

NAMA KHOI MUNICIPALITY
OKIEP ROCKY RIDGE SEWER RETICULATION
PROJECT REF NO.: BOD/NC062/13/2022-2023

PART C3 : SCOPE OF WORK

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- C3.2 Engineering**
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C3.1 : DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Employer's objectives are to upgrade the existing sewer reticulation network in Okiep by extending it to service 219 erven in the Rocky Ridge area.

The project furthermore provides social and economic benefits to the local community, by means of labour-intensive methods as far as possible.

C3.1.2 OVERVIEW OF THE WORKS

The contract comprises of the upgrading of the existing sewer reticulation network in Okiep.

C3.1.3 EXTENT OF THE WORKS

The works entails the following:

- Construction of 5500m x 160mm diameter uPVC sewer pipeline
- 219 x 110mm diameter uPVC Sewer house connections
- Construction of 136 brick manholes
- Construct concrete sewer tank deck
- Installation of oxidation pond liner

C3.1.4 LOCATION OF WORKS

The sites is located in the Nama Khoi Municipal Area, NC, 7km North of Springbok.

Access to the sites is via existing main roads.

Refer to Annex A for a Locality Plan

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C3.2 : ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

Works designed by, per design stage:

Concept, feasibility and overall process Employer
 Basic Engineering and detail layout to tender stage Employer (Engineer)
 Final design to be approved for construction phase Employer (Engineer)
 Temporary Works Contractor (Engineer)
 Preparation of “as built” drawings Contractor

C3.2.2 DRAWINGS

Drawing No.	Title
RIB-4662-1001-01	PRE DEVELOPMENT SITE PLAN
RIB-4662-1101-01	SEWER LAYOUT PLAN
RIB-4662-1101-02	SEWER LAYOUT (SHEET 1 OF 3)
RIB-4662-1101-03	SEWER LAYOUT (SHEET 2 OF 3)
RIB-4662-1101-04	SEWER LAYOUT (SHEET 2 OF 3)
RIB-4662-2001-01	SEWER SECTIONS (SHEET 1 OF 4)
RIB-4662-2001-02	SEWER SECTIONS (SHEET 2 OF 4)
RIB-4662-2001-03	SEWER SECTIONS (SHEET 3 OF 4)
RIB-4662-2001-04	SEWER SECTIONS (SHEET 4 OF 4)

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C3.3 : PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT PROCEDURES

C3.3.1.1 Requirements

The Preferential Procurement Regulations 2011 pertaining to the Preferential Procurement Policy Framework Act No. 5 of 2000 will be applied during the adjudication of tenders. The method of calculation of points is set out in part T2.2-34 Schedule 21.

C3.3.2 EMPLOYMENT OF LABOUR FORCE

The maximum possible number of workers is to be employed from the local area. To this end the Contractor is required to give preference to the use of local area labour and limit the use of non-local labour to key personnel as far as practically possible.

Key personnel are defined as supervisors and skilled labourers without whom a specific task cannot be executed. As far as possible these people should impart their management and building skills to individuals within the local workforce who show a keen interest and display a willingness to learn.

Local area labour (Nama Khoi) is defined as people who reside in Okiep. Local area unskilled labour must be employed.

The minimum wages shall be the prescribed EPWP rate, as set by the applicable law of the specific jurisdiction area.

The Contractor will be required to enter into employment contracts with all labourers employed. All Workers Contracts for labourers employed during the month must accompany the Contractor's monthly report. The labourers should have a fixed job description and they must acknowledge their production requirements and responsibilities.

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C3.4 : CONSTRUCTION

C3.4.1 STANDARD SPECIFICATIONS

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

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

SANS 1200 A	- 1986 :	GENERAL
SANS 1200 AB	- 1986 :	ENGINEERS OFFICE
SANS 1200 AH	- 1986 :	GENERAL (STRUCTURAL)
SANS 1200 C	- 1980 :	SITE CLEARANCE
SANS 1200 DB	- 1983 :	EARTHWORKS (PIPE TRENCHES)
SANS 1200 G	- 1984 :	CONCRETE (STRUCTURAL)
SANS 1200 L	- 1983 :	MEDIUM PRESSURE PIPELINES
SANS 1200 LB	- 1983 :	BEDDING (PIPE)
SANS 1200 LD	- 1982 :	SEWERS
SANS 0400	- 1990 :	NATIONAL BUILDING REGULATIONS
SANS 0100	- 1992 :	CONCRETE (BUILDING WORKS)
SANS 0161	:	FOUNDATIONS
SANS 0164	:	PLASTERING

C3.4.2 PROJECT SPECIFICATIONS

C3.4.2.1 VARIATION AND ADDITIONAL CLAUSES TO THE STANDARD SPECIFICATION LISTED IN THE LIST OF SPECIFICATIONS

PSA GENERAL (SANS 1200A)

PSA5 CONSTRUCTION

PSA5.1 Setting out of the Works

The Contractor shall inform the Engineer of any conflict between the position of any part of the Works and an existing feature. The setting out of the Works is the Contractor's responsibility.

PSA5.2 Accommodation of traffic

The Contractor shall provide and maintain all temporary road signs, etc. that are necessary for the normal safe flow of traffic (vehicles and pedestrians).

PSA5.3 Existing services

All services shall be treated as live until proven otherwise. The Contractor shall not commence work in an area until proper arrangements have been made for supervision of the work by the relevant authority.

The Contractor shall give assistance to service authorities with the location, protection and relocation of services controlled by that authority.

PSA7 TESTING

PSA7.1 Testing Principles

Test results must comply with the minimum prescribed specifications and no statistical evaluations will be accepted

PSA8 MEASUREMENT AND PAYMENT

PSA8.2 Dealing with storm water

The cost of controlling storm water will be held to be included for in the tendered sums for Items (A1, B1 and C1) and (A, B2 and C2) and no separate payment will be made for this work.

PSA8.3 Dealing with existing services

The following works that are executed by the Contractor on the instruction of the Engineer will be measured and paid for under "Daywork" rates.

- ① All additional work to locate and expose the existing service if the existing service is situated further than 2.0 m from the position indicated, (i.e., excluding the initial work within 2.0 m from the indicated position).
- ① Work that is carried out by the Contractor with regard to existing services that are not indicated on the drawings and for which the Employer will carry the cost according to Subclause 5.4.

PSA8.4 **Testing of Materials**

The Engineer reserves the right to carry out any test he deems necessary using commercial laboratories to ensure compliance of the materials supplied for use in the works with the requirements of the applicable SANS 1200 specification, or to ensure that the standard of workmanship meets the requirements of the Specification.

In the event of these check tests not meeting the requirements of the Specification, the cost of such tests shall be for the Contractor's account. If the tests meet with the requirements of the Specification, the Contractor will be required to pay the account of the laboratory concerned, but such payments will be recoverable under the provisional sum allowed for in the Bills of Quantities. The Contractor's tendered mark-up must allow for arranging the necessary testing and for payment, if applicable, through the contract.

PSA8.6 **Miscellaneous**

An item, which, in the payment clause column of the Bills of Quantities, refers to this clause (PSA8-5), will be measured in the unit scheduled. Any item omitted, the sum or rate for such item shall cover the cost of all material, labour and plant to execute and complete the work as specified, described in the Bills of Quantities or shown on the drawing(s). Any items omitted in the schedule to complete the work successfully must either be allowed for in the rate or a separate item should be entered if so required.

PSA8.8 **Temporary Works**

PSA8.8.1 **Main Access to Site**

Add the following:

There will be no payment for the construction of a temporary gravel road or the maintenance of the existing road the site. The contractor must make sure that any costs to access the site is included in item (A1, B1 and C1) and (A2, B2 and C2) in the Bill of Quantities of the contract data.

