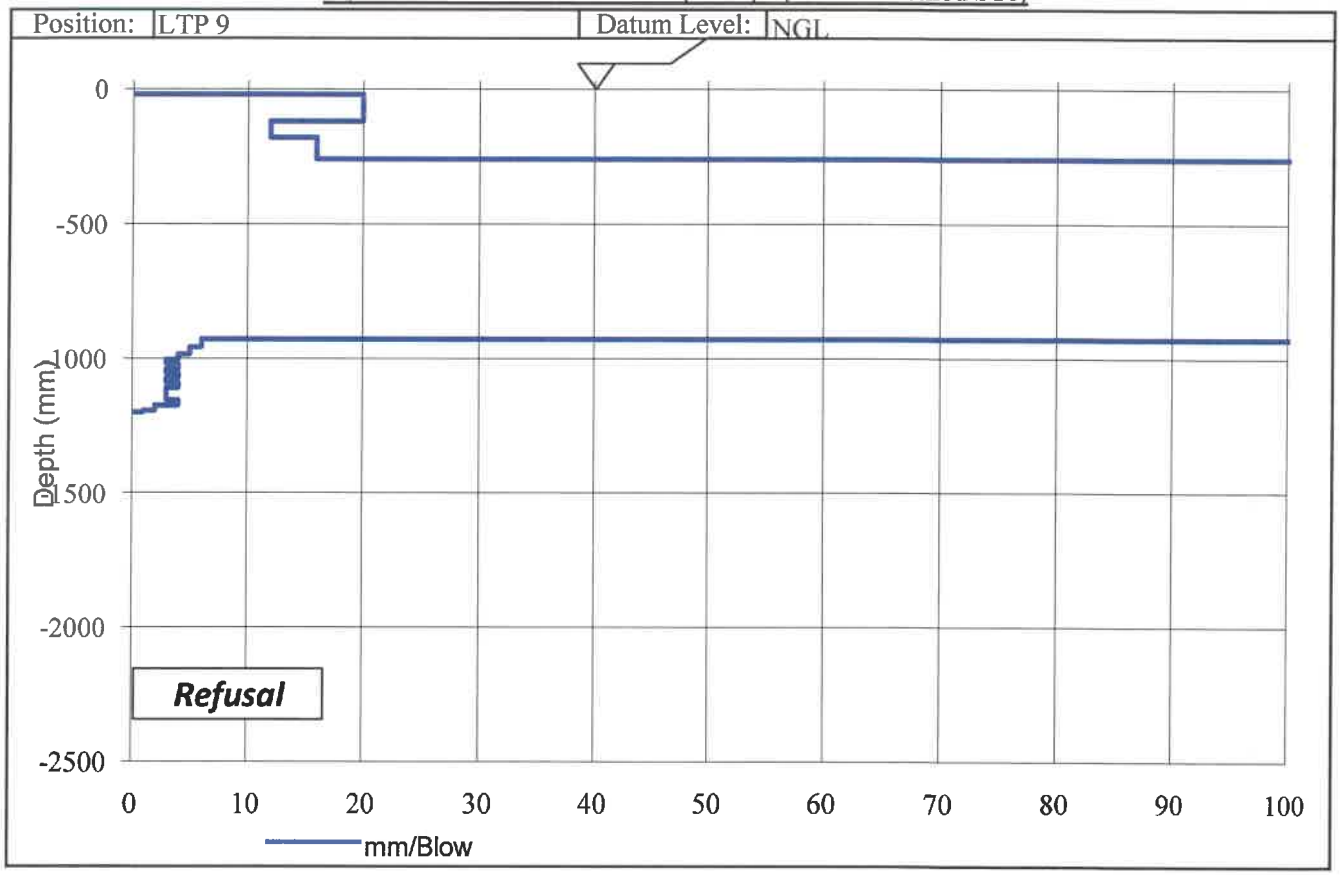
		Date Received :	27/01/11
		Date Reported :	01/03/11
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	7 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 9 Datum Level: NGL



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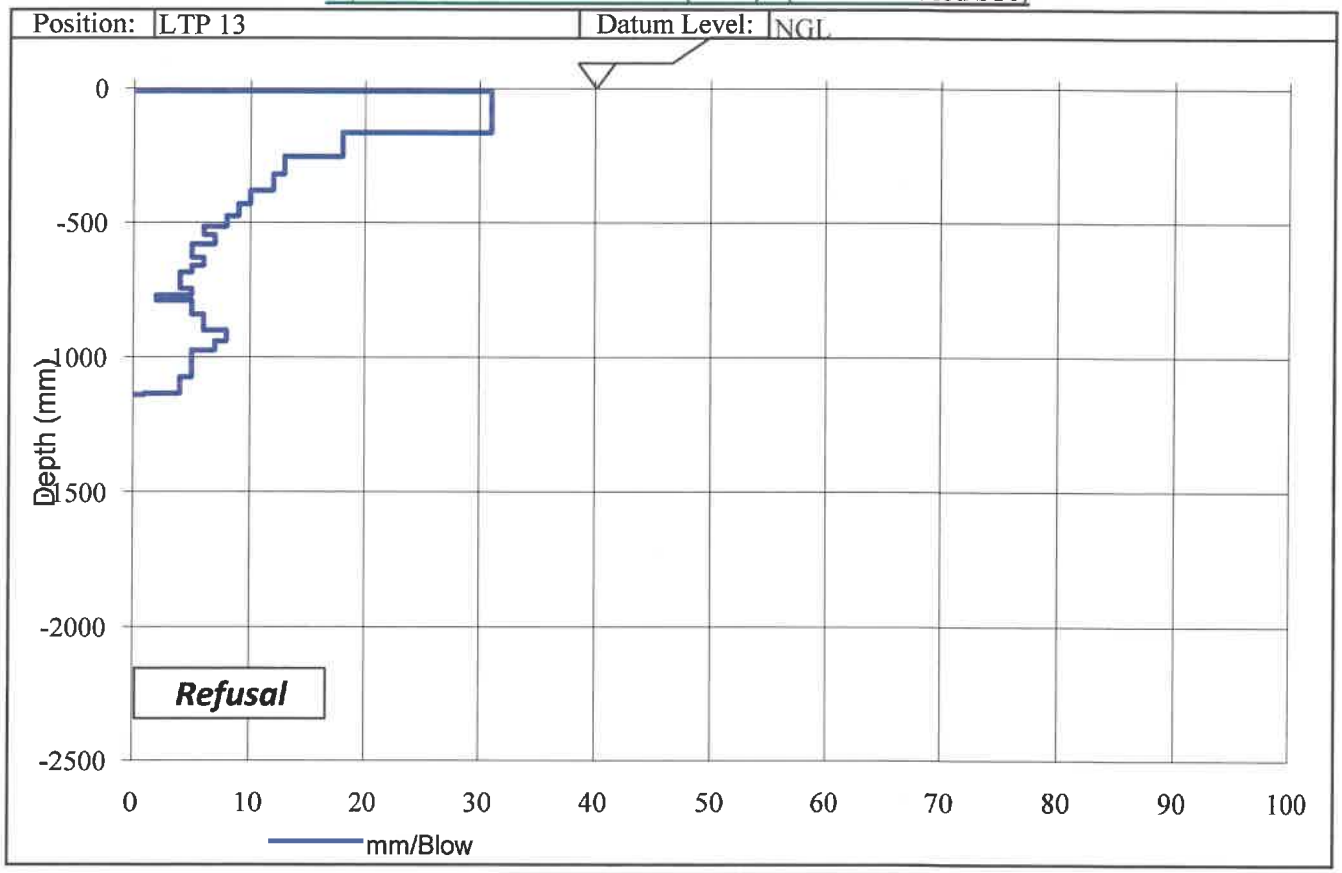
		Req. Number :	379/11
Attention :	MF Fillis	No. of Pages :	8 of 10

TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 13 Datum Level: NGL



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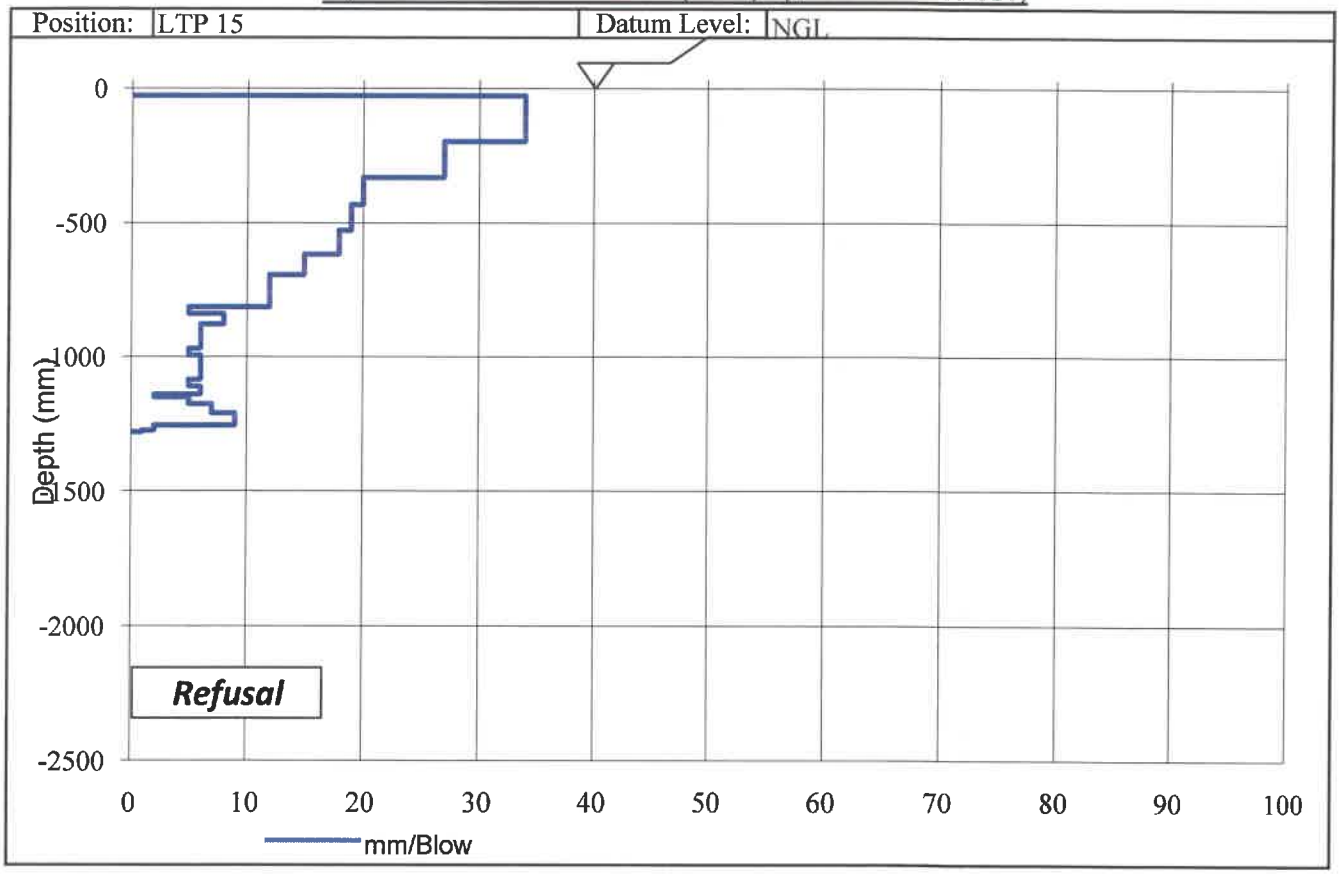
TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 15 Datum Level: NGL



