

LEPELLE NORTHERN WATER



RE-ADVERT TENDER NO: LNW 02/22/23

PROJECT NAME: BABANANA WATER PROJECT RS 135 -

**PHASE 1B: - CONSTRUCTION OF MAWA 8 & MOOKGO 6 BOOSTER
PUMP STATIONS FOR ELECTRICAL AND MECHANICAL WORKS
(RE-ADVERT)**

Cancellation of LNW 03/21/22

BOOK 1 of 3: THE TENDER, CONTRACT DATA AND PRICING DATA

A CIDB GRADING: 7 ME OR HIGHER

CLOSING DATE: 31st JANUARY 2023 @ 11:00 AM

ISSUED BY:

LEPELLE NORTHERN WATER

Physical address: 01 Landros Mare Street
Polokwane
0700

Postal address: Private Bag X9522
Polokwane
0700

Tel: 015 295 1800 - **Fax:** 015 295 1931

E-mail: information@lepelle.co.za

NAME OF TENDERER: _____

TOTAL AMOUNT: _____ (incl. VAT)

Tender No: LNW 02\22\23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



CHECKLIST

Please indicate in the column (Completed) Yes or No in writing and sign when completed at the bottom of this page. For items that are not applicable, please indicate with N/A.

Position in Document	Description	Complete (Yes / No)	Initial
Schedule A	Certificate for authority of companies Completed and Signed		
Schedule B	Record of Addenda to tender documents - Completed and Signed		
Schedule C	Relevant work experience carried out - Completed and Signed		
Schedule D	Tenderer Key Personnel - Completed and Signed		
Schedule E	Company Banking Details - Completed and Signed		
Schedule F	Full details of directors / trustees / members / shareholders - Completed and signed		
Schedule G	Contractors OHS Management system checklist		
Schedule H	Contractors Labour Content - Completed and Signed		
Schedule I	SMME Content - Completed and Signed		
SBD 1	Invitation to Tender - Completed and Signed		
SBD 2	Tax Clearance Certificate - Completed and Signed		
SBD 3.1	Pricing Schedule - Completed and Signed		
SBD 4	Declaration of interest - Completed and Signed		
SBD 6.1	Preference Points - Completed and Signed		
SBD 6.2	Declaration certificate for Local Product and content for Designated Sections		
SBD 8	Declaration of Past Supply Chain Management - Completed and Signed		
SBD 9	Certificate of Independent bid determination - Completed and Signed		
C1.1	Form of Offer and Acceptance - Completed and Signed		
C1.2	Contract Data - Completed and Signed		
C1.4	Health and Safety Contract - Completed and Signed		
C2.1	Pricing Data - All items in the Schedule of Quantities priced		
	Company registration certificated/ Copy of a sole trader (Copies must be certified)		

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Position in Document	Description	Complete (Yes / No)	Initial
	Tax Clearance Certificate/s (Original and Valid)		
	Copies of Identity Documents of Partners and/or Directors (NOT COPIES OF CERTIFIED ID)		
	Letter of Good Standing (COIDA)		
	Signed Joint Venture Agreement		
	CIDB Registration Certificate/s		
	B-BBEE Certificate		
	Municipal current rates account not more than three months		
	Printed the Tender Document in accordance with the page color coding		
	Professional Presentation of Tender Proposal (Neatly bounded and file dividers for all the annexure)		

Signed:

Date:

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Electrical And Mechanical Works – (Re-Advert)**



PART T1

TENDERING PROCEDURES

T1.1 TENDER NOTICE AND INVITATION TO TENDER

Bidders are hereby invited from qualified service providers and/ or contractors with experience in traceable projects in pump station or water treatment plant installations or industrial plant installations (Pumps sets installations or valves installations).

Bid documents will be available on National Treasury E-tender portal from **Friday 25th November 2022**. E-tender Portal website, from www.etenders.gov.za

BRIEFING SESSION: There will be a **COMPULSORY BRIEFING SESSION** on the **Monday, 16th January 2023 at 11h00 at Nkambako WTW and GPS coordinated are on the tender advert.**

Bids are to be completed in accordance with the conditions and rules contained in the bid documents. All documents must be sealed and labelled with the Bid number and description, and placed in the tender box, at the offices of **Lepelle Northern Water in Polokwane situated in No.1 Landros Mare Street**, not later than **11h00 on Tuesday, 31st January 2023**.

Bids will be opened on the closing date at **11h00 on Tuesday, 31st January 2023** in public. All bids shall hold good for **90 days** as from the closing date.

It is estimated that tenderers must have a CIDB contractor grading designation of **7ME or higher**.

Bid documents which are not received and/or deposited in the tender box before **11h00** on the closing date will be marked as late bids and shall in terms of the **Procurement Policy of Lepelle Northern Water**, not be considered.

ENQUIRIES : Procurement related enquiries may be directed to Ms. Rose Mulaudzi at 015 295 1800, email: rosem@lepelle.co.za and Technical related enquiries may be directed to **Mr. Musa Ngoveni** at 015 295 1800 email : musan@lepelle.co.za from **08h00 to 16h00**.

Bidders are to seek clarity when unclear and if they want to visit the sites, an appointment may be arranged with the project manager.

The lowest or any bid will not necessarily be accepted, and Lepelle Northern Water reserves the right not to consider any bid suitably endorsed or comprehensively completed, as well as the right to accept a bid in whole or part. Any bidder not contacted within 90-120 days after the closing date must consider their proposal unsuccessful.



A. MANDATORY REQUIREMENTS (Pre-qualification)

- i. Proof of CIDB registration and Grading of 7 ME or higher.
- ii. The JV agreement for JV partners to be submitted indicating percentage split up to 100% for partners to render agreement valid.
 - a. All bid documents must be completed in BLACK ink where applicable; (No tampering of bid documents with either correction fluid, sticky papers or any otherthing which can indicated that the bid document that has been tampered with).
- iii. The BOQ must be completed in FULL to render the bid responsive. If any section of the BOQ is left incomplete or omitted in printing and submission; the bid document will be disqualified **as pricing instruction in tender document**. Non-numerical (*Nil or - or included or incomplete space*) completion of BOQ items will be considered non-responsive.
- iv. Attendance compulsory briefing session.

NB: Failure to comply with any of the above requirements will lead to disqualificationof the tenderer.

B. ADMINISTRATIVE COMPLIANCE (Only to be requested from the preferred bidder)

- i. Subcontracting agreement to a minimum of 30% of contract value with local EME (Exempted Micro Enterprise) or QSE (Qualifying Small Enterprises) within the Greater Tzaneen Local Municipality in compliance to National Treasury guidelines PPPFA 2017 item 9 on subcontracting with 51% Black owned company. Contract will not be awarded before sub-contracting is completed with local EME or QSE.
- ii. Certified ID copies for key personnel under functionality.
- iii. Proof of registration on the Central Suppliers Database (CSD) subject to verification online.
- iv. Bidders must submit a soft copy in a form CD/USB containing all the tender/bid document submission together.
- v. Complete all SBD forms.
- vi. Municipal current rates account not more than three months old should be submitted.

- vii. Minimum threshold percentage stipulated for local production and content (relevant annexure forms and SBD 6.2 available in the tender document must all be completed) failure to complete and sign will lead to an automatic disqualification. Bidders are expected to fill in and complete the SBD 6.2 section and Annexures C (Local Content Declaration - Summary Schedule), D (Imported Content Declaration - Supporting Schedule to Annexure C) and E (Local Content Declaration - Supporting Schedule to Annexure C). All the BOQ items within the local content list must be filled in on the annexures listed. Failure to list and sign the items above will lead to disqualification of the bid document. Bids will be evaluated for local content compliance before any evaluation on price and preference.
 - viii. Letter of Good standing, COIDA
 - ix. Company registration documents
 - x. Certified valid ID copies of the company shareholders less than 3 months.
 - xi. Original or Certified valid copy of BBB-EE Certificate (SANAS accredited) or Sworn affidavit.
- ✓ **Tenderers who do not submit B-BBEE Status Level Verification Certificates on the closing date and time or who are non-compliant contributors to B-BBEE do not qualify for preference points for BBBEE but should not be disqualified from the tendering process. They will score points out of 90 or 80 for price only and zero (0) points out of 10 or 20 for B-BBEE. Original or Certified valid copy of BBB-EE Certificate (SANAS accredited) or Sworn affidavit.**

Table 1: Local Content Table

<i>ITEM</i>	<i>SPECIFICATIONS AND IDENTIFICATION</i>	<i>MINIMUM % FOR LOCAL CONTENT PER UNIT</i>
1	<i>Various valve products</i>	70%
2	<i>Various pipes and other products</i>	80%
3	<i>Cable products:</i> <i>cables used for power transmission and cables use for telecommunication.</i>	90%

NOTE:

- a) All the above administrative documents will be mandatory for submission with the bid and failure to submit will lead to disqualification.**



- b) The JV agreement for JV partners to be submitted indicating percentage split up to 100% for partners to render agreement valid (Point will be allocated as per pro rata (proportional) JV percentage split). This is only applicable on company experience for functionality***
- c) The JV partners must submit both mandatory documents for each Company.***
- d) Preferred JV bidder will be required to submit a JV bank account and VAT number.***
- e) The bidders must comply with all terms and condition including requirements as stipulated in the Tender Documents to be evaluated further.***
- f) LNW is not compelled to accept the lowest or any bid.***
- g) LNW reserves the right to reduce the scope of works.***
- h) Bidders will be subjected to risk assessment, verification, and arithmetic check.***
- i) LNW reserves the right to verify any information provided by the bidder, falsified and fraudulent reference or experience will lead to disqualification***

C. CONTRACT MANAGEMENT DOCUMENTS REQUIRED BEFORE COMMENCEMENT

- i. The proposed works are entirely subject to approval by LNW and the Engineer. Since the bid is a construction of pump stations electrical and mechanical equipment contract, bidders are to ensure their actual installations comply with the requirements of DWS, LNW and the Engineer.
- ii. All risk construction insurance for the project the event of appointment or as per the GCC 3rd edition 2015.
- iii. A performance guarantee of up to 10% of the contract value in accordance to the GCC 2015 Contract conditions in the event of appointment. Over and above the performance guarantee as per GCC 2015, all payment certificates shall deduct a retention of 10% of which 5% shall be released at project completion and the remaining 5% after the completion of the 12 months defects liability period.
- iv. Appointments of Sub-contractors/specialist consultants to be approved by LNW before commencement of works.
- v. Submit proposed work plan and methodology for the execution of the project, which should inter alia include the following:

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- vi. A draft program of works not exceeding a period of Twelve (12) months. However, Mookgo 6 Pump station can only be commissioned after the completion of pipeline4. The program should show the proposed sequencing of activities, estimated activity durations, interdependencies between activities and a critical path. This schedule must preferably be developed in Microsoft project or other related/similar software program.
 - vii. Construction monitoring processes (quality control procedures).
 - viii. Draft project organization structure which would be deemed to indicate perceived reporting lines and level of authority of proposed personnel positions.
 - ix. Confirmation of availability of proposed key personnel and their qualifications and relevant project experience in line with the requirements stated above in the evaluation process "Capacity (Personnel)"

Table 1: Local Content Table

ITEM	SPECIFICATIONS AND IDENTIFICATION	MINIMUM % FOR LOCAL CONTENT PER UNIT
1	<i>Various valve products</i>	70%
2	<i>Various pipes and other products</i>	80%
3	Cable products: <i>cables used for power transmission and cables use for telecommunication.</i>	90%

Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.

Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.

Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.



A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub- contractor is an EME that has the capability and ability to execute the sub-contract.

A person awarded a contract may not sub-contract more than **25%** of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub- contract.

D. CONTRACT CONDITIONS

- ✓ The contractor shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts, published in Gazette Notice No.43495 of 3 July 2020.

The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction works Contracts Gazette Notice No.36190 of 25 February 2013

- ✓ For bids of an amount of R 30 million and above, the tenderer is to subcontract part of his/her works of the project to a minimum of 30% of the contract value. The works to be sub-contracted to the designated groups of locals (51% black owned companies) within the Greater Tzaneen Local Municipality. Local sub-contractors are to comply with applicable regulations. The works to be subcontracted includes but not limited to civil works, plant hire, supply of material etc. Contract will not be awarded before sub- contracting is completed with local EME or QSE.
- ✓ LNW reserves the right to request the contractor to subcontract works within the project to locals in Greater Tzaneen Local Municipality for bids below R 30 million upon contractors' acceptance.
- ✓ The approved bidder shall under no circumstances interrupt the operations of the plant as a result of his/her activities in, or around the Scheme;
- ✓ Full adherence to the Occupational and Health and Safety Act, Act 85 of 1993 and other applicable Acts will be applicable during the course of the contract; and
- ✓ Labour desk to be created for employing local labour. All unskilled labour will be from local communities, skills transfer to be considered and where skilled locals are available, they are to be given first preference.
- ✓ Form of contract shall be GCC 3rd edition 2015.
- ✓ Risk analysis will be conducted for 7 ME or higher on preferred bidder by Lepelle Northern Water on company experience, financial capacity, personnel as submitted by the bidder, including the arithmetic checks and any other aspects before contract award.

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- ✓ Each of the person listed on functionality must be confirmed as available for the duration of the project and A Signed declaration/employment contract (refer Tender Document for the standard employment contract) by proposed qualifying Contracts Manager, Site Manager and General Foreman must be included on their CV's. Should the proposed candidate be not available during construction, a similar replacement or better must be made available immediately and an employer must be notified in advance.
- ✓ LNW reserves the right to verify any information provided by the bidder, falsified and fraudulent reference or experience will lead to disqualification and blacklisting in terms of SCM process in conjunction with legal/law enforcement process.

1.2 TENDER DATA

T1.2.1 Standard Conditions of Tender

The conditions of tender are the Standard Conditions of Tender as contained in **Annexure F** of the **CIDB** Standard for Uniformity in Construction Procurement which are reproduced without amendment or alteration for the convenience of tenderers. 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.

F.1 General

F.1.1 Actions

The Employer and each tenderer submitting a tender 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.

The contractor shall provide a minimum Contract Participation Goal of 5% of the total project value and develop targeted enterprises in two agreed developmental areas.

The contractor shall appoint an Enterprise Development Co-Ordinator who shall:

- develop a project specific Enterprise Development plan to improve the targeted enterprise's performance in the identified developmental areas and shall allocate resources to monitor progress in relation to improved performance; and
- submit to the employer's representative a monthly enterprise development report (Performa – ED105P) which documents all mentoring activities that have taken place during that month and the progress made in improving the targeted enterprise's performance in the agreed developmental areas, countersigned by the targeted enterprise.

F.1.2 Tender Documents

The documents issued by the Employer for the purpose of a tender offer are listed in the tender data. The tender documents issued by Lepelle Northern Water comprise of the following:

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**Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works – (Re-Advert)**



Part T1: Tendering Procedures

- T1.1 Tender notice and invitation to tender
- T1.2 Tender Data
- T1.3 Preferential Procurement Regulations – Lepelle Northern Water

Part T2: Returnable Documents

- T2.1 List of returnable documents
- T2.2 Returnable schedules
- T2.3 Declaration Certificate for Local content

Part C1: Agreements and Contract Data

- C1.1 Form of offer and acceptance
- C1.2 Contract Data
- C1.3 Health and Safety contract

Part C2: Pricing data

- C2.1 Pricing instructions
- C2.2 Activity schedules / Bills of Quantities

BOOK 2 OF 3

Part C3: Scope of work

- C3 .1 Description of Works

- C3. 2 Standard Specifications
- C3. 3 Amendments to Standard Specifications
- C3. 4 Technical Specifications
- C3. 5 HIV/AIDS Requirements
- C3. 6 Occupational Health and Safety
- C3. 7 General Conditions of Contract (Government)
- C3. 8 Labor Intensive Construction

Part C4: Site Information

- C4. 1 Site Information

DOCUMENT PACKAGING

Note 1: Book 1 of 3 and Book 2 of 3 only must be submitted to the Employer for tender evaluation purposes. The tenderer must ensure that his/her priced Bill of Quantity (BoQ) forms part of book 1 of 3 and is attached after PRICING INSTRUCTIONS contained in book 1 of 3.

Note 2: Book 2 of 3 forms an integral part of the tender and will form part of the construction contract. Therefore, this book 2 of 3 must also be studied by the Tenderer when preparing his/her tender. This book may not be submitted with the Tenderer's bid documents; however, it will be included in the construction contract of the successful Tenderer.

Note 3. Book 3 of 3 Drawings.

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 for the calling for expressions of interest, the following definitions apply:
 - (a) **Comparative offer** means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration
 - (b) **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
 - (c) **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
 - (d) **Quality (Functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs



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 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 tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.2 Tenderers obligation

F2.1 Eligibility

- F2.1.1** Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and have in their employ management and supervisory staff satisfying the requirements of the Scope of Work for labor intensive competencies for supervisory, and the tenderer, or any of his principals, is not under any restriction to do business with employer.
- F2.1.2** 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.
- F2.1.2.1** The following tenderers who are registered with the **CIDB**, or are capable of being so registered prior to the evaluation of submissions, are eligible to submit tenders:
- a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **7 ME or Higher** class of Mechanical Engineering Works.
 - b) contractors registered as potentially emerging enterprises with the CIDB who are registered in one contractor grading designation lower than that required in terms of a) above
- F2.1.2.2** Joint ventures are eligible to submit tenders provided that:
- a) Every member of the joint venture is registered with the CIDB;
 - b) The lead partner has a contractor grading designation in the **7 ME or Higher** class of work - Mechanical Engineering Works.
 - c) The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for **7 ME or Higher**
 - (d) A Joint Venture Agreement in line with CIDB Regulations and **Lepelle Northern Water** Supply Chain Management Policy in SBD 6.1 (8).
 - (e) Tax Clearance Certificates of both Partners are attached in the Document.

(f) **CIDB** Certificates or CRS Numbers for both Joint Venture Partners are attached.

F.2.2 Cost of tendering

Accept that 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 satisfy 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 Site visit and clarification meeting

Attend, where required, a site visit and 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 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) may 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 days before the closing time stated in the Tender Data.
- F.2.10.2** 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

May 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 as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.
- 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 a tender offer to provide the whole of the works, services or supply identified in the Scope of Work, 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 in black 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 which of the

signatories is the lead partner whom the Employer shall hold liable for the purpose of the tender offer.

F.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the Employer's address and identification details stated in the Tender Data, as well as the tenderer's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the Tender Data, place and seal the returnable documents listed in the Tender Data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.7 Seal the original tender offer and copy packages together in an outer package 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 shall 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.2.14 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. Proof of posting shall not be accepted as proof of delivery. The Employer shall not accept tender offers submitted by telegraph, telefax, facsimile or e-mail, unless stated otherwise in the Tender Data.

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.

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 total of the prices or substance of the tender offer is sought, offered, or permitted. The total of the prices stated by the tenderer shall be binding upon the tenderer.



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), pre-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 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 request from the tenderer

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

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 of the Tender Notice until seven 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, will then notify it to all tenderers who drew documents.

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.3.4.2 Announce at the opening 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, the total of his prices, preferences claimed and time for completion, if any, 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 if the employer deemed necessary.

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 advice 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 above 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, on opening and before detailed evaluation, whether each tender offer properly received:

- a) Meets 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.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) Affect the competitive position of other tenderers presenting responsive tenders if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation

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:
- d) Line-item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
- e) 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 item 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 Evaluation of tender offers

F3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation method that is indicated in the Tender Data and described below:

Method No.	Description
Method 1: Financial offer	1) Rank tender offers from the most favorable to the least favorable comparative offer. 2) Recommend highest ranked tenderer for the award of the contract unless there are compelling and justifiable reasons not to do so.
Method 2: Financial offer and preferences	1) Score tender evaluation points for financial offer. 3) Confirm that tenderers are eligible for the BBBEE claimed, and if so, score tender evaluation points for BBBEE. 4) Calculate total tender evaluation points. 5) Rank tender offers from the highest number of tender evaluation points to the lowest. 6) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 3: Financial offer and quality	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender Data. 2) Score tender evaluation points for financial offer. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. 5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 4: Financial offer, Quality/Functionality and Preferences	1) Score Quality/Functionality , rejecting all tender offers that fail to score the minimum number of points for Quality/Functionality stated in the Tender Data. 2) Score tender evaluation points for financial offer. 3) Confirm that tenderers are eligible for the preferences claimed, and if so, score tender evaluation points for preferencing. 4) Calculate total tender evaluation points.



	5) Rank tender offers from the highest number of tender evaluation points to the lowest. 6) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

NB: Failure to comply with any of the above requirements will lead to disqualification of the tenderer.

NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE
(See definition on SBD4 attached)

EVALUATION CRITERIA

Preferential Points System will be used to evaluate this bid in line with the Preferential Procurement Framework Act, 2017. Bidders will be evaluated on mandatory first, then functionality and only those qualifying by achieving the minimum cut off point of 62.5% (25 points) will be evaluated for administrative compliance and then price and BBBEE as the final stage.

The following shall be the tender evaluation criteria to be followed;

1. Prequalification
2. Functionality
3. Administrative compliance.
4. Price and BBB-EE

THIS BID WILL BE EVALUATED AND ADJUDICATED ACCORDING TO THE FOLLOWING CRITERIA:

1. Relevant specifications
2. Value for money
3. Capability to execute the contract
4. LNW SCM Policy
5. PPPFA & associated regulations

1. Prequalification (mandatory requirements)

Pre-qualification – Only bidders who have adhered or submitted the following documents will be considered for further evaluation, namely:

- i. Proof of CIDB registration and Grading of 7 ME or higher.
- ii. The JV agreement for JV partners to be submitted indicating percentage split up to 100% for partners to render agreement valid.
 - a. All bid documents must be completed in BLACK ink where applicable; (No tampering

of bid documents with either correction fluid, sticky papers or any other thing which can indicate that the bid document has been tampered with).

- iii. The BOQ must be completed in FULL to render the bid responsive. If any section of the BOQ is left incomplete or omitted in printing and submission; the bid document will be disqualified as pricing instruction in tender document. Non- numerical (Nil or - or included or incomplete space) completion of BOQ items will be considered non-responsive.
- iv. Attendance compulsory briefing session.

NB: Failure to comply with any of the above requirements will lead to disqualification of the tenderer.

2. **Functionality** (Only bidders meeting a minimum cut-off point of 62.5% as per the tender document evaluation criteria shall be evaluated further.
3. **Administrative compliance.**
4. **Price and BBB-EE**

EVALUATION ON METHOD 4

Bids will further be evaluated in terms of Method 4:

- Stage 1: Evaluation on Functionality (Minimum of 62.5% to be scored to be considered responsive)
- Stage 2: Evaluation on 80/20 or 90/10 preferential points system (Price and BBBEE)

Stage 1: Evaluation on Functionality

Under functionality, Bidders must achieve a minimum of 62,5% (25 points) of functionality in order to be considered for further evaluation.

Phase 1 Functionality

EVALUATION PROCESS. All bids duly lodged will be evaluated on functionality as Pre-qualifying criteria. The evaluation criteria and weighting for measuring functionality are indicated. Criterion	Weighting
Experience	20
* Company Experience (20) I. Completed traceable projects in pump station or water treatment plant installations or industrial plant installations (Pumps sets installations or valves installations). (Five (5) points per project to the maximum of Twenty (20) points). Relevant traceable signed completion certificates by Contractor, client representative and the client clearly showing pumps set installations or valves installations. Note that, • completion certificate only signed by client representative and contractor won't be accepted • or signed traceable reference letters on an official letterhead by a client or contractor or client representative clearly showing pumps set installation or valves installation must be attached for each project as proof of Company Experience to score the above points.	
Capacity (Personnel)	20
*Proposed key personnel (20) Note: No points will be allocated if no organogram attached with specific job title indication for this specific project. I. Detailed CV of key personnel (CV of Contracts Manager with minimum B-Tech/BSc Degree or higher in Construction Management or Civil or Electrical or Mechanical Engineering and experience in construction management (Contract manager/site agent/site manager)	



II. Detailed CV of key personnel CV of Site Manager with minimum Diploma or higher in Construction Management or Civil or Electrical or Mechanical Engineering and experience in construction site management (site agent/site manager) of pump stations or water treatment plant installations or industrial installations.

III. Detailed CV of key personnel CV of General Foreman with minimum N3 or higher in Mechanical or Electrical Engineering and experience of pump stations or water treatment plant installations or industrial installations.

IV. Detailed CV of key personnel CV of Safety Officer with SAMTRACT/NOSA/Similar certificate with working experience.

References must be attached including a certified academic qualification(not older than three months from the tender date) and a clear indicationsof job title to be occupied by the person in this project must be incorporated into the organogram attached.

No points will be allocated, if detailed CV's with relevant qualifications experience and the required declarations are not attached (refer Tender Document for the standard employment contract).

Points will be allocated as follows:

- Contracts Manager: (with Construction Management or Civil or Electrical or Mechanical Engineering qualifications & experience specific to theproject job title carried out on the cv)
 - 1 Project equal two (2) point,
 - 2 Projects equals four (4) points,
 - above 2 Project equals eight (8) points
- Site Agent/Manager: (with Construction Management or Civil or Electrical or Mechanical Engineering qualifications & experience specific to the project job title carried out on the cv)



• 1 Project equal one (1) point, • 2 Projects equals three (3) points, • above 2 Project equals four (4) points	
- General Foreman: (with Mechanical or Electrical Engineering qualifications & experience specific to the project job title carried out on the cv) • 1 Project equal one (1) point, • 2 Projects equals three (3) points, • above 2 Project equals four (4) points - Safety Officer: (with SAMTRACT/NOSA/Similar qualifications & experience specific to the project job title carried out on the cv) • 1 Project equal one (1) point, • 2 Projects equals three (3) points, • above 2 Project equals four (4) points	
Total Points	40

Note that, the client reserves the right to verify any information provided by the bidder, falsified and fraudulent reference or experience will lead to disqualification and blacklisting in terms of SCM process in conjunction with legal/law enforcement process.

Stage 2 Evaluation on Price and BBBEE 80/20 or 90/10

Tenderers who do not submit B-BBEE Status Level Verification Certificates on the closing date and time or who are non-compliant contributors to B-BBEE do not qualify for preference points for B-BBEE but should not be disqualified from the tendering process. They will score points out of 90 or 80 for price only and zero (0) points out of 10 or 20 for B-BBEE

Preference points for attaining a BBBEE status level of contribution will be allocated in accordance with the table below:

Table 2 : BBBEE Preference Points

BBBEE level of contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	8	16

4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

Financial offer and BBBEE

- 1) Score tender evaluation points for financial offer.
- 3) Confirm that tenderers are eligible for the BBBEE claimed, and if so, score tender evaluation points for BBBEE.
- 4) Calculate total tender evaluation points.
- 5) Rank tender offers from the highest number of tender evaluation points to the lowest.
- 6) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

Scoring functionality

Score functionality in each of the categories stated in the Tender Data and calculate total score for functionality.

Scoring Financial Offers

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

formula: $NFO = W1 \times A$ where:

NFO = the number of tender evaluation points awarded for the financial offer.

W1 = the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.

A = a number calculated using either formulas 1 or 2 below as stated in the Tender Data.

Formula	Basis for comparison	Option 1	Option 2
1	Highest price or discount	$(1 + \frac{(P - P_m)}{P_m})$	P/P_m
2	Lowest price or percentage commission/fee	$(1 - \frac{(P - P_m)}{P_m})$	P_m/P

where:

P_m = the comparative offer of the most favorable tender offer.
 P = the comparative offer of tender offer under consideration.

PRICING SCHEDULE

Refer Attached BoQ and include a high-level cost breakdown with your submission.

NOTE: The tender amount exclude VAT.

The **90/10 or 80/20 Preferential Point System** will be used to evaluate the bid.

Table 2: Preference Points Allocation (As per the Preferential Procurement regulations 2017)

- 1.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non –compliant contributor	0	0

The points scored by the tenderer in respect of the level of B-BBEE contribution must be added to the points scored for price.

F.3.11.6 Decimal places

Score financial offers, preferences, and quality, as relevant, to two decimal places.

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.3.13.1 Accept tender offer only if the tenderer satisfies the legal requirements stated in the Tender Data.

F.3.13.2 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. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the Employer and the successful tenderer as described in the form of offer and acceptance.

F.3.14 Prepare contract documents

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,

- c) Other revisions agreed between the Employer and the successful tenderer, and
- d) 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

After the successful tenderer has acknowledged the Employer's notice of acceptance, notify other tenderers that their tender offers have not been accepted.

F.3.18 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

T1.3 PREFERENTIAL PROCUREMENT REGULATIONS

Supply Chain Management Procedures

Lepelle Northern Water is committed to fair, equitable and transparent supply chain management procedures free of corruption of any nature. Should anybody suspect any irregularity of any sort they are requested to state their concerns in writing to the Chief Executive Officer of Lepelle Northern Water without delay. Should a satisfactory explanation or action not be forthcoming from the Chief Executive Officer the matter should be reported to the office of the Public Protector.

This Request for Proposals has been compiled and approved by the Bid Specification Committee of Lepelle Northern Water established in terms of the Public Finance Management Act and its Regulations.

The bids received will be evaluated by the Bid Evaluation Committee in terms of the bids evaluation criteria described in this document. The Committee will then submit a report on the bids received to the Bid Adjudication Committee.