PSA8.8.4 **Existing Services**

Add the following:

"For the exposure of existing services, an item for the excavation of soft material by hand in cubic meters has been provided for. The tariffs include all necessary payments for the excavation as instructed by the engineer. The tariffs will also include the backfilling and compacting of the materials, the transport of all surplus material, the safeguard of the excavations and any other works necessary to complete the works. Transport of up to 0.5 kilometres of the material will be included in the tariffs.

ENGINEERS OFFICE (SANS 1200AB)

PSAB3 **MATERIALS**

PSAB3.1 **Facilities for the Engineer**

a) **Name boards**

The Contractor shall supply and erect, to the satisfaction of the Engineer, two project boards as shown on relevant drawings.

PSAB4 **PLANT**

PSAB4.1

Survey equipment

The Contractor shall provide the following survey equipment for use by the Engineer.

- a) Automatic level with tripod and staff
- b) All steel and wood pegs, concrete, hammers, picks, etc that the Engineer may require.
- c) Steel tape of length 50 m.
- d) Measuring wheel
- e) At least one survey assistants
- f) Safety and Medical Emergency Equipment etc.

PSC

SITE CLEARANCE

PSC5

CONSTRUCTION

PSC5.1

Disposal of material (Subclause 3.1)

Material obtained from demolishing and unwanted excavated material, shall be disposed of away from the site as indicated by the engineer.

PSDB

EARTHWORKS (PIPE TRENCHES)

PSDB3

MATERIAL

PSDB3.1

Method of classifying (Sub clause 3.1.1)

The Contractor may use any method he chooses to excavate any class of material but his chosen method of excavation shall not determine the classification of the excavation. The Engineer or his Representative will decide on the classification of the materials. In the first instance the classification will be based on inspection of the material to be excavated and on the criteria given in PSD3.2.

PSDB3.2

Classification of excavation (Sub clause 3.1.2)

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

a) Hard rock excavation

Hard rock excavation shall be excavation in material (including boulders exceeding 0.15 cubic metres in individual volume) that cannot be efficiently removed without blasting or without wedging and splitting or be in material, which cannot be excavated by a loader/backhoe or by a scraper without prior ripping.

b) Intermediate (Soft rock) excavation

Soft rock excavation by using power driven tools or wedging with mechanical equipment.

c) Soft excavation

Soft excavation shall be all material not falling into the category of hard rock or calcrete excavation.

PSDB 3.3

Selected Granular Material

Add the following:

"Where appropriate materials for backfilling is available in layers of 150 millimetres or more, the materials will be separated from the other materials for backfilling

PSDB 3.5 **Backfilling Material**

PSDB 3.5.2 Disposal of Surplus Material

Add the following:

The Engineer will decide which materials are unsuitable for backfilling. The rest of the materials must be disposed at a site as indicated by the engineer

PSDB5 **CONSTRUCTION**

PSDB5.2 **Minimum Base Widths**

<u>Outside diameter of pipe, mm</u>		<u>Side allowance on both sides, mm</u>
<u>Above</u>	<u>To</u>	<u>Sides mm</u>
-	125	300
125	700	300
700	1000	400
1000	2000	500
2000	-	600

PSDB5.3 **Existing services**

The Contractor shall bear the full cost of the repairs to any existing services damaged because of the Contractors.

PSDB5.4 **Dust**

The Contractor is responsible for the control of excessive dusty conditions due to the construction procedures. The Contractor shall also be held responsible for any claims that might arise. The Contractor to allow for regular watering of areas to control dust.

PSDB5.9 **Road Traffic Control**

Add the following to D5.1.6

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

- PSDB5.10 **Areas subject to traffic loads (Subclasses 3.5(b) and 5.7.2)**
- All trenches within the road reserves will be considered to be subject to traffic loads and the backfill material and compaction in these trenches shall comply with the requirements of Sub clauses 3.5(b) and
- PSDB5.11 **Suitable backfill material**
- It is likely that some of the material excavated from the trenches will not comply with Sub clauses 3.5 and 4.6.2. Suitable material from other sections along the pipe route shall be used to complete the backfilling to these trenches. The unsuitable material shall be removed from site and spoiled at the designated spoil site as indicated by the Engineer.
- PSDB7 **TESTING**
- PSDB7.1 **Testing and compaction of backfill to trenches and reinstatement of surfaces (Sub-Clause 7.1)**
- The Contractor must furnish the Engineer with compaction tests results to prove that the compaction comply to the prescribed density. No single test result, which is below the specified density, will be accepted.
- PSDB8 **MEASUREMENT AND PAYMENT**
- PSDB8.1 **Excavation (Sub Clause 8.3.2)**
- The rates for excavation shall include the cost of battery of deep excavations to comply with the latest OSH Act.
The rates for excavation of trenches shall also cover all costs of density testing to be borne by the Contractor as specified in PSDB7.1 and the provision of suitable backfill material from other excavations where required.
- PSG **CONCRETE (STRUCTURAL) (SANS 1200 G)**
- PSG2 **Interpretations**
- PSG2.1 **Definitions (Subclause 2.3)**
- Under (a) add:
- A Constructional joint: a joint required on account of constraints or convenience in the method of construction and that is not a movement, contraction or expansion joint.
- PSG2.2 **Exposure Condition (Subclause 2.4.1)**
- All Concrete on the Works shall be as specified for severe exposure condition.
- PSG2.3 **Strength Concrete (Subclause 2.4.2)**
- Grade 30MPa/19mm means strength concrete grade 30 MPa with 19 mm stone.
- PSG2.4 **Joints**
- Notwithstanding Subclause 2.4.3, designed joints will only be joints that are shown on the drawings. Any other joints that are required by the contractor as a result of his construction constraints or for any other reason, whether approved by the Engineer or not, will not be considered to be designated joints as defined in Subclause 2.4.3, i.e. they will be considered to be non-designated joints.

PSG3

MATERIALS

PSG3.1

Cement (Subclause 3.2)

All cement used in the works shall be ordinary Portland cement complying with SANS 471.

PSG3.2

Storage (Subclause 3.2.3)

Cement shall be used in the order in which it is received. Unless approved by the Engineer, cement kept in storage for longer than 8 weeks shall not be used in the Works. Any cement that contains lumps that cannot easily be crumbled to powder between the fingers may not be used.

PSG3.3

Water (Subclause 3.3)

Only potable water from an approved source may be used for mixing concrete.

PSG3.4

Aggregate (Subclause 3.4)

The nominal stone size specified in the concrete grade (e.g. 30 MPa/40 mm) shall mean stone conforming to the grading specified in SANS 1083 for the nearest equivalent size, i.e. 40 mm means stone that complies with SANS 1083 for 37, 5 mm size. Aggregates with a shrinkage higher than 130% will not be allowed.

PSG 3.4.1

Coarse Aggregate

PSG 3.4.1.1

Coarse Aggregate must comply with the 10%FACT requirements set for durability.

PSG 3.4.1.2

The nominal aggregate size is the smallest of the 37.5 millimetre maximum particle size and 25% of the slab thickness.

PSG 3.4.1.3

If the nominal aggregate size is larger than 26.5 millimetres, the coarse aggregate must consist of a mixture of aggregates larger than 26.5 millimetres and aggregates smaller than 26.5 millimetres.

PSG 3.4.2

Fine aggregate

PSG 3.4.2.1

Fine aggregate may not contain more than 40% Silicon particles.

PSG 3.4.2.2

Adjustments must be made to the mixture design if the Fineness Modulus of the fine aggregates varies more than $\pm 0, 2$ during construction.

PSG 3.4.3

Mixture Design

A complete concrete mixture design must be submitted to the Engineer for approval before the commencement of the works.

The Contractor must have sufficient cube moulds to make test cubes on a daily base on request of the Engineer.

Care must be taken with the design of the mixture, to limit bleeding to a minimum. Special attention must be given to the fine aggregate if bleeding occurs.