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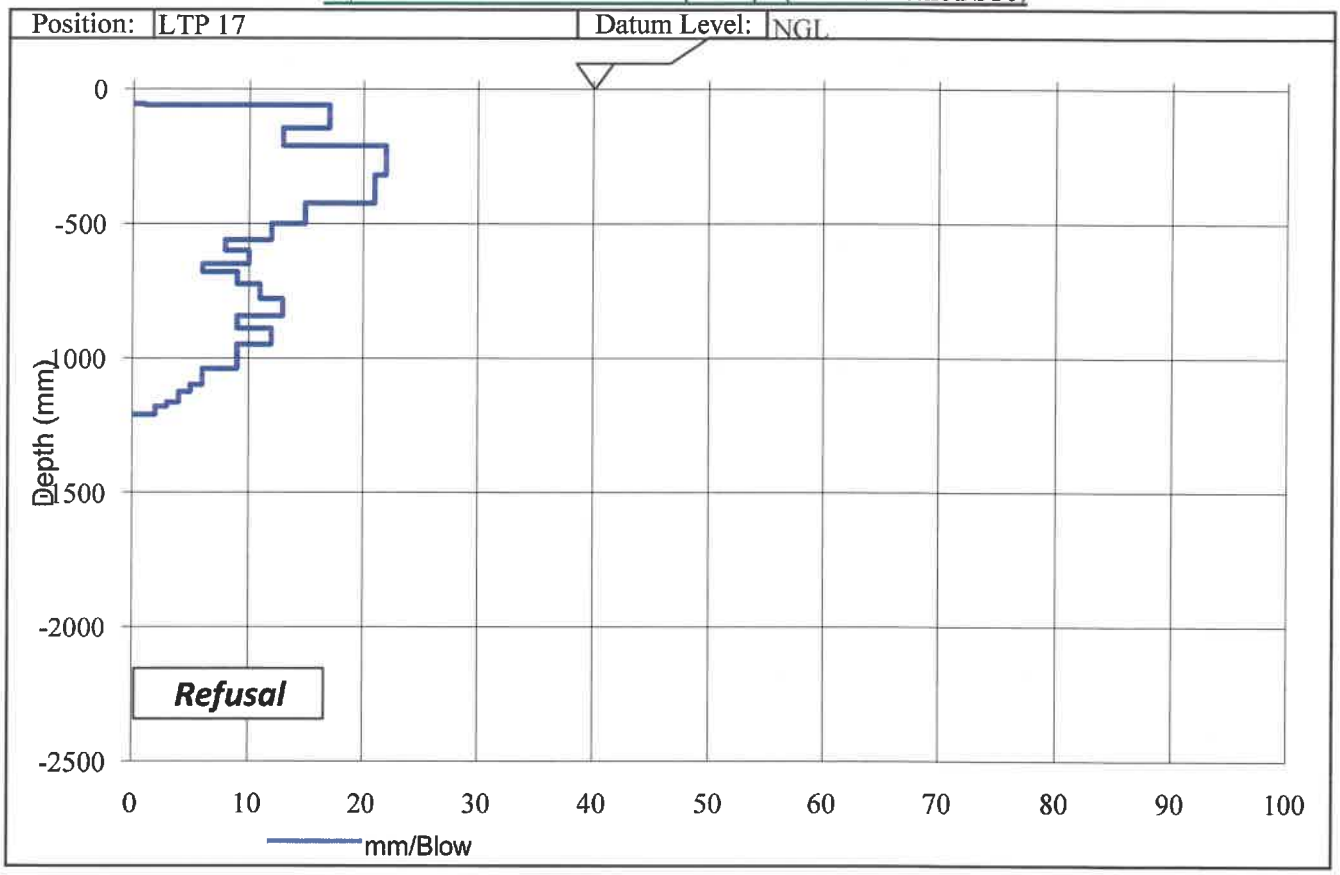
TEST REPORT

Dynamic Cone Penetrometer (DCP) - (TMH 6 Method ST6)

Position: LTP 17 Datum Level: NGL



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For Outeniqua Geotech. Services cc.

PART C 4:
SITE INFORMATION

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

C 4: SITE INFORMATION

C 4.1 SCOPE

The documentation included describes the site as at the time of tender to enable the Tenderer to price his tender and to decide upon his method of working and programming.

Work will be executed in a residential area and the Contractor will take **all** necessary steps to ensure the safety of people, animals and/or property.

C 4.2 SUBSOIL INVESTIGATIONS, BOREHOLE RECORDS AND TEST RESULTS

The material on site varies.(But Rock and Hard excavation is expected)

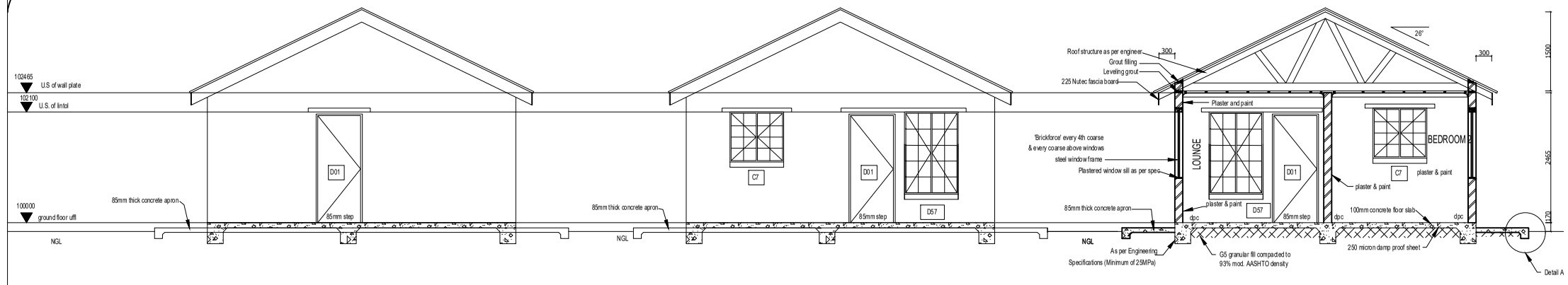
Trail holes were excavated. See C 3.1.3.

C 4.3 INFORMATION ABOUT PIPED AND OTHER SERVICES BELOW THE SURFACE OF THE SITE FOR CONTRACTS INVOLVING GROUND WORKS, AND ABOUT HOOK-UP AND BOUNDARY DETAILS FOR CONTRACTS WITH PLANT INTERFACES, IN ADDITION TO ANYTHING ABOUT THE PHYSICAL SITE WHICH IMPACTS UPON THE CONTRACT

All existing services that could be indicated by the Employer are shown on the Drawings. The Contractor will however investigate on site with the Engineer to identify any existing services that are not indicated on the Drawings before any work commences in an area.

VOLUME 2

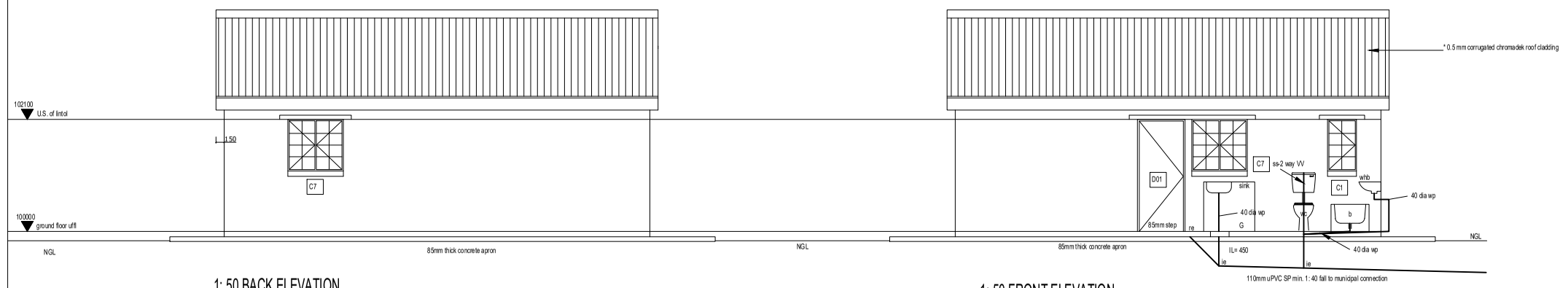
DRAWINGS



1: 50 SIDE ELEVATION

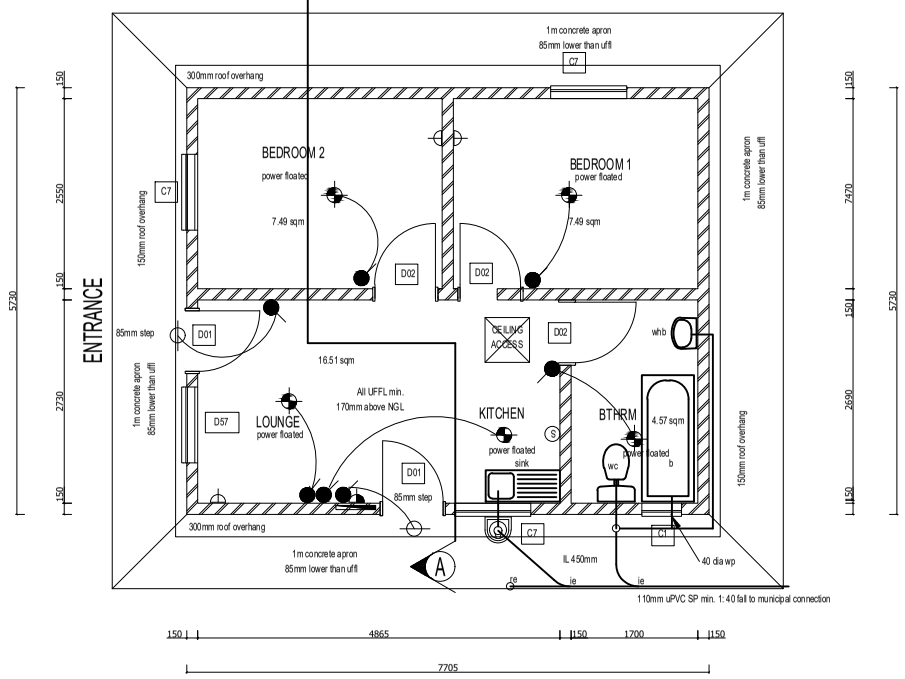
1: 50 SIDE ELEVATION

1: 50 SECTION A - A

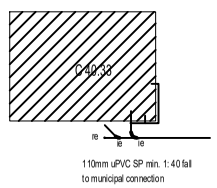


1: 50 BACK ELEVATION

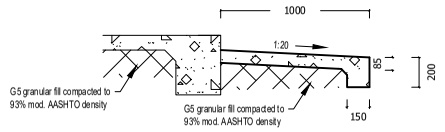
1: 50 FRONT ELEVATION



1: 50 GROUND FLOOR PLAN

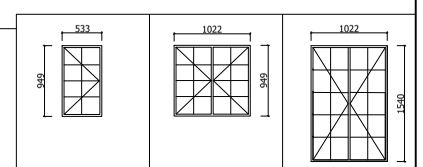


1: 200 SITE PLAN



DETAIL A

1: 50 WINDOW SCHEDULE



C1	C7	D57
0.50 sqm	0.97 sqm	1.57 sqm
4mm Obscured Glass	4mm Glass	4mm Glass
Fixed with Putty	Fixed with Putty	Fixed with Putty