The Bid Adjudication Committee will make a recommendation to the Accounting Officer or his delegate nominated in writing. The Accounting Officer will either accept the recommendation of the Bid Adjudication Committee or refer it back to the Bid Adjudication Committee for further investigation or award the contract to a different bidder. In the event that the contract is awarded to a different bidder from the one recommended by the Bid Adjudication Committee, the Auditor-General shall be informed of the reasons for the decision.

The above process will, depending upon the complexity of the project and the number of bids received, take between 4 and 6 weeks. Bidders are requested to refrain from making queries on progress and/or from submitting unsolicited information regarding their bids and especially from commenting on other bidders' proposals during this time. Lepelle Northern Water will endeavor to keep bidders informed of the progress of the process.

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BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



PART T2

RETURNABLE DOCUMENTS

T2.1 LIST OF RETURNABLE DOCUMENTS

The tender document must be completed in full. The information the tenderer shall supply in his/her tender or attached to his/her tender shall include, but not be limited to the documents and schedules as set out below.

1. Company registration certificated/ Copy of a sole trader (Copies must be certified)
2. Tax Clearance Certificate/s (Original and Valid)
3. Copies of Identity Documents of Partners and/or Directors (NOT COPIES OF CERTIFIED ID)
4. Letter of Good Standing (COIDA)
5. Company Profile
6. CIDB Registration Certificate/s
7. B-BBEE Certificate
8. Municipal current rates account not more than three months in arrears should be submitted

Schedule A	Certificate for authority of companies	*1
Schedule B	Record of Addenda to tender documents	*1
Schedule C	Relevant Work Experience carried out specific to this Project	*1
Schedule D	Tenderer Key Personnel and Project Specific Organogram. (Key personnel to sign declaration)	*1
Schedule E	Company Banking Details	*1
Schedule F	Full details of directors / trustees / members / shareholders	*1
Schedule G	Contractors' OHS Management system checklist	*2
Schedule H	Contractors Labour Content	*1
Schedule I	SMME Content	*2
SBD 1	Invitation to Tender	*2
SBD 2	Tax Clearance Certificate	*2
SBD 3.1	Pricing Schedule	*2
SBD 4	Declaration of interest	*2
SBD 6.1	Preference Points	*2
SBD 6.2	Declaration Certificate for Local Product and Content for Designated Sections	*2
SBD 8	Declaration of Past Supply Chain Management	*2
SBD 9	Certificate of Independent bid determination	*2

NOTES:

*1 - SCHEDULES/DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

*2 - SCHEDULES/DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

T2.2 RETURNABLE SCHEDULES

SCHEDULE A: CERTIFICATE OF AUTHORITY FOR COMPANIES

This Returnable Schedule is to be completed by companies and close corporations. Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for the relevant category.

A Company	C Joint Venture	E Close Corporation

B.1 Certificate for company

I, ..., managing director of the board of directors of hereby confirm that by resolution of the board taken on 20....., Mr./Ms , has been duly authorized to sign all documents in connection with this tender and any contract resulting from it on behalf of the company. As witnesses:
-

-
Managing Director
Date
- 2.
Witness
Date

B.2. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize Mr./Ms....., authorised signatory of the company , 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 of:

NAME OF FIRM	ADDRESS	AUTHORISING SIGNATURE, NAME & CAPACITY
Lead partner		

B.3 Certificate for close Corporation

We, the undersigned, being the key members in the business trading as
.....
hereby authorise Mr/Ms , to
sign all documents in connection with the tender and any contract resulting from it on our behalf of:

NAME	ADDRESS	SIGNATURE	DATE

NOTE: This certificate is to be completed and signed by all of the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.

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Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



SCHEDULE B: 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 considered in this tender offer:		
	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		

NOTE: Attach additional pages if more space is required.

Signed: Date:

Name: Position:

Tenderer:

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SCHEDULE C: RELEVANT WORK CARRIED OUT BY TENDERER

Provide successfully completed traceable projects in the “**completed traceable projects in the installation of mechanical and electrical components of waterpump stations**”. Relevant Completion Certificates (accompanied by a detailed scope of work subject to verification) must be attached for each project's as proof of Company Experience to score points.

Project Description	Contract Value (VAT excl)	Project Duration		Expenditure @ Completion	Reference		
		Start	Finish		Name:	Organization:	Tel No:

Name of Tendering Entity:

Signature:

DATE:

SCHEDULE D**TENDERER'S KEY PERSONNEL**

A Signed declaration/employment contract by proposed qualifying Contracts Manager, Site Manager, General Foreman and Safety Officer must be included on their CV's. No points will be allocated, if detailed CV's with relevant qualifications and the required declarations are not attached. Each candidate must expect to be called for verification, should the proposed candidate be not available during construction, a similar replacement or better must be made available immediately and an employer must be notified in advance. The Key Proposed Key Personnel Certification format to be used is on Page T2.2-42 to T2.2-45

The tenderer must bear in mind the competency and experience of key personnel required in this tender and that the remuneration for these key personnel must be fully included in the tendered rates.

Full Names & Surname	Position in the Project Organogram	Qualification	No Years of Relevant Experience

TENDERER:

SIGNATURE:

DATE:

PROJECT SPECIFIC ORGRANOGRAM

1. KEY PROPOSED KEY PERSONNEL CERTIFICATION – Contracts Manager

I, THE UNDERSIGNED (FULL NAMES OF PROPOSED KEY PERSONNEL):
..... CERTIFY THAT THE
INFORMATION FURNISHED ON THE CV IS CORRECT AND THAT I SHALL BE AVAILABLE FOR THE
PROJECT IN THE EVENT THAT MY EMPLOYER IS APPOINTED.

OUR ORGANISATION (FULL NAME OF COMPANY):
..... CERTIFY THAT
THE PROPOSED PERSONAL SHALL BE AVAILBLE AND IN THE EVENT THAT HE/SHE IS NOT
AVAILABLE IN THE EVENT OF APPOINTMENT, A SUITABLE REPLACEMENT SHALL BE MADE AVAILABLE FOR
DELOYEMENT TO THE PROJECT

.....
Signature of Proposed Staff

.....
Date

.....
Position as per Proposal

.....
Name of Company Rep:

.....
Signature by Company Rep.

2. KEY PROPOSED KEY PERSONNEL CERTIFICATION – Site Manager

I, THE UNDERSIGNED (FULL NAMES OF PROPOSED KEY PERSONNEL):
..... CERTIFY THAT THE
INFORMATION FURNISHED ON THE CV IS CORRECT AND THAT I SHALL BE AVAILABLE FOR THE
PROJECT IN THE EVENT THAT MY EMPLOYER IS APPOINTED.

OUR ORGANISATION (FULL NAME OF COMPANY):
..... CERTIFY THAT
THE PROPOSED PERSONAL SHALL BE AVAILABLE AND IN THE EVENT THAT HE/SHE IS NOT
AVAILABLE IN THE EVENT OF APPOINTMENT, A SUITABLE REPLACEMENT SHALL BE MADE AVAILABLE FOR
DELOYEMENT TO THE PROJECT

.....
Signature of Proposed Staff

.....
Date

.....
Position as per Proposal

.....
Name of Company Rep:

.....
Signature by Company Rep.

3. KEY PROPOSED KEY PERSONNEL CERTIFICATION – General Foreman

I, THE UNDERSIGNED (FULL NAMES OF PROPOSED KEY PERSONNEL):
..... CERTIFY THAT THE
INFORMATION FURNISHED ON THE CV IS CORRECT AND THAT I SHALL BE AVAILABLE FOR THE
PROJECT IN THE EVENT THAT MY EMPLOYER IS APPOINTED.

OUR ORGANISATION (FULL NAME OF COMPANY):
..... CERTIFY THAT
THE PROPOSED PERSONAL SHALL BE AVAILABLE AND IN THE EVENT THAT HE/SHE IS NOT
AVAILABLE IN THE EVENT OF APPOINTMENT, A SUITABLE REPLACEMENT SHALL BE MADE AVAILABLE FOR
DELOYEMENT TO THE PROJECT

.....
Signature of Proposed Staff

.....
Date

.....
Position as per Proposal

.....
Name of Company Rep:

.....
Signature by Company Rep.

SCHEDULE E**COMPANY BANKING DETAILS**

1. Complete Name :
(Business)
- Registered Address :
- Registration No. :
- Type of Business :

Indicate with an "X"

One-man Business	Partnership	Private Company	Closed Corporation	Joint Venture	Consortium	Others

- Date registered :
- Tel. No. : (W) Code: No.:
- Cell No. :
- Fax No. : Code: No.:
- E-mail :

2. AUTHORIZED / CONTACT PERSON

- Name :
- Title :

3. FINANCIAL DETAIL**(1) Bank detail**

Bank Rating (Provide stamped confirmation letter from the bank)

Bank :

Branch :

Account Name:

Account No. :

Contact person at bank:

Tel No. :

E-mail No. :

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SCHEDULE F

FULL DETAILS OF DIRECTORS / TRUSTEES / MEMBERS / SHAREHOLDERS

Full Name	Identity Number	Personal Tax Reference Number	State Employee Number / Perusal Number



SCHEDULE G: CONTRACTORS' OHS MANAGEMENT SYSTEM CHECKLIST

		YES / NO
1.	OHS Policy and Management	
1.1	Is there a written company health and safety policy?	☐ ☐
1.2	Does the company have an OHS Management System?	☐ ☐
1.3	Is there a company OHS Management System manual or plan?	☐ ☐
1.4	Are health and safety responsibilities clearly identified for all levels of staff?	☐ ☐
2.	Safe Work Practices and Procedures	
2.1	Has the company prepared safe operating procedures or specific safety instructions relevant to its operations?	☐ ☐
2.2	Does the company have any permit to work systems?	☐ ☐
2.3	Is there a documented incident investigation procedure?	☐ ☐
2.4	Are there procedures for maintaining, inspecting and assessing the hazards of plant operated/ owned by the company?	☐ ☐
2.5	Are there procedures for storing and handling hazardous substances?	☐ ☐
2.6	Are there procedures for identifying, assessing and controlling risks associated with manual handling?	☐ ☐
1.	OHS Training	
3.1	Is health and safety training conducted in the company	☐ ☐
3.2	Is a record maintained of all training and induction programs undertaken for employees in the company?	☐ ☐
2.	Health and Safety Workplace Inspection	
4.1	Are regular health and safety inspections at worksites undertaken?	☐ ☐
4.2	Are standard workplace inspection checklists used to conduct health and safety inspections?	☐ ☐
4.3	Is there a procedure by which employees can report hazards at workplaces?	☐ ☐
5.	Health and Safety Consultation	☐ ☐

5.1 Is there a workplace health and safety committee?

5.2 Are employees involved in decision making over OHS matters?

5.3 Are there employee elected health and safety representatives?

☐ ☐

3. OHS Performance Monitoring

6.1 Is there a system for recording and analyzing health and safety performance statistics?

☐ ☐

6.2 Are employees regularly provided with information on company health and safety performance?

☐ ☐

6.3 Has the company ever been convicted of an occupational health and safety offence?

☐ ☐

7. Health and Safety Plan for this specific contract

7.1 Does your company's health and safety plan contain the following elements?

☐ ☐

- a) Description of contract
- b) OHS structure for work undertaken under this contract
- c) Induction and safety training
- d) Safe work practices and procedures for specific work undertaken
- e) Risk assessment for specific work undertaken
- f) Workplace inspection schedule for duration of contract
- g) OHS consultative processes to be followed
- h) Emergency procedures for specific contract
- i) Incident recording and investigation procedures
- j) Health and safety performance monitoring arrangements to be implemented during contract

Signed:

Name:

Position:

SCHEDULE H: CONTRACTOR LABOUR CONTENT

The tenderer shall complete the table below to reflect the labor force anticipated to be employed on this contract, including labor employed by sub-contractors.

The specified minimum target value is 10% of Tendered Sum

TYPE OF LABOUR	MAN-HOURS	TOTAL WAGE COST (EXCL. VAT)
Permanent Labor		
Temporary Labor		
SMME/BEE's Labor		
TOTAL		
PERCENTAGE (%)		

Note to tenderer: Labor is defined as hourly paid personnel

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

SCHEDULE I: SMME CONTENT

The Employer requires active participation of Small, Micro and Medium Enterprises (SMMEs) as defined in the Small Business Act, 1996 as amended from time to time, and these must be from within the various Local Municipalities or Districts or Limpopo Province. Therefore, the Tenderer must complete the table below stating the nature of Works to be subcontracted to SMMEs and value of such Works.

We notify you that it is our intention to employ SMMEs for the following Works in this contract. If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the name of proposed subcontractors in accordance with requirements in the contract for such appointments.		
Item No	Description of the Works	Value of Work
1.		
2.		
3.		
4.		
5.		

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

SCHEDULE J**CONTRACTORS' ESTIMATED MONTHLY EXPENDITURE**

The tenderer shall state his estimated value of the work to be completed every month, based on his preliminary Programme and his tendered unit rates, in the table below.

MONTH NO.	VALUE
1:	R
2:	R
3:	R
4:	R
5:	R
6:	R
7:	R
8:	R
9:	R
10:	R
11:	R
12:	R
TOTAL	R

SIGNED ON BEHALF OF TENDERER:

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SBD1

INVITATION TO BID YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF LEPELLE NORTHERN WATER

PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE LEPELLE NORTHERN WATER					
BID NUMBER:	LNW 14/22/23	CLOSING DATE:	31 st January 2023	CLOSING TIME:	11H00am
DESCRIPTION	SUPPLY OF CONSTRUCTION PLANT AND EQUIPMENT (RE-ADVERT)				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT NO.01 LANDROS MARE STREET					
LEPELLE NORTHERN WATER HEAD OFFICE					
01 LANDROS MARE SREET					
POLOKWANE					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Rose Mulaudzi		CONTACT PERSON	Musa Ngoveni	
TELEPHONE NUMBER	015 295 1800		TELEPHONE NUMBER	015 2951906	
FACSIMILE NUMBER			FACSIMILE NUMBER		
E-MAIL ADDRESS	rosem@lepelle.co.za		E-MAIL ADDRESS	musan@lepelle.co.za	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	TICK APPLICABLE BOX] ☐ Yes ☐ No	
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) 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]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES, ANSWER PART B:3]	
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					

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IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES	☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES	☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES	☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES	☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES	☐ NO
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.		



PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:	
1.1.	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2.	ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3.	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4.	THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS	
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3	APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7	NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:
(Proof of authority must be submitted e.g. company resolution)

DATE:

SBD 2

TAX CLEARANCE CERTIFICATE REQUIREMENTS

1. It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.
2. In order to meet this requirement bidders are required to complete in full the attached form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.
3. SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
4. The original Tax Clearance Certificate must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.
5. In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.
6. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.
7. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.efiling.gov.za.

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TAX CLEARANCE

TCC 001

Application for a Tax Clearance Certificate

Purpose

Select the applicable option ☐ Tenders ☐ Good standing ☐

If "Good standing", please state the purpose of this application

Particulars of applicant

Name/Legal name (Initials & Surname or registered name)											
Trading name (if applicable)											
ID/Passport no						Company/Close Corp. registered no					
Income Tax ref no						PAYE ref no	7				
VAT registration no	4					SDL ref no	L				
Customs code						UIF ref no	U				
Telephone no	CODE		NUMBER		Fax no	CODE		NUMBER			
E-mail address											
Physical address											
Postal address											

Particulars of representative (Public Officer/Trustee/Partner)

Surname											
First names											
ID/Passport no						Income Tax ref no					
Telephone no	CODE		NUMBER		Fax no	CODE		NUMBER			
E-mail address											
Physical address											

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Particulars of tender (If applicable)

Tender number																	
Estimated Tender amount	R																
Expected duration of the tender			year(s)														
Particulars of the 3 largest contracts previously awarded																	
Date started	Date finalised	Principal				Contact person	Telephone number				Amount						

Audit

Are you currently aware of any Audit investigation against you/the company? **YES** **NO**

If "YES" provide details

Appointment of representative/agent (Power of Attorney)

I the undersigned confirm that I require a Tax Clearance Certificate in respect of Tenders or Goodstanding.

I hereby authorise and instruct to apply to and receive from SARS the applicable Tax Clearance Certificate on my/our behalf.

Signature of representative/agent

Date

Name of representative/agent

Declaration

I declare that the information furnished in this application as well as any supporting documents is true and correct in every respect.

Signature of applicant/Public Officer

Date

Name of applicant/Public Officer

Notes:

1. It is a serious offence to make a false declaration.
2. Section 75 of the Income Tax Act, 1962, states: Any person who
 - (a) fails or neglects to furnish, file or submit any return or document as and when required by or under this Act; or
 - (b) without just cause shown by him, refuses or neglects to-
 - (i) furnish, produce or make available any information, documents or things;
 - (ii) reply to or answer truly and fully, any questions put to him ...As and when required in terms of this Act ... shall be guilty of an offence ...
3. SARS will, under no circumstances, issue a Tax Clearance Certificate unless this form is completed in full.
4. Your Tax Clearance Certificate will only be issued on presentation of your South African Identity Document or Passport (Foreigners only) as applicable.

SBD 3.1

**PRICING SCHEDULE – FIRM PRICES
(PURCHASES)**

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of bidder.....	Bid number.....
Closing Time 11:00	Closing date.....

OFFER TO BE VALID FOR DAYS FROM THE CLOSING DATE OF BID.

ITEM NO	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY ** (ALL APPLICABLE TAXES INCLUDED)
-	Required by:		
-	At:		
-	Brand and model		
-	Country of origin		
-	Does the offer comply with the specification(s)?		*YES/NO
-	If not to specification, indicate deviation(s)		
-	Period required for delivery		*Delivery: Firm/not firm
-	Delivery basis		

Note: All delivery costs must be included in the bid price, for delivery at the prescribed destination.

** "all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

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ANNEXURE B

SBD 4

.....
Position.....
Name of bidder**SBD 6.1**

**PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT
REGULATIONS 2017**

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

1. GENERAL CONDITIONS

1.2 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of below R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.31.3

- a) The value of this bid is estimated to exceed/not exceed R50 000 000 (all applicable taxes included) and therefore the **...80/20 or 90/10...** preference point system shall be applicable; or
- b) Either the 80/20 or 90/10 preference point system will be applicable to this tender (*delete whichever is not applicable for this tender*).

1.4 Points for this bid shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contributor.

1.5 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	
B-BBEE STATUS LEVEL OF CONTRIBUTOR	
Total points for Price and B-BBEE must not exceed	100

1.6 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.7 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at

any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
 - 1) B-BBEE Status level certificate issued by an authorized body or person;
 - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

$$\begin{array}{ccc}
 \text{80/20} & \text{or} & \text{90/10} \\
 P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) & \text{or} & P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)
 \end{array}$$

Where

P_s = Points scored for price of bid under consideration
 P_t = Price of bid under consideration
 $P_{\min}$ = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: . = ... (maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)

YES	☐	NO	☐

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....

iii) The B-BBEE status level of the sub-contractor.....

iv) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

YES		NO	

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2017:

Designated Group: An EME or QSE which is at least 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

Y Partnership/Joint Venture / Consortium

Y One person business/sole propriety

Y Close corporation

Y Company

Y (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....
.....
.....
.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
☐ Supplier
☐ Professional service provider
☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]



8.7 MUNICIPAL INFORMATION

Municipality where business is situated:

Registered Account Number:

Stand Number:.....

8.8 Total number of years the company/firm has been in business:.....

8.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

WITNESSES

- 1.
- 2.

SBD

SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS

.....

.....

SBD 6.2

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Standard Bidding Document (SBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

- 1.1. Preferential Procurement Regulations, 2011 (Regulation 9) makes provision for the promotion of local production and content.
- 1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3. Where necessary, for bids referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as indicated in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on [http://www.thedti.gov.za/industrial development/ip.jsp](http://www.thedti.gov.za/industrial%20development/ip.jsp) at no cost.

- 1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

2. Definitions

- 2.1. **“bid”** includes written price quotations, advertised competitive bids or proposals;
- 2.2. **“bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3. **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4. **“designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5. **“duly sign”** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).
- 2.6. **“imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour or intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7. **“local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8. **“stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9. **“sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content (refer to Annexure A of SATS 1286:2011) for this bid is/are as follows:

Description of services, works or goods

Stipulated minimum threshold

Refer to Table A

<i>Various valve products</i>	70%
<i>Various pipes and other products</i>	80%
Cable products: <i>cables used for power transmission and cables use for telecommunication.</i>	90%

4. Does any portion of the services, works or goods offered have any imported content?
(**Tick applicable box**)

YES	☐	NO	☐



- 4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

5. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

DECLARATION

I, THE UNDERSIGNED (NAME).....
CERTIFY THAT THE INFORMATION FURNISHED IN SECTION 3; 4 AND 4.1 ABOVE IS
CORRECT. I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME
SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of bidder

LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO.

ISSUED BY: (Procurement Authority / Name of Institution):

.....
 NB

- 1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
- 2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thdti.gov.za/industrialdevelopment/ip.jsp>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ... (full names),
 do hereby declare, in my capacity as
 of (name of bidder entity),
 the following:

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that:
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.



- (d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

T2.3 DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT

PROJECT NAME: Phase 1B: CONSTRUCTION OF MAWA 8 & MOOKGO 6 BOOSTER PUMP STATIONS FOR ELECTRICAL AND MECHANICAL WORKS

Table 2 : Local Content Table

ITEM	SPECIFICATIONS AND IDENTIFICATION	MINIMUM % FOR LOCAL CONTENT PER UNIT
1	Various Valve products	70%
2	Various pipes and other products	80%
3	Cable products: cables used for power transmission and cables use for telecommunication.	90%

TABLE A Above: List of items listed above to be procured indicating the minimum local content threshold.

- Bidders are expected to fill in the SBD 6.2 section and Annexures C (Local Content Declaration - Summary Schedule), D (Imported Content Declaration - Supporting Schedule to Annexure C) and E (Local Content Declaration - Supporting Schedule to Annexure C). All the BOQ within the local content list must be filled in on the annexures listed. **Failure to sign and list the items above will lead to disqualification of the bid document.**

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



SATS 1286.2011

Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	LNW 03/21/22
(C2)	Tender description:	Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations - Electrical And Mechanical Works
(C3)	Designated product(s)	Steel & uPVC pipes, fittings & valves, cables, motors and pumps
(C4)	Tender Authority:	Lepelle Northern Water
(C5)	Tendering Entity name:	
(C6)	Tender Exchange Rate:	Pula EU GBP
(C7)	Specified local content %	

Note: VAT to be excluded from all calculations

Calculation of local content								Tender summary			
Tender no's	List of Items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per)	Tender Qty	Total tender value	Total exempted imported content	Total imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
3,1	200 NB, Straight pipe one end flanged, the other plain for cutting to							1			
3,2	200 NB, Flange adaptor, PN16							3			
3,3	200 NB, Butterfly valve, PN16							1			
3,4	200 To 100 NB, 60° unequal lateral tee., all ends flanged, PN16							2			
3,5	200 NB, Straight pipe one end flanged other plain for cutting to suit							2			
3,6	100 NB, Straight pipe one end flanged and the other plain cut to							2			
3,7	100 NB, Flange adaptor, PN 16							2			
3,8	100 NB, Premier resilient seal gate valve (SABS665), PN 16							2			
3,9	100 NB, Straight pipe one end flanged, other plain for cutting to							2			
3,10	100 to 65 NB, Eccentric reducer both ends flanged, PN 16							2			
3,11	Electric pump drive motor 24.3kW							2			
3,12	Pump with duty of 36m ³ /h at 2900rpm, against 160m of head, with efficiency of 65%							2			
3,13	60 to 80 NB, Concentric reducer, flanged, PN 40							2			
3,14	80 NB, Anchored flange adaptor, PN 40							4			
3,15	80 NB, Non return valve PN 40							2			
3,16	80 NB, 90° short radius elbow, PN 40							2			

Tender No: LNW 02/22/23

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Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

Tender no's	List of Items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
3,17	80 NB, Premier resilient seal gate valve (SABS665). PN40							2			
3,18	80 NB, Straight pipe one end flanged, the other plain for cutting to							1			
3,19	200 to 80 NB, Reducing Tee SABS 719, PN40							2			
3,20	80 NB, 60° Medium radius bend, both ends flanged. PN 40							2			
3,21	280 to 200 NB, Concentric reducer. PN 40							2			
3,22	200 NB, Straight pipe one ends flanged, the other plain for cutting to							2			
3,23	200 NB, Anchored adaptor flange. PN 40							1			
3,24	200 to 80 NB, 60° unequal lateral tee. All ends flanged. PN40							1			
3,25	80 NB, Straight pipe both ends flanged. PN40							1			
3,26	200 NB, Straight pipe both ends flanged. PN40							1			
3,27	200 NB, Medium radius 45° bend both ends flanged. PN40							2			
3,28	200 NB, Straight pipe both ends flanged, puddle flange as shown							1			
3,29	200 NB, Flange adaptor PN40							1			
3,30	200 NB, Straight pipe one end flanged, for cutting on site to suit							1			
3,31	200 NB, Flange Adaptor. PN 16							3			
3,32	200 NB, Mechanical Turbine Flow Meter. PN16							1			
3,33	200 NB, Straight pipe both end flanged. Restraining flange as							1			
3,34	200 NB, Straight pipe both plain X42							3			

(C20) Total tender value

(C21) Total Exempt imported content

(C22) Total Tender value net of exempt imported content

(C23) Total Imported content

(C24) Total local content

(C25) Average local content % of tender

Signature of tenderer from Annex B

Date:

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

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Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	LNW 03/21/22
(C2)	Tender description:	Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations - Electrical And Mechanical Works
(C3)	Designated product(s)	Steel & uPVC pipes, fittings & valves, cables, motors and pumps
(C4)	Tender Authority:	Lepelle Northern Water
(C5)	Tendering Entity name:	
(C6)	Tender Exchange Rate:	Pula EU GBP
(C7)	Specified local content %	

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
4,1	400 V MCC, 40 kA, as per Single Line Diagram and specifications. MCC to 700kVA, 400V, 50Hz, 3 Phase, Diesel Generator, complete with							1			
4,2	Transformer, 22000/400V, 1250 kVA, Dyn11, with supports and fencing							1			
4,3	Ground Mounted Bulk Metering Unit for Metering, mounted next to							1			
4,4	MV ring Main Unit at Ekurhuleni supply point - 3 way with 630A							1			
4,7	600mm wide rack (3m sections)							12			
4,8	200mm wide rack (3m sections)							20			
4,9	100 x 50 PFC Channel							25			
4,10	25mm x 25mm x 3mm angle							25			
4,11	OL1000 hot dip galvanized 6000mm							15			
4,12	150mm2 x 4C PVC/SWA/PVC - From MCC/VSD to 250 kW Motors							240			
4,13	185mm2 x 4C PVC/SWA/PVC - From transformer to MCC - 6 runs							300			
4,14	185mm2 x 4C PVC/SWA/PVC - From Generator to MCC - 6 runs.							300			
4,15	MV 185mm2 from connection to transformer RMU							80			
4,16	150mm2 x 4C PVC/SWA/PVC - From MCC/VSD to 250 kW Motors							12			
4,17	185mm2 x 4C PVC/SWA/PVC - From transformer to MCC - 6 runs							12			

Tender No: LNW 03/21/22

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Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works

Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
4,18	185mm2 x 4C PVC/SWA/PVC - From Generator to MCC - 6 runs.							12			
4,19	MV 185mm2 from municipal connection to transformer RMU							6			
4,20	Field Handstations - 3 position switch							3			
4,21	Welding socket-outlets complete							2			
4,22	5 Core 10 mm ²							60			
4,23	16amp 3-pin hose proof socket- outlet							10			
4,24	Galvanized Conduit - Internal Diameter 25mm							100m			
4,25	Galvanized Conduit bends - Internal Diameter 25mm							8			
4,26	Galvanized Conduit inspection boxes - Internal Diameter 25mm							7			
4,27	TYPE B - round wall mounted bulkhead 2x18W CFL							9			
4,28	TYPE A1 - Surface mounted moisture proof (IP65) 2x54 W T5							24			
4,29	Photocell as per Specifications							1			
4,30	Single Way 16A							2			
4,31	Two Way 16A							4			
4,32	4 way x size1 termination box							20			
4,33	100mm x 100mm plate							20			
4,34	4mm x 3 core							20			
4,35	2.5mm x 3core							10			
4,36	50mm x 50mm x 5mm angle							100			
4,37	25mm x 25mm x 3mm angle							100			
4,39	Cable, 16mm ² Cu/PVC insulated copper cable							50			
4,40	70mm2 BCEW							300			
4,41	1m long earth rods, 16mm diameter buried in ground							24			
4,42	Equipotential Busbar with insulators (300x50mm)							1			

Tender No: LNW 02/22/23

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Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
4,43	Exothermic Welds and T-joints							16			
4,44	Mast, lightning protection, galvanized steel - 18m							3			
4,45	Cast Iron Earth well inspection box							4			

(C20) Total tender value

Signature of tenderer from Annex B

(C21) Total Exempt imported content

(C22) Total Tender value net of exempt imported content

(C23) Total Imported content

(C24) Total local content

(C25) Average local content % of tender

Date:

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

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Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	LNW 03/21/22
(C2)	Tender description:	Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations - Electrical And Mechanical Works
(C3)	Designated product(s)	Steel & uPVC pipes, fittings & valves, cables, motors and pumps
(C4)	Tender Authority:	Lepelle Northern Water
(C5)	Tendering Entity name:	
(C6)	Tender Exchange Rate:	Pula EU GBP
(C7)	Specified local content %	