PSG3.5

Samples (Subclause 3.4)

At least one month before commencement of concrete work the contractor shall supply, at his own cost, representative samples to the engineer of the aggregates he intends using, together with certificates from an approved laboratory indicating that the aggregates comply with the specifications. Approximately 50 kg of each sample of aggregate shall be supplied.

After approval, these samples shall be taken as standard for the agreed aggregates to be

used in the Works. If at any time during the course of the Contract the Engineer considers that there has been any deviation from the approved standard the contractor shall submit further tested samples of material to the Engineer for approval.

PSG3.7 **Admixtures (Subclause 3.5.1)**

The use of admixtures will be subject to the approval of the Engineer. The information listed in Subclause 3.5.1 shall be provided.

PSG4 **PLANT**

PSG4.1 **Mixing plant and vibrators (Subclauses 4.3 and 4.4)**

Standby mixers and vibrators of adequate capacity and with an independent power unit. Unit shall be maintained on site for immediate use in the event of breakdown of the regular mixers or vibrators or failure of the power supply.

PSG4.2 **Formwork Ties (Subclause 4.5.3)**

The use of sleeves for formwork ties through the walls of water-retaining structures will not be permitted. Ties, when cast in, shall have some form of positive anchorage to prevent any rotation when loosening formwork.

PSG4.3 **Formwork: Chamfers and Fillets**

Air exposed external angles in concrete work shall have 20 mm x 20 mm chamfers unless otherwise specified or ordered, but the top edge of a slab that is to receive and applied finish shall not be chamfered.

Internal corners in concrete work need not have fillets unless such fillets have been specified on the drawings or ordered by the Engineer.

PSG4.4 **Water-bath**

A temperature-controlled water-bath shall be provided on site. The water-bath shall be located under cover.

PSL **MEDIUM-PRESSURE PIPELINES (SANS 1200 L)**

PSL3 **MATERIALS**

PSL3.1 **General**

The pipelines shall be as specified in the BOQ and drawings. The sewer pipeline shall be the uPVC type, Class 40. Proof of SANS certificates must be provided beforehand in which the quality of the pipes is confirmed. Quantities of different types and classes of pipe must be confirmed with the Engineer before final quantities are ordered.

PSLB **BEDDING (PIPES) (SANS LB)**

PSLB3 **MATERIALS**

PSLB3.1 **Bedding (Sub Clause 3.3)**

The bedding will be of the Class C type. Bedding and Blanket materials will only be imported if the materials from excavation are not suitable.

PSLB8 **MEASUREMENT AND PAYMENT**

PSLB8.1 **Volume of bedding material (Sub Clause 8.1.3)**

The volume of imported bedding material will be measured net, excluding the volume occupied by the pipe.

C3.4.3 PARTICULAR SPECIFICATIONS

1 PARTICULAR SPECIFICATION NR 1: GENERIC LABOUR-INTENSIVE SPECIFICATION

The Contractor's attention is drawn to the fact that it is an objective of the contract to maximise the labour content of certain operations or portions thereof. In this regard, where the specified work allows for a choice between mechanical or labour-enhanced means, the former shall generally be kept to the practical minimum.

The Contractor shall submit on a monthly basis, daily labour reports to the Engineer indicating the numbers of temporary personnel employed on the works and the activities on which they were engaged.

Personal & Other Protective Equipment (Sections 8/15/23 or the OHS Act)

The Contractor is required to identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal Protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of PPE is considered.

Where it is not possible to create an absolutely safe and healthy workplace the Contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the said equipment be maintained by the Contractor, that he instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use/wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition/s for which the equipment was prescribed but an alternative solution has to be found that may include relocating or discharging the employee.

The Contractor may not charge any fee for protective equipment prescribed by him/her but may charge for equipment under the following conditions:

- Where the employee requests additional issue in excess of what is prescribed
- Where the employee has patently abused or neglected the equipment leading to early failure
- Where the employee has lost the equipment

All employees shall, as a minimum, be required to wear the following PPE on any construction projects:

- Protective overalls
- Protective footwear
- Protective headwear
- Eye/face protection

All PPE provided to local labour working on the Expanded Public Works Programme shall be branded in accordance with the EPWP CI Manual. Typical elements which shall be branded include:

- Protective overalls
- Reflective vests
- Protective headwear

The rate for local labour shall include for the supply of EPWP branded PPE in accordance with the Provincial EPWP specifications. The rate shall include the additional cost of the specified colours for the PPE and branding in accordance with CI manual.

MEASUREMENT AND PAYMENT

Add the following:

ITEM UNIT

1.5.5 Extra over sub-item for branding of EPWP PPE Lump Sum

Measurement shall be as specified for pay item 1.5.4 of the bill of quantities

THE TENDERED RATE SHALL INCLUDE FULL COMPENSATION FOR BRANDING THE PPE AS DETERMINED IN THE RISK ASSESSMENTS AND AS REQUIRED FOR FULL DURATION OF THE CONTRACT.

EPWP signboard

The Contractor will be required to erect a signboard displaying the EPWP logo, indicating that this project is part of the EPWP. All costs related to the provision, erection and subsequent removal of the signboard shall be refunded to the Contractor through the provisional sum included in the Schedule of Quantities for this purpose.

B1231 COMMUNITY LIAISON OFFICER (CLO)

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

(a) Duties of the Community Liaison Officer

The Community Liaison Officer's duties will be:

- (i) To be available on site daily between the hours of ___ (insert time) and _____(insert time) and at other time as the need arises. His normal working day will extend from _____morning until _____(insert time) in the afternoon.
- (ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- (iii) To communicate daily with the contractor and the engineer to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.
- (iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a "labour desk".
- (v) To attend all meetings in which the community and/or labour are present or are required to be represented.
- (vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor's requirements.
- (vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
- (viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- (ix) To keep a daily written record of his interviews and community liaison.
- (x) To attend monthly site meetings to report on labour and RDP matters.
- (xi) All such other duties as agreed upon between all parties concerned.
- (xii) To submit monthly returns regarding community liaison as illustrated in Part C5.1 of this document (form RDP 12(E)).

b) Payment for the community liaison officer

A special pay item is incorporated in section 1200 of the bill of quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required and not necessarily for the full duration of the contract. The remuneration of the CLO shall be determined jointly by the contractor, engineer and employer.

(c) Period of employment of the community liaison officer

The period of employment of the community liaison officer shall be as decided upon jointly by the contractor, engineer and employer.

COMMUNITY PARTICIPATION

2.1 Purpose

In order to give effect to the need for participation and transparency in the process of appointing labour, the community should participate in the decision making process throughout the life of a project. This shall be achieved through structured engagement between those responsible for the delivery of the project and the community.

2.2 Structure and Composition

A Project Liaison Committee (PLC) may be formed from representatives of the Employer, the Engineer, the Contractor and the Community if the project is such that a specific community can be identified.

2.3 Procedures

231 The PLC deals with labour and SMME involvement on the project and shall meet at least once every month until such time as it is of the opinion that it could fulfil its tasks by meeting less frequently.

232 The PLC shall make recommendations by consensus. If consensus cannot be reached, the decision of the Employer will be final in cases that have no financial implications for the Contractor or where payment is to be made from PC items. Where the financial responsibility for the successful completion of the works rests with the Contractor, the Contractor's decision shall be final. In fulfilling its tasks, the PLC shall be guided by the relevant sections of this specification and the supplementary documents.

2.4 Tasks of the PLC

241 To assist with community liaison and resolution of disputes.

242 To devise fair and transparent procedures that will assist the Contractor in the engagement of labour and the award of sub-contracts to SMME's.

243 To advise on and monitor labour issues.

244 To assist in resolving labour disputes.

2.5 Assistance to the PLC

251 The Employer may appoint a competent local person as a Community Liaison Officer to assist the Engineer and the Contractor in the day to day liaison with the communities directly affected by the project.