Climate Zone = 1
Minimum Required R-Value = 3.5 sqm K/W
Direction of Heat Flow = UP
The following roof assembly calculation options
all comply with 4.4.5 of SANS 10400-XA

OPTION-AS INDICATED ON THE DRAWINGS

Outdoor Air Film	= 0.03
Concrete Roof Tiles	= 0.00
Roof Air Space	= 0.18
135mm Aerolite Fibre Insulation	= 3.38
6.4mm Gypsum Ceiling Board	= 0.05
Indoor Air Film (still air)	= 0.11
	= 3.75 sqm K/W

Therefore Roof Assembly cmplies with SANS 4.4.5.1
Total R-value is above 3.7 Table 7

TYPOLOGY C 40.19 sqm MAXI BRICK

VERY IMPORTANT NOTES:

* The client accepts the fact that the contractor is a Professional builder and a master of his trade. It is accepted that he has visited the site and has familiarized himself with the local conditions before his tender was submitted, to eliminate any possible chance that a misunderstanding might arise at a later stage due to his limited knowledge of the site.
* All work to be carried out strictly in accordance with the local authority building regulations and by-laws.
* All materials to be SABS approved (stamped). Proof of which to be supplied (official certification) on request when applicable.
* Workmanship to comply with the relevant National Building Regulations and Building Standards Act (Act 103 of 1977 as amended) and the NHBRC home building Manual.
* Foundations to be inspected and approved by the engineer before concrete is poured. This also applies to services in the ground.
* Wall plate inspection and timber truss fixing to be approved before walls are plastered.
* Trade names specified are purely to indicate the quality and standard required. These can be substituted with any product matching the quality subject to the engineer's approval.
* The contractor must check all the measurements and levels indicated on the drawings on site prior to the work commencing.
* The setting out of the building work remains the sole responsibility of the contractor.
* Do not scale the drawing. If uncertain about any of the dimensions, contact the Engineer.
* Report any discrepancies between the drawings and/or contract documentation to the Engineer prior to the commencement of the work.
* All the materials used must be of the best quality obtainable. The work must be done by skilled artisans and carried out in such a way as to ensure the highest quality workmanship obtainable in the local industry. The standard must at least be acceptable to members of the BIA and the M.B.A. Work not complying with afore said will be condemned and redone at the contractors expense.
* All the materials, fittings and equipment used on the project must be applied/installed strictly according to the manufacturer's specifications and guidelines.
* Great care must be taken when installing the damp proof courses to ensure that no damaged material is used. All joints to have 150mm overlaps and to be taped.
* It is important to note that the safety of any material brought onto the site and paid for by the client remains the responsibility of the Contractor even though ownership has been transferred to the Client.
* All materials on site must be stored properly to minimize any damage that might occur. Planning the work sequence is of the utmost importance when ordering materials to ensure that they are not stored for too long a period.
* Plastered wall surfaces must be given sufficient time to dry out before any paintwork commences.
* The contractor must insist that all site instructions be noted in writing in the site instruction book to avoid any later disputes.
* Contractor must familiarize himself with the 'Occupational Health and Safety act no. 85 of i993' and fully comply with the contents thereof. The safety of the public, visitors and of the workers on site is of the utmost importance and remains his sole responsibility for the duration of the contract.
* The site must be kept clean at all times and builders rubble removed from time to time Temporary toilet facilities must be provided by the contractor for the workers and kept clean at all times.
* Contractor must not deviate from the plans and must notify the Engineer of any problems immediately as they arise.

NOTES:

All building materials to be SABS approved (stamped where applicable)
All workmanship to be carried out in accordance with National Building Regulations and Building Standards Act (Act 103 of 1977, as amended) and the NHBRC Home Building Manual. In case of uncertainty National Building Regulations and the NHBRC Home Building Manual should take precedence. All foundation inspection requests to be accompanied by the Engineer's certificate. Truss inspection to be done on un-plastered walls.

CONSTRUCTION SPECIFICATIONS:

FOUNDATIONS
* Foundations as per Contractor's engineer's design - to be approved by the Client's engineer and NHBRC.
* The land around the individual structures shall be shaped to avoid ponding of surface water and drainage precautionary measures such as flexible wet services pipe shall be provided. Floor must be at least 150mm from the natural ground level.

WALLS
* Intersection of internal and external walls must be done accordingly with hoop iron. 'Brickforce' must be place on every layer above window/door level.
* Internal walls to have 12mm 1:6 cement plaster with 1 x plaster primer, and 2 x 'Plascon' pure acrylic emulsion paint.
* External walls to have 12mm 1:6 cement plaster with 1 x plaster primer, and 2 x Exterior 'Plascon' pure acrylic emulsion paint.

DOORS & WINDOWS
* 2.0mm steel cottage section windows and 1.2mm thick steel doorframes with fixing lugs neatly built into brickwork. Windows to have standard fittings.
* Semi-face brick window sills inclusive of dpc. High bedded Class II mortar and pointed at all exposed joints.
* Install precast lintels over all window and door openings.
* Exterior 2032 x 813 x 44mm fl&b door complete with 70mm weather board and 'Union' 3-lever lock set. Painted internal 2032 x 813 x 44mm hollow core doors (commercial veneer) to be fitted with 'Union' 2-lever lock set.
* Floor to have 20mm threshold below external door.

PLUMBING
* All plumbing to be carried out by a plumber registered with the local council/authorities.
* Build in 1700mm acrylic bath side wall and sand bed complete with 15mm chromium plated hot and cold taps, 40mm bath outlet and removable fibre cement inspection panel.
* Fit one 'Vaal AquasaveSlimline' code 750152 wc complete with 6 litre cistern, fitments, toilet seat and flush pipe.
* Provide and fit a 'Franke Trendline 711' - 1200 x 535mm code 311850 stainless steel single bowl sink unit OSA with 1 x chromium plated bib tap, 38mm chromed waste outlet and 40mmm pvc trap,on one pair 'Falcon' code 313852 brackets.
* Hot and cold water polycop lines to be neatly chased into walls to all sanitary fittings. Hot water to be blanked off at future geyser position.
* Install angle valves and a stop cock where applicable.

DRAINAGE
* Provide 1 x 15mm chromed threaded bib tap over a gully at the kitchen.
* Provide a 100mm vent valve at the head of the 100mm soil line.
* Waste water pipe system to have 50mm vent valve at highest point.
* Provide a marked rodding eye at the head of the soil drain and at a change of direction. All pipe connection on soil drain to have inspection eyes.

ELECTRICAL
* The Electrical Installation must be done by a person registered as an Electrical Contractor in terms of the Occupational Health and Safety Act of 1993 -'Electrical Installation Regulations', as well as be registered with the local council/authorities.

FINISHES
* 'Plascon' or else 'Dulux' paint products to take preference.
* Floors to be power-floated to a smooth and level finish and kept damp for a period, as per engineer's requirements, before any brickwork commences.
* Steel window and door frames to have 1 x coat red oxide factory coated primer, 1 x universal undercoat and 2 x 'PlasconVelvaglo' finishing coats.
* External timber door: well sanded and cleaned, apply 1 coat mahogany wood stain and 2 coats external polyurethane varnish.
* Internal doors: sand surfaces smooth and clean, apply 1 x coat timber primer (pink) and 1 x universal undercoat and 2 coats 'PlasconVelvaglo' finishing coats.
* Window panes to be fitted with correctly prepared putty and only painted when surface is firm and dry - not to be left unpainted for too long, paint as per window frames.

ROOF
* Engineer's designed and certified pre-fabricated timber roof trusses @ 26 degrees bedded in dagha.
* Truss design to allow for future geyser placing..
* 0.5 mm corrugated chromadek roof cladding color sandstone beige beldge installed according to manufacturer's specification.
* Intersection of internal & external walls must be done with hoop iron not "Brickforce".
* Trusses tied down with 2 x 2.4mm wire, the wire must be wrapped around and tied on top spacing according to Engineer's specifications. No use of dowels.
* Fit 225 x 10mm "Nutec" fibre cement tiles to truss end with 50 x 5mm counter sunk steel wood screws. Prime screw heads and apply paint with 1x plaster primer, and 2x Dulux roof paint

CEILING
* 6.4mm gypsum ceiling with 50x8mm cover strips on 38x38mm brandering @450mm centres one direction, with standard 70mm coved gypsum cornice fixed with 'Crestestone' OSA paste. Apply acrylic filler where needed and 2x white commercial PVA paint.
* 130 mm mineral fibreglass blanket above ceiling insulation.

STORMWATER
* 1000 x 85mm In-situ concrete apron with positive fall away from walls. Provide 10mm expansion joints @ approx. 2500mm distances. See engineer's specifications.