Note: VAT to be excluded from all calculations

Calculation of local content								Tender summary			
Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
5.1	Item 1 - 500 NB, Straight pipe one end flanged, other plain to cut to suit							1			
5.2	Item 2 - 500 NB, Flange adaptor. PN16							4			
5.3	Item 3 - 500 NB, Butterfly valve. PN16							1			
5.4	Item 4 - 500 to 250 NB, 60° unequal lateral tee, all ends flanged. PN16							3			
5.5	Item 5 - 500 NB, Straight pipe one end flanged other plain for cutting to							2			
5.6	Item 6 - 250 NB, Straight pipe one end flanged and the other plain cut							3			
5.7	Item 7 - 250 NB, Flange adaptor. PN 16							6			
5.8	Item 8 - 250 NB, Premier resilient seal gate valve (SAB5665). PN 16							3			
5.9	Item 9 - 250 NB, Straight pipe one end flanged, other plain for cutting							3			
5.10	Item 10 - 250 to 150 NB, Eccentric reducer both ends flanged. PN 16							3			
5.11	Electric pump drive motor							3			
5.12	Pump with duty of 397m ³ /h, at 3500 rpm, against 155m of head, with efficiency of 80%							3			
5.13	Item 13 - 200 to 125 NB, Concentric reducer, flanged. PN 40							3			
5.14	Item 14 - 200 NB, Anchored flange adaptor. PN 40							3			
5.15	Item 15 - 200 NB, Non-return, flanged. PN 40							3			
5.16	Item 16 - 200 NB, 90° medium radius elbow. PN 40							3			

Tender No: LNW 03/21/22

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Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works

Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
5.17	Item 17 - 200 NB, Premier resilient seal gate valve (SABS665). PN40							3			
5.18	Item 18 - 200 NB, Anchored adaptor flange PN40							3			
5.19	Item 19 - 200 NB, Straight pipe one end flanged, other plain for cutting							1			
5.20	Item 20 - 200NB to 80 ø, Reducing tee SABS 719 PN40							3			
5.21	Item 21 - 200 NB, 60° Medium radius bend, both ends flanged. PN 16							1			
5.22	Item 22 - 200 to 350 NB, Concentric reducer. PN 40							1			
5.23	Item 23 - 350 NB, Straight pipe one ends flanged, the other plain for							1			
5.24	Item 24 - 350 NB, Anchored adaptor flange. PN 40							2			
5.25	Item 25 - 200 NB, Straight pipe one end flanged, other plain for cutting							2			
5.26	Item 26 - 200 to 350 NB, 60° unequal lateral tee All ends flanged. PN40							2			
5.27	Item 27 - 350 NB, Straight pipe one end flanged, the other plain for							1			
5.28	Item 28 - 350 NB, Medium radius 45° bend both ends flanged PN40							2			
5.29	Item 29 - 350 NB, Straight pipe both ends flanged, puddle flange as							1			
5.30	Item 30 - 350 NB, Straight pipe both ends flanged, PN40							1			
5.31	Item 31 - 500 NB, Loose flange PN16							1			
5.32	Item 32 - 80 NB, Premier resilient seal gate valve (SABS 665)							3			
5.33	Item 33 - 80 NB, Air valve double orifice							3			
5.34	Item 1 - 400 / 406 NB, Straight pipe both ends flanged , restraining							1			
5.35	Item 2 - 400NB Sweep Tee Flanged, medium radius 70 Degree, PN10							1			
5.36	Item 3 - 400/150NB Eccentric reducer flanged PN10							1			
5.37	Item 4 - 400NB Straight Pipe both end flanged, restraining flange as							1			
5.38	Item 5 - 100 NB Two section 60 Degree Bend PN10							1			
5.39	Item 6 - 100NB Resilient Seal gate Valve Flanged PN10							1			
5.40	Item 7 - 100 NB, Flanged Adaptor PN 10							1			

Tender No: LNW 03/21/22

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works

Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
5.41	item 8 - 100NB Straight Pipe one end flanged, other for cutting on site to							1			
5.42	item 9 - 100NB Mechanical Turbine Flow Meter, PN10							1			
5.43	item 10 - 100NB, Straight pipe both ends flanged restraining flange as							1			
5.44	item 11 - 100 NB, SG Flange Adaptor, PN10							1			
5.45	item 12 - 150/165 & 100/114 Unequal Tee 60 degree PN10							1			
5.46	item 13 - 150 NB, Resilient Seal Gate Valve, Flanged, PN 10							1			
5.47	item 14 - 150 NB, Flanged adaptor, PN 10							1			
5.48	item 15 - 150/165 NB, Straight pipe one end flanged, other plain for							1			
5.49	item 16 - 150 NB, Mechanical turbine flow meter PN10							1			
5.50	item 17 - 150/165 NB, Straight pipe both end flanged, restraining flange							1			
5.51	item 18 - 100 NB, SG flange adaptor, PN10							1			
5.52	item 19 - 450/406 NB, Straight pipe one end flanged, the other for							1			
5.53	item 1 - 350/356 NB, Straight pipe one end flanged, for cutting on site							1			
5.54	item 2 - 350 NB, Flange Adaptor, PN 40							1			
5.55	item 3 - 350 NB, Mechanical Turbine Flow Meter PN40							1			
5.56	item 4 - 350/356 NB, Straight pipe both end flanged Restraining flange							1			

(C20) Total tender value

(C21) Total Exempt imported content

(C22) Total Tender value net of exempt imported content

(C23) Total Imported content

(C24) Total local content

(C25) Average local content % of tender

Signature of tenderer from Annex B

Date:

Tender No: LNW 03/21/22

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works

SATS 1286,2011

Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.	LNW 03/21/22
(C2)	Tender description:	Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations - Electrical And Mechanical Works
(C3)	Designated product(s)	Steel & uPVC pipes, fittings & valves, cables, motors and pumps.
(C4)	Tender Authority:	Lepelle Northern Water
(C5)	Tendering Entity name:	
(C6)	Tender Exchange Rate:	Pula EU GBP
(C7)	Specified local content %	

Note: VAT to be excluded from all calculations

		Calculation of local content						Tender summary			
Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
6.1	400 V MCC, 40 kA, as per Single Line Diagram and specifications. MCC to 700kVA, 400V, 50Hz, 3 Phase, Diesel Generator, complete with							1			
6.2	Transformer, 22000/400V, 1250 kVA, Dyn11, with supports and fencing							1			
6.3	Ground Mounted Bulk Metering Unit for Metering, mounted next to							1			
6.4	MV ring Main Unit at Ekurhuleni supply point - 3 way with 630A							1			
6.7	600mm wide rack (3m sections)							12			
6.8	200mm wide rack (3m sections)							20			
6.9	100 x 50 PFC Channel							25			
6.10	25mm x 25mm x 3mm angle							25			
6.11	OL1000 hot dip galvanized 6000mm							15			
6.12	150mm ² x 4C PVC/SWA/PVC - From MCC/VSD to 250 kW Motors							240			
6.13	185mm ² x 4C PVC/SWA/PVC - From transformer to MCC - 6 runs							300			
6.14	185mm ² x 4C PVC/SWA/PVC - From Generator to MCC - 6 runs.							300			
6.15	MV 185mm ² from connection to transformer RMU							80			
6.16	150mm ² x 4C PVC/SWA/PVC - From MCC/VSD to 250 kW Motors							12			
6.17	185mm ² x 4C PVC/SWA/PVC - From transformer to MCC - 6 runs							12			

Tender No: LNW 03/21/22

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works

Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
6.18	185mm ² x 4C PVC/SWA/PVC - From Generator to MCC - 6 runs.							12			
6.19	MV 185mm ² from municipal connection to transformer RMU							6			
6.20	Field Handstations - 3 position switch							3			
6.21	Welding socket-outlets complete							2			
6.22	5 Core 10 mm ²							60m			
6.23	16amp 3-pin hose proof socket- outlet							10			
6.24	Galvanized Conduit - Internal Diameter 25mm							100m			
6.25	Galvanized Conduit bends - Internal Diameter 25mm							8			
6.26	Galvanized Conduit inspection boxes - Internal Diameter 25mm							7			
6.27	TYPE B - round wall mounted bulkhead 2x18W CFL							9			
6.28	TYPE A1 - Surface mounted moisture proof (IP65) 2x54 W TS							24			
6.29	Photocell as per Specifications							1			
6.30	Single Way 16A							2			
6.31	Two Way 16A							4			
6.32	4 way x size1 termination box							20			
6.33	100mm x 100mm plate							20			
6.34	4mm x 3 core							20			
6.35	2.5mm x 3core							10			
6.36	50mm x 50mm x 5mm angle							100m			
6.37	25mm x 25mm x 3mm angle							100m			
6.39	Cable, 16mm ² Cu/PVC insulated copper cable							50m			
6.40	70mm ² BCEW							300m			
6.41	1m long earth rods, 16mm diameter buried in ground							24			
6.42	Equipotential Busbar with insulators (300x50mm)							1			

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

Tender no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
6.43	Exothermic Welds and T-joints							16			
6.44	Mast, lightning protection, galvanized steel - 18m							3			
6.45	Cast Iron Earth well inspection box							4			
6.55	Magnetic Flow Meters							2			
6.56	Level Switch							2			
6.57	Pressure Transmitter							8			
6.58	Valve Limit Switch							4			
6.59	Ultrasonic Level Transmitter							3			
6.60	E&I Interface Junction Box (SS304)							4			
6.61	PLC Hardware							1			
6.62	HMI Hardware							1			
6.64	Single Pair, 1.5mm2, PVCSWAPVC to instruments							1000m			
6.65	Multi-pair, 1.5mm2, PVCSWAPVC to to Generator							50m			
6.66	4mm2 24 core PVCSWAPVC to Junction Box							20m			
6.67	4mm2 4 core PVCSWAPVC to Hand-Stations							160m			
6.68	4mm2 8 core PVCSWAPVC to MCC Bucket							100m			
								(C20) Total tender value			
								(C21) Total Exempt imported content			
								(C22) Total Tender value net of exempt imported content			
								(C23) Total Imported content			
								(C24) Total local content			
								(C25) Average local content % of tender			

Signature of tenderer from Annex B _____

Date: _____

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works



SATS 1286.2011

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1) Tender No: LNW 03/21/22
(D2) Tender description: Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations - Electrical And Mechanical Works
(D3) Designated Products: Steel & uPVC pipes, fittings & valves, cables, motors and pumps
(D4) Tender Authority: Lepelle Northern Water
(D5) Tendering Entity name:
(D6) Tender Exchange Rate: Pula EU GBP

Note: VAT to be excluded from all calculations

A. Exempted imported content

				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)
										(D19) Total exempt imported value	

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

				Calculation of imported content						Summary	
Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT		Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	
										(D32) Total imported value by tenderer	

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works



C. Imported by a 3rd party and supplied to the Tenderer

				Calculation of imported content						Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)
										(D45) Total imported value by 3rd party	

D. Other foreign currency payments

			Calculation of foreign currency payments		Summary of payments
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange	
(D46)	(D47)	(D48)	(D49)	(D50)	(D51)
					(D52) Total of foreign currency payments declared by tenderer and/or 3rd party

Signature of tenderer from Annex B

Date:

(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above

This total must correspond with
Annex C - C 23

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1) Tender No. LNW 03/21/22
 (E2) Tender description: Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations - Electrical And Mechanical Works
 (E3) Designated products: Steel & uPVC pipes, fittings & valves, cables, motors and pumps
 (E4) Tender Authority: Lepelle Northern Water
 (E5) Tendering Entity name:

Note: VAT to be excluded from all calculations

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
(E9) Total local products (Goods, Services and Works)			

(E10) Manpower costs (Tenderer's manpower cost)

(E11) Factory overheads (Rental, depreciation & amortisation, utility costs, consumables etc.)

(E12) Administration overheads and mark-up (Marketing, insurance, financing, interest etc.)

(E13) Total local content

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



PART C1

AGREEMENT AND CONTRACT DATA

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

C1.1 FORM OF OFFER AND ACCEPTANCE

The Employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

**Project Name: LNW 02/22/23 - BABANANA WATER PROJECT RS 135 -
Phase 1B: - Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical and
Mechanical Works (Re-Advert)**

The tenderer, identified in the offer signature block, has examined the documents listed in the Tender Data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorized, 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 PRICES INCLUSIVE OF VALUE ADDED TAX IS:

.....

.....Rands (in words);

R..... (in figures)

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

Date

Name

Capacity

FOR THE TENDERER

(Name and address of organization)

Name and signature of witness

.....

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 C1: Contract Data, (which includes this agreement)

Part C2: Pricing data

Part C3: Scope of work.

Part C4: Site information

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto as 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.

The tenderer shall within 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. 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 one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five working 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 Date

Name

Capacity

FOR THE EMPLOYER

Name and signature of witness

.....

Date

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)

Schedule of Deviations (To be filled in if there are any Deviations or Alternatives accepted)

1. Subject	:	
Details	:	
2. Subject	:	
Details	:	
3. Subject	:	
Details	:	
4. Subject	:	
Details	:	
5. Subject	:	
Details	:	

By the duly authorized representatives signing this agreement, 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 changes 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.

(To be signed only if there are any Deviations listed above)

Signature Date

Name

Capacity

FOR THE TENDERER

(Name and address of organization)

Name and signature of witness

.....

Date

Signature

Date

Name

Capacity

FOR THE EMPLOYER

Name and signature of witness

.....

Date

C1.2 CONTRACT DATA

The contractor shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts, published in Gazette Notice No.43495 of 3 July 2020.

The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction works Contracts Gazette Notice No.36190 of 25 February 2013.

The General Conditions of Contract for Construction Works Third Edition (2015) published by the South African Institution of Civil Engineering, is applicable to this contract. Copies of these General Conditions of Contract may be obtained from the South African Institution of Civil Engineering:

Block 19, Thornhill Office Park
Bekker Street, Vorna Valley,
Midrand.
Private Bag X200, Halfway House. 1685
Tel: 011-805 5947
Fax: 011-805 5971

C1.2.1 Contract Specific Data.

The following contracts data are applicable to this contract:

REFERENCE TO:	CLAUSE.	DATA
Contractor.	1.1.1.9	<i>Contractor to be appointed by Lepelle Northern Water</i>
Defect liability Period	1.1.1.13	<i>The defect liability period shall be 12 months.</i>
Due Completion Date	1.1.1.14	<i>The Works shall be completed within 12 calendar months as envisaged by the employer.</i>
Employer.	1.1.1.15	<i>Lepelle Northern Water</i>
Employer's Agent	3.2.1	<i>Tangos Consultant 122, Diemeer Bendor, Polokwane Email: admin@tangosgroup.co.za 015 298 8828</i>
Sub-Contracting	4.4	<i>No Works of value more than 25% of contract amount may be sublet to non-HDI Sub-contractor if contract has been obtained with HDI points</i>

Selection of subcontractors	4.4.1	<i>The tenderer/Contractor is to subcontract part of his works of the project in compliance to national treasury guidelines PPPFA 2017 item 9. The works to be sub-contracted to the designated group of locals within the Tzaneen Local Municipality/ District Municipality or Limpopo Province where feasible. Sub- contractors are to comply with applicable regulations and approved by LNW. This will be done by a subcontractor selected by the Contractor in consultation with the Employer.</i>
Contract Cessions	5.1	<i>Contract Cessions will be in line with National Treasury regulation instruction note no.8 of 2022/2023 (Attached) approved by the Employer on this Project (Government procurement GCC)</i>
Documentation Required Before Commencement with Works	5.3.1	<i>The Works are to be commenced within twenty-one (21) days of the Commencement Date. The documentation required before commencement with Works execution are:</i> <i>i. A signed Agreement between the Employer and the Contractor for the Works to be completed by the Contractor in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (Act No.85 of 1993) and the Construction Regulations promulgated there under (Refer to Clause 4.3).</i> <i>ii. Health and Safety Plan and approved OHS file by the Department of Labor in terms of Construction Regulations 2014 (Clause 4.3)</i> <i>iii. Proof of payment to the Employer, that the Contractor has paid all contributions required in terms of the Compensation for Occupational Injuries and Diseases Act, No. 130 of 1993 (Refer to Clause 4.3).</i> <i>iv. Sub-contracting strategy including information pertaining to the identified sub-contractors to be used (names, proven capabilities, project experience and scope of work to be sub-contracted) (clause 4.4.1)</i> <i>v. Initial Program</i> <i>Clause 5.6</i> <i>vi. Security</i> <i>Clause 6.2</i> <i>vii. Insurance</i> <i>Clause 8.6</i> <i>viii. CVs and qualifications of key staff, and Contractor's project team organogram.</i>

		Clause 8.6
Submission of documents required in clause 5.3.1	5.3.2	<i>The time to submit the documentation required before commencement with the Works execution is 21 days except OHS related documents which must be submitted within 7 days.</i>
Time for Completion	5.6.2.1	12 months from date of site handover, including Special Non-working.
Special Non-working days	5.8.1	<i>The special non-working days are public holidays</i>
Penalty for delay	5.13.1	<i>0.03% of the contract value per calendar day and part thereof.</i>
Liability for Any Latent Defects	5.16.3	<i>The latent defect period is 10 years.</i>
Guarantee Sum	6.2.1/6.2.2	<i>The form of security for this contract will be a Performance Guarantee to the value of 10% of the Contract Value</i>
Contract Guarantee	6.2.3	<i>The performance guarantee shall not have an expiry date</i>
Percentage Allowances	6.5.1.2.3	<i>The percentage allowances shall be 10%.</i>
Contract Price Adjustment	6.8.2	<i>Contact Price Adjustment is applicable.</i>
Special Materials	6.8.3	<i>There are no special materials in this contract.</i>
Materials on Site	6.10.1.5	<i>The percentage limit on materials and plant not yet built into the Permanent Works is 80% of the value of the plant and materials. No upfront payment shall be permitted. Proof of payment and formal cession of the plant and material to LNW will be required.</i>
Retention Money	6.10.3	<i>The percentage retention is 10% in addition to the performance guarantee on each payment certificate and in accordance to LNW Policy.</i>
Limit of Retention	6.10.3	<i>The limit of retention money is 10% of the tender sum</i>
Retention Money Guarantee	6.10.5	<i>A Retention Money Guarantee may be required in lieu of retention money.</i>



Variations exceeding 15 percent	6.11	Delete "15 percent" in this and associated clauses and enter "50per cent".
Defects LiabilityPeriod	7.8.1	12 Months
REFERENCE TO:	CLAUSE.	DATA
Excepted Risks	8.3	The contractor must include in his insurances risks due to use or occupation by the Employer or Employees of the Employer or agents or other contractors of any part of the Works.
Limit of indemnity	8.4.2	claims unlimited
Insurances	8.6.1	The amount to be included in the sum insured to cover the value of:
	8.6.1.1.2	Materials and equipment supplied by the Employer for incorporation into the works is Nil excluding VAT.
	8.6.1.3	The limit of the liability insurance required shall not be less than the contract amount. The number of claims during the construction and Defects Liability Period shall be unlimited.
	8.6.1.5	The following additional and varied insurances are required: CAR & SASRIA should not be less than the contract amount.
Dispute Resolution	10.5.1, 10.5.3	The number of Adjudication Board Members to be appointed: one. Adjudication, Arbitration, and the Court will be acceptable dispute resolution mechanisms

.....

Signature

.....

Date

.....

Position

.....

Name of bidder

C1.2.2 Data provided by the Contractor

Clause 6.8.3 of the GCC:

Special Materials	Unit on which variation will be determined*	Price (ex-factory) for the base month (exc. Vat) **

Notes:

- * Indicate whether the material will be delivered in bulk or in containers.
- ** The price for special materials is only the price for the material ex-factory and does not include the cost of transport, labour or any other costs. When called upon to do so, the tenderer shall substantiate the above prices with acceptable documentary evidence for the base month and the month in which the increase is claimed.

.....

Signature

.....

Date

.....

Position

.....

Name of bidder



C1.2.3. EPWP specific Conditions of Contract.

EPWP PRINCIPLES ARE APPLICABLE TO THIS PROJECT.

Payment for the labor-intensive component of the works

Payment for works identified in the Scope of Work as being labor-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. **The minimum wages for labor shall be in accordance with latest Sectorial Determination for Civil Engineering Sector gazetted by the Department of Labor applicable at the time of tender and tenderers must take this into account in their pricing and construction.**

Applicable labor laws

The Ministerial Determination, Extended Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labor in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in the scope of work as being labor intensive and which are undertaken by unskilled or semi-skilled workers.

1. Introduction

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

1.2 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 an EPWP;
- (c) "Worker" means any person working in an elementary occupation on an 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.

2. Terms of Work

2.1 Workers on an EPWP are employed on a temporary basis.



- 2.2 A worker may NOT be employed for longer than 24 months in any five-year cycle on an EPWP
- 2.3 Employment on an EPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

3. Normal Hours of Work

- 3.1 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.
- 3.2 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.
- 3.3 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.

4 Meal Breaks

- 4.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- 4.2 An employer and worker may agree on longer meal breaks.
- 4.3 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.
- 4.4 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.

5 Special Conditions for Security Guards

- 5.1 A security guard may work up to 55 hours per week and up to eleven hours per day.
- 5.2 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.

6 Daily Rest Period

Every worker is entitled to a daily rest period of at least eight 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.

7 Weekly Rest Period

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").

8 Work on Sundays and Public Holidays

8.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.

8.2 Work on Sundays is paid at the ordinary rate of pay.

8.3 A task-rated worker who works on a public holiday must be paid –

- (a) The worker's daily task rate, if the worker works for less than four hours;
- (b) Double the worker's daily task rate, if the worker works for more than four hours.

8.4 A time-rated worker who works on a public holiday must be paid –

- (a) The worker's daily rate of pay, if the worker works for less than four hours on the public holiday
- (b) Double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.



9 Sick Leave

- 9.1 Only workers who work four or more days per week have the right to claim sick pay in terms of this clause.
- 9.2 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.
- 9.3 A worker may accumulate a maximum of twelve days' sick leave in a year.
- 9.4 Accumulated sick-leave may not be transferred from one contract to another contract.
- 9.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- 9.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- 9.7 An employer must pay a worker sick pay on the worker's usual payday.
- 9.8 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 –
 - (a) Absent from work for more than two consecutive days; or
 - (b) Absent from work on more than two occasions in any eight-week period.
- 9.9 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.
- 9.10 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.

10 Maternity Leave

- 10.1 A worker may take up to four consecutive months' unpaid maternity leave.
- 10.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.
- 10.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- 10.4 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.
- 10.5 A worker may begin maternity leave –

- (a) four weeks before the expected date of birth; or
 - (b) On an earlier date –
 - (i) 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
 - (ii) 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.
- 10.6 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.
- 10.7 A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the EPWP on which she was employed has ended.

11 Family responsibility leave

- 11.1 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 –
 - (i) the employee's spouse or life partner;
 - (ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

12 Statement of Conditions

- 12.1 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.
- 12.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
- 12.3 An employer must supply each worker with a copy of these conditions of employment.

13 Keeping Records

- 13.1 Every employer must keep a written record of at least the following –
- (a) the worker's name and position;
 - (b) in the case of a task-rated worker, the number of tasks completed by the worker;
 - (c) in the case of a time-rated worker, the time worked by the worker;
 - (d) Payments made to each worker.
- 13.2 The employer must keep this record for a period of at least three years after the completion of the EPWP.

14 Payment

- 14.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.
- 14.2 A task-rated worker will only be paid for tasks that have been completed.
- 14.3 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.
- 14.4 A time-rated worker will be paid at the end of each month.



- 14.5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- 14.6 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;
 - (b) in a sealed envelope which becomes the property of the worker.
- 14.7 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.
- 14.8 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.
- 14.9 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.

15 Deductions

- 15.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
- 15.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
- 15.3 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.
- 15.4 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.

16 Health and Safety



16.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

16.2 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.

17 Compensation for Injuries and Diseases

17.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on an EPWP Programme to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

17.2 A worker must report any work-related injury or occupational disease to their employer or manager.

17.3 The employer must report the accident or disease to the Compensation Commissioner.

17.4 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.

18 Termination

18.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.

18.2 A worker will not receive severance pay on termination.

18.3 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.

18.4 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 for the balance of the 24-month period.

18.5 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 for the balance of the 24-month period.

19 Certificate of Service

19.1 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

DESIGNATION OF
SIGNATORY

C1.4 HEALTH AND SAFETY CONTRACT

1. The Occupational Health and Safety Act comprises Sections 1 to 50, Construction Regulations 2014 and all un-repealed regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended, as well as other regulations which may be promulgated in terms of the OHS Act.
2. 'Mandatory' is defined as including an agent, a contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or user of plant and machinery.
3. Section 37 of the Occupational Health and Safety Act potentially punishes employers (principals) for the unlawful acts or omissions of mandataries (contractors) save where a written agreement between the parties has been concluded containing arrangements and procedures to ensure compliance with the said Act by the mandatory.
4. All documents attached or referred to in the above agreement form an integral part of the agreement.
5. To perform in terms of this agreement mandataries must be familiar with the relevant provisions of the Act.
6. Mandataries who utilise the services of their own mandataries (subcontractors) are advised to conclude a similar written agreement.
7. Be advised that this agreement places the onus on the mandatory to contact the employer in the event of inability to perform as per this agreement. The employer, however, reserves the right to unilaterally take any steps as may be necessary to enforce this agreement.
8. The contractor shall be responsible for the full and proper implementation of the terms and provisions of the Act and its regulations in the area in which the work is to be undertaken by the contractor.
9. The contractor shall be responsible for the well-being, in relation to health and safety, of all persons coming upon or into such area in accordance with that legislation, including the implementation of any directives issued by management of Lepelle Northern Water in this respect.
10. The work to be done is _____
11. The area in which the work is to be conducted is _____
12. The contractor shall familiarize himself with such area and all risks existing thereon and undertakes to report to the representative of Lepelle Northern Water any hazard or risk to health and safety which arises during the contract work in the area concerned and over which the contractor may have no control. All necessary and appropriate safety / health equipment shall be issued by the contractor to all persons working on or coming into the area.



**C1.4.1 HEALTH AND SAFETY CONTRACT BETWEEN EMPLOYER AND CONTRACTOR IN TERMS
OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993.**

Written agreement between Lepelle Northern Water (hereinafter referred to as “the Employer) and _____ (hereinafter referred to as “the mandatory”) as envisaged by Section 37(2) of the Occupational Health and Safety Act, No. 85, of 1993 as amended.

I _____ representing _____ (mandatory) do hereby acknowledge that _____ (mandatory) is an employer in its own right and shall be regarded as the employer for purposes of the contract work specified in the body of the principal agreement with duties as prescribed in the Occupational Health and Safety Act, No. 85 of 1993 as amended so as to ensure that all work will be performed or machinery and plant used in accordance with the provisions of the said Act. I furthermore agree to comply with the requirements of the Employer as contained in the Occupational Health and Safety Specification included with the principal agreement and to liaise with the employer should I, for whatever reason, be unable to perform in terms of this agreement.

Signed this _____ day of _____ at _____

Signature on behalf of mandatory

Signature on behalf of Employer

Compensation Fund Registration No. of mandatory

Good Standing Certificate: ☐ yes ☐ no (tick one box)

C1.4.2 OCCUPATIONAL HEALTH AND SAFETY INDEMNITY UNDERTAKING

I, the undersigned: _____

in my capacity as: _____

of the firm: _____

1. hereby undertake to ensure that I/my firm and/or employees and/or subcontractors and/or his employees -
 - 1.1 comply strictly with the provisions of the Occupational Health and Safety Act of 1993 (as amended) and/or the regulations promulgated in terms thereof, with specific reference to section 37(2) of the said act, as well as any relevant legislation, in the course of the performance/execution of any service and/or work in, to or on any Lepelle Northern Water buildings, construction sites and/or premises;
 - 1.2 ensure that consultants and/or visitors comply with any instructions and measures relating to occupational health and safety, as prescribed by Lepelle Northern Water; and
 - 1.3 comply strictly with the statutorily prescribed work systems, operational equipment, machinery and occupational health and safety conditions;
2. and as an independent employer and contractor, hereby indemnify, in terms of the above undertakings, Lepelle Northern Water -
 - 2.1 in respect of any costs that I/my firm and/or employees and/or subcontractors and their employees may incur of necessity in compliance with the above undertakings; and
 - 2.2 against any claims that may be instituted against Lepelle Northern Water and/or any liability that Lepelle Northern Water may incur, whether instituted and/or caused by me/my firm's employees, agents, consultants, subcontractors and/or their employees and visitors or Lepelle Northern Water clients or neighbors in respect of any incidents related to my/my firm's activities and as a result of which the occupational health and safety of the persons involved have been detrimentally affected; and
 - 2.3 against similar claims that I, managers or directors of my firm may have against Lepelle Northern Water and any damages for which I, managers or directors of my firm hold Lepelle Northern Water liable.
3. My firm's compensation commissioner number is and I confirm that my firm and its subcontractors' fees have been paid up and obligations in respect of the compensation commissioner have been complied with and further that I shall furnish proof thereof in writing on request.
4. I hereby confirm that I have the authority to sign this indemnity undertaking and that Lepelle Northern Water is not obliged to confirm such confirmation.