C3.1.7.1 Payment for the Labour-Intensive Component of the Works:

Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

C3.1.7.2 Applicable Labour Law

The Ministerial Determination 4: Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment act of 1997 by the Minister of Labour in Government Notice NR347 of 4 May 2012, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers. An EPWP contract shall be signed between the contractor and the EPWP participant using the template appended. The contracts shall expire on earlier of (i) 31 March, (ii) at the end of the project; or (iii) completion of the works allocated.

C3.1.7.3 Introduction

This document contains the standard terms and conditions for workers employed in elementary occupations on an Expanded Public Works Programme (EPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of an EPWP.

In this document –

- (a) “*department*” means any department of the State, implementing agent or contractor;
- (b) “*employer*” means any department, implementing agency or contractor that hires workers to work in elementary occupations on a EPWP;
- (c) “*worker*” means any person working in an elementary occupation on a EPWP;
- (d) “*elementary occupation*” means any occupation involving unskilled or semi- skilled work;
- (e) “*management*” means any person employed by a department or implementing agency to administer or execute an EPWP;
- (f) “*task*” means a fixed quantity of work;
- (g) “*task-based work*” means work in which a worker is paid a fixed rate for performing a task;
- (h) “*task-rated worker*” means a worker paid on the basis of the number of tasks completed;
- (i) “*time-rated worker*” means a worker paid on the basis of the length of time worked.

C3.1.7.4 Terms of Work

- (a) Workers on an EPWP are employed on a temporary basis or contract basis.

C3.1.7.5 Normal Hours of Work

- (a) An employer may not set tasks or hours of work that require a worker to work–
 - a. more than forty hours in any week
 - b. on more than five days in any week; and
 - c. for more than eight hours on any day.
- (b) An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
- (c) A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

C3.1.7.6 Meal Breaks

- (a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- (b) An employer and worker may agree on longer meal breaks.
- (c) A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.
- (d) A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

C3.1.7.7 Special Conditions for Security Guards

- (a) A security guard may work up to 55 hours per week and up to eleven hours per day.
- (b) A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

C3.1.7.8 Daily Rest Period

- (a) Every worker is entitled to a daily rest period of at least twelve consecutive hours. The daily rest period

is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

C3.1.7.9 Weekly Rest Period

- (a) Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work (“emergency work”).

C3.1.7.10 Sick Leave

- (b) Only workers who work for more than 24 hours have the right to claim sick-pay in terms of this clause
- (c) A worker who is unable to work on account of illness or injury is entitled to claim one day’s paid sick leave for every full month that the worker has worked in terms of a contract.
- (d) A worker may accumulate a maximum of twelve days’ sick leave in a year
- (e) Accumulated sick-leave may not be transferred from one contract to another contract.
- (f) An employer must pay a task-rated worker the worker’s daily task rate for a day’s sick leave.
- (g) An employer must pay a time-rated worker the worker’s daily rate of pay for a day’s sick leave.
- (h) An employer must pay a worker sick pay on the worker’s usual payday.
- (i) Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
 - (j) absent from work for more than two consecutive days; or
 - (k) absent from work on more than two occasions in any eight-week period.
- (l) A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- (m) A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

C3.1.7.11 Maternity Leave

- (a) A worker may take up to four consecutive months’ unpaid maternity leave.
- (b) A worker is not entitled to any payment or employment-related benefits during maternity leave.
- (c) A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- (d) A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.
- (e) A worker may begin maternity leave –
 - (f) four weeks before the expected date of birth; or
 - (g) on an earlier date –
 - a. if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
 - b. if agreed to between employer and worker; or
 - c. on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.
- (h) A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

C3.1.7.12 Family responsibility leave

Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -

- (a) when the employee's child is born;
- (b) when the employee's child is sick;
- (c) in the event of a death of –
- (d) the employee's spouse or life partner;
- (e) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

C3.1.7.13 Statement of Conditions

An employer must give a worker a statement containing the following details at the start of employment –

- (a) the employer's name and address and the name of the EPWP;
- (b) the tasks or job that the worker is to perform; and
- (c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
- (d) the worker's rate of pay and how this is to be calculated;
- (e) the training that the worker will receive during the EPWP.
- (f) An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
- (g) An employer must supply each worker with a copy of these conditions of employment.

C3.1.7.14 Keeping Records

Every employer must keep a written record of at least the following –

- (a) the worker's name and position;
- (b) Certified ID copies of all locally employed labour
- (c) Signed Contracts between the employer and the EPWP Participants
- (d) Attendance Registers for the EPWP Participants
- (e) Monthly Reporting Template as per EPWP requirements
- (f) in the case of a task-rated worker, the number of tasks completed by the worker;
- (g) in the case of a time-rated worker, the time worked by the worker;
- (h) Proof of payments made to each worker.
- (i) The employer must keep this record for a period of at least three years after the completion of the EPWP.

C3.1.7.15 Payment

- (a) An employer must pay all wages at least monthly in cash or by cheque or into a bank account.
- (b) A worker may not be paid less than the minimum EPWP wage rate of **R 120 per day** or per task. This will be adjusted annually on the 1st of November in-line with inflation (available CPI as provided by StatsSA six (6) weeks before implementation).
- (c) A task-rated worker will only be paid for tasks that have been completed.
- (d) An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.
- (e) A time-rated worker will be paid at the end of each month.
- (f) Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- (g) Payment in cash or by cheque must take place –
 - a. at the workplace or at a place agreed to by the worker;
 - b. during the worker's working hours or within fifteen minutes of the start or finish of work;
 - c. in a sealed envelope which becomes the property of the worker.
- (h) An employer must give a worker the following information in writing –

- a. the period for which payment is made;
 - b. the numbers of tasks completed or hours worked;
 - c. the worker's earnings;
 - d. any money deducted from the payment;
 - e. the actual amount paid to the worker.
- (i) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.
 - (j) If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

C3.1.7.16 Deductions

- (a) An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
- (b) An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
- (c) An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.
- (d) An employer may not require or allow a worker to –
 - a. repay any payment except an overpayment previously made by the employer by mistake;
 - b. state that the worker received a greater amount of money than the employer actually paid to the worker; or
 - c. pay the employer or any other person for having been employed.

C3.1.7.17 Health and Safety

- (a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
- (b) A worker must –
 - a. work in a way that does not endanger his/her health and safety or that of any other person;
 - b. obey any health and safety instruction;
 - c. obey all health and safety rules of the EPWP;
 - d. use any personal protective equipment or clothing issued by the employer;
 - e. report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

C3.1.7.18 Compensation for Injuries and Diseases

- (a) It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on an EPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- (b) A worker must report any work-related injury or occupational disease to their employer or manager.
- (c) The employer must report the accident or disease to the Compensation Commissioner.
- (d) An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

C3.1.7.19 Termination

- (a) The employer may terminate the employment of a worker for good cause after following a fair procedure.
- (b) A worker will not receive severance pay on termination.
- (c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.
- (d) A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available.

- (e) A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available.

C3.1.7.20 Certificate of Service

On termination of employment, a worker is entitled to a certificate stating –

- (a) the worker's full name;
- (b) the name and address of the employer;
- (c) the EPWP on which the worker worked;
- (d) the work performed by the worker;
- (e) any training received by the worker as part of the EPWP;
- (f) the period for which the worker worked on the EPWP;
- (g) any other information agreed on by the employer and worker.

C3.1.7.21 Contractor's default in payment to Labourers and Employees

- (a) Any dispute between the Contractor and labourers, regarding delayed payment or default in payment of fair wages, if not resolved immediately may compel the Employer to intervene.
- (b) The Employer may, upon the Contractor defaulting payment, pay the moneys due to the workers not honoured in time, out of any moneys due or which may become due to the Contractor under the Contract.