PROJECT	The Construction of BNG Houses - CoGHSTA Northern Cape
TITLE	40m² BNG HOUSE: PLANS, SECTIONS AND ELEVATIONS

COGHSTA
Department:
Cooperative Governance, Human Settlements and Traditional Affairs
NORTHERN CAPE PROVINCE

V3 CONSULTING ENGINEERS

DRAWING NUMBER		SCALE	REV. NO
100/20/43 - C40		AS SHOWN	00
CHECKED	PLACE	CLIENT	TYPE

DOOR SPECIFICATION	
D01	EXTERNAL DOORS: weatherboards to be fitted to all external doors 2032x813x44mm Merranti FL & B Flush door fixed to 150mm exterior wall with 1.2mm Steeldoor frame and Union 3 lever Mortice lockset
D02	INTERIOR DOORS: 2032X813X44mm Masonite Hollow Core Door with 1.2mm steel door frame fitted to 150mm internal wall and Union 2 lever Mortice lockset

FENESTRATION COMPLIANCE

40.33 sqm NET FLOOR AREA
6.05 sqm Allowable Fenestration Area (15% of 40.33 sqm)
5.03 sqm Actual Fenestration area

DRAINAGE

SS SUBSTACK + 2 WAY VV B BATH
VV VENT VALVE WC WATER CLOSET
G GULLEY
IE INSPECTION EYE IL INVERT LEVEL
RE RODDING EYE

ELECTRICAL LEGEND

WALL MOUNTED LIGHT POINT
CEILING MOUNTED LIGHT POINT
SINGLE WALL PLUG (0.3m above ufl to uside)
SINGLE WALL PLUG (1.1m above ufl to uside)
RECESSED DISTRIBUTION BOARD WITH LID
light switch @ 1m above ufl
(S) stove point

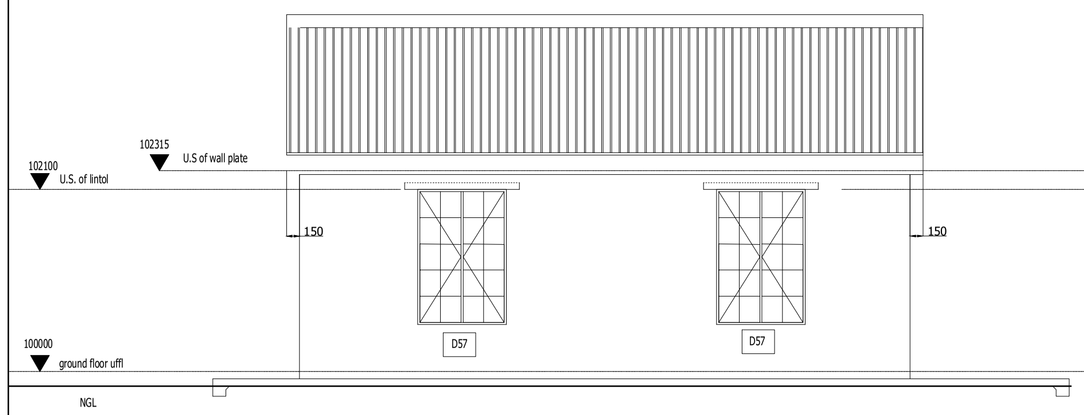
LEGEND

150 mm MAXI BRICK
SEWER PIPE LINE
GREY WATER PIPE LINE
HOT WATER PIPING INSTALLED TO WALLS ONLY
FUTURE SWH - Solar Water Heater

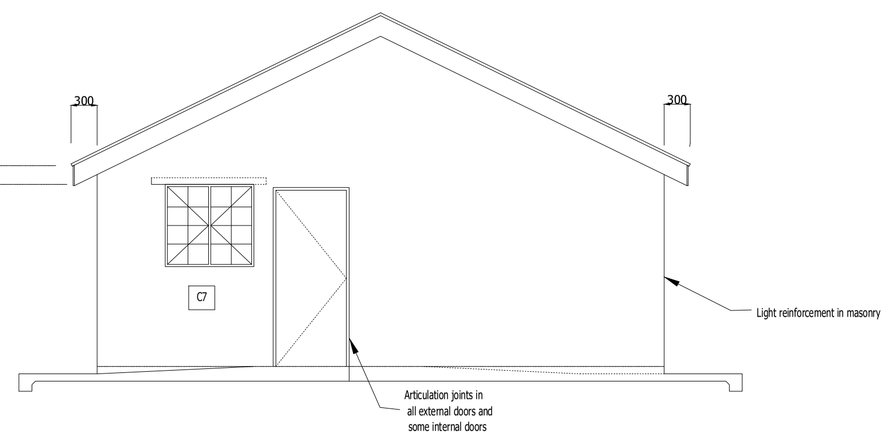
AREA SCHEDULE

TOTAL STAND AREA 000 sqm
NEW HOUSE AREA 40.19 sqm

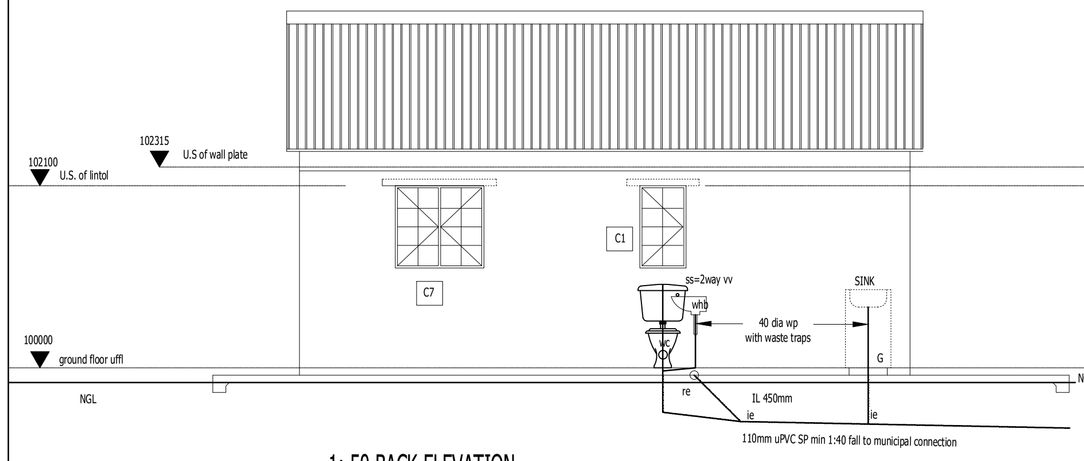
COVERAGE 00%
FAR: 00



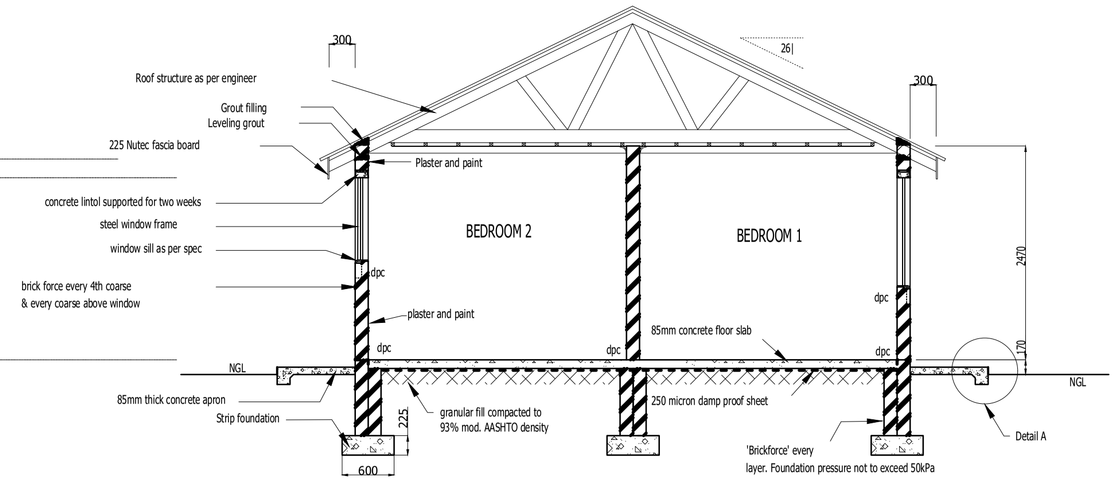
1: 50 FRONT ELEVATION



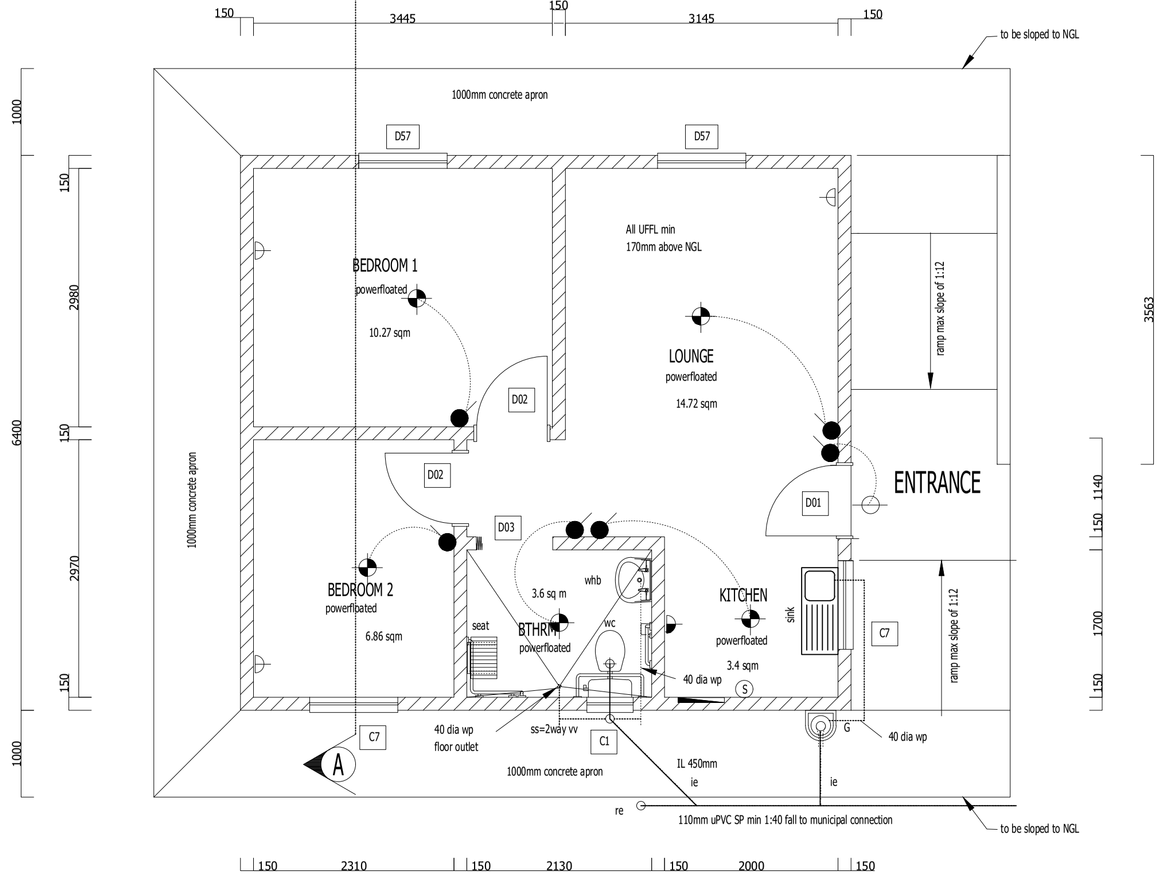
1: 50 SIDE ELEVATION



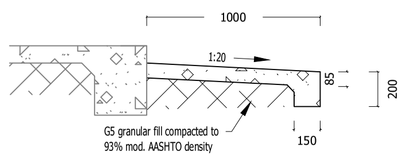
1: 50 BACK ELEVATION



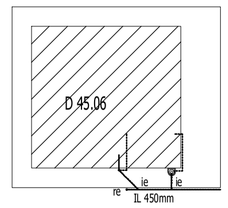
1: 50 SECTION A - A



1: 50 GROUND FLOOR PLAN



DETAIL A



1: 200 SITE PLAN

TYPOLOGY D 45.06 sqm

VERY IMPORTANT NOTES:

* The client accepts the fact that the contractor is a Professional builder and a master of his trade. It is accepted that he has visited the site and has familiarized himself with the local conditions before his tender was submitted, to eliminate any possible chance that a misunderstanding might arise at a later stage due to his limited knowledge of the site.
* All work to be carried out strictly in accordance with the local authority building regulations and by-laws.
* All materials to be SABS approved (stamped). Proof of which to be supplied (official certification) on request when applicable.
* Workmanship to comply with the relevant National Building Regulations and Building Standards Act (Act 103 of 1977 as amended) and the NHBRC home building Manual.
* Foundations to be inspected and approved by the engineer before concrete is poured. This also applies to services in the ground.
* Wall plate inspection and timber truss fixing to be approved before walls are plastered.
* Trade names specified are purely to indicate the quality and standard required. These can be substituted with any product matching the quality subject to the engineer's approval.
* The contractor must check all the measurements and levels indicated on the drawings on site prior to the work commencing.
* The setting out of the building work remains the sole responsibility of the contractor.
* Do not scale the drawing. If uncertain about any of the dimensions, contact the Engineer.
* Report any discrepancies between the drawings and/or contract documentation to the Engineer prior to the commencement of the work.
* All the materials used must be of the best quality obtainable. The work must be done by skilled artisans and carried out in such a way as to ensure the highest quality workmanship obtainable in the local industry. The standard must at least be acceptable to members of the BIA and the M.B.A. Work not complying with afore said will be condemned and redone at the contractors expense.
* All the materials, fittings and equipment used on the project must be applied/installed strictly according to the manufacturer's specifications and guidelines.
* Great care must be taken when installing the damp proof courses to ensure that no damaged material is used. All joints to have 150mm overlaps and to be taped.
* It is important to note that the safety of any material brought onto the site and paid for by the client remains the responsibility of the Contractor even though ownership has been transferred to the Client.
* All materials on site must be stored properly to minimize any damage that might occur. Planning the work sequence is of the utmost importance when ordering materials to ensure that they are not stored for too long a period.
* Plastered wall surfaces must be given sufficient time to dry out before any paintwork commences.
* The contractor must insist that all site instructions be noted in writing in the site instruction book to avoid any later disputes.
* Contractor must familiarize himself with the 'Occupational Health and Safety act no. 85 of i993' and fully comply with the contents thereof. The safety of the public, visitors and of the workers on site is of the utmost importance and remains his sole responsibility for the duration of the contract.
* The site must be kept clean at all times and builders rubble removed from time to time Temporary toilet facilities must be provided by the contractor for the workers and kept clean at all times.
* Contractor must not deviate from the plans and must notify the Engineer of any problems immediately as they arise.

NOTES:

All building materials to be SABS approved (stamped where applicable)
All workmanship to be carried out in accordance with National Building Regulations and Building Standards Act (Act 103 of 1977, as amended) and the NHBRC Home Building Manual. In case of uncertainty National Building Regulations and the NHBRC Home Building Manual should take precedence. All foundation inspection requests to be accompanied by the Engineer's certificate. Truss inspection to be done on un-plastered walls.

CONSTRUCTION SPECIFICATIONS:

FOUNDATIONS
* Foundations as per Contractor's engineer's design - to be approved by the Client's engineer and NHBRC.
* The land around the individual structures shall be shaped to avoid ponding of surface water and drainage precautionary measures such as flexible wet services pipe shall be provided. Floor must be at least 150mm from the natural ground level.

WALLS
* Intersection of internal and external walls must be done accordingly with hoop iron. 'Brickforce' must be place on every layer above window/door level.
* Internal walls to have 12mm 1:6 cement plaster with 1 x plaster primer, and 2 x 'Plascon' pure acrylic emulsion paint.
* External walls: semi-facebricks (Corojem Facebricks). To be sealed with approved facebrick sealant.

DOORS & WINDOWS
* 2.0mm steel cottage section windows and 1.2mm thick steel doorframes with fixing lugs neatly built into brickwork. Windows to have standard fittings.
* Semi-face brick window sills inclusive of dpc. High bedded Class II mortar and pointed at all exposed joints.
* Install precast lintels over all window and door openings.
* Exterior 2032 x 813 x 44mm fibb door complete with 70mm weather board and 'Union' 3-lever lock set. Painted internal 2032 x 813 x 44mm hollow core doors (commercial veneer) to be fitted with 'Union' 2-lever lock set.
* Floor to have 20mm threshold below external door.

PLUMBING
* All plumbing to be carried out by a plumber registered with the local council/authorities.

* Fit one 'Vaal AquasaveSlimline' code 750152 wc complete with 6 litre cistern, fitments, toilet seat and flush pipe.
* Provide and fit a 'Franke Trendline 711' - 1200 x 535mm code 311850 stainless steel single bowl sink unit OSA with 1 x chromium plated bib tap, 38mm chromed waste outlet and 40mmm pvc trap,on one pair 'Falcon' code 313852 brackets.
* Hot and cold water polycop lines to be neatly chased into walls to all sanitary fittings. Hot water to be blanked off at future geyser position.
* Install angle valves and a stop cock where applicable.

DRAINAGE
* Provide 1 x 15mm chromed threaded bib tap over a gully at the kitchen.
* Provide a 100mm vent valve at the head of the 100mm soil line.
* Waste water pipe system to have 50mm vent valve at highest point.
* Provide a marked nodding eye at the head of the soil drain and at a change of direction. All pipe connection on soil drain to have inspection eyes.

ELECTRICAL
* The Electrical Installation must be done by a person registered as an Electrical Contractor in terms of the Occupational Health and Safety Act of 1993 -'Electrical Installation Regulations', as well as be registered with the local council/authorities.

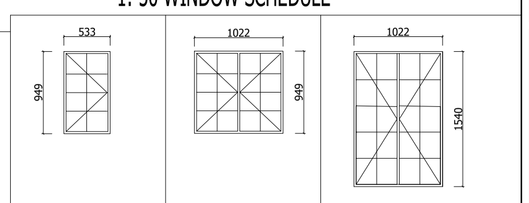
FINISHES
* 'Plascon' or else 'Dulux' paint products to take preference.
* Floors to be power-floated to a smooth and level finish and kept damp for a period, as per engineer's requirements, before any brickwork commences.
* Steel window and door frames to have 1 x coat red oxide factory coated primer, 1 x universal undercoat and 2 x 'PlasconVelvaglo' finishing coats.
* External timber door: well sanded and cleaned, apply 1 coat mahogany wood stain and 2 coats external polyurethane varnish.
* Internal doors: sand surfaces smooth and clean, apply 1 x coat timber primer (pink) and 1 x universal undercoat and 2 coats 'PlasconVelvaglo' finishing coats.
* Window panes to be fitted with correctly prepared putty and only painted when surface is firm and dry - not to be left unpainted for too long, paint as per window frames.

ROOF
* Engineer's designed and certified pre-fabricated timber roof trusses @ 26 degrees bedded in dagha.
* Truss design to allow for future geyser placing..
* 0.5 mm corrugated chromadek roof cladding color sandstone beige beldge installed according to manufacturer's specification.
* Intersection of internal & external walls must be done with hoop iron not "Brickforce".
* Trusses tied down with 2 x 2.4mm wire, the wire must be wrapped around and tied on top spacing according to Engineer's specifications. No use of dowels.
* Fit 225 x 10mm 'Nutec' fibre cement tiles to truss end with 50 x 5mm counter sunk steel wood screws. Prime screw heads and apply paint with 1x plaster primer, and 2x Dulux roof paint

CEILING
* 6.4mm gypsum ceiling with 50x8mm cover strips on 38x38mm brandering @450mm centres one direction, with standard 70mm coved gypsum cornice fixed with 'Crestestone' OSA paste. Apply acrylic filler where needed and 2x white commercial PVA paint.
* 130 mm mineral fibreglass blanket above ceiling insulation.

STORMWATER
* 1000 x 85mm In-situ concrete apron with positive fall away from walls. Provide 10mm expansion joints @ approx. 2500mm distances. See engineer's specifications.

1: 50 WINDOW SCHEDULE



C1	C7	D57
0.50 sqm	0.97 sqm	1.57 sqm
4mm Obscured Glass	4mm Glass	4mm Glass
Fixed with Putty	Fixed with Putty	Fixed with Putty

Climate Zone = 1
Minimum Required R-Value = 3.5 sqm K/W
Direction of Heat Flow = UP
The following roof assembly calculation options all comply with 4.4.5 of SANS 10400-XA

OPTION-AS INDICATED ON HE DRAWINGS

Outdoor Air Film = 0,03
Corrugated Roof sheeting = 0.00
Roof Air Space = 0.18
135mm Aerolite Fibre Insulation = 3.38
6.4mm Gypsum Ceiling Board = 0.05
Indoor Air Film (still air) = 0.11
= 3.75 sqm K/W

Therefore Roof Assembly cmplies with SANS 4.4.5.1
Total R-value isabove 3.7 Table 7

PROJECT	The Construction of BNG Houses - CoGHSTA Northern Cape
TITLE	45m² DISABLED BNG HOUSE: PLANS, SECTIONS AND ELEVATIONS

COGHSTA
Department:
Cooperative Governance, Human Settlements and Traditional Affairs
NORTHERN CAPE PROVINCE

V3 CONSULTING ENGINEERS

DRAWING NUMBER		SCALE	REV. NO
10002043 - DI5		AS SHOWN	00
CHECKED	PLACE	CLIENT	TYPE

DOOR SPECIFICATION

D01 EXTERNAL DOORS: weatherboards to be fitted to all external doors
2032x813x44mm Meranti FL & B Flush door fixed to 220mm exterior wall with 1.2mmSteeldoor frame and Union 3 lever Mortice lockset