Tender No: LNW 03/21/22

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump
Stations - Electrical And Mechanical Works



Signed at _____ this _____ day

Of _____

Signature

Capacity

As witnesses:

1 _____
Name

Signature

2 _____
Name

Signature

Tender No: LNW 03/21/22

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works



PART C2

PRICING DATA

C2.1 PRICING INSTRUCTIONS

1. Measurement and payment shall be in accordance with the relevant provisions of the SANS Standard Specification, The General Conditions of Contract, the Contract Data, the Scope of Work (including the Specifications), the Site Information and the Drawings are to be read in conjunction with the Bill of Quantities
2. The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
km	=	kilometer
m	=	meter
m ²	=	square meter
m ³	=	cubic meter
m ³ -km	=	cubic meter-kilometer
nr .	=	number
Prov sum	=	Provisional sum
R/only	=	Rate only
sum	=	lump sum
3. For the purpose of the Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit:	The unit of measurement for each item of work as defined in the SANS Standard Specification, The General Conditions of Contract, the Contract Data, the Scope of Work (including the Specifications).
Quantity:	The number of units of work for each item.
Rate:	The payment per unit of work at which the Tenderer tenders to do the work.
Amount:	The product of the quantity and the rate tendered for an item.
Lump sum:	An amount tendered for an item, the extent of which is described in the Bill of Quantities, the Specifications or elsewhere but of which the quantity of work is not measured in units.
4. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
5. It will be assumed that prices included in the Bill of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards)
6. The prices and rates in the Bill of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the Works described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.
7. Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amounts tendered under such items.

8. An item against which no price is entered will be considered an omission and shall be considered for disqualification.
9. The quantities set out in the Bill of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bill of Quantities.
10. The short descriptions of the items of payment given in the Bill of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
11. The item numbers appearing in the Bill of Quantities refer to the corresponding item numbers in the SABS 1200 applicable specification. The work scheduled payment should be referred to the applicable payment items in SABS 1200, which must receive preference to the reference given in the Schedule of Quantities or if any such reference is not indicated.
12. Those parts of the contract to be constructed using labor-intensive methods have been marked in the Bill of Quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the Works so designated are to be constructed using labor-intensive methods only. The use of plant to provide such Works, other than plant specifically provided for in the Scope of Work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labor-intensive specification in the Scope of Works.
13. Payment for items, which are designated to be constructed labor-intensively (either in this schedule or in the Scope of Works), will not be made unless they are constructed using labor-intensive methods. Any unauthorized use of plant to carry out work which was to be done labor-intensively will not be condoned and any works so constructed will not be certified for payment.
14. The contractor shall determine the contract skills participation goals, expressed in Rand, which shall not be less than the contract amount multiplied by a percentage (0.25%) factor given in Table 2 in the Standard for the applicable class of construction works.
15. The Employer shall determine the amount to be paid for the Contract Participation Goal (CPG) on the contract and this amount shall be stated under the section Enterprise Development as a Provisional Sum in the Preliminaries and Generals (P&Gs).
16. The Employer shall include a line item under the Skills Development in the Final Tender Summary section described as "Minimum Contract Skills Development Goal (CSDG)" as illustrated in table below:

To prevent a tender being non-responsive, the Employer shall bring to the Contractor's attention the required CSDG percentage (%) as prescribed in the final tender summary section. The percentage (%) factor multiplied by the sub-total of the tender amount will determine the minimum CSDG that needs to be achieved on the contract.

NOTE: The Employer shall state the percentage (0.25 %) factor in the Final Tender Summary section dependent on the Class of Construction Works.

Tender No: LNW 03/21/22

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works



C2.2 SCHEDULE OF QUANTITIES

SUMMARY TABLE

SECTION	DESCRIPTION	SUMMARY OF SECTION
		AMOUNT (RANDS)
1	PRELIMINARY AND GENERAL @ 15% Maximum	
2	PROVISIONAL SUMS	
3.1	Mookgo 6 Pump Station (Mechanical Works)	
3.2	Mookgo 6 Pump Station (Electrical Works)	
4.1	Mawa 8 Pump Station (Mechanical Works)	
4.2	Mawa 8 Pump Station (Electrical Works)	
	Sub Total 1	
	ADD 15% CONTINGENCIES OF SUB TOTAL	
	Sub Total 2	
	Add 5% CONTRACT PRICE ADJUSTMENT	
	Sub Total 3	
	CSDG (0.25% factor)	
	Sub Total 4	
	VAT at 15%	
	BID PRICE FORWARD TO FORM OF OFFER AND ACCEPTANCE	

SCHEDULE OF QUANTITIES

ITEM No	LI	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LC
1		SANS 1200 A	PART A: GENERAL					
1.1		8.3	FIXED-CHARGE ITEMS AND VALUE RELATED ITEMS					
1.1.1		8.3.1	Contractual Requirements	Sum	1			
1.2		8.3.2	Establish Facilities on the Site:					
1.2.1		8.3.2.1	Facilities for the Employer's Agent:					
1.2.1.1		PSA8.3.2.1.a)	a) Employer's Agent's Office with covered carport	Sum	1			
1.2.1.2		PSA8.3.2.1.b)	b) Provision of camera with memory card	Sum	1			
1.2.1.3		PSA8.3.2.1.c)	c) Provision of two-name boards	Sum	1			
1.2.1.4		PSA8.3.2.1.d)	d) Provision of survey equipment and testing equipment including dumpy level, stuff level, tripod etc.	Sum	1			
1.2.1.5		PSA8.3.2.1.e)	e) Accommodation	Sum	1			
1.2.1.6		PSA8.3.2.1.f)	f) i7 Laptop Computers with 3g Modem	Sum	1			
1.2.2		8.3.2.2	Facilities for Contractor:					
1.2.2.1			a) Offices and storage sheds	Sum	1			
1.2.2.2			b) Workshops	Sum	1			
1.2.2.3			c) Ablution and latrine facilities	Sum	1			
1.2.2.4			f) Tools and equipment	Sum	1			
1.2.2.5		PSA 8.3.2.2	g) Water supplies, electric power and communications	Sum	1			
1.2.2.6			h) Dealing with water (Sub-clause 5.5)	Sum	1			
1.2.2.7			i) Access (Sub-clause 5.5)	Sum	1			
1.2.2.8			j) Plant	Sum	1			
1.2.3		8.3.3	Other fixed-charge obligations (to be specified)	Sum	1			
1.2.4		PSA 8.3.3.2	OHS Act Obligations:					
1.2.4.1			i) General Safety obligations (incl. provision of personal protective)	Sum	1			
1.2.4.2			ii) Health and Safety plan/file including health and safety training.	Sum	1			
1.2.4.3			iii) Fulfil legislated and/or specified requirements for electrical works (incl. submission of plans).	Sum	1			
1.2.5		PSA 8.3.3.3	Environmental Management Plan Obligations	Sum	1			
1.2.6		8.3.4	Remove Contractor's Site Establishment.	Sum	1			
1.3		8.4	TIME-RELATED ITEMS					
1.3.1		PSA 8.4.1	Contractual Requirements.	Month	12			
1.4		8.4.2	Operate and maintain facilities on the Site for duration of Construction:	Month	12			
1.4.1		PSA 8.4.2.1	Facilities for the Employer's Agent:					
1.4.1.1			a) Employer's Agent's Office with covered carport	Month	12			
1.4.1.2			b) Provision of camera with memory card	Month	12			
1.4.1.3			c) Provision of two name boards	Month	12			
1.4.1.4			d) Provision of airtime	Month	12			
1.4.1.5			e) Provision of survey equipment and testing equipment including dumpy level, stuff level, tripod etc.	Month	12			
1.4.1.6			f) Accommodation	Month	12			
1.4.2		8.4.2.2	Facilities for Contractor:					
1.4.2.1			a) Office and storage sheds.	Month	12			
1.4.2.2			b) Workshops.	Month	12			
1.4.2.3			c) Ablution and latrine facilities.	Month	12			
1.4.2.5			f) Tools and equipment.	Month	12			
1.4.2.6		PSA 8.4.2.2	g) Water supplies, electric power and communication.	Month	12			
1.4.2.7			h) Dealing with water.	Month	12			
1.4.2.8			i) Access.	Month	12			
1.4.2.9			j) Plant.	Month	12			
1.4.3		8.4.3	Contractor's supervision for duration of construction.	Month	12			
1.4.4		8.4.4	Company and Head Office overhead costs for the duration of construction.	Month	12			
1.4.5		8.4.5	Other time related obligations.	Month	12			
SUB-TOTAL CARRIED FORWARD TO NEXT PAGE								

SCHEDULE OF QUANTITIES

ITEM No	LI	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R	LC
SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
1.4.6		PSA 8.4.5.1	Occupational Health and Safety Act Obligations:					
1.4.6.1			i) General Safety obligations	Month	12			
1.4.6.2			ii) Health and Safety plan/file	Month	12			
1.4.6.3			iii) Safety Officer	Month	12			
1.4.7		PSA 8.4.5.2	Security Services	Month	12			
1.4.8		PSA 8.4.5.3	Environmental Management Plan Obligations	Month	12			
1.4.9		PSA 8.4.6.5	Provide Training for targeted labour.	P Sum	1	R 100 000,00	R 100 000,00	
1.4.10			Percentage allowance on cost on item No. 1.4.9 for Contractor's cost and profit.	%	10%			
1,5		8,8	TEMPORARY WORKS					
1.5.1		8.8.1	Main Access Road to Works (construct and maintain)	Sum	1			
1.5.2		8.8.2	Dealing with traffic (or accomodation of traffic) during construction	Sum	1			
1.5.3		PSA 8.8.4 c	Excavate and backfill by hand in all material to expose existing services - only on approval of Employer's Agent.	m³	100			
1.5.4		PSA 8.8.4 d	Temporary Protection of existing services	Sum	1			
		SANS 1200A	<u>SECTION 8: OHS COMPLIANCE</u>					
		8,3	FIXED CHARGE ITEMS					
1.6		CR 7(1) (a). H&S Spec (10)	'Project specific SHE plan based on the H&S specification.	Sum	1			
1.6.1		COIDA. H&S Spec (7)	Workmen's compensation letter.	Sum	1			
1.6.2		CR 4. H&S Spec (b)	Notification of construction work	Sum	1			
1.7			<u>Site Establishment</u>					
1.7.1			Fencing to the construction site (1.8m high)	Sum	1			
1.7.2			Hoarding with a green net (1.8m high)	Sum	1			
1.7.3			Site Clearance and waste disposal	Sum	1			
1.7.4		GSR 3(2). H&S Spec (z)	First aid boxes	No	3			
1.7.5		GSR 4. BRA 15, 35. CR 29	Fire Extinguishers (7x9kgs and 3x5kgs)	No	5			
1.7.6		CR 30.BRA 2.H&S SPEC (u)	Toilets (1 per 15 people, each toilet per gender)	No	2			
1.7.7		CR27	Waste bins (Plastic overlapping waste bins 100L)	No	4			
1.7.8		CR30	Shadding net for an eating area (Green net 5m long)	No	1			
1.7.9		CR30	Benches for an eating area (4m long)	No	5			
1.8		H&S SPEC (g). CR 7(6). GSR 2	<u>Personal Protective Equipment</u>					
1.8.1			Overalls(Blue/Orange/Green)	No	30			
1.8.2			Hard hats	No	30			
1.9			<u>Boots</u>					
1.9.1			water boots	No	30			
1.9.2			Safety boots	No	30			
1.9.3			Gloves (General and Skilled activities)	No	30			
1.9.4			Googles	No	30			
1.9.5			Earplugs	No	30			
1.9.6			Reflector vests	No	30			
1.9.7			Sun-block hats	No	30			
1.9.8			Dust mask	No	30			
SUB-TOTAL CARRIED FORWARD TO NEXT PAGE								

SCHEDULE OF QUANTITIES

ITEM No	LI	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R	LC
SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
1.10		H&S SPEC (9),(ii). CR 23(K)	<u>Inductions, Toolbox talks, Checklists, Registers and Risk assessments</u>					
1.10.1			Stationary	Sum	1			
1.10.2			Printer	Sum	1			
1.10.3			Laptop	Sum	1			
1.11		CR 7(g). H&S SPEC (16)	Medical Fitness examinations	Sum	1			
1.12		H&S SPEC (17).BRA (10).GSR(2B)	<u>Signage and boards</u>					
1.12.1			Construction Safety Board	No	2			
1.12.2			First aid Box	No	2			
1.12.3			Fire extinguisher	No	6			
1.12.4			Assembly Point	No	3			
1.12.5			Excavation	No	4			
1.12.6			Plant and Construction vehicle	No	4			
1.12.7			Chemicals, Gas and Liquids Flammables	No	5			
1.12.8			Toilets information signs (male and female)	No	4			
1.12.9			Eating area information Sign	No	2			
1.12.10								
1.12.11			Escape routes/ evacuation	No	6			
1.12.12			Scaffold safe/unsafe use	No	6			
1.12.13			Access control	No	4			
1.12.14			No smoking	No	3			
1.12.15			Storage Container	No	1			
1.12.16			Boundry wall (Hazadours chemicals, liquids and cement mixing area)	No	4			
			Site Offices	No	2			
1.13		BRA (1).H&S SPEC (8)	<u>Training and awareness</u>					
1.13.1			SHE rep Training	Sum	2			
1.13.2			First aid level 1,2,3	Sum	2			
1.13.3			Scaffolding Supervisor	Sum	2			
1.13.4			Working at heights	Sum	3			
1.13.5			Risk assessment analyses	Sum	1			
1.13.6			Environmental awareness campaign	Sum	2			
1.13.7			HIV/AIDS awareness and accomodation needs, posters and distribution of condoms. X90 employees	Sum	1			
1.14		H&S SPEC (i)	<u>Appointments with remunerations</u>					
1.14.1		CR8(5)	Registered construction health and safety officer	Months	12			
1.14.2		OHSA(17)	Competent SHE rep with a SHE certificate	Months	12			
1.14.3		GSR 3(6)	First aider with level 1,2,3 certificate	Months	12			
1.14.4		H&S SPEC(i)	Scaffold erector	Months	2			
1.14.5		H&S SPEC (17)	Site Security (Security Officer)	Months	12			
1.14.6			Mobile guard-house	No	1			
SUB-TOTAL CARRIED FORWARD TO NEXT PAGE								

SCHEDULE OF QUANTITIES

ITEM No	LI	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R	LC
SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
1.15		H&S SPEC(y).CR27	<u>Housekeeping</u> Barricading of rubble, use a 1m height and 200m long orange net	Sum	1			
1.16		BRA(13)	<u>Removal of waste off site once a week</u> Transportation once a week	Sum	1			
1.17.1		CR27.H&S SPEC(y)	<u>Cleaning materials and chemicals</u> Broom	No	12			
1.17.2			Mop	No	4			
1.17.3			Sunlight liquid (25L)	No	3			
1.17.4			Handy andy (25)	No	3			
1.18		H&S SPEC(i) SABS Code 085.SANS 10085	<u>Scaffolding</u> Scaffolding to include shutter boards, toe boards, base jacks, access stairs/ladders, braces and safety harnesses	Sum	1			
1.19.1		ER	<u>Environmental</u> Dust suppression around the plant and site (twice a day) during construction	Sum	1			
1.19.2			Waste Management around the plant and site during construction	Sum	1			
1.19.3			Environmental Compliance during construction in terms of the project	Sum	1			
1.19.4			Environmental Officer	Sum	1			
1.20.1		H&S SPEC(18).CR	<u>Emergency Preparedness</u> Plastic spine board-heavy duty	No	1			
1.20.2			Emergency board	No	1			
1.20.3			Emergency Alarm	No	1			
1.21		H&S SPEC (h). CR23(g). CR13	<u>Excavation</u> Barricading(use orange netting) 900mm high	Sum	1			
1.22.1		H&S SPEC(v).CR17	Formwork and Suspended platform	Sum	1			
1.22.2			Temporary handrails/Guardrails(If the form work exceeds 3m height)	Sum	1			
1.22.3			Safety harnesses	No	8			
1.22.4		CR24.H&S SPEC (p).	Electrical Installations	Sum	1			
1.22.5		CR14.H&S SPEC (20).	Demolitions	Sum	1			
1.22.6		GSR13A.CR12(3)(m).	Ladders(Not exceeding 5m)	Sum	1			
1.22.7		H&S SPEC (11)CR7(1)(b)	Health and Safety File inline with Construction Regulation 2014	Sum	1			
SUB-TOTAL CARRIED FORWARD TO NEXT PAGE								

SCHEDULE OF QUANTITIES

ITEM No	LI	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R	LC
SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
1.23			<u>TIME RELATED CHARGE ITEMS</u>					
			<u>Site Establishment</u>					
1.23.1			Fencing to the construction site (1.8m high)	Month	12			
1.23.2			Hoarding with a green net (1.8m high)	Month	12			
1.23.3			Site Clearance and waste disposal	Month	12			
1.23.4		GSR 3(2). H&S Spec (z)	First aid boxes	Month	12			
1.23.5		GSR 4. BRA 15, 35. CR 29	Fire Extinguishers (7x 9kgs and 3x 5kgs)	Month	12			
1.23.6		CR 30.BRA 2.H&S SPEC (u)	Water Flushing Toilets (1 per 15 people, each toilet per gender)	Month	12			
1.23.7		CR27	Waste bins (Plastic overlapping waste bins 100L)	Month	12			
1.23.8		CR30	Shadding net for an eating area (Green net 5m long)	Month	12			
1.23.9		CR30	Benches for an eating area (4m long)	Month	12			
1.24		H&S SPEC (g). CR 7(6). GSR 2	<u>Personal Protective Equipment</u>					
1.24.1			Overalls(Blue/Orange/Green)	Month	12			
1.24.2			Hart hats	Month	12			
1.25			<u>Boots</u>					
1.25.1			water boots	Month	12			
1.25.2			Safety boots	Month	12			
1.25.3			Gloves (General and Skilled activities)	Month	12			
1.25.4			Goggles	Month	12			
1.25.5			Earplugs	Month	12			
1.25.6			Reflector vests	Month	12			
1.25.7			Sun-block hats	Month	12			
1.25.8			Dust mask	Month	12			
1.25.9			Medical Vaccination for all Labourers working on site, specific for Waste Water Treatment Works	Month	12			
1.26		H&S SPEC (9).(ii). CR 23(K)	<u>Inductions, Toolbox talks, Checklists, Registers and Risk assessments</u>					
1.26.1			Stationary	Month	12			
1.26.2			Printer	Month	12			
1.26.3			Laptop	Month	12			
1.26.4		CR 7(g). H&S SPEC (16)	Medical Fitness examinations	Month	12			
1.27		H&S SPEC(y).CR27	<u>Housekeeping</u>					
1.27.1			Barricading of rubble, use a 1m height and 200m long orange net	Month	12			
1.28		BRA(13)	<u>Removal of waste off site once a week</u>					
1.28.1			Transportation once a week	Month	12			
1.29		H&S SPEC (h). CR23(g). CR13	<u>Excavation</u>					
1.29.1			Barricading(use orange netting) 900mm high	Month	12			
TOTAL CARRIED FORWARD TO SUMMARY PAGE								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 02/22/23

SCHEDULE OF QUANTITIES

ITEM No	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2	SANS 1200 A	<u>PROVISIONAL SUMS AND DAYWORKS</u>				
2.1.1	PSA 8.5.1.a	Employment of a Community Liaison Officer (CLO)	P Sum	1	156 000,00	R 156 000,00
2.1.2	PSA 8.5.1.b	Percentage allowance on cost on item No. 2.1.1 for Contractor's cost and profit.	%	156 000		
2.1.3	PSA 8.5.2.a	Control tests by independent laboratory. Additional tests that may be required by the Engineer over and above normal quality control tests performed by the Contractor.	P Sum	1	60 000,00	R 60 000,00
2.1.4	PSA 8.5.2.b	Percentage allowance on cost on item No. 2.1.3 for Contractor's cost and profit.	%	60 000		
2.1.5	PSA 8.5.3.a	Relocation of existng services (water mains, electricity cables/poles, etc.) by Services utility	P Sum	1	400 000,00	R 400 000,00
2.1.6	PSA 8.5.3.b	Percentage allowance on cost on item No. 2.1.5 for Contractor's cost and profit.	%	400 000		
2.1.7	PSA 8.5.4.a	Additional surveys and underground service detection by nominated specialist as ordered by Engineer	P Sum	1	400 000,00	R 400 000,00
2.1.8	PSA 8.5.4.b	Percentage allowance on cost on item No. 2.1.7 for Contractor's cost and profit.	%	400 000		
2.1.9	PSA 8.5.5.a	Provide Training for targeted labour.	P Sum	1	1 000 000,00	R 1 000 000,00
2.1.10	PSA 8.5.5.b	Percentage allowance on cost on item No. 2.1.9 for Contractor's cost and profit.	%	1 000 000		
2.1.11	8.8.5	Detail setting out of the Works from survey beacons by a registered surveyor and all other survey related work.	Sum	1	50 000,00	R 50 000,00
2.2		DAYWORKS				
		Labour				
2.2.1		Skilled Labour	h	200		
2.2.2		Semi-skilled labour	h	200		
2.2.3		Unskilled labour	h	200		
SUB-TOTAL CARRIED FORWARD TO NEXT PAGE						

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 02/22/23**SCHEDULE OF QUANTITIES**

ITEM No	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE						
		Plant				
2.3.1		Excavator 20t	h	200		
2.3.2		Loader 12t	h	200		
2.3.3		Tipper truck 10m ³	h	200		
3		ELECTRICAL CONNECTION				
3.1		Supply and install transformer by Eskom and connection to Mookgo 6 system	PC SUM	1		
3.2		Supply and install transformer by Eskom and connection to the Mawa 8 system	PC SUM	1		
TOTAL CARRIED FORWARD TO SUMMARY OF BILLS						

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
3		SANS 1200 L	MEDIUM-PRESSURE PIPELINES					
		8.2.5	Refer to Dwg No. C1201 - 1616 SUPPLY AND PLACE PIPES, VALVES AND SPECIALS					
3,1			Item 1 - 200 NB, Straight pipe one end flanged, the other plain for cutting to suit on site, puddle flange as shown. PN16	No	1			80%
3,2			Item 2 - 200 NB, Flange adaptor. PN16	No	3			80%
3,3			Item 3 - 200 NB, Butterfly valve. PN16	No	1			80%
3,4			Item 4 - 200 to 100 NB, 60° unequal lateral tee., all ends flanged. PN16	No	2			80%
3,5			Item 5 - 200 NB, Straight pipe one end flanged other plain for cutting to suit on site PN16	No	2			80%
3,6			Item 6 - 100 NB, Straight pipe one end flanged and the other plain cut to suit on site. PN16	No	2			80%
3,7			Item 7 - 100 NB, Flange adaptor. PN 16	No	2			80%
3,8			Item 8 - 100 NB, Premier resilient seal gate valve (SABS665). PN 16	No	2			80%
3,9			Item 9 - 100 NB, Straight pipe one end flanged, other plain for cutting to suit on site PN 16	No	2			80%
3,10			Item 10 - 100 to 65 NB, Eccentric reducer both ends flanged. PN 16	No	2			80%
3,11			Item 11 - Electric pump drive motor	No	2			80%
3,12			Item 12 - WKLn 125 pump	No	2			80%
3,13			Item 13 - 60 to 80 NB, Concentric reducer, flanged. PN 40	No	2			80%
3,14			Item 14 - 80 NB, Anchored flange adaptor. PN 40	No	4			80%
3,15			Item 15 - 80 NB, Non return valve PN 40	No	2			80%
3,16			Item 16 - 80 NB, 90° short radius elbow. PN 40	No	2			80%
3,17			Item 17 - 80 NB, Premier resilient seal gate valve (SABS665). PN40	No	2			80%
3,18			Item 18 - 80 NB, Straight pipe one end flanged, the other plain for cutting to suit on site PN40	No	1			80%
TOTAL CARRIED FORWARD TO NEXT PAGE								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
3,19			Item 19 - 200 to 80 NB, Reducing Tee SABS 719, PN40	No	2			80%
3,20			Item 20 - 80 NB, 60° Medium radius bend, both ends flanged. PN 40	No	2			80%
3,21			Item 21 - 80 to 200 NB, Concentric reducer. PN 40	No	2			80%
3,22			Item 22 - 200 NB, Straight pipe one ends flanged, the other plain forcutting to suit on site. PN 40	No	2			80%
3,23			Item 23 - 200 NB, Anchored adaptor flange. PN 40	No	1			80%
3,24			Item 24 - 200 to 80 NB, 60° unequal lateral tee.All ends flanged. PN40	No	1			80%
3,25			Item 25 - 80 NB, Straight pipe both ends flanged, PN40	No	1			80%
3,26			Item 26 - 200 NB, Straight pipe both ends flanged, PN40	No	1			80%
3,27			Item 27 - 200 NB, Medium radius 45° bend both ends flanged, PN40	No	2			80%
3,28			Item 28 - 200 NB, Straight pipe both ends flanged, puddle flange asshown PN40	No	1			80%
3,29			Item 29 - 200 NB, Flange adaptor PN40	No	1			80%
			Refer to Dwg No. C1201 - 1630					
			Flow meter Chamber at Mookgo PS					
3,30			Item 1 -200 NB, Straight pipe one end flanged, for cutting on site to suitrestraining flange as indicate. PN40	no	1			80%
3,31			Item 2 - 200 NB, Flange Adaptor.PN 40	no	3			80%
3,32			Item 3 - 200 NB, Mechanical Turbine Flow Meter.PN40	no	1			80%
3,33			Item 4 - 200 NB, Straight pipe both end flanged.Restraining flange asindicated. PN40	no	1			80%
3,34			Item 5 - 200 NB, Straight pipe both plain X42	m	3			80%
TOTAL CARRIED FORWARD TO SUMMARY OF BILLS								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
		PE	<u>ELECTRICAL</u>					
			ELECTRICAL WORKS					
			SUPPLY, FABRICATE AND FIX THE FOLLOWING ELECTRICAL WORKS COMPLETE					
			MAJOR EQUIPMENT					
4,1			400 V MCC, 25 kA, as per Single Line Diagram and specifications. MCC to be located within Pump Station Building. MCC to be complete with 1.5 kVA UPS Unit as per specifications.	No	1			90%
4,2			100kVA, 400V, 50Hz, 3 Phase, Diesel Generator, complete with Changeover panel and mains failure control, suitable for outdoor storage. Contractor to price for plinths and fencing around the generator.	No	1			90%
4,3			Transformer, 22000/400V, 100 kVA, Dyn11, with supports and fencing and civil works; to be supplied with MV and LV circuit breakers complete	No	1			90%
4,4			Ground Mounted Bulk Metering Unit for Metering, mounted next to transformer above.	No	1			90%
			CABLE RACKING AND CABLE SUPPORT					
4,5			Supply and install CABLE RACKING, (O-Line), including fish plates, nuts, bolts and washers, hold down fasteners and 16mm lugged EARTH STRAPS across all splice joints.					
4,6			Hot-Dip Galvanized Racking (i) 600mm wide rack (3m sections)	No	5			90%
4,7			(ii) 200mm wide rack (3m sections)	No	12			90%
4,8			Supply and Install MILD STEEL ANGLE sections used for cable rack supports, cable droppers, including fabrication, installation, cleaning and painting. Including the supply of all fixing bolts and sundries.					
4,9			100 x 50 PFC Channel	m	15			90%
			25mm x 25mm x 3mm angle	m	15			90%
4,10			Supply and Install OL1000 CHANNELS used for cable racking supports, ('O-Line'). Including fabrication and installation. Including the supply of all fixing bolts, fasteners and sundries.					
			OL1000 hot dip galvanized 6000mm	No	8			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
4,11			EQUIPMENT Install Field Hand Stations - Start/Off/ Auto stations, rated IP65 complete with powder coated mild steel splash covers complete with top lip, back and side covers. Including all fixings and anchors Field Handstations - 3 position switch Welding socket-outlets Supply and Install IP54 Splashproof Dual Interlocked Socket -Metal with integrated earth leakage protection to 30mA. Unit shall be 3Ph+N+E with round outlet. Complete with a galvanised Mild Steel splash cover, top lip, back and side covers. Including fixings and anchors.	No	2			90%
4,12			Welding socket-outlets complete	No	4			90%
4,13			5 Core 10 mm ²	m	100			90%
4,14			Supply and Install Galvanized Conduit c/w fittings, saddles, fasteners, bends, inspection boxes inline joints, pull wires Inline joints, pull wires Internal Diameter 20mm	m	1			90%
4,15			Internal Diameter 25mm	m	100			90%
4,16			Internal Diameter 32mm	m	1			90%
4,17			Supply and Install Galvanized Conduit bends Internal Diameter 25mm Supply and Install Galvanized Conduit inspection boxes	No	8			90%
4,18			Internal Diameter 25mm	No	7			90%
LIGHTING AND SMALL POWER								
4,19			Supply & Install onto purpose made brackets Lighting Luminare Fittings c/w brackets & consumables be included for each light fitting. TYPE B - round wall mounted bulkhead 2x18W CFL	No	9			90%
4,20			TYPE A1 - Surface mounted moisture proof (IP65)	No	16			90%
4,21			2x54 W T51 fluorescent luminaires, Photocell as per Specifications	No	1			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
4,22			Supply & Install light switches					
			Single Way 16A	No	2			90%
4,23			Two Way 16A	No	4			90%
4,24			Supply and Install CCG / PRATLEY UTILITY BOX, complete with terminals, mounting rail, earth tag and end stops.					
			4 way x size1 termination box	No	16			90%
4,25			Supply and Install galvanised Mild Steel BACKING PLATE, for mounting of CCG / pratley utility box.					
4,26			100mm x 100mm plate	No	16			90%
			Supply and Installation of 600/1000volt PVC FLEXIBLE CABLE,installed on racks or angles including the supply of PVC cable strapping & temporary ties.					
			2.5mm x 3core	No	160			90%
			4mm x 3 core	No	100			90%
4,27			Supply and installation of 600/1000volt PVC FLEXIBLE CABLE complete TERMINATIONS. Including drilling of gland plates, supply of glands, shrouds, locknuts,lugs ferrules, core markers, cable markers, (Grafoplast).					
4,28			2.5mm x 3core	No	16			
			4mm x 3 core	No	8			
4,29			Supply and Install Pre-galvanised MILD STEEL ANGLE sections used for cable droppers, including fabrication, andinstallation. Including the supply of all fixing bolts and sundries.					
4,30			50mm x 50mm x 5mm angle	m	50			90%
			25mm x 25mm x 3mm angle	m	50			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
			EARTHING					
			Supply and Install eartmat and lightning protection system asper Earthing Drawing and Specifications:					
4,31			Provide for detailed soil survey and Lightning Risk assessment study by earthing specialists.	No	1			90%
4,32			Cable, 16mm ² Cu/PVC insulated copper cable	m	50			90%
4,33			70mm ² BCEW	m	20			90%
4,34			1m long earth rods, 16mm diameter buried in ground	No	12			90%
4,35			Equipotential Busbar with insulators (300x50mm)	No	1			90%
4,36			Exothermic Welds and T-joints	No	16			90%
4,37			Mast, lightning protection, galvanized steel - 18m	No	1			90%
4,38			Cast Iron Earth well inspection box	No	4			90%
			ELECTRICAL COMMISSIONING					
			Cold commissioning in terms of the specification.					
			Test all Motor / Feeder circuits	No	4			90%
4,39			Test all Lightning and small power circuits - Plant	Hrs	6			90%
4,40			Hot commissioning assistance					
4,41			Electrical Technician	Hrs	6			
4,42			Electrical Artisan	Hrs	6			
4,43			Certification and testing of installation, including all relevant certificates, and QA/QC documentation, (to SANS 10142).					
				Sum	1			90%
4,44			MCC	Sum	1			90%
4,45			DB's	Sum	1			90%
4,46			Generator	Sum	1			90%
4,47			Plantlights / Power sockets / Welding Plugs etc	Sum	1			90%
4,48			Transformer	Sum	1			90%
TOTAL CARRIED FORWARD								