C3.1.7.22 Provision of Handtools

- (a) The Contractor shall provide his labour force with hand tools of adequate quality, sufficient in numbers and make the necessary provisions to maintain the tools in good and safe working conditions

C3.1.7.23 Reporting

The Contractor shall submit monthly returns/reports as specified below:

- (a) Signed Master rolls/pay sheets of temporary workers and permanent staff detailing the number, category, gender, rate of pay and daily attendance.
- (b) Certified ID copies of all locally employed labour
- (c) Signed Contracts between the employer and the EPWP Participants
- (d) Attendance Registers for the EPWP Participants
- (e) Monthly Reporting Template as per EPWP requirements
- (f) Plant utilization returns

Progress report detailing production output compared to the programme of works

UNEMPLOYMENT INSURANCE FUND

The contractor will be responsible for payment or contribution of UIF for all labour employed under the project. Proof of payment of UIF shall be available upon request.

B1233 WORKMEN'S COMPENSATION ACT

All labour employed on the site shall be covered by the Workmen's Compensation Act. The contractor shall pay in full, including the payment of the necessary levies, such amounts, as are due in terms of the Act. The contractor at the commencement of the contract shall resolve the manner in which Workmen's Compensation will be handled. Amounts paid by the contractor shall not be included in the wage rates but shall be an extra payment allowed for by the contractor.

Labour-intensive construction methods

Labour-intensive construction shall mean the economically efficient employment of as great a portion of labour as is technically feasible to produce a standard of construction as demanded by the specifications with completion by the Due Completion Date, thus bringing about the effective substitution of labour for plant and equipment.

Appropriate portions of the Works included in the Contract shall be executed using labour-intensive construction methods.

Except where the use of plant is essential in order, in the opinion of the Engineer, to meet the specified requirements by the Due Completion Date, or where the use of plant is essential as a result of occupational health and safety considerations, the Contractor shall use only hand tools and equipment in the construction of those portions of the Works that are required in terms of these Project Specifications to be constructed using labour-intensive construction methods.

These portions of the Works shall be constructed utilizing only locally employed labour and/or the labour of local subcontractors, supplemented by the Contractor's key personnel to the extent necessary and unavoidable, unless otherwise instructed by the Engineer and in accordance with the further provisions of the relevant sections of Portion B of the Project Specifications.

Subject to considerations of occupational health and safety, the portions of the Works to be executed using labour-intensive construction methods are:

- Clearing and grubbing of the Site;
- Excavation for structures up to 1,5 m deep;
- Bedding, selected fill, backfilling and compaction of all pipe trenches irrespective of depth, but assisted by mechanical compaction equipment in order to achieve the specified densities;
- Transportation and spoiling of all trench materials, where the disposal site is located within 20 metres of the source;
- Dismantling and re-erection of fences;
- Mixing and placing of concrete;
- Construction of all brickwork required for structures; and
- Cleaning and tidying up of the Site.

Material

Where possible, the contractor shall source material from within ## km of the site utilizing local labour. The material which may be sourced from site includes:

- Bedding and blanket material

Task Based Activities

Labour Intensive activities are to be planned as task-based works where required. Task based refers to a specific amount of work to be performed which is clearly defined by a quantity and quality. Typically, a particular task can be completed within a working day.

REQUIREMENTS OF EXPANDED PUBLIC WORKS PROGRAMME

EPWP Project Specification

As much as is economically feasible, all work shall be implemented by employing Labour Intensive Construction methods. Over and above the normal Building and Allied works to be implemented by employing skilled and unskilled labour the works specified in the "Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)" shall be undertaken using Labour Intensive Construction methods.

EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR INTENSIVE WORKS

Requirements for the sourcing and engagement of labour.

- C.1.1. Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.
- C.1.2. The rate of pay set for the EPWP is R..... per task or per day.
- C.1.3. Tasks established by the contractor must be such that:

- a) the average worker completes 5 tasks per week in 40 hours or less; and b) the weakest worker completes 5 tasks per week in 55 hours or less.
- C.1.4. The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.
- C.1.5. The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:
- a) where the head of the household has less than a primary school education;
 - b) that have less than one full time person earning an income;
 - c) where subsistence agriculture is the source of income.
 - d) those who are not in receipt of any social security pension income
- C.1.6. The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:
- a) 60 % women;
 - b) 55% youth who are between the ages of 18 and 35; and
 - c) 2% on persons with disabilities.

B2204 CONSTRUCTION METHODS

Add the following:

"in all cases where soft founding materials is classified as suitable for culvert beddings construction, the in-situ material shall be ripped, moistened and compacted to 90% to 93% modified aashto density. The depth of preparation and compaction of founding material shall be indicated on drawings as specified by the engineer. Allowance for measurement and payment for this work is made in the bill of quantities under this section"

The generic labour-intensive specification below is the same as SANS 1921-5, construction and management requirement for works contracts- part 5: earthworks activities which are to be performed by hand and should be included in the scope of works without amendment or modification as set out below.

SCOPE

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

- a. Trenches having a depth of less than 1.5metres
- b. Stormwater drainage

PRECEDENCE

Where this specification is in conflict with any other standard or specification referred to in the scope of works to this contract, the requirements of this specification shall prevail.

HAND EXCAVATEABLE MATERIAL

Hand excavateable material is material:

- a. granular materials:
 - i. whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
 - ii. where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;
- b. cohesive materials:
 - i. whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
 - ii. where the material is a gravel having a maximum particle size of 10mm and contains no

cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;



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

2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle

of 60° with respect to the horizontal) into the material being used.

Table 1: Consistency of materials when profiled

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

Trench excavation

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

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

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

- a) to 90% Proctor density;
- b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

MEASUREMENT AND PAYMENT

Add the following:

ITEM UNIT

B22.01 (C) Extra over sub-item for excavation by hand using hand toolcubic metre

(m³) Measurement shall be as specified for pay item 22.01 of the standard specifications.

The tendered rate shall include full compensation for carrying out the excavation by hand where circumstances prevent the use of mechanical excavators. va

PROVISION OF STRUCTURED TRAINING

CONTENTS

1 SCOPE

2 GENERIC TRAINING

3 ENTREPRENEURIAL SKILLS TRAINING

4 INSERVICE TRAINING

4 MEASUREMENT AND PAYMENT

1 SCOPE

This specification covers the requirements for the provision of structured training to be arranged by the contractor over the period of this contract.

2 GENERIC TRAINING

2.1 The contractor shall, from the commencement of the contract, implement a structured progressive training programme.

2.2 The generic training will inter alia comprise, but not be limited to the following subjects:

Course Description	Estimated No. Of Trainees	Estimated Duration (Days)
1. Manufacturing of bricks	
2. Brick laying	
3. Placing of bedding material and levelling		
4. Pipe laying	
5. Checking of levels (survey instrumentation)	

2.3 Training shall be at or by an approved accredited organisation and shall be delivered by suitably qualified and experienced trainers.

2.4 The tenderer shall provide with his tender full details of the structured training programme he intends to implement, which details shall include the following:

- (a) The name of the training institution and programme
- (b) The manner in which the training is to be delivered.
- (c) The numbers and details of the trainers

Such details shall be entered on or attached to Schedule 31 included herein.

2.5 The contractor shall be responsible for the provision of everything necessary for the delivery of the generic training programme, including the following:

- (a) A suitable venue with sufficient furniture, lighting and power.

- (b) All necessary stationery consumables and study material
- (c) Transport of the students (as necessary)
- (d) Payment of wage to all trainees during the classroom training at a rate equal to the minimum wage as set in the Ministerial Determination for the Expanded Public Works Programme on an annual basis.
- (e) relevant PPE required for the project works
- (f) Additional supervision of learners during the practical learning stages of the works. Wage for the leaners during this stage of the training will be paid through the outputs.