D02 INTERIOR DOORS:
2032X813X44mm Masonite Hollow Core Door with 1.2mm steel door frame fitted to 110mm internal wall and Union 2 lever Mortice lockset
152x1.2mm s/steel kicking plate fixed to door

D03 WHEEL CHAIR FOLDING DOOR:
2200x1000mm Vinyl folding door

FENESTRATION COMPLIANCE

39.44 sqm NET FLOOR AREA
5.92 sqm Allowable Fenestration Area (15% of 37.06sqm)
5.87 sqm Actual Fenestration area

DRAINAGE

SS SUBSTACK + 2 WAY VV B BATH
VV VENT VALVE WC WATER CLOSET
G GULLEY WHB WASH HAND BASIN
IE INSPECTION EYE IL INVERT LEVEL
RE RODDING EYE

ELECTRICAL LEGEND

WALL MOUNTED LIGHT POINT
CEILING MOUNTED LIGHT POINT
SINGLE WALL PLUG (0,3m above uffl to u/side)
SINGLE WALL PLUG (1,1m above uffl to u/side)
RECESSED DISTRIBUTION BOARD WITH LID
light switch @ 1m above uffl
stove point

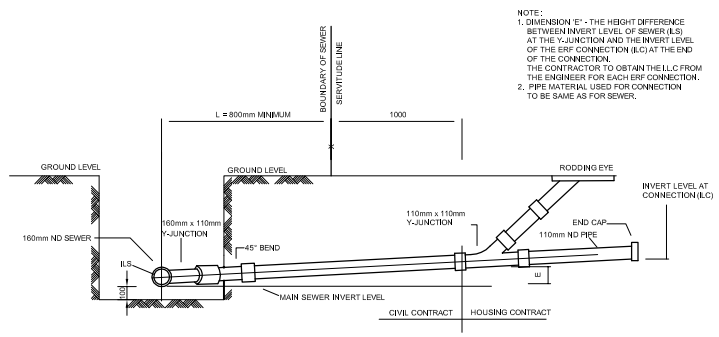
LEGEND

STOCK BRICKS
SEWER PIPE LINE
GREY WATER PIPE LINE
HOT WATER PIPING INSTALLED TO WALLS ONLY
FUTURE SWH - Solar Water Heater

AREA SCHEDULE

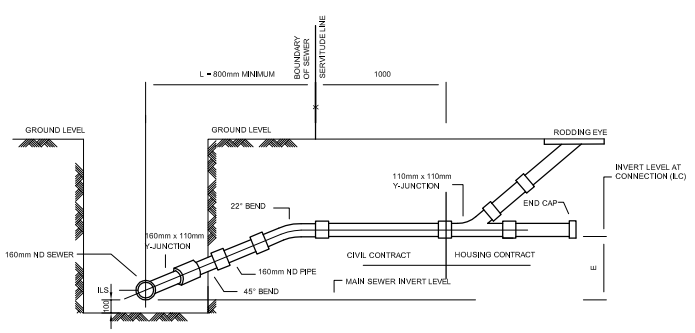
TOTAL STAND AREA 000 sqm
NEW HOUSE AREA 45.06 sqm

COVERAGE 00%
FAR: 00



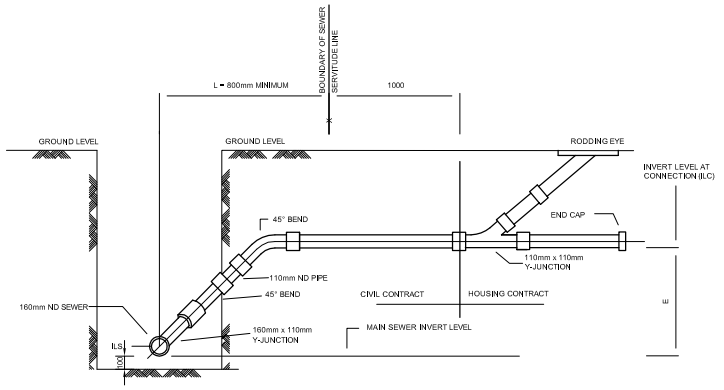
ERF CONNECTION DETAILS : TYPE 1 DETAILS FOR "E"
VARYING BETWEEN 150mm AND 405mm

N.T.S



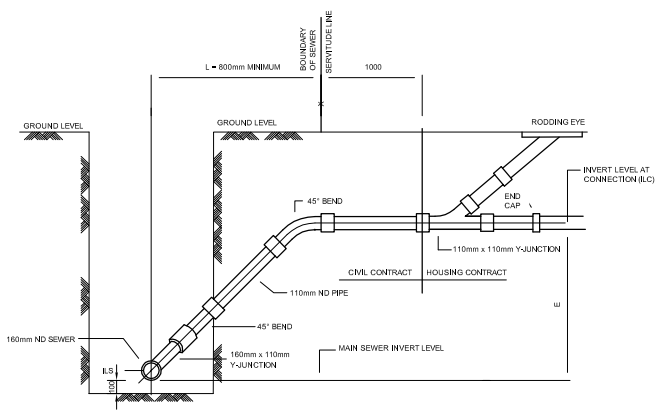
ERF CONNECTION DETAILS : TYPE 2 DETAILS FOR "E"
VARYING BETWEEN 405mm AND 710mm

N.T.S



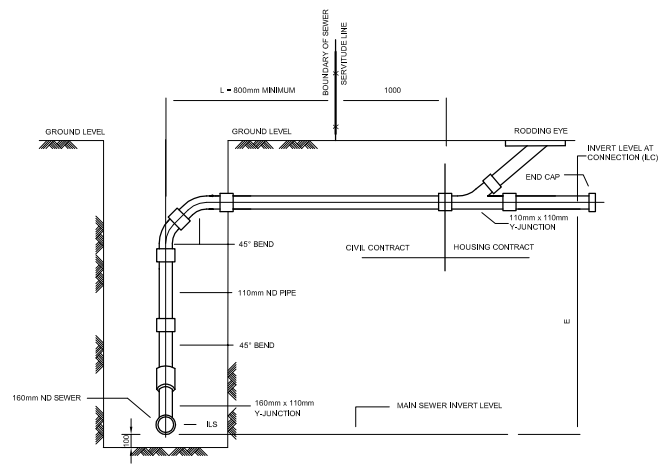
ERF CONNECTION DETAILS : TYPE 3 DETAILS FOR "E"
VARYING BETWEEN 710 AND 1015mm

N.T.S



ERF CONNECTION DETAILS : TYPE 4 DETAILS FOR "E"
VARYING BETWEEN 1015mm AND 1500mm

N.T.S



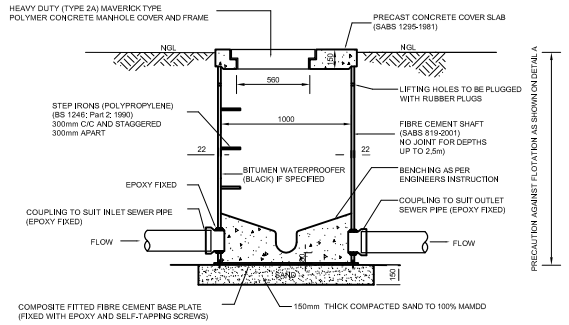
ERF CONNECTION DETAILS : TYPE 5 DETAILS
FOR "E" GREATER THAN 1500

N.T.S

Dimension of Anchoring Slab (B x B)						
D	X (mm)	L = 0m (B x B)	L = 0.25m (B x B)	L = 0.5m (B x B)	L = 0.75m (B x B)	L = 1.0m (B x B)
0 - 2,0	0,09	Sand Bedding Only	Sand Bedding Only	Sand Bedding Only	Sand Bedding Only	Sand Bedding Only
2,0 - 2,5	0,10	1,2 x 1,2	Sand Bedding Only	Sand Bedding Only	Sand Bedding Only	Sand Bedding Only
2,5 - 3,0	0,10	1,2 x 1,2	1,2 x 1,2	Sand Bedding Only	Sand Bedding Only	Sand Bedding Only
3,0 - 3,5	0,125	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	Sand Bedding Only	Sand Bedding Only
3,5 - 4,0	0,125	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	Sand Bedding Only	Sand Bedding Only
4,0 - 4,5	0,150	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	Sand Bedding Only	Sand Bedding Only
4,5 - 5,0	0,150	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	Sand Bedding Only
5,0 - 5,5	0,150	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	Sand Bedding Only
5,5 - 6,0	0,150	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2	1,2 x 1,2

NOTES:

1. COMPLETE BENCHING, WELL COMPACTED BACKFILL (95% MAMDD) TO NGL AND PLACE COVER SLAB BEFORE WATER TABLE IS ALLOWED TO RISE.
2. TO BE READ IN CONJUNCTION WITH DETAIL A.
3. RECOMMENDED BASE PLATE THICKNESSES:
   - 9mm BASEPLATE WITH 2 x 9mm INTERNAL RE-INFORCEMENT STRIPS FOR MANHOLES UP TO 1,5m DEEP
   - 16mm BASEPLATE WITH 1 x 9mm INTERNAL RE-INFORCEMENT STRIP FOR MANHOLES 1,5m TO 2,5m DEEP
   - 27mm BASEPLATE WITH 1 x 9mm BASEPLATE WITH 1 x 9mm INTERNAL RE-INFORCEMENT STRIP FOR MANHOLES DEEPER THAN 2,5m
4. PROVIDE ANTI-FLOTATION CONCRETE SLAB AS SHOWN IN DETAIL A. (ASSUMED L=0,25m UNLESS OTHERWISE STATED BY THE ENGINEER)
5. 20mm FALL BETWEEN INLET AND OUTLET UNLESS OTHERWISE SPECIFIED



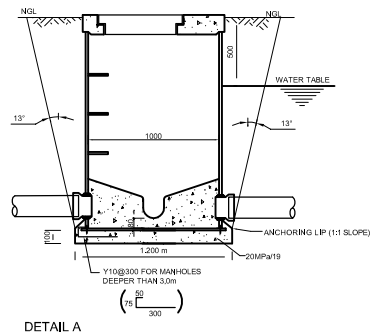
TYPICAL SECTION OF FIBRE CEMENT MANHOLE

N.T.S

NOTES:

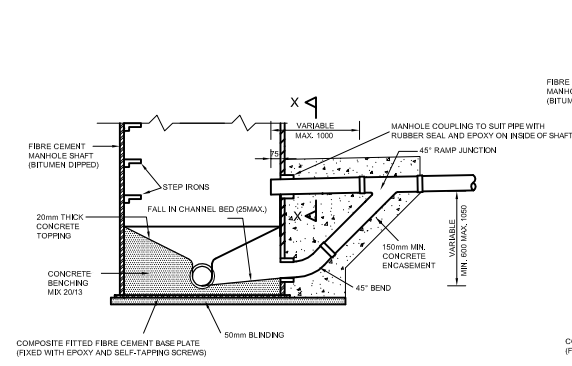
1. MANHOLE TO BE BEDDED INTO FRESH WET CONCRETE AND ANCHORING LIP TO BE CAST IN ONE OPERATION WITH FOUNDATION SLAB.
2. COMPLETE WELL COMPACTED BACKFILL (MAMDD) BENCHING AND PLACE COVER SLAB BEFORE WATER TABLE IS ALLOWED TO RISE.
3. SUPPLIER TO BE INFORMED WHICH MANHOLES WILL BE BEDDED ONTO FOUNDATION CONCRETE (OUTSIDE OF BASE PLATE WILL THEN NOT BE BITUMEN COATED)

D = MANHOLE DEPTH
L = DEPTH TO WATER TABLE
B = DIMENSION OF SQUARE FOUNDATION CONCRETE SLAB (20MPa)
Ø = 15° (ASSUMED INTERNAL SOIL FRICTION ANGLE)



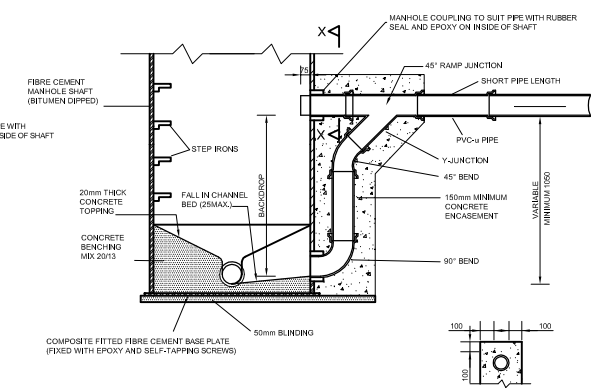
DETAIL A
TYPICAL FLOTATION PRECAUTION FOR MANHOLES IN HIGH WATER TABLE AREAS

N.T.S



RAMP MANHOLE DETAIL FOR SEWER MANHOLE

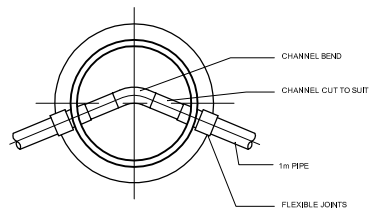
N.T.S



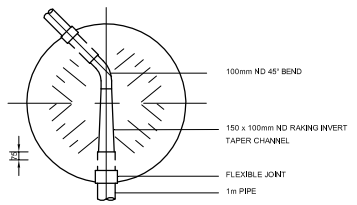
BACKDROP DETAIL FOR SEWER MANHOLE

N.T.S

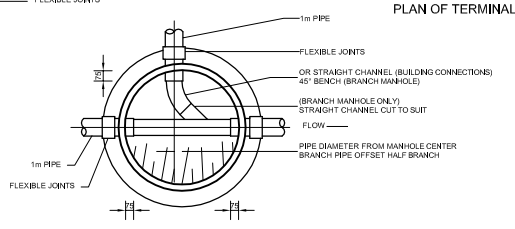
SECTION X-X



PLAN OF MANHOLE AT BENDS



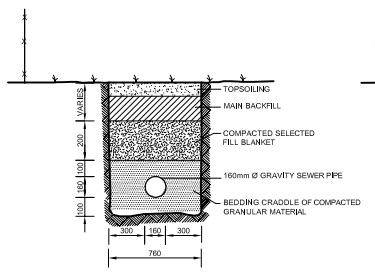
PLAN OF TERMINAL MANHOLES



PLAN OF 90° BRANCH & BUILDING CONNECTION

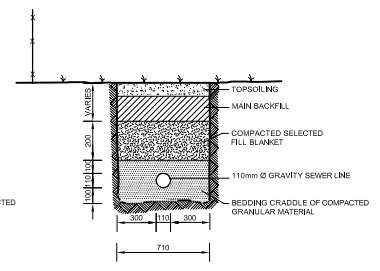
TYPICAL CHANNEL LAYOUTS
MANHOLES

NTS



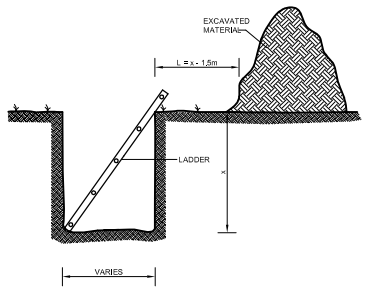
TYPICAL DETAIL OF
GRAVITY SEWER TRENCH

N.T.S



TYPICAL DETAIL OF
SEWER CONNECTION TRENCH

N.T.S

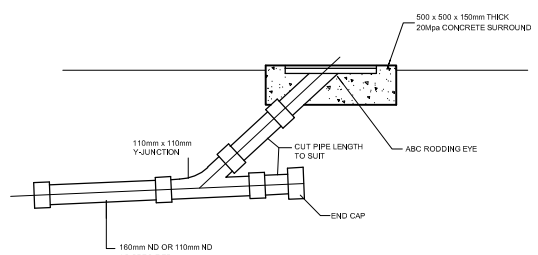


TYPICAL EXCAVATION DETAIL FOR
TRENCHES DEEPER THAN 1.5m

N.T.S

NOTE

1. KEEP TOP SURFACE OF RODDING EYES AND BOLTS CLEAN DURING CASTING OF CONCRETE SURROUND.
2. LEVEL OF RODDING EYE
   = 25mm ABOVE SURROUNDING SURFACE IN OPEN AREAS.
   = SAME LEVEL AS SURROUNDING SURFACE IN SURFACED/PAVED AREAS/ PUBLIC AREAS.



TYPICAL DETAIL OF RODDING EYE

N.T.S

NOTES:

1. ALL CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH SANS 1200.

0 100

100 MILLIMETRES ON ORIGINAL DRAWING

A BEFORE CONTRACT COMMENCES

A AFTER CONTRACT HAS COMMENCED

Nr.	DATE	AMENDMENTS

COGHSTA
Department:
Cooperative Governance, Human Settlements and Traditional Affairs
NORTHERN CAPE PROVINCE

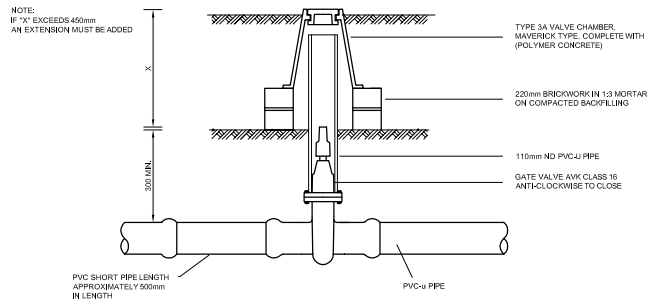
V3 CONSULTING ENGINEERS
T : +27 (0) 87 295 0620
F : +27 (0) 53 831 2460
155 Du Toitspan Road, Kimberley, 8301
PO Box 1178, Kimberley, 8300, South Africa
CESA

PROJECT
THE CONSTRUCTION OF 25 BNG HOUSES IN TJOKSVILLE, UMSOMBOMVU LOCAL MUNICIPALITY

DRAWING DESCRIPTION
SEWER: DETAILS

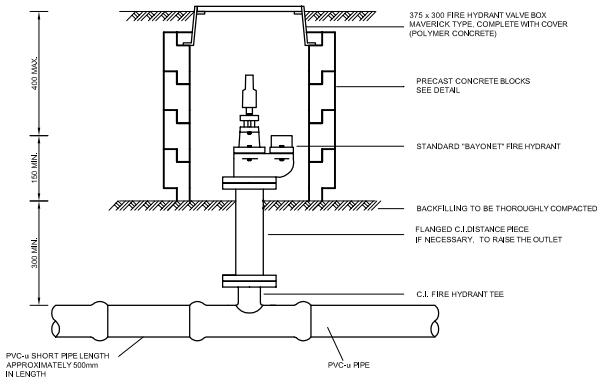
DRAWING NO.
MV-SD-100

SCALE	AS SHOWN	A1	CHECKED	
DATE	OCT 2016		DRAWN	RUDI BEESLAAR



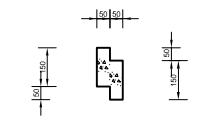
VALVE CHAMBER

N.T.S.

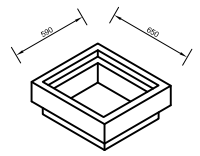


FIRE HYDRANT CHAMBER

N.T.S.

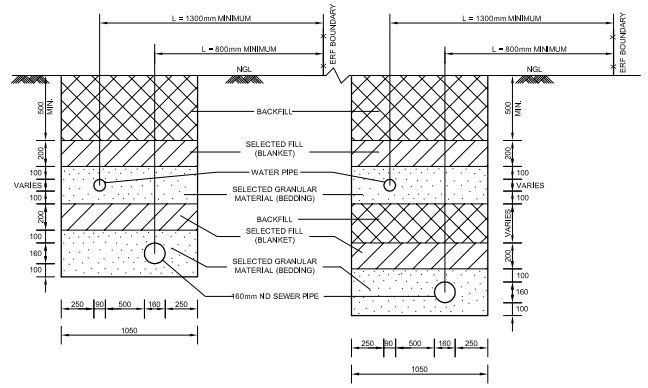


SECTION



PRECAST CONCRETE BLOCKS

N.T.S

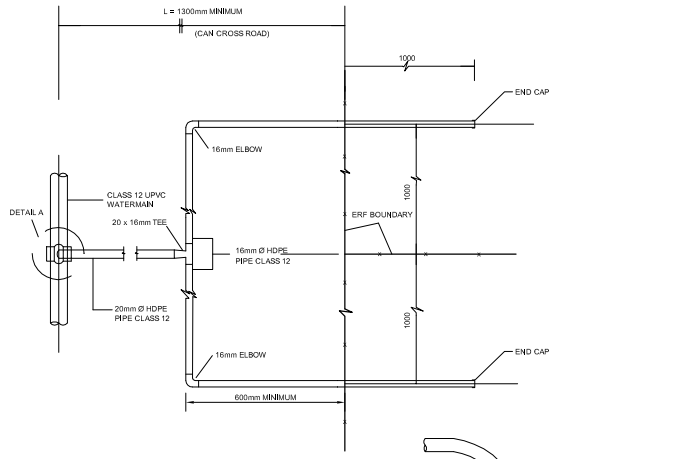


TRENCHES APPROX. 1,5m DEEP

TRENCHES DEEPER THAN 1,5m

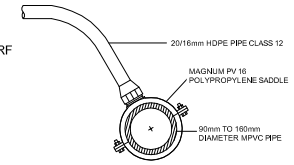
DETAIL OF COMBINED PIPE TRENCHES FOR WATER AND SEWER

N.T.S



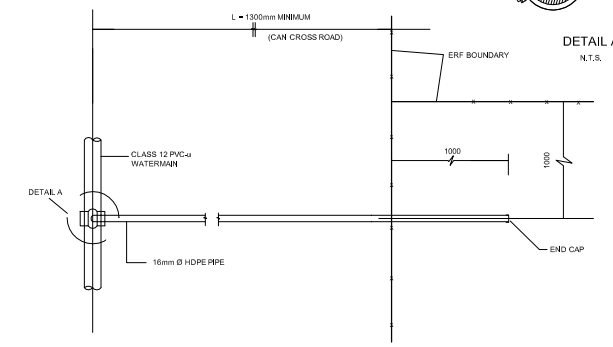
WATER ERF CONNECTION FOR DOUBLE ERF

N.T.S.