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
			INSTRUMENTATION EQUIPMENT (INCLUDING FIRE AND SECURITY DETECTION SYSTEM)					
			Supply and Install, in the field, Including fabrication, and installation of mounting brackets where required. Including all fixings and anchors.					
4,49			Magnetic Flow Meters	No	1			90%
4,50			Level Switch	No	1			90%
4,51			Pressure Transmitter	No	2			90%
4,52			Valve Limit Switch	No	1			90%
4,53			Ultrasonic Level Transmitter	No	1			90%
			Supply and Install INSTRUMENT Junction Boxes (Min IP65) Including all marking and labelling, supply of all mounting steelwork, fixing bolts and sundries, c/w enclosure and splash cover, top drip, back and side covers.					
4,54			As per Specifications for E&I Interface Junction Box (SS304)	No	1			90%
			Install PLC Control Panels, HMI, complete with Hardware and Software, including any required cabling Including the supply of all mounting steelwork, fixing bolts and sundries. PLC & HMI Hardware					
4,55			PLC Hardware	Sum	1			90%
4,56			HMI Hardware	Sum	1			90%
4,57			Fire Detection and Security System as per Project Specifications Complete	Sum	1			90%
			POWER CABLING AND TERMINATIONS-PLANT					
			Supply and installation of 600/1000volt cable SANS 1507-3 PVC/SWA/PVC, installed on rack or angle. Including the supply of St/St bandit strapping, PVC cable ties & temporary ties.(St/St strapping to be every 1.5M).					
4,58			50mm ² x 4C PVC/SWA/PVC - From MCC to 24.3 kW Motors	m	50			90%
4,59			95mm ² x 4C PVC/SWA/PVC - From Generator, 2 runs.	m	50			90%
4,60			95mm ² x 4C PVC/SWA/PVC - From Transformer, 2 runs.	m	200			90%
4,61			MV 11 kV Aluminium Conductor Droppers from OH Line to terminate onto MV cable on pole	m	6			90%
4,62			MV 95mm ² 3 core SWAPVC Cu Cable from Pole to terminate onto transformer	m	6			90%
			Supply and installation of 600/1000volt cable PVC/SWA/PVC complete TERMINATIONS.Including drilling of gland plates, supply of glands, shrouds, locknuts, lugs, ferrules, core markers, cable markers, (Grafoplast).					
4,63			50mm ² x 4C PVC/SWA/PVC - From MCC to 24.3 kW Motors	No	4			90%
4,64			95mm ² x 4C PVC/SWA/PVC - From Generator, 2 runs.	No	4			90%
4,65			95mm ² x 4C PVC/SWA/PVC - From Transformer, 2 runs.	No	4			90%
4,64			MV 11 kV Aluminium Conductor Droppers from OH Line to terminate onto MV cable on pole - T-Joints at OH Line	No	3			90%
4,65			MV 95mm ² 3 core SWAPVC Cu Cable from Pole to terminate onto transformer	No	2			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF MOOKGO 6 PUMP STATION

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
			INSTRUMENTATION CABLING AND TERMINATIONS Supply and Install INSTRUMENT CABLES.Including the supply of St/St bandit strapping and temporary cable ties.(INSTALLED AT ALL HEIGHTS)					
4,66			Single Pair, 1.5mm2, PVCSWAPVC to instruments	m	150			90%
4,67			Multi-pair, 1.5mm2, PVCSWAPVC to Generator	m	20			90%
4,68			4mm ² 24 core PVCSWAPVC to Junction Box	m	5			90%
4,69			4mm ² 4 core PVCSWAPVC to Hand-Stations	m	60			90%
4,70			4mm ² 8 core PVCSWAPVC to MCC Bucket	m	20			90%
			Supply and Install INSTRUMENT CABLE TERMINATIONS. Include drilling of gland plates, supply of glands, shrouds, locknuts, lugs, ferrules, core markers, cable markers.					
4,71			Single Pair, 1.5mm2, PVCSWAPVC to instruments	No	12			90%
4,72			Multi-pair, 1.5mm2, PVCSWAPVC to Generator	No	2			90%
4,73			4mm ² 24 core PVCSWAPVC to Junction Box	No	10			90%
4,74			4mm ² 4 core PVCSWAPVC to Hand-Stations	No	8			90%
4,75			4mm ² 8 core PVCSWAPVC to MCC Bucket	No	8			90%
			INSTRUMENT COMMISSIONING					
			Instrument COLD commissioning					
4,76			I/O checks and tests - all loops	Sum	1			90%
			Instrument HOT commissioning					
4,77			Instrument Technician	Hrs	2			90%
4,78			Instrument Artisan	Hrs	2			90%
			Instrument documentation update "As Build" status					
4,79			Instrument document control	Hrs	1			90%
			TRENCH					
4,80			Pickable ground 300(w) x 800mm(d)	m ³	45			90%
4,81			Fill bottom of trench with sifted sand (100mm deep) and compact	m ³	9			90%
4,82			Danger warning tape (100mm)	m	300			90%
4,83			Backfill and fill with sifted soil. Compact in layers of 200mm	m ³	45			90%
TOTAL CARRIED FORWARD TO SUMMARY OF BILLS								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
		SANS 1200 L	<u>MEDIUM-PRESSURE PIPELINES</u>					
			Refer to Dwg No. C1201 - 1607					
		8.2.5	SUPPLY AND PLACE PIPES, VALVES AND SPECIALS					
5,1			Item 1 - 500 NB, Straight pipe one end flanged, other plain to cut to suit on site, paddle flange as shown, loose flange to weld on site. PN16	no	1			80%
5,2			Item 2 - 500 NB, Flange adaptor. PN16	no	4			80%
5,3			Item 3 - 500 NB, Butterfly valve. PN16	no	1			80%
5,4			Item 4 - 500 to 250 NB, 60° unequal lateral tee., all ends flanged. PN16	no	3			80%
5,5			Item 5 - 500 NB, Straight pipe one end flanged other plain for cutting to suit on site PN16	no	2			80%
5,6			Item 6 - 250 NB, Straight pipe one end flanged and the other plain cut to suit on site. PN16	no	3			80%
5,7			Item 7 - 250 NB, Flange adaptor. PN 16	no	6			80%
5,8			Item 8 - 250 NB, Premier resilient seal gate valve (SABS665). PN 16	no	3			80%
5,9			Item 9 - 250 NB, Straight pipe one end flanged, other plain for cutting to suite on site PN 16	no	3			80%
5,10			Item 10 - 250 to 150 NB, Eccentric reducer both ends flanged. PN 16	no	3			80%
5,11			Item 11 - Electric pump drive motor	no	3			80%
5,12			Item 12 - WKLn 125 pump	no	3			80%
5,13			Item 13 - 200 to 125 NB, Concentric reducer, flanged. PN 40	no	3			80%
5,14			Item 14 - 200 NB, Anchored flange adaptor. PN 40	no	3			80%
5,15			Item 15- 200 NB, Non-return, flanged. PN 40	no	3			80%
5,16			Item 16 - 200 NB, 90° medium radius elbow. PN 40	no	3			80%
5,17			Item 17 - 200 NB, Premier resilient seal gate valve (SABS665). PN40	no	3			80%
5,18			Item 18 - 200 NB, Anchored adaptor flange PN40	no	3			80%
TOTAL CARRIED FORWARD TO NEXT PAGE								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
5,19			Item 19 - 200 NB, Straight pipe one end flanged, other plain for cutting to suit on site, PN40	no	1			80%
5,20			Item 20 - 200ø to 80 ø, Reducing tee SABS 719. PN40	no	3			80%
5,21			Item 21 - 200 NB, 60° Medium radius bend, both ends flanged. PN 16	no	1			80%
5,22			Item 22 - 200 to 350 NB, Concentric reducer. PN 40	no	1			80%
5,23			Item 23 - 350 NB, Straight pipe one ends flanged, the other plain for cutting to suit on site. PN 40	no	1			80%
5,24			Item 24 - 350 NB, Anchored adaptor flange. PN 40	no	2			80%
5,25			Item 25 - 200 NB, Straight pipe one end flanged, other plain for cutting to suit on site. PN40	no	2			80%
5,26			Item 26 - 200 to 350 NB, 60° unequal lateral tee.All ends flanged. PN40	no	2			80%
5,27			Item 27 - 350 NB, Straight pipe oneend flanged, the other plain for cutting to suit on site PN40	no	1			80%
5,28			Item 28 - 350 NB, Medium radius 45° bend both ends flanged PN40	no	2			80%
5,29			Item 29 - 350 NB, Straight pipe both ends flanged, puddle flange as shown PN40	no	1			80%
5,30			Item 30 - 350 NB, Straight pipe both ends flanged, PN40	no	1			80%
5,31			Item 31 - 500 NB, Loose flange PN16	no	1			80%
5,32			Item 32 - 80 NB, Premier resilient seal gate valve (SABS 665)	no	3			80%
5,33			Item 33 - 80 NB, Air valve double orifice	no	3			80%
			Refer to Dwg No. C1201 - 1284					
5,34			Item 1 - 400 / 406 NB, Straight pipe both ends flanged , restraining flange as indicated	no	1			80%
5,35			Item 2 - 400NB Sweep Tee Flanged, medium radius 70 Degree, PN10	no	1			80%
5,36			Item 3 - 400/150NB Eccentric reducer flanged PN10	no	1			80%
5,37			Item 4 -400NB Straight Pipe both end flanged, restraining flange as indicated PN10	no	1			80%
5,38			Item 5 - 100 NB Two section 60 Degree Bend PN10	no	1			80%
5,39			Item 6 - 100NB Resilient Seal gate Valve Flanged PN10	no	1			80%
5,40			Item 7 - 100 NB, Flanged Adaptor PN 10	no	1			80%
5,41			Item 8 - 100NB Straight Pipe one end flanged, other for cutting on site to suit	no	1			80%
TOTAL CARRIED FORWARD TO SUMMARY OF BILLS								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE								
5,42			Item 9 -100ø Mechanical Turbine Flow Meter, PN10	no	1			80%
5,43			Item 10 - 100ø, Straight pipe both ends flanged restraining flange as indicated,PN10	no	1			80%
5,44			Item 11 - 100 NB, SG Flange Adaptor ,PN10	no	1			80%
5,45			Item 12 - 150/165 &100/114 Unequal Tee 60 degree PN10	no	1			80%
5,46			Item 13 - 150 NB, Resilient Seal Gate Valve, Flanged.PN 10	no	1			80%
5,47			Item 14 - 150 NB, Flanged adaptor. PN 10	no	1			80%
5,48			Item 15 - 150/165 NB, Straight pipe one end flanged, other plain for cutting to suit on site. P10	no	1			80%
5,49			Item 16 - 150 NB, Mechanical turbine flow meter.PN10	no	1			80%
5,50			Item 17 - 150/165 NB, Straight pipe both end flanged, restraining flange as indicated. PN10	no	1			80%
5,51			Item 18 - 100 NB, SG flange adaptor. PN10	no	1			80%
5,52			Item 19 - 450/406 NB, Straight pipe one end flanged, the other for cutting on site to suit. PN10	no	1			80%
			Refer to Dwg No. C1201 - 1285					
5,53			Item 1 - 350/356 NB, Straight pipe one end flanged, for cutting on site to suit restraining flange as indicate. PN40	no	1			80%
5,54			Item 2 - 350 NB, Flange Adaptor.PN 40	no	1			80%
5,55			Item 3 - 350 NB, Mechanical Turbine Flow Meter.PN40	no	1			80%
5,56			Item 4 - 350/356 NB, Straight pipe both end flanged.Restricting flange as indicated. PN40	no	1			80%
TOTAL CARRIED FORWARD TO SUMMARY OF BILLS								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
		PE	<u>ELECTRICAL</u>					
			ELECTRICAL WORKS					
			SUPPLY, FABRICATE AND FIX THE FOLLOWING ELECTRICAL WORKS COMPLETE					
			MAJOR EQUIPMENT					
6,1			400 V MCC, 45 kA, as per Single Line Diagram and specifications. MCC to be located within Pump Station Building. MCC to be complete with UPS and control transformer Unit .	No	1			90%
6,2			15kVA, 400V, 50Hz, 3 Phase, Diesel Generator, complete with Changeover panel and mains failure control, suitable	No	1			90%
6,3			Transformer, 11kV/400V, 630 kVA, Dyn11, with supports and fencing; Transformer to be installed outdoors at base of pole	No	1			90%
6,4			Ground Mounted Bulk Metering Unit for Metering, mounted next to transformer above.	No	1			90%
6,5			MV ring Main Unit at Ekurhuleni supply point - 3 way with 630A Circuit Breakers including plinth, to be fenced with transformer	No	1			90%
6,6			150kW soft starters	No	3			90%
6,7			132kW Asynchronous Induction Pump motors	No	3			90%
6,8			32kW Power factor correction equipment for each large induction pump motor	No	3			90%
6,9			Switchgear on 400V feeder	No	1			90%
			CABLE RACKING AND CABLE SUPPORT					
6,10			Supply and install CABLE RACKING, (U-Line), including nsn plates, nuts, bolts and washers, hold down fasteners and 16mm lugged EARTH STRAPS across all splice joints.					
6,11			Hot-Dip Galvanized Racking (i) 600mm wide rack (3m sections)	No	7			90%
6,12			(ii) 200mm wide rack (3m sections)	No	15			90%
			Supply and Install MILD STEEL ANGLE sections used for cable rack supports, cable droppers, including fabrication, installation, cleaning and painting. Including the supply of all fixing bolts and sundries.					
6,13			100 x 50 PFC Channel	m	24			90%
6,14			25mm x 25mm x 3mm Angle Iron	m	90			90%
6,15			Steel Plate (Mild steel) 150 x 150 x 8mm	No	21			90%
			Supply and Install OL1000 CHANNELS used for cable racking supports, (O-Line), including fabrication and installation, including the supply of all fixing bolts, fasteners and sundries.					
6,16			OL1000 hot dip galvanized 6000mm	No	10			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
			INSTRUMENTATION CABLING AND TERMINATION					
			Supply and Install INSTRUMENT CABLES. Including the supply of St/St bandit strapping and temporary cable ties (INSTALLED AT ALL HEIGHTS)					
6,17			Single Pair, 1.5mm2, PVCSWAPVC to instruments	m	6500			90%
			Multi-pair, 1.5mm2, PVCSWAPVC to to Generator	m	20			
6,18			4mm2 4 core PVCSWAPVC to Hand-Stations	m	5			90%
			Plant lights / Power sockets / Welding Plugs etc	m	80			
6,19			4mm2 8 core PVCSWAPVC to MCC Bucket	m	20			90%
			Supply and Install INSTRUMENT CABLE TERMINATIONS. Include drilling of gland plates, supply of glands, shrouds, locknuts, lugs, ferrules, core markers, cable markers.					
6,20			Single Pair, 1.5mm2, PVCSWAPVC to instruments	No	18			90%
6,21			Multi-pair, 1.5mm2, PVCSWAPVC to Generator	No	2			90%
6,22			4mm2 24 core PVCSWAPVC to Junction Box	No	10			90%
6,23			4mm2 4 core PVCSWAPVC to Hand-Stations	No	8			90%
6,24			4mm2 8 core PVCSWAPVC to MCC Bucket	No	8			90%
6,25			Instrument commissioning					
			Instrument COLD commissioning					
6,26			I/O checks and tests - all loops	Sum	1			
			Instrument HOT commissioning					
6,27			Instrument Technician	Hrs	2			
6,28			Instrument Artisan	Hrs	2			
6,29			Instrument documentation update "As Build" status					
6,30			Instrument document control	Hrs	1			
			Install Field Hand Stations - Start/Off/ Auto stations, rated IP65 complete with powder coated mild steel splash covers complete with top lip, back and side covers. Including all fixings and anchors					
6,31			Field Handstations - 3 position switch	No	3			90%
			Welding socket-outlets					
			Supply and Install IP54 Splashproof Dual Interlocked Socket - Metal with integrated earth leakage protection to 30mA. Unit shall be 3Ph+N+E with round outlet. Complete with a galvanised Mild Steel splash cover, top lip, back and side covers. Including fixings and anchors.					
6,32			Welding socket-outlets complete	No	1			90%
6,33			5 Core 10 mm ²	m	30			90%
			Supply and install Dual 230V 16amp industrial type metallic weather-proof SSO fixed to structural steel. Unit c/w local Earth Leakage unit rated at 30mA Complete with galvanised Mild Steel splash covers complete with top lip, back and side covers.					
6,34			16amp 3-pin hose proof socket-outlet	No	5			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
6,35			Supply and Install Galvanized Conduit c/w fittings, saddles, fasteners, bends, inspection boxes inline joints, pull wires Internal Diameter 25mm	m	100			90%
6,36			Supply and Install Galvanized Conduit bends Internal Diameter 25mm	No	24			90%
6,37			Supply and Install Galvanized Conduit inspection boxes Internal Diameter 25mm	No	7			90%
LIGHTING AND SMALL POWER								
Supply & Install onto purpose made brackets. Lighting Luminaire Fittings c/w brackets & consumables be included for each light fitting.								
6,38			2X58W Vapour Lume Fluorescent	No	5			90%
6,39			400WMV Industrial Highbay enclosed Luminaire	No	3			90%
6,40			2x18W PL Eyelid Bulkhead Luminaire Controlled by Photocell	No	5			90%
6,41			Photocell as per Specifications	No	1			90%
6,42			2x25W Decorative Surface watertight Bulkhead	No	1			90%
6,43			4x4 13A Single Socket Outlet	No	4			90%
Supply & Install light switches								
6,44			Two Way 16A	No	4			90%
Supply and Install CCG / PRATLEY UTILITY BOX, complete with terminals, mounting rail, earth tag and end stops.								
6,45			4 way x size1 termination box	No	16			90%
Supply and Install galvanised Mild Steel BACKING PLATE, for mounting of CCG / pratley utility box.								
6,46			100mm x 100mm plate	No	16			90%
Supply and Installation of 600/1000volt CABLE PVC SWAPVC installed on racks or Angle, including the supply of St/St bandit strapping, PVC cable ties & temporary ties. (St/St strapping to be every 1.5M)								
INSTALLED AT ALL HEIGHTS.								
6,47			2.5mm x 3core	m	1			90%
6,48			2.5mm x 7core	m	1			90%
6,49			4.0mm x 3 core	m	1			90%
Supply and Installation of 600/1000volt PVC FLEXIBLE CABLE, installed on racks or angles including the supply of PVC cable strapping & temporary ties.								
6,50			2.5mm x 3 core	m	150			90%
6,51			2.5mm x 7core	m	1			90%
6,52			4mm x 3 core	m	100			90%
Supply and installation of 600/1000volt PVC FLEXIBLE CABLE complete TERMINATIONS. Including drilling of gland plates, supply of glands, shrouds, locknuts, lugs ferrules, core markers, cable markers (Grafoplast)								
6,53			2.5mm x 3core	No	20			90%
6,54			4mm x 3 core	No	10			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
6,55			Supply and Install Pre-galvanised MILD STEEL ANGLE sections used for cable droppers, including fabrication and installation. Including the supply of all fixing bolts and sundries					
			50mm x 50mm x 5mm angle	m	48			90%
6,56			25mm x 25mm x 3mm angle	m	48			90%
EARTHING								
Supply and Install eartmat and lightning protection system as per Earthing Drawing and Specifications:								
6,57			Provide for detailed soil survey and Lightning Risk assessment study by earthing specialists.	No	1			90%
6,58			10mm ² BCEW	m	10			90%
6,59			35mm ² BCEW	m	20			90%
6,60			70mm ² BCEW	m	90			90%
6,61			150mm ² BCEW	m	20			90%
6,62			2x240mm ² BCEW	m	50			90%
6,63			1m long earth rods, 16mm diameter buried in ground	No	12			90%
6,64			Equipotential Busbar with insulators (300x50mm)	No	1			90%
6,65			Exothermic Welds and T-joints	No	16			90%
6,66			Mast, lightning protection, galvanized steel - 18m	No	1			90%
6,67			Cast Iron Earth well inspection box	No	4			90%
ELECTRICAL COMMISSIONING								
Cold commissioning in terms of the specification.								
6,68			Test all Motor / Feeder circuits	No	3			90%
6,69			Test all Lightning and smallpower circuits - Plant	Hrs	6			90%
6,70			Hot commissioning assistance					
6,71			Electrical Technician	Hrs	6			90%
6,72			Electrical Artisan	Hrs	6			90%
CERTIFICATION and TESTING of Installation, including all relevant certificates, and QA/QC documentation (to SANS 10142)								
6,73			MCC	Sum	1			90%
6,74			DB's	Sum	1			90%
6,75			Generator	Sum	1			90%
6,76			Plantlights / Power sockets / Welding Plugs etc	Sum	1			90%
6,77			Transformer	Sum	1			90%
TOTAL CARRIED FORWARD								

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
			INSTRUMENTATION EQUIPMENT (INCLUDING FIRE AND SECURITY DETECTION SYSTEM)					
			Supply and Install, in the field, Including fabrication, and installation of mounting brackets where required. Including all fixings and anchors.					
6,78			Magnetic Flow Meters	No	2			90%
6,79			Level Switch	No	1			90%
6,80			Pressure Transmitter	No	3			90%
6,81			Analogue pressure guage with annular diaphragm and discharge pressure switch	No	3			90%
6,82			Valve Limit Switch	No	3			90%
6,83			Ultrasonic Level Transmitter	No	2			
			Supply and Install INSTRUMENT Junction Boxes (Min IP65) Including all marking and labelling, supply of all mounting steelwork, fixing bolts and sundries, c/w enclosure and splash cover, top drip, back and side covers.					
6,84			As per Specifications for E&I Interface Junction Box	No	1			90%
			Install PLC Control Panels, complete with Hardware and Software, including any required cabling. Including the supply of all mounting steelwork, fixing bolts and sundries					
6,85			PLC Hardware	Sum	1			90%
6,86			HMI Hardware	Sum	1			90%
6,87			Fire Detection and Security System as per Project Specifications Complete	Sum	1			90%
			POWER CABLING AND TERMINATIONS-PLANT					
			Supply and installation of 600/1000volt CABLE SANS 1507-3 PVC/SWA/PVC, installed on rack or Angle. Including the supply of St/St bandit strapping, PVC cable ties and temporary ties. (St/St strapping to be every 1.5M)					
6,88			2.5mm ² x 4C PVC/SWA/PVC	m	100			90%
6,89			4mm ² x 4C PVC/SWA/PVC	m	40			90%
6,90			6mm ² x 4C PVC/SWA/PVC	m	150			90%
6,91			10mm ² x 4C PVC/SWA/PVC	m	40			90%
6,92			70mm ² x 4C PVC/SWA/PVC	m	20			90%
6,93			120mm ² x 4C PVC/SWA/PVC - From MCC to 132 kW Motors	m	90			90%
6,94			120mm ² x 4C PVC/SWA/PVC - From MCC to Power factor Correction Panel	m	10			90%
6,95			150mm ² x 4C PVC/SWA/PVC -2 runs	m	20			90%
6,96			240mm ² x 4C XLPE - From Transformer, 4 runs	m	50			90%
6,97			MV 11 kV Aluminium Conductor Droppers from OH Line to terminate onto MV cable on pole	m	10			90%
6,98			MV 95mm ² 3 core XLPE Cable from Pole to terminate onto transformer at base of pole	m	12			90%
TOTAL CARRIED FORWARD								

BABANANA BULK WATER PROJECT RS135

Phase 1B: Construction of Mawa 8 & Mookgo 6 Booster Pump Stations for Electrical & Mechanical Works

CONTRACT NUMBER: LNW 03/21/22

CONSTRUCTION OF A PUMP STATION IN MAWA 8

SCHEDULE OF QUANTITIES

ITEM NO.	LI	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	LOCAL CONTENT
TOTAL BROUGHT FORWARD								
			Supply and installation of 600/1000volt cable PVC/SWA/PVC complete TERMINATIONS. Including drilling of gland plates, supply of glands, shrouds, locknuts, lugs, ferrules, core makers, cable makers (Grafoplast)					
6,99			2.5mm ² x 4C PVC/SWA/PVC	No	4			90%
7,00			4mm ² x 4C PVC/SWA/PVC	No	2			90%
7,01			6mm ² x 4C PVC/SWA/PVC	No	4			90%
7,02			10mm ² x 4C PVC/SWA/PVC	No	2			90%
7,03			70mm ² x 4C PVC/SWA/PVC	No	2			90%
7,04			120mm ² x 4C PVC/SWA/PVC - From MCC to 132 kW Motors	No	6			90%
7,05			150mm ² x 4C PVC/SWA/PVC - 2 runs	No	2			90%
7,06			240mm ² x 4C XLPE - From Transformer, 4 runs	No	2			90%
7,07			MV 11 kV Aluminium Conductor Droppers from OH Line to terminate onto MV cable on pole - T-Joints at OH Line	No	3			90%
7,08			MV 95mm ² 3 core XLPE Cable from Pole to terminate onto transformer at base of pole	No	2			90%
			TRENCH					
7,09			Pickable ground 300(w) x 800mm(d)	m ³	930			90%
7,10			Fill bottom of trench with sifted sand (100mm deep) and compact	m ³	186			90%
7,11			Danger warning tape (100mm)	m	6200			90%
6,100			Backfill and fill with sifted soil. Compact in layers of 200mm	m ³	930			90%
TOTAL CARRIED FORWARD TO SUMMARY OF BILLS								

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

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.

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:

.....

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

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.