- 2.6 Generic training courses shall commence within one month of possession of site and be completed before the end of the contract period.
- 2.7 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.
- 2.8 The contractor shall keep comprehensive records of the training given to each student and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form is illustrated in Part C## of this document (form ####)

3 ENTREPRENEURIAL SKILLS TRAINING

- 3.1 Small contractors and subcontractors will be entitled to receive a structured training programme, which will comprise both management skills as well as business development skills.
- 3.2 The contractor shall closely monitor the performance of all small subcontractors in the execution of their contracts and shall identify all such subcontractors who, in his opinion, display the potential to benefit from structured training as may be provided for in the contract and where required by the engineer, shall make recommendations in this regard. The final list of candidates will be decided between the contractor and the engineer.
- 3.3 The training will be delivered by trainers who are accredited by the Civil Engineering Training Scheme (CEITS) or other institutions recognised by the Department of Labour. Accredited training refers to both the trainers as well as to the training material.
- 3.4 The contractor shall facilitate in the delivery thereof, by instructing and motivating the subcontractor regarding attendance and participation therein.
- 3.5 The contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor.
- 3.6 The structured training will comprise out of the following as decided by the Employer:

Course Description	Estimated Duration (Days)
1. Basic Business Principles
2. Basic Supervision
3. Running A Business
4. Legal Principles
5. Achieving Standards

- 3.7 The contractor shall provide with his tender, full details of the structured training programme, which he intends to implement, which details shall include the following:
 - (a) The name of the training institution and programme
 - (b) The various aspects of each type of training comprised in the programme

- (c) The manner in which the training is to be delivered
- (d) The numbers and details of the trainers to be utilised.

Such details of the proposed entrepreneurial training programme shall be entered on or attached to form #### of the forms to be completed by the tenderer.

- 3.8 The contractor shall be responsible for the provision of everything necessary for the delivery of the entrepreneurial training programme, including the following:
- (a) A suitably furnished venue (if required) with lighting and power.
 - (b) All necessary consumables, stationery and study material
 - (c) Transport of the subcontractors (as necessary)
- 3.9 All entrepreneurial training shall take place within normal working hours.
- 3.10 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.
- 3.11 The contractor shall keep comprehensive records of the training given to each subcontractor and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each subcontractor shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form to be used is illustrated in Part C## of this document, (form ###)

4. IN SERVICE TRAINING

- 4.1 The contractor shall in addition to the structured (accredited) training as provided for in Part C of this document implement an in-service training programme, from the commencement of the contract, in which the various skills required for the execution and completion of the works are imparted to the labourers engaged thereon, in a programmed and progressive manner. Labourers shall be trained progressively throughout the duration of the contract, in the various stages of a particular type of work.

4.1.1 Details of in-service training

(i) The contractor shall attach to applicable returnable form the basic details of his proposed in-service training programme, which details shall inter alia include the following:

- the details of training to be provided
- the manner in which the training is to be delivered
- the number and details of trainers to be utilised.

(ii) The in-service training programme shall be submitted with the initial works programme. The progress in relation to this programme will be recorded monthly and attached to the site meeting minutes and payment certificate.

(iii) The contractor shall provide on site, sufficient skilled and competent trainers to train all labourers engaged on the contract, in the various skills required for the execution and completion of the works.

(iv) All labourers shall be remunerated in respect of all time spent undergoing training.

(v) Every worker engaged on the contract shall on the termination of his participation on the contract, be entitled to receive from the contractor, a certificate of service in which the following information shall be recorded:

- the name of the contractor
- the name of the employee
- the name of the project/contract
- the nature of the work satisfactorily executed by the worker and the time spent thereon
- the nature and extent of training provided to the worker
- the dates of service.

(vi) The cost of the above obligations shall be deemed to be covered by the sums and rates tendered for items B13.01(a), (b) and (c) in the bill of quantities. The performance of the contractor in providing in-service training, shall be taken into consideration should the contractor fail to reach his CPG at the completion of the project.

4.1.2 Lead time for training

The training of labour as specified shall, as far as possible, take place before commencement of each activity and the contractor shall take into account in his programme the lead-time he requires for such training. All training herein specified shall be deemed to be a construction activity and a non-negotiable condition of the contract".

All formal training is to be documented in terms of the National/Provincial submission forms, and accompanied by an attendance register for the applicable days.

5 MEASUREMENT AND PAYMENT

	ITEM	UNIT
	E12.05 Provision for training	
(a)	Generic skills Provisional (list training courses)	sum
(b)	Entrepreneurial skills Provisional	sum
(c)	Handling cost and profit in respect of sub-item E12.05(a) and (b) above	percentage (%)
(d)	Training venue (only if required)	lump sum
(e)	Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity to the site. (provisional sum)	sum
(f)	Additional supervision during practical training	lump sum

The prime cost sums are provided to cover the actual costs (including wages, tools and PPE) for attendance of accredited training courses as agreed with the engineer and shall be expended in accordance with the provisions of sub-clause 48(2) of the general conditions of contract. The tendered percentage in sub-item 4.1(c) is a percentage of the amount actually spent under sub-items 4.1(a) and (b) which shall include full compensation for the contractor's handling cost, profit, mentoring, record keeping, reporting and all other costs in connection therewith.

The lump sum tendered for 4.1(d) shall include full compensation for the provision of the training venue, for all necessary lighting, power, furniture, stationery, consumables and study material and for transportation of the students to and from the training venue. Payment of the lump sum will be made in two instalments as follows:

- (i) The first instalment, 75% of the lump sum, will be paid after the contractor has met all his obligations regarding the provision of the training venue as specified.
- (ii) The second and final instalment, 25% of the lump sum, will be paid after the provision of all the accredit training as specified in the document.

The lump sum tendered for 4.1 (e) shall include full compensation for the provision of additional supervisory staff to manage the output generated from the learners during practical training.

F4. JOB CREATION REPORTING FOR EPWP

In order to assist the Employer in complying with the goals of creating EPWP job opportunities, the Contractor must provide the following information for reporting purposes:

F4.1 Type of project data required per project

Every EPWP project shall collect and keep specific project data for the purpose of EPWP progress reporting. ***The data that is required to be kept and maintained for each project includes:***

F4.1.1 Beneficiary data

A beneficiary list must be maintained for every project. The data required in this beneficiary list is indicated below. This data shall be recorded, checked and signed off by the Contractor on a weekly basis, and shall be submitted to the Employer at each monthly site meeting. The beneficiary list shall contain the following data and shall be kept and maintained on site for audit purposes:

- (a) Beneficiary identity – name, surname, initials, date of birth and identity number (or other unique identifier) plus certified copy of ID book (or other unique identifier).
- (b) Beneficiary profiles – nationality, gender, age, education level and disability status.
- (c) Monthly work data for beneficiaries – daily wage to be received, number of calendar days training attended and number of calendar days worked.

F4.1.2 Project work data

This generally seeks to confirm the number of people at work daily on the project. The following data must be recorded and maintained on site by the Contractor, in order that it can be provided by the Employer to the National Department of Public Works upon request when the latter is undertaking sample auditing. The documentation that should be kept includes:

- (a) Daily attendance register – register for each day showing all the workers that were registered as being at work on that day. Attendance registers shall be completed on site on a daily basis and signed off by the Contractor on a weekly basis.
- (b) Summary of monthly attendance.

F4.1.3 Project payment data

This generally seeks to confirm what was paid, for how much work and to whom. It is required that the Contractor adopt one of the following methods as standard procedure for recording and maintaining this information:

- (a) Payment register – this is a list of the workers showing the wages paid to each worker, and signed off by each worker as proof of receipt and acceptance of payment. Information on this register must include the name of the worker, either an identity number or other unique identifier, the number of calendar days that the pay period covers, the wage rate and the total wages paid.

Alternatively,

- (b) Bank records showing the transfers to each worker account, signed off by the Contractor as proof of payment – these bank records must specifically show the name of the worker, either an identity number or other unique identifier, the period which the pay covers and the total wages paid.

The project payment data, as recorded and maintained by the Contractor in terms of either (a) or (b) above, must be available and applicable for the entire period for which the Employer claims an incentive reward for person- days of work created in terms of the project.