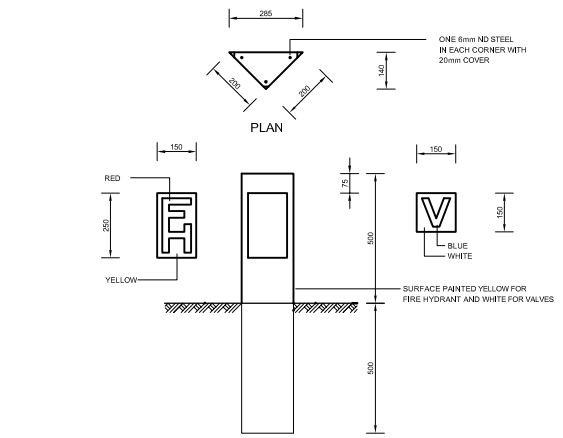
DETAIL A

N.T.S.



WATER ERF CONNECTION FOR SINGLE ERF

N.T.S



VALVE AND FIRE HYDRANT MARKER

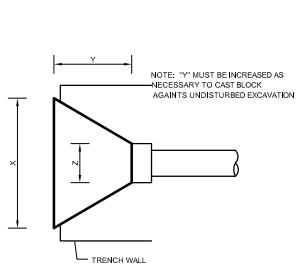
N.T.S.

PIPE DIAMETER	DEPTH OF BLOCK	X	Y	Z
75	500	500	300	150
90	500	500	300	150
110	500	500	300	150

PIPE DIAMETER	X	D	Z
75	500	300	150
90	650	400	200
110	650	400	200

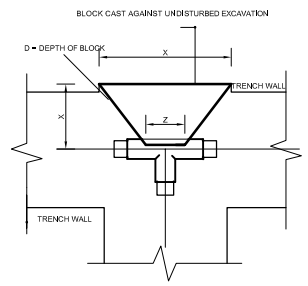
NOTES:
1. TO CAST CONCRETE AGAINST UNDISTURBED EXCAVATION "Y" MUST BE INCREASED AS NEEDED
2. BEARING PRESSURE OF SOIL BEHIND THRUST BLOCK MUST BE AT LEAST 40kPa AND THE TEST PRESSURE HEAD IN PIPELINE NOT BIGGER THAN 135kPa
3. TRUST BLOCKS MUST BE BUILT SYMMETRICAL AROUND FITTINGS

PIPE DIAMETER	X	D	Z
75	500	300	175
90	650	400	250
110	650	400	250



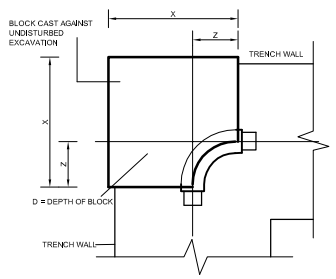
TRUST BLOCK FOR END CAPS

NTS



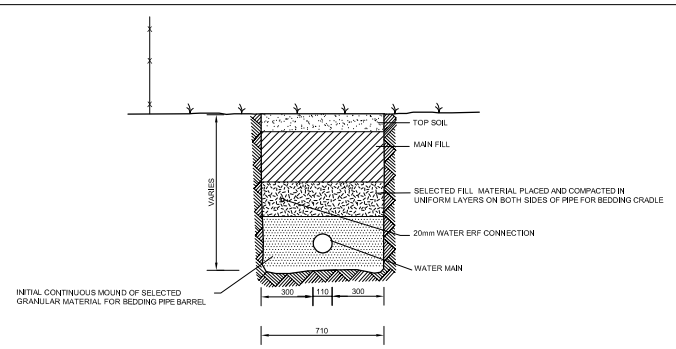
THRUST BLOCK FOR T-JUNCTIONS

NTS



THRUST BLOCK FOR 90° BENDS

NTS



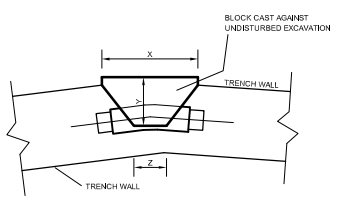
TYPICAL DETAIL OF WATER AND WATER ERF CONNECTION

N.T.S.

FOR 11,25° BENDS				
PIPE DIA.	DEPTH OF CONCRETE	X	Y	Z
75	200	200	300	100
90	200	300	300	100
110	200	300	300	100

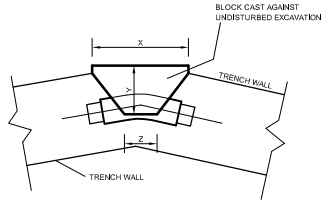
FOR 22,5° BEND				
PIPE DIA.	DEPTH OF CONCRETE	X	Y	Z
75	250	250	300	100
90	300	350	300	150
110	300	350	300	150

PIPE DIAMETERS	X	D	Z
75	375	300	125
90	500	400	175
110	500	400	175



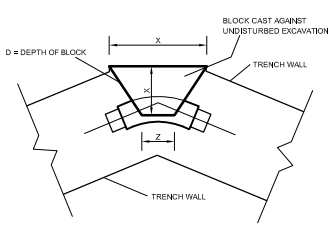
TRUST BLOCK FOR 11.25° BENDS

NTS



TRUST BLOCK FOR 22,5° BENDS

NTS



THRUST BLOCK FOR 45° BENDS

NTS

NOTES:

1. ALL CONSTRUCTION MUST BE DONE IN ACCORDANCE WITH SANS 1200.

0 100

100 MILLIMETRES ON ORIGINAL DRAWING

(A) BEFORE CONTRACT COMMENCES

(A) AFTER CONTRACT HAS COMMENCED

Nr.	DATE	AMENDMENTS

COGHSTA
Department:
Cooperative Governance, Human Settlements and Traditional Affairs
NORTHERN CAPE PROVINCE

V3 CONSULTING ENGINEERS
T : +27 (0) 87 295 0620
F : +27 (0) 53 831 2460
155 Du Toitspan Road, Kimberley, 8301
PO Box 1178, Kimberley, 8300, South Africa
CESA

PROJECT

THE CONSTRUCTION OF 25 BNG HOUSES IN TJOKSVILLE, UMSOMBOMVU LOCAL MUNICIPALITY

DRAWING DESCRIPTION

WATER: DETAILS

DRAWING NO.

MV-WD-100

SCALE	AS SHOWN	A1	CHECKED	
DATE	SEP 2016		DRAWN	RUDI BEESLAAR

DEPARTMENT OF CO-OPERATIVE GOVERNANCE, HUMAN SETTLEMENTS AND TRADITIONAL AFFAIRS OF THE NORTHERN CAPE

TENDER NO. NC/23/2022

LOXTON 51: THE CONSTRUCTION OF 51 BNG HOUSES IN LOXTON

DRAWINGS NOTES

The client accepts the fact that the contractor is a Professional builder and a master of his trade. It is accepted that he has visited the site and has familiarized himself with the local conditions before his tender was submitted, to eliminate any possible chance that a misunderstanding might arise at a later stage due to his limited knowledge of the site.

All work to be carried out strictly in accordance with the local authority building regulations and by-laws.

All materials to be SABS approved (stamped). Proof of which to be supplied (official certification) on request when applicable.

Workmanship to comply with the relevant National Building Regulations and Building Standards Act (Act 103 of 1977 as amended) and the NHBRC home building Manual.

Foundations to be inspected and approved by the engineer before concrete is poured. This also applies to services in the ground.

Wall plate inspection and timber truss fixing to be approved before walls are plastered.

Trade names specified are purely to indicate the quality and standard required. These can be substituted with any product matching the quality subject to the engineer's approval.

The contractor must check all the measurements and levels indicated on the drawings on site prior to the work commencing.

The setting out of the building work remains the sole responsibility of the contractor.

Do not scale the drawing. If uncertain about any of the dimensions, contact the Engineer.

Report any discrepancies between the drawings and/or contract documentation to the Engineer prior to the commencement of the work.

All the materials used must be of the best quality obtainable. The work must be done by skilled artisans and carried out in such a way as to ensure the highest quality workmanship obtainable in the local industry. The standard must at least be acceptable to members of the BIA and the M.B.A. Work not complying with afore said will be condemned and redone at the contractor's expense.

All the materials, fittings and equipment used on the project must be applied/installed strictly according to the manufacturer's specifications and guidelines.

Great care must be taken when installing the damp proof courses to ensure that no damaged material is used. All joints to have 150mm overlaps and to be taped.

It is important to note that the safety of any material brought onto the site and paid for by the client remains the responsibility of the Contractor even though ownership has been transferred to the Client.

All materials on site must be stored properly to minimize any damage that might occur. Planning the work sequence is of the utmost importance when ordering materials to ensure that they are not stored for too long a period.

Plastered wall surfaces must be given sufficient time to dry out before any paintwork commences.

The contractor must insist that all site instructions be noted in writing in the site instruction book to avoid any later disputes.

Contractor must familiarize himself with the 'Occupational Health and Safety act no. 85 of i993' and fully comply with the contents thereof. The safety of the public, visitors and of the workers on site is of the utmost importance and remains his sole responsibility for the duration of the contract.

The site must be kept clean at all times and builders rubble removed from time to time Temporary toilet facilities must be provided by the contractor for the workers and kept clean at all times.

Contractor must not deviate from the plans and must notify the Engineer of any problems immediately as they arise.

This is to certify that I / we ……

of (Tenderer) ……

……

of (Address) ……

……

……

Telephone Number ……

Fax Number ……

on (Date) ……

have examined the drawing notes and its surroundings for which I/we am/are submitting this tender and have, so far as is practicable, familiarized myself/ourselves with all the information, risks, contingencies and other circumstances which may influence or affect my/our tender.

SIGNED ON BEHALF OF THE TENDERER: ……

SIGNED ON BEHALF OF THE CONSULTANT: ……

DATE: ……