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 bidder

LEPELLE NORTHERN WATER



RE-ADVERT TENDER NO: LNW 02/22/23

PROJECT NAME: BABANANA WATER PROJECT RS 135 -

**PHASE 1B: - CONSTRUCTION OF MAWA 8 & MOOKGO 6
BOOSTER PUMP STATIONS FOR ELECTRICAL AND
MECHANICAL WORKS
(RE-ADVERT)**

Cancellation of LNW 03/21/22

BOOK 2 of 3: THE TENDER, CONTRACT DATA AND PRICING DATAA CIDB

GRADING: 7 ME OR HIGHER

CLOSING DATE: 31st JANUARY 2023 @ 11:00 AM

ISSUED BY:

LEPELLE NORTHERN WATER

Physical address: 01 Landros Mare Street
Polokwane
0700

Postal address: Private Bag X9522
Polokwane
0700

Tel: 015 295 1800

Fax: 015 295 1931

E-mail: information@lepelle.co.za

NAME OF TENDERER: _____

TOTAL AMOUNT: _____ **(incl. VAT)**

CONTENTS

BOOK 2 OF 3

NUMBER	HEADING	PAGE	COLOUR
<u>PART C3</u>	<u>SCOPE OF WORK</u>		
<u>C3.1</u>	<u>DESCRIPTION OF WORKS</u>		
<u>C3.2</u>	<u>STANDARD SPECIFICATIONS</u>		
<u>C3.3</u>	<u>AMENDMENTS TO THE STANDARD SPECIFICATIONS</u>		
<u>C3.4</u>	<u>TECHNICAL SPECIFICATIONS</u>		
<u>C3.5</u>	<u>HIV/AIDS REQUIREMENTS</u>		
<u>C3.6</u>	<u>OCCUPATIONAL HEALTH AND SAFETY</u>		
<u>C3.7</u>	<u>GENERAL CONDITIONS OF CONTRACT (GOVERNMENT)</u>		
<u>C3.8</u>	<u>LABOUR INTENSIVE CONSTRUCTION</u>		
<u>C4</u>	<u>SITE INFORMATION</u>		
	<u>ANNEXURE 1: MATERIALS LIST AND GENERAL ARRANGEMENT DRAWINGS</u>		
	<u>ANNEXURE 2: BASELINE RISK ASSESSMENT</u>		

Tender No: LNW 02\22\23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



PART C3

SCOPE OF WORK

C3.1 DESCRIPTION OF WORKS

The Babanana Pipeline Project (RS135) was declared as an Emergency Works by then the Minister of Water and Environmental Affairs on the 14 July 2012. This was due to critical shortages of treated potable water encountered by the settlements within the Letaba/Ritavi Water Supply System (WSS). The Letaba/Ritavi Water Supply System (WSS) comprises of the Xihoko distribution system, which is the bulk regional water distribution system downstream of the 5000 kl Serololoro command reservoir including bulk distribution pipelines, village reservoirs and pump stations where required. In order to supply the areas downstream of the Hlohlokwe and Mothomeng reservoir, it is required to construct two pump stations namely the Mawa 8 and Mookgo 6 PS. These pump stations shall serve the following purpose:

- Mawa 8 Pump Station shall pump water from Mawa 8 reservoir to the 5MI Command Reservoir North-West of Hlohlokwe. The pump station structure is almost complete. Thus, it urgently requires the electrical and mechanical equipment for it to function;
- Mookgo 6 Pump Station shall pump water from Mookgo 6 reservoir to the new 0.6MI Mothomeng Reservoir. The pump station structure is almost complete. Thus, it urgently requires the electrical and mechanical equipment for it to function;

C3.1.1 SCOPE OF WORK

The scope includes but is not limited to the following items:

Note: It remains the contractor's responsibility to ensure that the newly installed pipes and valves specifications indicated in the specification provided, under scope of work and tables below, particularly the valve flanges and face to face dimensions are being verified/approved and of the correct sizes prior to supply and delivery to site.

INSTALLATION OF PUMP STATION MECHANICAL AND ELECTRICAL INFRASTRUCTURE

The scope of work comprises of the installation, selection, manufacture, supply, testing in factories, care and storage, delivery to site, off-loading on site, assembly and installation on site, connections, testing on site, "dry" commissioning and "wet" commissioning of the mechanical works (pumps, pipe fittings & valves), electrical works and equipment and handing over in working order of the complete electrical works as specified herein.

The contractor shall also work closely with the Engineer to establish the control philosophy and the software of all the instrumentation and controls.

a) 500 NB, Butterfly valve. PN16 – PUMP STATION MAWA 8

Item	Description	Material

1	Hand Wheel	Ductile Iron – GGG40 - FBE
2	Bush	Self-Lubricating Bronze/Vesconite
3	O-Ring	NBR / EPDM
4	Spindle	Stainless Steel – Grd 410
5	Pin	Stainless Steel – Grd 410
6	Disc	Ductile Iron – GGG40 - FBE
7	Spindle	Stainless Steel – Grd 410
8	Body	Ductile Iron – GGG40 - FBE
9	Bush	Self-Lubricating Bronze/Vesconite
10	O-Ring	NBR / EPDM
11	O-Ring	NBR / EPDM
12	Retaining Ring	Stainless Steel – Grd 304
13	Replaceable Sealing Ring	NBR / EPDM
14	Sealing Ring	Stainless Steel – Grd 304
15	Clutch	Hardened Steel
16	Quantities	1 (one)

b) 250 NB, Premier resilient seal gate valve, flanged (SABS665). PN 16 – PUMP STATION MAWA 8

ID	Item	Specification
1	Body	Ductile Iron BS 1563 – Gr450/10
2	Bonnet	Ductile Iron BS 1563 – Gr450/10
3	Gate	Ductile Iron BS 1563 – Gr450/10
4	Bridge	Ductile Iron BS 1563 – Gr450/10
5	Handwheel	Ductile Iron BS 1563 – Gr450/10
6	Gate Nut	Gunmetal BS1400 – GrLG2
7	Spindle	Stainless steel BS970 – Gr431
8	Drive Nut	Gunmetal BS1400 – GrLG2
9	Body sealing ring	Gunmetal BS1400 – GrLG2
10	Gate sealing ring	Gunmetal BS1400 – GrLG2
11	Packing	Braided Graphite
12	Gaskets	EPDM or Compressed Fibre
13	Quantities	3 (three)

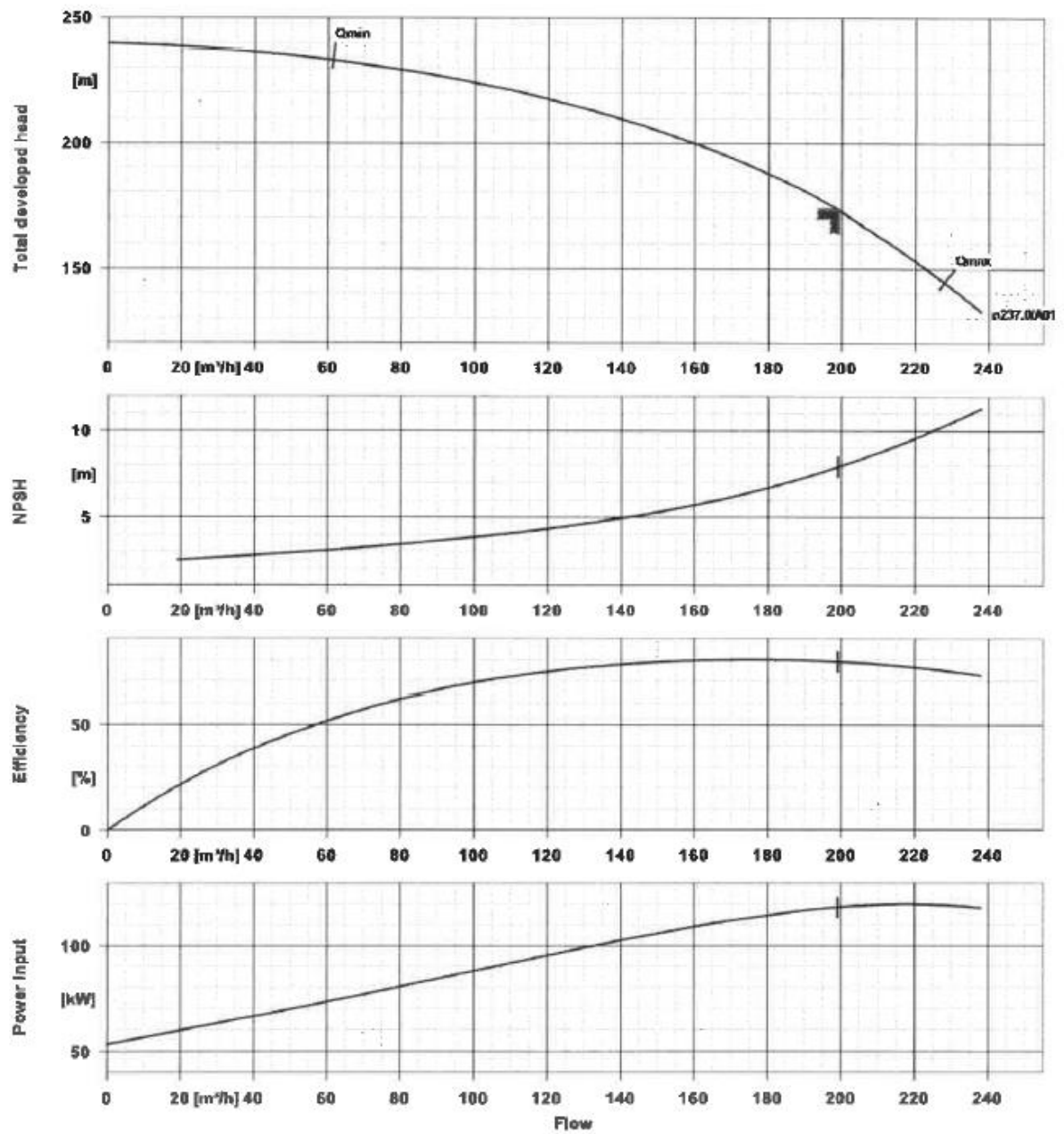
c) Electric pump drive motor. – PUMP STATION MAWA 8

ID	Item	Specification

1	Frame:	Squirrel cage induction type
2	Rated Power:	400V 50Hz, 3 phase 50Hz
3	Speed:	160 to 200%
4	Rated Voltage:	400V
5	Insulation:	Class F
6	Frequency:	50Hz
7	Enclosure:	IP65
8	Quantities	3 (three)

d) Pump – PUMP STATION MAWA 8

ID	Item	Specification
1	Pump Data	Sealing plan: E single acting mechanical
		Shaft seal code: 167
		Impeller diameter: 237.0mm
		Bearing bracket size: 100
		Free passage size: 16.0mm
		Full Impeller Diameter: 245.0mm
2	Hydraulic Data	Flow: 199 m ³ /h
		Head: 173.07m
		Speed: 1450 1/min
		Efficiency %: 79.2%
		Shaft Power: 118.23 kW
		NPSH required: 7.93m
3	Materials	Volute Casing: Cast iron
		Impeller: Cast Iron
		Shaft: Carbon Steel
		Shaft sleeve: Cast iron
		Seal: Packed Gland
		Diffuser: Cast iron
4	Shaft Seal	Type: Materials/Shaft seal
5	Coupling	Coupling Type
		Coupling Protection



e) 200 NB, Non-return valve, flanged. PN 40 – PUMP STATION MAWA 8

ID	Item	Specification
1	Size Range	DN40-900; 1 ½-36"
2	Flanged	ISO PN40
3	Threaded	BSP or NPT
4	Valve Patterns	"Y" (globe) & angle, globe (DN600-900;24"-36"
5	Working Temperature	Water up to 80°C; 180°F
6	Body & Actuator	Ductile iron
7	Internals	Stainless Steel
8	Diaphragm	Synthetic Rubber Nylon fabric-reinforced
9	Seals	Synthetic Rubber
10	Coating	Fusion bonded

f) 200 NB, Premier resilient seal gate valve (SABS665). PN40– PUMP STATION MAWA 8

ID	Item	Specification
1	Body	Ductile Iron BS 1563 – Gr450/10
2	Bonnet	Ductile Iron BS 1563 – Gr450/10
3	Gate	Ductile Iron BS 1563 – Gr450/10
4	Bridge	Ductile Iron BS 1563 – Gr450/10
5	Handwheel	Ductile Iron BS 1563 – Gr450/10
6	Gate Nut	Gunmetal BS1400 – GrLG2
7	Spindle	Stainless steel BS970 – Gr431
8	Drive Nut	Gunmetal BS1400 – GrLG2
9	Body sealing ring	Gunmetal BS1400 – GrLG2
10	Gate sealing ring	Gunmetal BS1400 – GrLG2
11	Packing	Braided Graphite
12	Gaskets	EPDM or Compressed Fibre
13	Quantities	3 (three)

g) 80 NB, Premier resilient seal gate valve (SABS 665) PN40– PUMP STATION MAWA 8

ID	Item	Specification
1	Body	Ductile Iron BS 1563 – Gr450/10

2	Bonnet	Ductile Iron BS 1563 – Gr450/10
3	Gate	Ductile Iron BS 1563 – Gr450/10
4	Bridge	Ductile Iron BS 1563 – Gr450/10
5	Handwheel	Ductile Iron BS 1563 – Gr450/10
6	Gate Nut	Gunmetal BS1400 – GrLG2
7	Spindle	Stainless steel BS970 – Gr431
8	Drive Nut	Gunmetal BS1400 – GrLG2
9	Body sealing ring	Gunmetal BS1400 – GrLG2
10	Gate sealing ring	Gunmetal BS1400 – GrLG2
11	Packing	Braided Graphite
12	Gaskets	EPDM or Compressed Fibre
13	Quantities	3 (three)

h) **80 NB, Air valve double orifice–PN40 PUMP STATION MAWA 8**

ID	Item	Specification
1	Type	Series RBX -Double with Anti Shock Orifice Mechanism
2	End Connection	Flat-faced flanged (ASME B16.5)
3	Studs, Nuts and Washers	Stainless Steel AISI 304
4	Top flange	Fusion Bonded Epoxy Power coated Ductile cast iron ASTM A536 Gr65-45-12
5	Top float	High Density Polyethylene
6	Nozzle	Stainless Steel AISI 316
7	Retainer Plate and Screws	Stainless Steel AISI 316
8	Nozzle seat	EPDM Rubber
9	Baffle Plate	Stainless Steel AISI 316
10	Top Cover	Stainless Steel AISI 304 or 316 available on request
11	Top Cover Screws	Cheesehead Stainless Steel AISI 304 or 316
12	O-Ring Seal	EPDM Rubber
13	O-Ring Seal	EPDM Rubber
14	Anti-Shock Orifice	High Density Polyethylene
15	O-Ring Seal	EPDM Rubber
16	Valve Body	Fusion Bonded Epoxy Power coated Ductile Cast Iron ASTM A536 Gr65-45-12

17	NPT Flush Port	Available in ¼" NPT on 2" low pressure valves. ½" NPT on 2" – 12" valves
18	Lower Float	High Density Polyethylene
19	Quantities	• (three)

i) 200 NB, Butterfly valve. PN16 – PUMP STATION MOOKGO 6

Item	Description	Material
1	Hand Wheel	Ductile Iron – GGG40 - FBE
2	Bush	Self-Lubricating Bronze/Vesconite
3	O-Ring	NBR / EPDM
4	Spindle	Stainless Steel – Grd 410
5	Pin	Stainless Steel – Grd 410
6	Disc	Ductile Iron – GGG40 - FBE
7	Spindle	Stainless Steel – Grd 410
8	Body	Ductile Iron – GGG40 - FBE
9	Bush	Self-Lubricating Bronze/Vesconite
10	O-Ring	NBR / EPDM
11	O-Ring	NBR / EPDM
12	Retaining Ring	Stainless Steel – Grd 304
13	Replaceable Sealing Ring	NBR / EPDM
14	Sealing Ring	Stainless Steel – Grd 304
15	Clutch	Hardened Steel
16	Quantities	a) (one)

j) 100 NB, Premier resilient seal gate valve (SABS 665) PN16–PUMP STATION MOOKGO 6

ID	Item	Specification
1	Body	Ductile Iron BS 1563 – Gr450/10
2	Bonnet	Ductile Iron BS 1563 – Gr450/10
3	Gate	Ductile Iron BS 1563 – Gr450/10
4	Bridge	Ductile Iron BS 1563 – Gr450/10
5	Handwheel	Ductile Iron BS 1563 – Gr450/10
6	Gate Nut	Gunmetal BS1400 – GrLG2
7	Spindle	Stainless steel BS970 – Gr431
8	Drive Nut	Gunmetal BS1400 – GrLG2
9	Body sealing ring	Gunmetal BS1400 – GrLG2

10	Gate sealing ring	Gunmetal BS1400 – GrLG2
11	Packing	Braided Graphite
12	Gaskets	EPDM or Compressed Fibre
13	Quantities	2 (two)

k) 80 NB, Non-return valve, flanged. PN 40 – PUMP STATION MOOKGO 6

ID	Item	Specification
1	Size Range	DN40-900; 1 ½-36"
2	Flanged	ISO PN40
3	Threaded	BSP or NPT
4	Valve Patterns	"Y" (globe) & angle, globe (DN600-900;24"-36"
5	Working Temperature	Water up to 80°C; 180°F
6	Body & Actuator	Ductile iron
7	Internals	Stainless Steel
8	Diaphragm	Synthetic Rubber Nylon fabric-reinforced
9	Seals	Synthetic Rubber
10	Coating	Fusion bonded

l) 80 NB, Premier resilient seal gate valve (SABS 665) PN40 – PUMP STATION MOOKGO 6

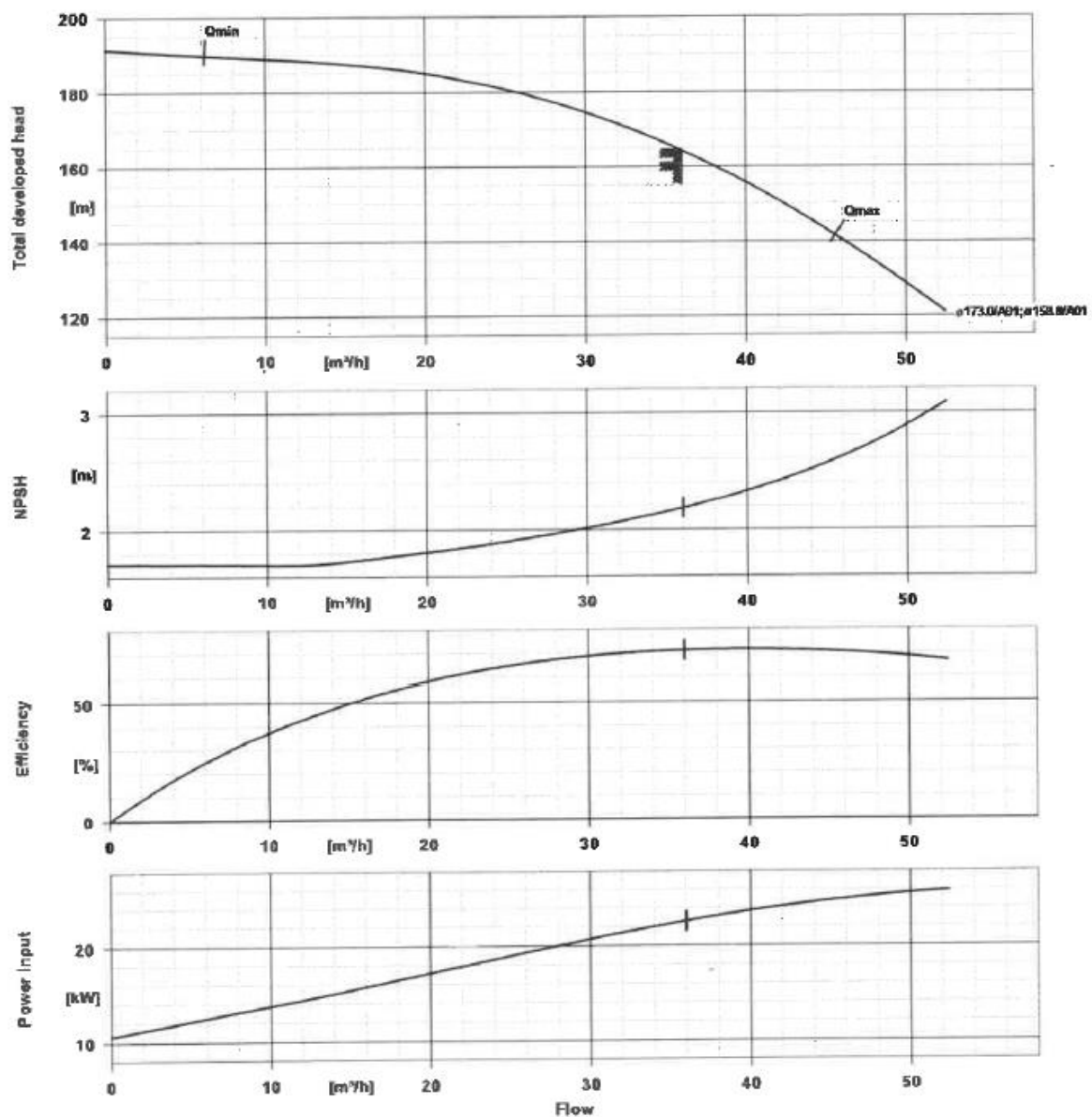
ID	Item	Specification
1	Body	Ductile Iron BS 1563 – Gr450/10
2	Bonnet	Ductile Iron BS 1563 – Gr450/10
3	Gate	Ductile Iron BS 1563 – Gr450/10
4	Bridge	Ductile Iron BS 1563 – Gr450/10
5	Handwheel	Ductile Iron BS 1563 – Gr450/10
6	Gate Nut	Gunmetal BS1400 – GrLG2
7	Spindle	Stainless steel BS970 – Gr431
8	Drive Nut	Gunmetal BS1400 – GrLG2
9	Body sealing ring	Gunmetal BS1400 – GrLG2
10	Gate sealing ring	Gunmetal BS1400 – GrLG2
11	Packing	Braided Graphite
12	Gaskets	EPDM or Compressed Fibre
13	Quantities	2 (two)

m) 200 NB, Mechanical Turbine Flow Meter.PN16

ID	Item	Specification
1	Power supply	Battery operated. Auto detection of power source with display symbol for operation power. 1 D-Cell 3.6 V/16.5 Ah, 2 D-Cell 3.6 V/33, Ah, OR 4 D-Cell 3.6 V/66 Ah option up to 15 years dependent on size.
2	Electrodes	Must have inbuilt measuring and grounding electrodes.
3	Logging	Inbuilt data logging of 26 records: selectable as daily, weekly or monthly logging.
4	AMR	Must have the option of an inbuilt 3G communication module as an option to upgrade if the need arises inclusive of a Ratiometric pressure plus analog input.
5	Calibration	ISO17025 approved
6	Diagnostics	To include continuous self-test of coil current to drive the magnetic field signal input circuit, Data calculation, handling and storing
7	Communication	IrDA integrated infrared communication interface with Modbus RTU protocol
8	Alarm statistics	Electrode impedance to check actual media contact, Low impedance alarm for change in media, Flow simulation to check pulse and communication signal chain for correct scaling.
9	Digital output	2 passive outputs (MOS), individual galvanically isolated. Maximum load ± 35 V DC, 50 mA short circuit protected
10	Totalizers	3 totalizers, forward, reverse & customised.
11	Enclosure	Stainless steel top housing (AISI 316) and coated brass bottom. Remote wall mount bracket in stainless steel (AISI 304).
12	Face to Face distance	600 mm
13	Meter verification	Verification mode for fast measure performance check. In built meter qualification test of insulation, coil current, electrodes & amplifier. Certificate to be generated by meter.
14	Drilling	EN1092-1 PN16
15	Corrosion Protection	Ethylene-propylene-rubber (EPDM)
16	Accuracy	Must have an option to include either an accuracy of 0.4% of rate ± 2 mm/s OR 0.2% of rate ± 2 mm/s dependent on size.
17	Resolution	Totalized information can be displayed with 1, 2 or 3 decimals or automatic adjustment.
18	Quantity	1 (One)

n) Pump – PUMP STATION Mookgo 6

ID	Item	Specification
1	Pump Data	Material code: BQ1EGG
		Shaft seal code: 167
		Impeller diameter: 173.0/158.0mm
		Seal chamber design: Std seal chamber
		Free passage size: 10.0mm
		Full Impeller Diameter: 173.0mm
2	Hydraulic Data	Flow: 36 m ³ /h
		Head: 164.36m
		Speed: 2965 1/min
		Efficiency %: 71.2
		Shaft Power: 23.1 kW
		NPSH required: 2.19m
3	Materials	Volute Casing: Cast iron
		Impeller: Cast Iron
		Shaft: Carbon Steel
		Shaft sleeve: Cast iron
		Seal: Packed Gland
		Diffuser: Cast iron
4	Shaft Seal	Type: Materials/Shaft seal
5	Coupling	Coupling Type
		Coupling Protection
	Quantities	2 (two)

**o) Electric pump drive motor. – PUMP STATION MAWA 8**

ID	Item	Specification
1	Frame:	Squirrel cage induction type
2	Rated Power:	400V 50Hz, 3 phase 50Hz
3	Speed:	160 to 200%
4	Rated Voltage:	400V
5	Insulation:	Class F
6	Frequency:	50Hz
7	Enclosure:	IP65
8	Quantities	2 (two)

The description of the project contained in this section is merely an outline of the contract works and shall not limit the work to be carried out by the Contractor under this contract.

Approximate quantities of each type of work to be carried out in accordance with the contract documents are listed in the Bill of Quantities.

The nature of work to be carried out under this contract includes *inter alia* the following:

- a) Submission of contractual documents;
- b) Obtaining of construction permit;
- c) Establishment of camps on site;
- d) Procurement of pumps, pipes, valves and fittings;
- e) Provision of workshop drawings for approval;
- f) Seeking approval by LNW and Engineer to proceed;
- g) Supply and delivery of pumps, new pipes and fittings;
- h) Supply, fabricate and install major electrical equipment complete;
- i) Supply and install cable racking and cable support;
- j) Supply and install LV cabling and termination;
- k) Supply and install lighting and small power;
- l) Earthing.
- m) Electrical commissioning.
- n) Instrumentation equipment (including fire and security detection system);
- o) Installation of all the mechanical equipment for the pump stations;
- p) Mechanical commissioning;
- q) Inspection by Engineer and LNW for quality; and
- r) Testing of newly installed infrastructure.

The project entails the following: supply, delivery, installation and commissioning of mechanical and electrical infrastructure that are SANS approved as per table below (Table 1).

Table 1: Overall specification for Mookgo 6 and Mawa 8 PS ME works

Description	Number
Butterfly Valve	2
Resilient Seal Gate Valve	10
Non-Return Valve	5
Air Valve double orifice	3
Electric Pump Drive Motors	5
Pumps	5
Transformers	2

C3.1.2 LOCATION OF WORKS

The pump station, with their coordinates, are:

RESERVOIR/PS	Latitude	Longitude	Approximate perimeter length
Mawa 8 PS	-23.584142°	30.512622°	250 m
Mookgo 6 PS	-23.619715°	30.458597°	146 m

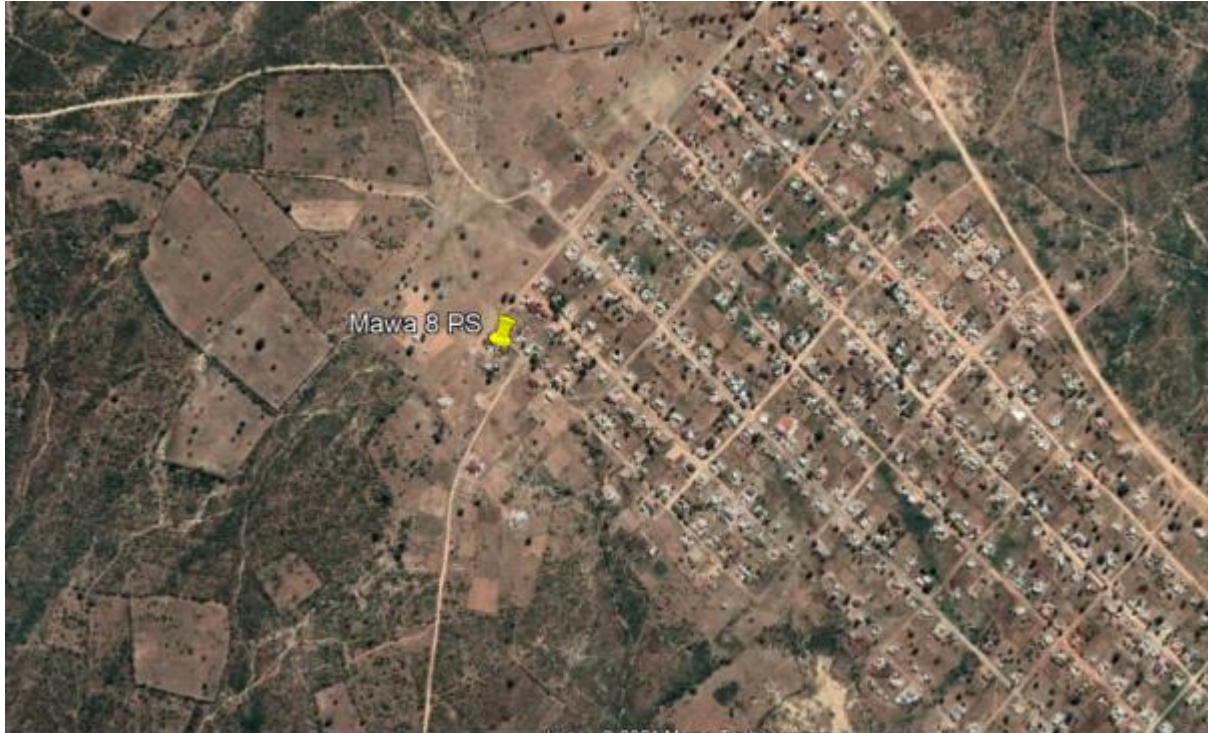
Tender No: LNW 02\22\23

BABANANA WATER PROJECT RS 135 -

Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



Mawa 8 PS: -23.584142°; 30.512622°&



Mookgo 6 PS: -23.619715°;30.458597°



C3.1.3 NATURE OF WORKS

The description of the project contained in this section is merely an outline of the contract works and shall not limit the work to be carried out by the Contractor under this contract. Approximate quantities of each type of work to be carried out in accordance with the contract documents are listed in the Bill of Quantities bound in this volume.