F4.1.4 Employment output data

The Contractor shall submit to the Employer at each monthly site meeting the data necessary to enable the Employer to calculate the following employment output data:

- (a) Number of work opportunities created (where one work opportunity = paid work created for one individual on an EPWP project, for any period of time).
- (b) Number of person-days of work created (where one person-day = one day of work carried out by one individual). The total number of person-days of work created on a particular EPWP project shall be obtained by summing the total number of person-days worked by each individual employed during the course of that EPWP project.
- (c) Number of Full Time Equivalent (FTEs) created (= total number of person-days of work created on the EPWP project divided by 230 working days). In terms of EPWP policy, one year of work created for one individual is assumed to comprise a total of 230 days of paid work carried out by that individual.
- (d) Average duration of work opportunities created (= total number of person-days of work created on the EPWP project divided by the number of work opportunities created on that EPWP project).
- (e) Average daily wage rates paid (= accumulated total of the wages paid to all individuals employed on an EPWP project divided by the total number of person-days of work created on that EPWP project).

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

Labour-intensive works

Labour-intensive works comprise the activities such as those described in SANS 1921-5, Earthworks activities which are to be performed by hand, and its associated specification data. Such works shall be constructed using local workers who are temporarily employed in terms of this Scope of Work.

PARTICULAR SPECIFICATION : PD POLYSEAL GEOLINER

CONTENTS

PD01	SCOPE
PD02	GENERAL REQUIREMENTS
PD03	INSTALLATION
PD04	APPLICABLE STANDARDS
PD05	MEASUREMENT AND PAYMENT

PD01 SCOPE

This Particular Specification covers the supply, installation and testing of PolySeal Geoliner .

PD02 GENERAL REQUIREMENTS

PD02.1 MATERIALS

PolySeal Geoliner is high-tech, cost effective and easy to apply. PolySeal is a water-soluble polymer spray-on dam liner. The application of three coats of PolySeal emulsion will result in a highly elastic, non-toxic and flexible sealant for concrete or earthen dams.

PD02.2 SUPPORTING SURFACES

The supporting surface shall be prepared in the following manner, in addition to the requirements specified in SABS 1200D and PSD

- (a) The surface shall be to the grade shown on the Drawings ;
- (b) The surface shall be even and compacted to the specified density ;
- (c) The surface shall be free from all protrusions, stones, roots, vegetation and other objects that may be detrimental to the performance of the sheeting ;
- (d) The maximum particle size in the top 25 mm of the supporting surface shall be 3 mm.

PD02.3 VEGETATION DESTROYER

A suitable slow releasing chemical vegetation destroyer shall be applied (at the rates prescribed by the manufacturer) to the supporting surfaces. The Contractor shall ensure that the product he proposes to use will not have any detrimental effect on the seal and shall present a certificate in this regard from the manufacturer to the Engineer.

D03 INSTALLATION

PD03.1 RAIN AND MOISTURE

The earthworks shall be hard and dry when the sheeting is installed. The sheeting shall not be installed or jointed in the rain or while the sheeting or supporting surface is wet or moist.

PD03.2 TEMPERATURE

Ambient temperatures should at least be 7°C and rising. When temperatures reach 7°C and falling, the Contractor must stop construction of the seal.

PD03.3 SHRINKAGE

Adequate provision shall be made for the effects of long-term shrinkage of the sheeting, especially around pipes and structures. These measures shall be subject to the approval of the Engineer.

PD03.4 ANCHOR TRENCHES

Anchor trenches (250mm wide and 250mm deep) should be excavated around the perimeter of the dams. Anchor trenches shall be backfilled and neatly.

PD03.5 CONSTRUCTION

The PolySeal liner consists of an underlying geofabric, which is pinned to the base layer. PolySeal is then sprayed over the geofabric in three consecutive layers, with a high-pressure gunniting machine. The elastomeric PolySeal emulsion, is applied as a liquid and when cured, will form a strong synthetic geoliner, which is totally UV, acid and alkaline resistant.

Once the dam construction has been completed and needs to be sealed.

- Dig anchor trenches in and around the dam
- Roll-out geotextile membrane and secure in anchor trenches
- Ensure that geotextiles are over-lapped and secured with staples
- Apply first layer of PolySeal with gunniting machine and allow to dry for one day
- Once dry, inspect application coverage
- Apply second layer of PolySeal and allow to dry for one day
- Once dry, inspect application coverage
- Apply third layer of PolySeal and allow to dry for three days

PD04 APPLICABLE STANDARDS

PD04.1 The polyseal geoliner shall in all aspects comply with the requirements of SANS 5099, SANS5266 and SANS5300,

The Contractor shall comply with all installation procedures and precautions prescribe by the product manufacturer.

PD05 MEASUREMENT AND PAYMENT

PD.01 VEGETATION DESTROYER:

(a) Slow releasing vegetation destroyer to supporting surfaces Unit : m²

The unit of measurement will be square metre of surfaces treated. No additional area shall be measured as overlaps.

The tendered rates shall include full compensation for procuring, furnishing and placing or application of all materials, and for all labour and incidentals required for the application of the vegetation destroyer, complete as per the manufacturer's specifications.

PD.02 (LI) LININGS:

(a) PolySeal Geoliner _____ Unit : m²

The unit of measurement will be square metre of surfaces lined. No additional area shall be measured as overlaps.

The tendered rates shall include full compensation for procuring, furnishing and placing or application of all materials, and for all labour and incidentals required for the installation or application of the lining, complete as per the manufacturer's specifications and the particular specification. No payment will be made without prior written approval of the Engineer.

NAMA KHOI MUNICIPALITY

UPGRADING OF OKIEP SEWER NETWORK

PROJECT REF NO.: BOD/NC062/05/2020-2021

C3.5 : MANAGEMENT

C3.5 Management

C3.5 MANAGEMENT

C3.5.1 CONSTRUCTION PROGRAMME

C3.5.1.1 Format

The programme will be set up in collaboration with the Engineer:

In addition to the requirements of Sub-Clause 5.6.2 of the General Conditions of Contract, the Contractors programme shall:

- i) be in a bar chart form programmed into MS Project Office 2003 or 2010
- ii) show the various activities related to a time-chart indicating the sequence of performing the works comprising the contract.
- iii) indicate critical path activities

C3.5.1.2 Allowances

The Contractors programme shall take the following into consideration:

- i) expected normal climatic weather conditions
- ii) special non-working days as stipulated in the Contract Data
- iii) expected value of the work performed for each activity
- iv) stipulate any other information required by the engineer.

C3.5.2 PROCEDURES DURING CONSTRUCTION

The Contractor to supply, keep up to date and keep the following documents on site on a daily basis:

- i) A full set of the latest construction drawings to be on site permanently for use by the Engineer and others.
- ii) The Contractor to supply and keep on site an A4 triplicate site instruction book, which must be presented to the engineer at all site meetings and site inspections.
- iii) The Contractor to supply an A4 duplicate diary on site to be signed off by Engineers Representative. The Contractor to keep daily diary, with at least the following information.
 - Weather condition
 - Record of any accidents and detail
 - Record of construction activities of the day with associated units measures of progress for each activity

- Record of resources (labour, materials, plant, etc.) utilized for each day
- Information of any strikes
- Any other relevant information

C3.5.3 SITE FACILITIES AVAILABLE

C3.5.3.1 Source of Water Supply

The Contractor is to make his own arrangements for the supply of water. Water is available from the municipality's water network. The Municipality does not guarantee the sufficiency or continuity of the supply and no claims will be considered in this regard. The Contractor will be held responsible for any wastage of water due to negligence.

C3.5.3.2 Source of Power Supply

The Contractor is to make his own arrangement for the supply of power.

C3.5.3.3 Location of Camp and Depot

The Contractor must make his own arrangements for a campsite. The Contractor shall make his own arrangements for the accommodation of labour.

C3.5.3.4 Spoil Sites

No indiscriminate spoiling of material will be allowed. All unsuitable surplus material shall be removed from the site and to a suitable spoil site indicated by the Engineer.

C3.5.4 ABNORMAL RAINFALL

Refer to Contract Data – C1.2

C3.5.5 TIME RELATED ITEMS

An approved extension of time (other than an extension of time granted in terms of Clause 5.12 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 but will be limited to a maximum amount determined from the sum tendered for such item and from the designated operation, the period stated for the completion of the item or the tendered contract period, as applicable.

C3.5.6 PROJECT BOARD

The Contractor must make provision for one project board as per the drawing bound in document.

C3.5.7 PROTECTION FROM STORMS AND FLOODS

The sum allowed for in the Bills of Quantities shall be deemed to be full compensation for any damage to the Works due to storms, rain, floods, stormwater 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 the Site.

C3.5.8 EXISTING SERVICES

The Engineer will provide information regarding the location of the existing pipeline and connections, but the:

Engineer does not accept responsibility for the accuracy of this information. The Contractor shall make further investigations to determine the exact locality, size and depth of existing connections before commencing construction to ensure that no damage is done to any existing

pipes or fittings.

The Contractor shall take all reasonable precautions to protect existing pipeline/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 be moving and relocating, 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.

Any work required to be undertaken by the Contractor in the moving and relocation of services for which no provision is made in the contract documents, or for which no applicable tender rates exist, will be classed and paid for as "Daywork" as prescribed in the General Conditions of Contract.

The Contractor shall work in close co-operation with personnel of the Municipality 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 Board 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 Municipality or authorities controlling those services, but the Employer 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. The sum allowed for in the Schedule of Quantities shall be deemed to be full compensation for the location and protection of existing services.

C3.5.9 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 care to protect the public and to facilitate the traffic flow.

C3.5.10 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 priced for in the item provided.

C3.5.11 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.

C3.5.12 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. However, the Contractor shall note that measurement and payment will be only in accordance with the specified cross-sections and dimensions, and that the tendered rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered during working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for additional payment be considered in such cases.

C3.5.13 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 item.

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. A provisional sum is provided in the Bills of Quantities to allow for the cost of control tests.

The sum allowed shall, however, be under the control of the Engineers and payment shall only be made to the Contractor on receipt of proof of expenses incurred by the contractor for the tests, i.e. payments to be made to an independent laboratory.

Should these control tests indicate failure to obtain the required standards, the cost of the tests shall be for the Contractor's account. Cub/Density tests carried out by the Contractor in the normal course of his work shall not be covered by this sum and shall be carried out at his own expense.

The tendered rates in the Bills of Quantities shall be deemed full compensation for the testing of materials.

C3.5.14 PRESSURE TESTS

The Contractor shall carry out pressure tests under the supervision of the Engineer on sections of the pipeline. The Contractor must supply all the necessary equipment to execute the testing of the pipeline, joints, connections and fittings on site. Full payment for installation of pipelines will only be processed after completion of pressure tests. The maximum length of pipeline that must be tested is 1.0km. All pipe sections to be tested at a pressure of at least 1,5 X the working pressure of the pipeline.

C3.5. 15 COMMUNITY LIAISON OFFICER (CLO)

The CLO official shall be identified by the Employer to act as a liaison person between the Contractor and the persons to be employed. The liaison officer must be appointed by a process of appointment and the job description is available from the Employer or the Employers Agent which must be communicated with him after appointment.

C3.5. 16 LABOUR INTENSIVE ACTIVITIES

GENERIC LABOUR-INTENSIVE SPECIFICATION

The Contractor's attention is drawn to the fact that it is an objective of the contract to maximise the labour content of certain operations or portions thereof. In this regard, where the specified work allows for a choice between mechanical or labour-enhanced means, the former shall generally be kept to the practical minimum.

The Contractor shall submit on a monthly basis, daily labour reports to the Engineer indicating the numbers of temporary personnel employed on the works and the activities on which they were engaged. The reporting shall be on EPWP formats that will be provided at the site handover meeting. These reports must be submitted with Monthly Payment Certificate Claims, otherwise payment will not be processed.

The normal rules and regulations in terms of the Labour Act must be adhered to. Minimum wages for the region must be paid to the labourers and formal Labour-contract documentation must be in place during the construction period.

The following activities must be executed with local labour:

- i. The normal handling, installation and testing of water pipes.
- ii. Placing and preparation of bedding and blanket materials in pipe trenches.
- iii. Compaction of bedding and blanket materials.
- iv. Building of all manholes and concrete structures.

- v. Final site clearance.

The following activities as identified in the Schedule of Quantities **may only be executed by means of Labour-Intensive Methods:**

- Item 1.4.1 a & b
- Item 2.1.1
- Item 2.3
- Item 2.4
- Item 3.3.1 a
- Item 3.1.2.3
- Item 3.1.2.4
- Item 3.2.1
- Item 3.3
- Item 3.4
- Item 3.5
- Item 4.1
- Item 4.2
- Item 4.3
- Item 5

C3.5. 17 CONCRETE MARKERS

Concrete markers will be placed by the contractor along the pipelines at 500m intervals and at direction deviations. The markers must be precast or on site casted clearly in scripted with the letter 'w' (for water pipeline) at the top. The concrete must be reinforced with a minimum strength of 25 MPa and the marker must be installed at least 400mm underground and 600mm above ground.

C3.5. 18 EXCAVATIONS OF TRENCHES

The following rules must apply for the excavation of trenches:

- The pipeline route will be set out 4.0m from the existing pipeline where necessary.
- Excavations must be done without damaging the existing pipeline.
- The maximum allowable open trench length is 500m.
- The trenches must be excavated according to the prescribed grade line with deviations of not more than 3.5%.

C3.5.19 CLASSES OF EXCAVATION (Sub clause 3.1.2)

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

i. **Hard rock excavation**

Hard rock excavation shall be excavation in material (including boulders exceeding 0.15 cubic metres in individual volume) that cannot be efficiently removed without blasting or without wedging and splitting or be in material, which cannot be excavated by a loader/backhoe or by a scraper without prior ripping.

ii. **Intermediate excavation**

The excavation in the decomposed granite or calcrete type material that can be excavated without blasting or wedging, but not classified as hard rock, shall be treated as intermediate material.

iii. **Soft excavation**

Soft excavation shall be all material not falling into the category of hard rock or intermediate excavation.

C3.5.20 MANHOLES

The rates for both chambers and manholes shall be measured as a unit and shall cover the cost of all items excluding pipe work. Included would be excavation, concrete work, brickwork and precast concrete slabs with manhole cover and frame.

C3.5.21 QUALITY CONTROL BY THE ENGINEER

Except for the quality control measures that must be implied by the Contractor, the Engineer can arrange and executed his own quality control inspections. Invoices will be forwarded to Contractor for payment and to claim with a 7, 5% mark-up.

C3.5.22 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:

- The safety management structure including the names of all designated persons such as the construction supervisor and any other competent persons;
- Safety method statements and procedures to be adopted to ensure compliance with the OHSA. Aspects to be dealt with shall include:
 - Public vehicular and pedestrian traffic accommodation measures; Control of the movement of construction vehicles;
 - The storage and use of materials; The use of tools, vehicles and plant;
 - Temporary support structures; Dealing with working at height;
 - Environmental conditions and safety requirements in working hazardous materials including asbestos cement products;
 - Security, access, control and the exclusion of unauthorised persons.
- The provision and use of temporary services;
- Compliance with wayleaves, permissions and permits;
- Safety equipment, devices and protective clothing to be employed;
- Emergency procedures;
- Provision of welfare facilities;
- Induction and training;
- Provision and maintenance of the health and safety file and other documentation;
- Arrangements for monitoring and control to ensure compliance with the safety plan.
- Provision to comply with all the regulations relating to Covid19.