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- a) Submission of contractual documents;
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- j) Supply and install LV cabling and termination;
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- l) Earthing.
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- q) Inspection by Engineer and LNW for quality; and
- r) Testing of newly installed infrastructure.

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Transformers	2

C3.1.4 SPECIALIST SUBCONTRACTORS

In line with GCC 2015 (3rd edition) Clause 4.4.3, the main contractor would be required to source three (3) quotations from competent specialists' suppliers and service providers. Each quotation would be based on a schedule of quantities and terms of reference to be supplied by the Employer. The appointment of the selected subcontractor would be subject to the approval of the Employer.

LNW shall appoint the 3rd party inspection specialists through the provisional sums provided.

C3.1.5 PROJECT MEETINGS

The contractor shall be required to attend meetings relating to the Works and the site.

C3.1.6 DRAWINGS

The reduced drawings contained in C4 that form part of the tender document shall be used for tender purposes only and for information only.

Drawings are not to be scaled. Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the employer. If a dimension is not shown, it will be the responsibility of the contractor to find the correct dimension from the employer

Certain dimensions are marked thus “*” and are to be confirmed on site by the contractor.

And again, the closing length is to be determined on site to fit.

The contractor will be provided with three free sets of paper prints of the drawings and two free copies of the contract document.

In addition, a further set of paper prints of the drawings will be issued to the contractor which shall be kept on site and upon which the contractor shall record all data necessary for the compilation of "as-built" drawings. At the completion of the Works, these drawings shall be returned to the employer.

The contractor shall submit workshop/construction drawings for comments and approval by the employer before commencement of works

C3.1.7 AS BUILT DRAWINGS

The Contractor is required to supply to the Engineer for the records of the Employer the following:

- “As Built” plans showing the work designed by him in terms of the Contract as well as any additional information the Engineer or Employer may wish to have shown thereon. One paper print of each such plan as well AUTOCAD compatible digital file shall be submitted for the Engineer's approval within three months of the issue of a Certificate of Completion.
- Furthermore, at the extra set of paper prints issued to the contractor the contractor must pass all changes and with the conclusion of the works.

Any information in the possession of the contractor, which the Engineer requires to complete the as-built drawings, shall be supplied to the resident engineer before a certificate of completion will be issued.

No additional payment will be made, and the cost related thereto shall be deemed to be included in the tendered rates for the related items.

C3.1.8 CUSTODY OF DRAWINGS AND SPECIFICATIONS

The Drawings and Specifications shall remain the sole property of the Employer and the Contractor shall be required to sign for receipt thereof. The copyright of all documents shall vest in the Employer and the Drawings and Specifications may not be reproduced, in part or in whole, without the written authority of the Engineer

C3.1.9 COPYRIGHT

The copyright in all documents, drawings and records related to the purpose and scope of the Works or related in any other manner to the Works, shall vest in the Employer and the Contractor shall not furnish any information in connection with the Works to anybody without the approval of the Employer.

C3.1.10 POWER, WATER SUPPLY AND OTHER SERVICES

The contractor shall make his own arrangements concerning the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost of providing these services will be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

There is power available on site and for light duty at different buildings. The contractor must supply all temporary major connections at the works and connect directly to the plants where he will install an electrical meter. The use of electricity will be monitored and charged for at the Eskom current charge out rates by the owner for payment by the contractor. The client cannot guarantee supply of power and is noted that outage can be common in these areas. The contractor must make his own arrangements for emergency power supply to his camp and especially at critical machinery and plant of his operation. No extension of time for outage will be entertained. It is to be noted that a certified electrician must correctly install all site electrical extensions.

The employer will make metered potable water available at a standard charge of R7.00 per m³ for the normal execution of the works and the needs of the labour force on site. The Contractor shall make his own arrangements with the employer for a suitable connection point for a water supply for contractors' camp and construction purposes. Such installation inclusive of any water pipes and dispense taps will be for the contractor account. The contractor shall install at his expense a water meter to monitor the consumption of water and will be liable for any punitive payments required in regard to excessive use of water.

The following are noted:

- The abstraction and purification works have water available for use by the contractor, but the contractor's attention is drawn to the fact that water will not be available at certain periods during the refurbishment stage which he will be carrying out as well during the often occurring on site outage. The cost of the line to the main contractor camp will have to be borne by the general P&G rates offered. The connection point would be in the vicinity of the main water tower. The client cannot guarantee either the water supply or the water quality. Especially the water for drinking purposes.
- The Contractor shall comply with any measures regarding restrictions on the use of water laid down by the Employer from which water is directly or indirectly obtained.

C3.1.11 CONTRACTOR'S CAMP SITE AND SECURITY

The contractor shall make his own arrangements regarding the establishment of a camp site and housing for his construction personnel and all regulations stipulated by the local authority shall be adhered to.

It is anticipated that the contractor's choice of a camp site will be influenced by the availability of telephone and electrical connections as well as the supply of potable water. Provision is made in these specifications for the erection of a security fence around the site offices. The contractor shall be responsible for the security of his personnel and constructional plant on and around the site of the works and for the security of his camp, and the employer will consider no claims in this regard.

C3.1.12 ACCOMMODATION OF TRAFFIC

The contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

The contractor shall submit proposals in connection with directional signs to the engineer for approval.

C3.1.13 PROGRAMME REQUIREMENTS FOR CONSTRUCTION ACTIVITIES

The contractor shall programme his activities to be suitable in terms of his resources to complete the contract inside the stipulated time period.

C3.1.14 CONSTRUCTION IN CONFINED AREAS

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

C3.1.15 BARRICADING OF EXCAVATIONS

All excavations near pedestrian and vehicular traffic are to be barricaded to the satisfaction of the Engineer. Barricading shall consist of a minimum of two strands of parallel and horizontal wire of at least 2mm gauge, the topmost strand being fixed at least 1m above ground level. These wires shall be fixed to the approved fence posts, which shall be securely fixed in a vertical position.

The visibility of these barricades shall be enhanced by the attachment of high visibility construction tape to the posts and wire strands and by the placing of reflective signing to the Engineer's satisfaction. All costs arising from these requirements are to be included in the tendered rates for excavation.

C3.1.16 ENGINEERING

a) DESIGN

- The service provider/contractor responsible for the design of the permanent Works as reflected in these Contract Documents unless otherwise stated.
- The **Contractor** is responsible for the design of the temporary Works and their compatibility with the permanent Works.

- The **Contractor** shall supply all details necessary to assist the engineer in the compilation of the as-built drawings.
- The **Contractor** is responsible for all drawings in the entire project.

b) CONTRACTOR'S DESIGN

Where contractor is to supply the design of designated parts of the permanent Works or temporary Works, he shall supply full working drawings supported by a professional engineer's design certificate.

c) DESIGN PROCEDURE

All designs and modifications thereto shall be communicated in writing and the contractor and engineer shall maintain master lists to record and track all transactions.

C3.1.17 EQUIVALENCY OF STANDARDS AND CODES

Wherever reference is made in the Contract to specific standards and codes to be met by the goods and materials to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a country or region, other authoritative standards which ensure an equal or higher quality than the standards and codes specified will be accepted subject to the Engineer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 7 days prior to the date when the Contractor desires the Engineer's approval. In the event the Engineer determines that such proposed deviations do not ensure equal or higher quality, the Contractor shall comply with the standards specified in the documents.

C3.1.18 TEMPORARY ACCOMMODATION

The contractor shall make his own arrangements for accommodation of his workmen and staff. He shall liaise with the relevant authorities and comply with any regulations required. No accommodation will be allowed inside the security area of the purification works.

The contractor's site camp and site accommodation of personnel will be subject to the requirements of the Construction Safety Act of 2003, the requirements of the Employment Act and the Environmental Impact Report.

C3.1.19 HEALTH AND SANITATION

Provide health and sanitation in accordance to the latest safety act regulations. In a similar manner change rooms, shower facilities, site personnel eating facilities with gender separation where required are to be supplied. The contractor shall be responsible for the safe and environmentally acceptable disposal of all rubbish and rubble from the site, accumulated during the construction period. All facilities must comply with the OHS act.

The hygiene measures with regards to the works durations as well the number of personnel to be deployed on site must be seen very seriously by the contractor. Chemical toilets will only be allowed on a temporary basis for use at the furthestmost areas of the works, at the work face.

These shall be provided on the following basis:

One per 20 labourers of the Contractor's staff with separate facilities for male and female staff.

The Contractor shall make arrangements for the proper maintenance of these facilities.

Reference is made to the Health and safety act and specific requirements for sanitation. The Health and safety requirements are to be the prevailing standards requirements.

The main camp of the contractor will be expected to have container type ablution facilities with combined shower and hand wash facilities. Each chemical facility must be equipped with a hand cleaning facility with soap and paper towel dispenser. All effluent to be collected in containers for disposal of and evacuated timeously off site. Upon appointment and within two weeks a detailed plan must be put in place and submitted for the Engineer approval.

C3.1.20 NOTICE OF COVERING OF WORKS

The Contractor shall give due notice to the Engineer, whenever any work is intended to be covered over with earth or otherwise, in order that the Engineer may examine the work to determine that it is in accordance with the Specification and that its correct dimensions may be ascertained before the work is covered, and in default of such notice being received the work shall be uncovered at the Contractor's expense whenever instructions are given by the Engineer to do so.

C3.1.21 INSPECTION AND REJECTION OF FAULTY WORK

The Engineer or his representative (Resident Engineer) appointed by the Engineer shall have the full power to inspect the work during every stage of its construction, and for that purpose shall have free access to the works at all times. Should any work appear to the Engineer or his representative not be executed in accordance with the Specifications, the same may be immediately rejected, and the Contractor shall forthwith carry out the making good, breaking down and rebuilding where applicable of rejected work at his own expense.

The Engineer or his representative (Resident Engineer) appointed by the Engineer shall not be used as the CONTRACTORS SITE AGENT. The contractor is deemed to have carried out all PROCESS CONTROL before asking for the work to be inspected.

The inspection of all concrete work will be on all stages of the construction and no works will be released for the new stage unless is done so in writing by the Engineer the foundation level, the placing and fixing of steel and the final end product. Settings out and quality of shutters are the responsibility of the contractor and can only be accessed once the end product is built.

All inspection call outs (successful or not) will be recorded and must be reported at the site meetings.

Both parties must agree all defect lists with a completion date entered into the list for each defect.

All site communications are to be confirmed in writing.

C3.1.22 SETTING OUT OF THE WORKS

The Contractor shall set out the works using the various Setting Out Drawings. He will establish a system of setting out and reference pegs encased in concrete, which will be checked by the Surveyor of the Engineer and then maintained and protected for the duration of the contract by the contractor. Should any benchmark be disturbed it will be re-established and verified by the Engineer at the cost of the contractor.

The contractor shall set out the Works relative to the afore-mentioned system of reference pegs in accordance with the positioning and dimensions on the drawings.

C3.1.23 DISINFECTIONS OF THE WORKS

The Contractor shall be responsible for all disinfection of the structures he has worked on.

C3.1.24 FINISHING & TIDYING

Progressive and systematic finishing and tidying will form an essential part of this contract. Under no circumstances would spoil, rubble, materials, equipment or unfinished operations be allowed to accumulate unnecessarily. In the event of this occurring the Engineer will have the right to withhold payment for as long as necessary in respect of the relevant works in the area(s) concerned.

C3.1.25 DOCUMENTATION

At the conclusion of the commissioning independently from stage and before the takeover by the client, The Contractor shall provide, three sets of documents comprising the following.

- Temporary Operation manuals
- Maintenance manuals

At the conclusion of the works. The Contractor shall provide, three sets of documents comprising the following.

- As-Built drawings of the Contractor designs.
- Simple line diagrams of the security fence to be used for the operations and maintenance (OM) manuals. (Reference no will be the same as per the Engineer drawings). That reference no is to be used at the OM.
- List of specialist tools required.
- List of recommended lubricants.
- Name of the firm, address, contact details i.e. tell, fax, e-mail cell no, web site local and international and contact person.
- South African agent for imported material.
- Technical data. Specifications. Technical brochures. Check lists and manuals for local operators.
- Any manufacturer's data which covers more than one type of installations must be clearly marked to show which data is applicable to the model installed.
- Maintenance instructions. With time related information. i.e. Daily, weekly etc service needed.
- Applicable settings.
- List of available spare parts.
- List of action in case part is not functioning properly.
- Original of certificate of approval, testing, commissioned works.
- Each set of documents must be bound in clearly labelled ring binders.

- Drawings will be folded, placed in plastic wallets and positioned into the binder.
- All contractors drawing must be submitted in Auto CAD format. No hand drawn drawing will be accepted.
- One copy must be submitted to the Engineer for approval prior to the issue of the final sets.

C3.1.26 CONTRACTOR'S CODE OF CONDUCT

Workmen Instant Dismissal

Workmen may be instantly dismissed for the following:
Theft.

Violence with co-workers or supervising staff

Committing a criminal offence and is sentenced to prison without the option of a fine.

Misconduct

Any employee who, within a period of 6 months, receives two written warnings and for the third time is guilty of misconduct as listed below may be dismissed without further notice.

- Insubordination and constant refusal to follow instructions
- Absenteeism for 3 or more days without a valid medical certificate
- Repeatedly coming to work late
- Disruptive behavior conducive to delays in the work program
- Intimidation of other workers
- Dangerous behavior
- Use of alcohol or drugs during working hours
- Non-performance
- Abuse or waste of company property
- Continuous absenteeism

C3.1.227 FEATURES REQUIRING SPECIAL ATTENTION

a) EXISTING SERVICES

The Contractor shall be deemed to have made allowance in his tender for the need to protect the existing services from damage and to hand over the completed works with the existing services intact and undamaged.

Notwithstanding the information given herein, the Contractor shall retain full responsibility for establishing the exact positions of the various existing services, which may not be shown on the construction drawings, in advance of the main construction work.

The use of specialized equipment for location of power cables and other services is allowed into the relevant Bill of quantities

All the works areas with known services are to be preceded with thorough investigation with hand excavations and exposure of the services.

b) SURVEY BEACONS

The Contractor's attention is drawn to SABS 1200 A, Clause 5.1.2 - Preservation and Replacement of Beacons and Pegs subject to the Land Survey Act - and to the liabilities of the Employer and the Contractor in this regard.

The Contractor shall locate and mark all existing pegs.

The Contractor shall be held responsible for the maintenance of all the cadastral and benchmark pegs on the site that are recorded as existing at the commencement of construction, and for the placement of any pegs that are found to be missing or disturbed upon the completion of the contract. A Completion Certificate shall only be issued after the Contractor has handed back all the pegs and has submitted a certificate from a registered Land Surveyor to the Engineer stating that all relevant pegs are in their correct positions.

Notwithstanding Clause 8.8.5 of SABS 1200 A, the Contractor shall tender sums for searching for and protecting all pegs. Where pegs have been moved, disturbed or covered on the specific instruction of the Engineer, such pegs shall be reinstated by a registered Land Surveyor and shall be paid for by number reinstated on instruction of the Engineer.

C3.1.28 DAMAGE TO SERVICES AND EXISTING WORKS

a) RESPONSIBILITY OF CONTRACTOR

The Contractor shall be responsible for any damage to existing services and existing works in the execution of this contract and shall reimburse the Owner concerned for any repairs required or compensation for damages awarded. The Contractor's attention is drawn to Clause 3.1.30 and SABS 1200 A, Clause 5.4.

b) NOTIFICATION

The Contractor will be responsible for immediately notifying the Authorities concerned the Employer and the Engineer regarding any damage caused to public services and existing works.

The Engineer's Representative must be notified without delay.

C3.1.29 WORK ON PUBLIC AND PRIVATE PROPERTY

The Contractor shall exercise the greatest care to avoid unnecessary damage to trees, gardens, fences, walls and structures on public and private property, and also strictly supervise the behavior of his workmen.

On completion of the work over or in the vicinity of Local or Tribal Authority or private property, the Contractor shall ensure that anything that may have been disturbed or damaged has been compensated for or reinstated to a condition equal to that which it was before construction commenced and also to the satisfaction of the owner concerned. The materials resulting from any demolition of existing structures shall be the property of the owner.

C3.1.30 REGULATIONS

The Contractor shall in all respects conform to the requirements contained in regulations by higher authorities. Such regulations shall include *inter alia*:

- 1.) ***National Building Regulations. SABS 400**
- 2.) Code of Practice for the Wiring of Premises, SABS 0142-1981 as amended.
- 3.) The Mines and Works Regulations, Government Notice Number R1609 of 1962-09-28, as amended.
- 4.) ***The Occupational, Health and Safety Act 85/93, as amended.**
- 5.) The local Municipal Byelaws and Regulations as well as the regulations of the local Supply Authority.
- 6.) The local Fire Regulations.
- 7.) The regulations of Telkom.



- 8.) The regulations of the local Gas Board where applicable.
- 9.) The standard regulations of any Government Department or public service company where applicable.
- 10.) The Regulations of Lepelle Northern Water attached at volume no 1.
- 11.) The Regulations of Eskom
- 12.) ***The NHBRC National home builders: Home building manual part 1&2,& part 3 two volumes**
- 13.) ***SABS 1200 and the application SABS 0120.**
- 14.) The construction Regulations of the Construction Industry Development Board (CIDB)

The regulations marked “*” are to be kept on site.

The Contractor shall pay and indemnify the Employer against any fees or charges by law and shall keep the Employer and the Engineer indemnified against all penalties and liabilities of any kind for breach by the Contractor or any of the conditions due by law, except insofar as amended or specifically allowed by the Engineer.

C3.1.31 LABOUR BASED CONSTRUCTION

Employment of local labour

The contractor shall limit the utilization of permanently employed personnel for the execution of the Works to key personnel, such as contracts manager, site agent, foreman, supervisors, plant operators, material technicians, surveyors, trainers, buyers, storemen and the like should such expertise not be available within the community. Not less than 70% of the labour employed on site shall be drawn from the community closest to the contract Works.

The contractor, in conjunction and in co-ordination with the local community/Local Authority, will establish a Community Liaison Officer (CLO) within the local community and the Contractor shall apply to the CLO for details of local laborer's who are available and shall give preference to the employment of these laborer's identified through the CLO.

The employment of labour from outside the local area will only be allowed in the event of:

- The unavailability within the local community of sufficient numbers of local laborer's to execute the work,
- The unavailability of required skills within the local community necessary for the execution of specific tasks
- Where the completion period does not permit the creation of the necessary skills through training.

In these cases, the contractor shall prove to the satisfaction of the Employer that he has exercised his best endeavors and taken all reasonable actions to recruit local labour.

The Contractor shall maintain accurate and comprehensive daily records of all labour engaged on the contract and shall submit to the Employer at two weekly intervals detailed labour returns substantiating the actual numbers of labours employed, the amounts actually paid in respect thereof, and details of the various activities undertaken by the labourers.

The Contractor shall employ a Community Liaison Officer (CLO), through the Labour Committee (LC) representing the local community. The CLO and LC shall be the

facilitators for all negotiations between the Contractor and the Labourers. An Agreement signed by the LC on behalf of the Labourers shall be given to and accepted by the Contractor and applied without revisions. The Contractor may price to recover his Payment for the CLO in the P & G and where he enters no price; it shall be assumed that the cost of the CLO is included in the other rates.

C3.1.32 ENVIRONMENT AND SAFETY

The Environmental Management Plan (EMP) for the site of the Works has been commissioned by the Client and will be issued to the Successful Contractor.

The Contractor shall comply with all the requirements laid down in the EMP. The Contractor shall take time to acquaint his employees with the provisions, regulations, duties, obligations and prohibitions, and shall accept sole liability for due compliance with the duties, obligations and prohibitions and absolve the Employer from being obliged to comply with the aforesaid duties, obligations and prohibitions.

In case of failure on the part of the Contractor to comply with the requirements of the EMP, the Employer shall be entitled to employ and pay other persons to carry out any remedial work to rectify any consequence resulting from the non-compliance by the Contractor and all cost consequent or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer. If it is not practical to rectify any consequence resulting from the non-compliance of the Contractor with the EMP the Employer will be entitled to impose a penalty on the Contractor which penalty shall be in relation to the expense which the Contractor would have incurred to comply.

The Contractor shall indemnify the Employer and the Engineer against responsibility for damage to the environment on the site of the Works.

C3.1.33 RECORDING OF WEATHER

The Engineer shall adjudge the extent of the delays that are attributable to "abnormal climatic conditions", however, in order to assist him in this regard, the Contractor must erect a rain gauge at the site office to record rainfall figures. The reading of the rain gauge shall be made at 08h00 and 16h00 of each working day of the contract. The records shall be submitted weekly to the Employer's Agent (the Engineer); together with a statement recording the Contractor's opinion of the effect on his programme of any weather condition that he may consider to be abnormal.

C3.1.34 INCLEMENT WEATHER

No extension of time for completion will be granted on account of normal inclement weather but extension of time shall be determined for abnormal rainfall or wet conditions. The extension request must be in accordance with the formula given below, separately for each calendar month or part thereof. It shall be calculated for the period from the Commencement Date to the Due Completion Date or the date of issue of the Certificate of Practical Completion, whichever is earlier, and excluding the Contractor's year-end recess.

$$V = (N_w - N_n) + (R_w - R_n) / X$$

The symbols shall have the following meanings:



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

Nw = Actual number of days during the relevant calendar month on which Y mm or more of rainfall has been recorded.

Nn = Average number of days in the relevant calendar month on which Y mm or more of rainfall has been recorded, as derived from the rainfall records provided in the Project Specification.

Rw = Actual rainfall in mm for the calendar month under consideration.

Rn = Average rainfall in mm for the relevant calendar month, as derived from the rainfall records provided in the Project Specifications.

If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.

For this Contract, X and Y shall have the following values:

X = 20 mm/d Y = 10 mm

Extensions of time for part of a month shall be calculated using pro rata values of Nn and Rn.

The total extension of time shall be the algebraic sum of the monthly totals for the period under consideration, but if the grand total is negative the time for completion shall not be reduced due to abnormal rainfall.

The factor (Nw - Nn) shall be considered to represent a fair allowance for variations from the average number of days during which rainfall exceeds Y mm.

The factor (Rw - Rn)/X shall be considered to represent a fair allowance for variations from the average in the number of days during which rainfall does not exceed Y mm but wet conditions prevented or disrupted work.

The formula does not take account of flood damage, which could cause further or concurrent delays, which shall be treated separately as far as extension of time is concerned.

The figures for Nn and Rn given below are the most suitable figures available and shall be used unless other are agreed at the commencement of the Contract.

Source of information: South African Weather Service.

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Electrical And Mechanical Works (Re-Advert)



C3.2 STANDARD SPECIFICATIONS

The following SANS specifications shall apply for the construction of the Works:

SANS 1 200 A	:	Preliminary and General
SANS 1 200 AB	:	Engineer's office
SANS 1 200L	:	Medium Pressure Pipelines

Wherever any reference is made to the South African Bureau of Standards (SABS) in either the Bill of Quantities or the document, this reference shall be deemed to read "SANS standard"

The following SANS specifications are also applicable to this contract:

SANS 1921 (2004):	Construction and Management Requirements for Works Contracts
Part 1:	General Engineering and Construction Works
Part 2:	Accommodation of Traffic on Public Roads Occupied by the Contractor
Part 3:	Structural Steelwork
Part 6:	HIV/AIDS Awareness
SANS 10396: 2003:	Preferential Construction Procurement Policies using Targeted Procurement Procedures
SANS 1914-1 to 6 (2002):	Targeted Construction Procurement
SANS 1921-1 (2004):	Construction and Management Requirements for Works Contracts
Part 1:	General Engineering and Construction Works and where accommodation of traffic is involved

The Tenderer is expected to be in possession of a copy of the Standard Specifications. The successful Tenderer will be required to provide a full set of the applicable standard specifications at the commencement of the Contract which is to be kept available on site at all times.

Copies of the "Standardised Specification for Civil Engineering Construction" SANS 1200 are available from the:

South African Bureau of Standards
Private Bag X191
Pretoria, 0001

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C3.3 AMENDMENTS TO THE STANDARD SPECIFICATIONS

The following variations to standardized specifications and additional clauses are applicable to this Contract:

PSA	General
PSAB	Engineer's Office
PSL	Medium Pressure Pipelines
MGD	General Mechanical
MPW	Pipework, Valves and Fittings
MT	Instrument and ancillaries
PE	Electrical works

STATUS

Should any requirement of the project specification conflict with any requirements of the standardised specification listed, the requirements of the project specification shall prevail.

PSA GENERAL

PSA 1 SCOPE

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

"1.1 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."

PSA 2 INTERPRETATIONS

PSA 2.3 DEFINITIONS

IN THE OPENING PHRASE BETWEEN THE WORDS "specification" AND "the following", INSERT THE WORDS "the definitions given in the Conditions of Contract and".

(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."

(b) Measurement and payment

REPLACE THE DEFINITIONS FOR "Fixed charge", "Time-related charge" AND "Value-related charge" WITH THE FOLLOWING:

" 'Fixed charge': A charge that is not subject to adjustment on account of variations in the value of the Contract Price or the time allowed in the Contract for the completion of the work.

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

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

PSA 2.4 ABBREVIATIONS

- (a) Abbreviations relating to standard documents

ADD THE FOLLOWING ABBREVIATION:

"CKS: SANS Co-ordinating Specification."

PSA 3 MATERIALS

PSA 3.1 QUALITY

ADD THE FOLLOWING AT THE END OF SUB-CLAUSE 3.1:

PSA 3.1 QUALITY

ADD TO THE FOLLOWING:

"No used or recycled material may be used in the Works unless expressly authorised by the Engineer.

All materials to be provided under this Contract shall bear the mark of the South African Bureau of Standards wherever such materials are the subject of an SABS standard.

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 at the Contractor's cost by the South African Bureau of Standards or other approved body. Should the tests prove that any material complies with the Specifications the Contractor will be reimbursed the value of the testing body's account for carrying out the tests required by the Engineer."

ADD THE FOLLOWING SUB-CLAUSES TO CLAUSE 3:

"PSA 3.3 ORDERING OF MATERIALS

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

PSA 3.4 DELAY DUE TO SUPPLY OF MATERIALS

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 materials required under this contract timeously.

The Contractor shall, by producing copies of written orders or written enquiries for supplies, prove to the satisfaction of the Engineer that any delay occasioned by non-availability of materials has been caused by the inability of suppliers to supply and not by his own lack of timely ordering or lack of exhaustive enquiry for supplies, before any extensions of the contract time will be allowed due to such delays."

PSA 4 PLANT

PSA 4.1 SILENCING OF PLANT

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

"The Contractor's attention is drawn to the applicable regulations pertaining to noise and hearing conservation, framed under the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) as amended.

The Contractor shall at all times and at his 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."

PSA 4.2 CONTRACTOR'S OFFICES, STORES AND SERVICES

ADD THE FOLLOWING PARAGRAPH BEFORE THE EXISTING FIRST PARAGRAPH IN SUB-CLAUSE 4.2:

"Neither housing nor shelters are available for the Contractor's employees on site. The Contractor shall make his own arrangement to house his employees and transport them to the site.

The Contractor's buildings, sheds and other facilities erected or utilised 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.

No personnel may reside on the Site. Only night-watchmen may be on the 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 4.3:

“PSA 4.3 SUITABILITY OF CONSTRUCTION PLANT

If the Engineer considers that any constructional plant in use is in any way inefficient or is inadequate in capacity to complete the Works properly or on time, he shall have the right to call upon the Contractor to provide such additional plant or equipment as may be required to meet the needs of the Works.”

PSA 5 CONSTRUCTION

PSA 5.1 SURVEY

PSA 5.1.2 Preservation and Replacement of 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 those that 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 in accordance with the provisions of the said Act.

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

- (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."

PSA 5.3 PROTECTION OF EXISTING STRUCTURES

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

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

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

"PSA 5.4 LOCATION AND PROTECTION OF EXISTING SERVICES

PSA 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 an experienced and competent contractor to be present on, under, over or within the Site.

Without in any way limiting his 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 he intends to work. Neither the Employer nor the Engineer offers 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.

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 SANS 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 a 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 when any such service is encountered or discovered on the Site.

Whilst he 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 deduced 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,

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

No separate payment will be made to the Contractor in respect of his costs of providing, holding available on the Site and utilising the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer the Drawings as aforesaid. These costs shall be deemed included in the Contractor's other tendered rates and prices included in the Contract.

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

PSA 5.4.2 Protection during construction

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

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

Unless otherwise instructed by the Engineer, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In pipes, the requirements of sub-clause 4.1 of SANS 1200 DB should be observed.

PSA 5.4.3 Alterations and repairs to existing services

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

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

PSA 5.7 SAFETY

REPLACE THE CONTENTS OF SUB-CLAUSE 5.7 WITH THE FOLLOWING:

"Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor's obligations thereunder, the Contractor shall at his own expense (except only where specific provision (if any) is made in the Contract for the reimbursement to the Contractor in respect of particular items), provide the following:

- (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, 1993 (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;
- (b) Provide, install and maintain 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;
- (c) Implement on the site of the 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;
- (d) Implement all necessary measures so as to ensure compliance with the Act by all subcontractors engaged by the Contractor and their employees engaged on the works.
- (e) Full compliance with all other requirements pertaining to 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 39 of the Conditions of Contract, be entitled to suspend progress on the works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, 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 on the works or any part thereof is suspended by the Engineer in terms of this clause, and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of Clause 43(1)

of the Conditions of Contract should the Contractor fail to complete the Works on or before the specified due completion date in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this clause shall constitute grounds for the Engineer to act in terms of Sub-clause 55(1)(5) of the Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said Clause 55 (GCC 2004)."

ADD THE FOLLOWING SUB-CLAUSES TO CLAUSE 5:

"PSA 5.9 SITE MEETINGS

The Contractor or his authorised agent will be required to attend regular site meetings, which shall normally be held once a month on dates and at times determined by the Engineer, but in any case, whenever 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 works, quality of work, problems, claims, payments, and safety shall be discussed, but not matters concerning the day-to-day running of the Contract.

The Contractor shall provide a suitable venue for holding these meetings. The venue shall be furnished with a conference table and chairs that can seat at least 12 people. The room shall be well ventilated and provided with adequate air conditioning. At least two 220 -240V power points shall be provided."

"PSA 5.10 TRAFFIC ACCOMMODATION

(a) Scope

It is a condition of this contract that traffic is accommodated taking into account the provisions of the latest edition of the South African Road Traffic Signs Manual (SARTSM). The latest version for use in the accommodation of traffic is volume 2, chapter 13 of the June 1999 edition. Copies of this publication are available from Government Printers – Arma Steyn – Tel: (012) 334 4500, e-mail: asteyn@print.pwv.gov.za.

(b) Safety

The Contractor shall be responsible for maintaining the existing road surface both within the works area and the advance warning and termination areas in a safe and trafficable condition for the duration of the contract.

The Contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of the drawings, specifications and the South African Road Traffic Signs Manual.

The Contractor shall supply, erect, operate and maintain all the road signs and other equipment shown on the drawings or in the specifications or as directed by the Engineer, necessary to safely carry out his traffic control responsibilities. He shall also carry out these responsibilities. He shall also carry out these responsibilities in consultation with the various Provincial Traffic Control Centres along the route and to the satisfaction of the Engineer.

(c) Use of the road by the public

The Contractor shall plan and conduct his activities so as to bring about the least possible disruption to the traffic on the roads on which he works. No detours for construction traffic and for the public are envisaged. Where there is no working space off the road, construction vehicles may be parked on the shoulder in which case flagmen and traffic cones shall be employed. All temporary lane closures and halting of traffic will require the prior approval of the Engineer and shall be pre-arranged with the appropriate traffic.

(d) Temporary traffic-control facilities

The Contractor shall provide, erect and maintain the necessary traffic-control devices, road signs, canalization devices, barricades, warning devices and road markings (hereinafter referred to as traffic-control devices) in accordance with these special provisions and as shown on the drawings and in the SARTSM and remove them when no longer required. It shall be incumbent upon the Contractor to see to it that the abovementioned traffic-control devices are present where required at all times and are functioning properly.

"The type of construction, spacing and placing of traffic-control devices shall be in accordance with the SARTSM. The recommended arrangements of the traffic control devices illustrated and/or drawings issued by the Engineer shall not be departed from without prior approval of the Engineer. The arrangements expected to be most commonly used in the contract are given on the tender drawings.

The details shown for spacing and placement of traffic-control facilities may however, be revised at the discretion of the Engineer where deemed necessary to accommodate local site geometry and traffic conditions."

All traffic control facilities supply on the contract shall be new. Used traffic control facilities, bases, stands and poles which are in an "as new" conditions and approved by the Engineer may be used on site.

(e) Road signs and barricades

The Contractor shall be responsible for the protection and maintenance of all signs and shall at his own cost replace any that have been lost or stolen.

All temporary road signs required to remain in position for some time shall be pole mounted as shown on the drawings. All temporary road signs required to be moved more often shall be mounted on portable supports for the easy moving of signs to

temporary positions. The only permitted method of ballasting the sign supports shall consist of durable sandbags filled with sand of adequate mass to prevent signs from being blown over by wind. The cost of the sandbags shall be included in the tendered rates for the various types of temporary road signs.

The covering of permanent road signs, if applicable, shall be by utilising a hessian bag that shall be pulled over the sign in the form of a hood and fastened to the signposts.

Plastic bags or other materials and fastened by means of adhesive tape shall not be permitted. The cost of covering of permanent road signs shall be included in the tendered rates of items PSA 8.3.19.06

The thickness and density of the hessian shall prevent the visibility of the road signs during day as well as nighttime.”

(f) Canalization devices and barricades

The use of drums as canalization devices shall not be permitted. Drums may however be used to set up barriers.

Delineators shall comply with the requirements of SANS 1555;

- (i) comply with the manufacturing and reflective requirements of the SARTSM for TW 401 and TW 402 signs and the blades shall be reversible with dimensions as indicated on the drawings.;
- (ii) have smooth and round edges and be mounted on a post and base. All components shall be of durable plastic material;
- (iii) have the lower edge of the reflective part of the delineator mounted not lower than 250mm above the road surface;
- (iv) be capable of withstanding the movement of passing vehicles and gusting winds up to 60km/h in typical working conditions without falling over. To achieve this, the base shall be at least 0,18m² and ballasted by sandbags with sand;
- (v) together with its mounting be designed such that it will collapse in a safe manner under traffic impact;
- (vi) minimum size 1 000mm x 250mm.

Traffic cones manufactured in a fluorescent red-orange or red plastic material may be used only at short term lane deviations during daylight. Cones shall not be used on there own, but shall be interspersed with delineators at a ration not exceeding 3:1. Cones used on all deviations shall be 750mm high. Lane closures which continue into the night time shall be demarcated by delineators only.

(g) Warning devices

All construction vehicles and plant used on the works shall be equipped with rotating amber flashing lights and warning boards as specified. All vehicles and plant before being allowed onto the site shall obtain a clearance permit from the Engineer.

(h) Vehicle mounted flashing lights

Rotating lights shall have an amber lens of minimum height of 200mm and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted section of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area, as the vehicles decelerate to enter a construction area, and as the vehicles accelerate to the general continuously while the plant is working alongside sections of road open to public traffic.

All LDV's and cars operating on site shall also be equipped with rotating amber flashing lights which shall be placed so as to be highly visible and operated continuously while the vehicles are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic.

The Contractor shall mount and maintain lights together with temporary mounting brackets, to the approval of the Engineer. Vehicles and plant that do not comply with these requirements shall be removed from the site".

(h) Other traffic control measures ordered by the Engineer

The Engineer may instruct the Contractor to provide any other road sign, reflective tape, etc. Not measured in standard pay items. Such road signs shall conform to the requirements of the SARTSM, or specification provided by the Engineer. Similarly, in order to ensure that the travelling public is kept fully informed and warned on matters relating to the accommodation to traffic, construction sign posting and the effect of the construction on the free flow of traffic through the site, the Engineer may arrange for advertising in the press and/or for other forms of publicity."

PSA 6 TOLERANCES

ADD THE FOLLOWING SUB-CLAUSE TO CLAUSE 6:

"PSA 6.4 USE OF TOLERANCES

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

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

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

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

PSA 7 TESTING

PSA 7.1 PRINCIPLES

PSA 7.1.1 Checking

REPLACE THE LAST SENTENCE WITH THE FOLLOWING:

"The Contractor shall obtain the services of an independent testing laboratory at his own expense (refer to Clause 8 in Portion 1 of the Project Specifications) to carry out the checks prescribed in the various standardized specifications."

PSA 7.1.2 Standard of finished work not to specification

REPLACE THE WORDS "Where the Engineer's checks reveal ..." WITH "Where the checks by the approved laboratory reveal ..."

PSA 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 Specification, 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 Systems (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.
- (d) Any other laboratory that the Engineer approves in his absolute discretion.

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1 MEASUREMENT

PSA 8.1.1 Method of measurement, all sections of the Schedule

DELETE THE WORDS "and South West Africa".

PSA 8.1.2 Preliminary and General item or section

PSA 8.1.2.1 Contents

REPLACE THE LAST SENTENCE OF SUB-CLAUSE 8.1.2.1(b) WITH THE FOLLOWING:

"Separate items will be scheduled to cover the fixed, value-related and time-related components of the Contractor's preliminary and general costs."

PSA 8.1.2.2 Tendered sums

REPLACE THE CONTENTS OF THIS SUB-CLAUSE WITH THE FOLLOWING:

"Except only where specific provision is made in the Specifications and/or the Schedule of Quantities for separate compensation for any of these items, the Contractor's tendered sums under items PSA 8.3 and PSA 8.4 shall collectively cover all charges for:

- risks, costs and obligations in terms of the Conditions of Contract and of this standardized specification;
- head-office and site overheads and supervision;
- profit and financing costs;
- expenses of a general nature not specifically related to any item or items of the permanent or temporary work;
- providing such facilities on site as may be required by the Contractor for the proper performance of the Contract and for its personnel, including, but without limitation, providing offices, storage facilities, workshops, ablutions, services such as water, electricity, sewage and rubbish disposal, access roads and all other facilities required, as well as for the maintenance and removal on completion of the works of these facilities and cleaning-up of the site of the Contractor's establishment and reinstatement to not less than its original condition, and
- providing the facilities for the Engineer and his staff as specified in the Contract and their removal from the site on completion of the Contract."

PSA 8.2 PAYMENT

PSA 8.2.1 Fixed-charge and Value-related items

REPLACE THE CONTENTS OF SUB-CLAUSE 8.2.1 WITH THE FOLLOWING:

PSA 8.2.1.1 Fixed-charge items

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

- (a) NINETY PER CENT (90%) of the sum tendered will be paid when the contractual requirements (inclusive of cashflows, and schedule of quantities) have been provided and approved.
- (b) The remaining TEN PER CENT (10%) will be paid when the Works have been completed, the facilities have been removed and the site of the Contractor's establishment has been cleared and cleaned to the satisfaction of the Engineer.

No adjustment will be made to the sum tendered in respect of item 8.3.1 should the value of the works finally executed or the time for completion vary in any way from that specified in the tender.

PSA 8.2.1.2 Value-related items

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

- (a) The first instalment, which is 70% of the sum, will be paid when the Contractor has fulfilled all his obligations to date under this specification, the General Conditions of Contract and the Special Conditions of Contract,
- (b) The second instalment, which is 30% of the sum will be made when the value of work certified for payment, excluding materials on site and payments for preliminary and general items, is equal to not less than 15% of the total value of the work listed in the Schedule of Quantities.

PSA 8.2.2 Time-related items

REPLACE THE CONTENTS OF SUB-CLAUSE 8.2.2 WITH THE FOLLOWING:

"Subject to the provisions of sub-clauses 8.2.3 and 8.2.4, payment under item 8.4.1 (time-related item) will be made monthly in equal amounts, calculated by dividing the sum tendered for the item by the tendered Contract period in months, provided always that the total of the monthly amounts so paid for the item is not out of proportion to the value of the progress of the Works as a whole."

PSA 8.5 SUMS STATED PROVISIONALLY BY THE ENGINEER

REPLACE THE CONTENTS OF SUB-CLAUSE 8.5 WITH THE FOLLOWING:

PSA 8.5.1 Works executed by the Contractor Unit: Prov Sum

The Contractor will be reimbursed in accordance with the Provisional Sums (if any) allowed in the Schedule of Quantities, in the amounts determined in accordance with the provisions of Clause 6.6 of the General Conditions of Contract for Construction Works."

PSA 8.7 DAYWORK

REPLACE THE CONTENTS OF SUB-CLAUSE 8.7 WITH THE FOLLOWING:

"Measurement and payment shall be in accordance with the provisions of Sub-clause 6.5 of the Conditions of Contract for Construction Works.

PSA 8.9 COMPLIANCE WITH OHS ACT AND REGULATIONS

(INCLUDING THE CONSTRUCTION REGULATIONS 2003) Unit: sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations 2003) at all times for the full duration of the Contract, as described in the project specifications and Employers' OHS policy. The successful tenderer shall provide the Engineer with a complete breakdown of this tendered sum.

This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance.

PSA 8.10 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT PLAN.....Unit: sum

The Tenderer shall carefully read the provisions of Clause C3.1.34 "Environment and Safety" and refer to Annexure 1 included at the end of the document for the applicable Environmental Management Plan (EMP) and shall make adequate allowance in the time-related rates for compliance to the said Specification during the period of construction of the Works. The successful tenderer shall provide the Engineer with a complete breakdown of this tendered sum.

This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance.

PSA 8.11 ACCOMMODATION OF TRAFFIC

Accommodating traffic and re-use of temporary traffic control facilities ...Unit: month

"The tendered rate shall include full compensation for accommodating traffic and maintaining temporary deviations, including roads used as temporary deviations during construction

The tendered rate shall also include full compensation for the re-use, moving, transporting and re-erection of temporary road signs, barricades, as well as the dismantling and storing irrespective of the number of times such traffic control facilities need to be moved during the construction period. The tendered rate shall include the temporary covering of road signs and shall include all labour cost including flagmen"

PSAB ENGINEER'S OFFICE

PSAB 3 MATERIALS

PSAB 3.1 NAMEBOARDS

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

“The Contractor shall supply and erect at locations approved by the Engineer, 1 name-board, which, unless otherwise specified in the Contract, shall comply with the recommendations for the standard board of the South African Association of Consulting Engineers, with regards to size, painting, decorating and detail, and the requirements described hereunder.”

PSAB 4 PLANT

ADD THE FOLLOWING NEW SUB-CLAUSES TO CLAUSE 4:

PSAB 4.4 SURVEY EQUIPMENT

The Contractor shall provide on site and make available for the exclusive use of the Engineer and his staff, the survey equipment and labour listed below:

1. Automatic level (including staff and tripod stand)
2. 5m steel measuring tape
3. 30m plastic measuring tape
4. 2 survey assistants
5. 3 ranging rods
6. 4kg hammer

All survey equipment provided by the Contractor shall be in good condition, properly calibrated and fit for the purpose.

In addition to survey equipment provided by the Contractor for the exclusive use of the Engineer and his staff, the Contractor shall make available for use by the Engineer any further survey equipment when such is reasonably required by the Engineer and his staff for the purposes of the Contract.

PSAB 5.8 SURVEY EQUIPMENT

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

Where required by the Engineer, the Contractor shall at its own cost, promptly arrange for the re-calibration of survey equipment provided.

PSL MEDIUM PRESSURE**PIPELINES (SANS 1200 L) PSL 3.4.2 PIPES ON****NOMINAL BORE UP TO 150 mm**

Change the words "up to 150 mm" in the heading and contents of this clause to "smaller than 100 mm".

Replace Clause 3.4.3 and 3.4.4 with the following Clause 3.4.3:

PSL 3.4.3 PIPES OF NOMINAL BORE 100 mm AND LARGER

All pipes, fittings and specials of steel pipes of nominal bore 100 mm and larger shall conform to SANS 719; Grade C. The following standard codes shall also apply:

American Petroleum Institute

API 5L	:	Specification for line pipe
API 1104	:	Standard for welding pipelines and related facilities

The minimum wall thickness of pipes, fittings and specials (mild steel and stainless steel) shall be as follows:

Nominal Diameter (mm)	Minimum wall thickness (mm)
151 to 450	4.5
451 to 750	6.0
751 to 950	8.0

PSL 3.7.1 uPVC PIPES

Replace the contents of this subclause with the following:

uPVC (PVC-U) pipes and fittings shall be fitted with spigot and socket rubber ring joints and shall comply with the relevant requirements of SANS 966-1:2000.

Add the following Clause PSL 3.7.3:

PSL 3.7.3 O-PVC

O-PVC (PVC-O) pipes and fittings shall be fitted with spigot and socket rubber ring joints and shall comply with the relevant requirements of SANS 16422:2007.

PSL 3.8.2.1 FLEXIBLE COUPLINGS

Flexible couplings and flanged dismantling couplings for steel pipes shall be of the "Klamflex" or other similar approved type. Where used between steel and flexible pipes of another material (e.g. uPVC or GRP), the flexible couplings shall be stepped to make up any difference in diameter (if required) and shall have long collars (min 220 mm).

Flexible couplings shall be coated to System A (refer to PSHC) and shall include decorative coating inside buildings like pump stations. In addition to this, flexible couplings of ferrous and stainless steel material below ground or inside unventilated areas like valve chambers shall be treated in accordance with System H (refer to PSHC).

Stub studs (i.e. studs welded to the flanges of flange adaptors) and their washers and nuts shall be of grade 316 stainless steel.

PSL 3.8.3 FLANGES AND ACCESSORIES

All bolts and nuts shall be hexagonal head type complying with SANS 136 Gr 8.8 with threads of coarse pitch series. All bolts must be of equal length and the length of each bolt shall be such that, after the nut has been tightened, the end of the bolt shall project above the nut by not less than one full thread and not more than three full threads. Two washers shall be used with every bolt-and-nut set where used on coated surfaces that could be damaged. Before assembly, all bolts shall be coated with an approved nickel based anti-seizure/corrosion protection compound.

Bolts and nuts used with ferrous steel shall be hot dip galvanised to SANS ISO 1461 and bolts and nuts used with stainless steel shall be 316 stainless steel. Flanges and accessories of ferrous and stainless-steel material below ground or inside unventilated areas like valve chambers shall be treated in accordance with System H (refer to PSHC).

Suitable isolation shall be provided between flanges, washers and bolts to prevent galvanic corrosion between dissimilar metals (eg between stainless steel and mild steel or cast iron).

Where services are relocated or connected to existing pipes, the dimensions of existing flanges and pipes shall be verified by the Contractor prior to ordering of materials.

Add the following Clause PSL 3.8.8:

PSL 3.8.8 BOLTS, NUTS AND WASHERS

SANS 136 Gr 8.8 mild steel bolts, nuts and washers shall be used with mild steel and cast iron pipework. Stainless steel bolts, nuts and washers shall be used with stainless steel pipework. The bolts and nuts shall be hexagonal head type with threads of coarse pitch series. Two washers shall be used with every bolt and nut. Before assembly, all bolts shall be coated with an approved nickel based anti-seizure/corrosion protection compound.

All bolts must be of equal length and the length of each bolt shall be such that, after the nut has been tightened, the end of the bolt shall project above the nut by not less than one full thread and not more than three full threads.

PSL 3.9 CORROSION PROTECTION

In addition to the requirements of SANS 1200 L, the requirements of SANS 1200 HC shall apply.

Where the supplier's corrosion protection system betters the system as specified in the standard or project specifications the opinion of the Employer's Agent, the manufacturer's specifications shall apply.

No coating systems are required to stainless steel unless otherwise specified, scheduled or shown on the drawings, but pickling and passivating shall be done in accordance with SANS 064 to the complete pipe, fitting or special that shows any signs of corrosion and mild steel contamination.

PSL 3.9.2.1 STEEL PIPES OF NOMINAL BORE UP TO 150mm

Change the words “up to 150 mm” in the heading of Clause 3.9.2.1 to “smaller than 100 mm” and replace the contents with the following:

Unless otherwise scheduled or shown on the drawings, steel pipes, fittings and specials smaller than 100 mm diameter shall be hot dip galvanised in accordance with System I (refer to PSHC).

PSL 3.9.2.2 STEEL PIPES OF NOMINAL BORE OVER 150mm

Change the words “over 150 mm” in the heading and contents of Clause 3.9.2.2 to “100 mm and larger” and add the following:

Steel pipes, fittings and flanges of nominal bore 100 mm and larger shall be lined with cement mortar (as per Clause 5.11) and coated in accordance with System J (refer to PSHC).

PSL 3.9.5 JOINTS, BOLTS, NUTS AND WASHERS

Where used with mild steel and cast iron all joints, bolts, nuts and washers shall be hot dip galvanised to SANS ISO 1461 and where used with stainless steel it shall be 316 stainless steel.

Suitable isolation shall be provided between flanges, bolts, nuts and washers to prevent galvanic corrosion between dissimilar metals (eg between stainless steel and mild steel or cast iron).

PSL 3.9.6 CORROSIVE SOIL

All types of steel and cast-iron flanges, joints, jointing materials, flexible couplings, etc. below ground and in damp and/or unventilated conditions (e.g., valve chambers) shall be treated and wrapped in accordance with System H (refer to PSHC).

PSL 3.10 VALVES

All valves shall comply with the Standard Mechanical Specifications and the Variations and Additions to Standard Mechanical Specifications.

PSL 4 PLANT

PSL 4.3 TESTING

The Contractor must ensure that the test equipment is in good order and that it is calibrated.

PSL 5.1 LAYING

For steel pipes of 150 mm diameter and larger, the Contractor shall:

- 1) Unload pipes delivered to the site. The pipes shall be delivered as near as possible to the site of the Works. The Contractor shall unload the pipes from the road vehicles and store them until required. Storage areas shall be protected from fire and shall be protected by suitable fencing or other security measures.
- 2) Install the pipes and make the necessary joints.
- 3) Fabricate and install bends where shown on the drawings.
- 4) Supply and install special pipe sections where shown on the drawings.
- 5) Provide equipment and material and carry out radiographic examination of welded joints.
- 6) Install all air valves, isolating valves and scour valves.
- 7) Make good the lining and the external coatings at joints and clean out and sterilise the pipelines.
- 8) Provide equipment, make connections and carry out water tightness tests of the pipeline.
- 9) Rectify defects in the pipeline during construction and for a period of 12 months after the final date of acceptance of the contract.
- 10) The Contractor must ensure that the test equipment is in good order and that it is calibrated.

Add the following to sub-Clauses for PSL 5.1.2:

PSL 5.1.2.1

PREPARATION

- a) Before a pipe or special pipe section is placed the internal and external protective coatings shall be examined visually and by means of a Holiday detector of the correct type and rating for the particular coating system. No pipe shall be laid without the permission of the Employer's Agent's Representative. The Contractor shall provide details of the equipment that will be provided to carry out Holiday detection on the site, including data on instrument settings at specified test volts/kilovolts.
- b) Any manufacturing defects located in the coatings shall be reported immediately to the Employer's Agent who will give instructions for the repair of the defects.
- c) Any damage to the lining or coating during unloading or while the pipes are stored on the site shall be made good by the Contractor to the approval of the Employer's Agent.
- d) When making joints or doing any other work inside the pipe every care shall be taken to avoid damage to protective coatings. The invert surfaces of the pipe shall be protected by rubber matting or by timber duck-boards at least 400mm wide, and the coating shall be protected during welding from weld spatter, hot slag, etc., using rubber matting.

PSL 5.1.2.2 CLEANING OF JOINTS

Just prior to the installation of any section of pipe, all foreign matter of every nature and all protective material shall be removed from the surfaces that are to be in contact at welded joints where applicable, so as to leave thoroughly clean surfaces for metal-to-metal contact in the field joints.

PSL 5.1.2.3 LAYING PIPES

- a) Each pipe shall be accurately laid to the required line and grade. In placing pipe in the trench or in chambers, the pipe shall be held by an approved broad sling, and the pipe shall not be dragged on the bottom of the trench or along concrete supports but shall be supported by the sling while being the adjacent pipe section. The pipe shall be securely supported in position between joints in such a manner as not to interfere with the required work at joints.
- b) Any dents which appear in the wall of the pipe shall be removed by the Contractor after the cause or the object causing the dent has been located and removed. The cost of removing the dent and making good the lining or wrapping shall be borne by the Contractor.
- c) Any damage to a pipe during or after laying shall be made good and for this purpose the Employer's Agent may require the pipe to be removed from the trench and replaced with pipe which is free from defects.

PSL 5.1.2.4 PREVENTION OF UPLIFT

There is a danger of the pipeline lifting if the trench becomes water logged while the pipe is empty. Before the end of each day's work the Contractor shall arrange to place and compact sufficient of the fill to prevent uplift by water.

Where connections to existing pipelines are required, the Contractor shall excavate well in advance of pipework being ordered to expose the connection point to verify that the assumed fittings can be used and that the connection as proposed can be made. It should be noted that it may be necessary to expose a full pipe length to verify the size and class of pipe in the ground or to locate an existing fitting.

Add the following Clause PSL 5.1.5:

PSL 5.1.5 CONNECTION TO EXISTING PIPELINES

Where connections to existing pipelines are required, the Contractor shall excavate well in advance of pipework being ordered to expose the connection point to verify that the assumed fittings can be used and that the connection as proposed can be made. It should be noted that it may be necessary to expose a full pipe length to verify the size and class of pipe in the ground or to locate an existing fitting.

Add the following to sub-Clauses for PSL 5.2.3:

PSL 5.2.3.1

WELDING

- a) Jointing shall be by butt welding laid down in accordance with the details shown on the drawings.
- b) Welded joints shall be made in accordance with approved welding techniques and to the standard specified in PSL 5.2.3.2. All welding shall be electric fusion welding and be acceptable to the Employer's Agent.

PSL 5.2.3.2

BUTT WELDING

- a) Set up the welding equipment
- b) If necessary, erect a welding tent to protect against wind and dust.
- c) Mount the facing plane (trimmer).
- d) Align the parts to be welded (with the aid of roller mountings or other supports).
- e) Remove shavings - do not touch pipe ends by hand.
- f) Check parallelity of joint faces by bringing them together (maximum gap 0.5mm).
- g) Check pipe alignment (maximum 0.15 = 10% of wall thickness).
- h) Clean the heating area of the heating plate and jointing faces with non-fluff paper and acetone.
- i) Check the welding temperature ($210^{\circ} + 10^{\circ}\text{C}$). With a wall thickness $> 15\text{mm}$, aim at lower temperature range.
- j) Press the pipe faces against the heating plate until a bead is formed all round the pipe circumference in accordance with the table of guide values indicated below or refer to the welding unit manufacturers guidelines.
- k) Reduce the pressure setting for heating up (soak period).
- l) After sufficient heating up, release the joint faces from the heating plate.
- m) Remove the heating plate and immediately join the parts to be welded. Do not exceed the maximum changeover time specified in the table of guide values (below).
- n) Steadily increase the jointing pressure or force from 0 to the final value; follow the jointing time specified in the table of guide values.
- o) Allow the weld to cool with the jointing pressure maintained; follow the table of guide values.
- p) When the cooling time has elapsed, the welded joint can be removed from the clamps.
- q) De-bead material (if deemed necessary) from area of weld in bore of pipe.

Note: This must be completed before the welded material has fully cooled to prevent the possibility of cracking

- r) Remove obstructions from the bore of the pipe in the area adjacent to the weld. Polish out using pencil grinder and sand

paper "flap" wheels.

Note: It is good practice to record all pressure, temperature and time values for each welder.

PSL 5.2.3.3

REPAIRS WELDING

- a) Repairs of welded joints shall be permitted. Where repairs are required the defective weld metal shall be cut out, and the parent metal prepared by grinding and rewelded to the satisfaction of the Employer's Agent.
- b) The repair procedure and performance, and welders employed on repairs shall be qualified in accordance with Appendix B of American Petroleum Institute Standard 5L. Each repair weld shall be marked with the welder's identifying stamp.
- c) On discovery of reject welds the Employer's Agent may, at his discretion, call for additional radiographic examination of the Contractor's cost until it is shown that the necessary standard is being maintained.

Add the following Clause PSL 5.11:

PSL 5.11

CEME

NT MORTAR LINING PSL 5.11.1

GENE

RAL

All pipes, fittings and specials shall be protected by means of a cement mortar lining. These shall extend over the full effective length of each pipe, fitting or special except for those with plain or spigot ends where the sheathing shall cease 300 mm from the plain or spigot end.

PSL 5.11.2

PREPARATION

All pipes, fittings and specials shall be cleaned both inside and outside of all rust, loose mill scale, paint, grease, oil or other foreign matter, including solidified welding material outside of the weld proper.

Cleaning shall be carried out immediately before coating. No cleaned surface shall be left exposed to the atmosphere for a period of more than two hours before coating is carried out.

Every precaution shall be taken to prevent cleaned surfaces from becoming moist or wet. Should this occur, such surfaces shall be thoroughly dried and re-cleaned.

PSL 5.11.3

CEMENT MORTAR

The cement mortar shall be composed of Portland cement in accordance with SANS 4719 (as amended), and in accordance with SANS 1090: 2002 (as amended) and water well mixed and of proper consistency to obtain a dense homogeneous lining that will adhere firmly to the pipe

surface. The aggregate to cement ratio shall not exceed 1,5:1 and the water content shall be the minimum consistent with workability and the process used.

PSL 5.11.4 THICKNESS

All pipes, fittings and specials shall have a cement mortar lining which shall have a thickness in accordance with the following table:

Nominal Diameter of Pipe Fitting or Special (mm)	Lining Thickness (mm)	Tolerance (mm)
100	5	+3 -0
150	5	+3 -0
200	6	+3 -0
300	7	+3 -0
301 to 600	10	+4 -0
601 to 1200	15	+5 -0

Pipes up to 300 mm nominal diameter shall allow a sphere (with the minimum bore diameter) to roll through under gravity and without hindrance to ensure the minimum bore for the pipe.

PSL 5.11.5 METHOD OF APPLICATION

The lining shall be applied to pipes, straight fittings and specials by spinning or other approved method, and to fittings and specials whose shapes preclude this method by hand-plastering or other approved process. All water and laitance expelled during the lining operation shall be removed in such a manner that the surface of the lining shall be smooth, straight and true

At a suitable time after completion of the lining operation, as determined by experiment, the spun lining shall be given a steel trowelled or smoothing bar finish by skilled workers. A second trowelling may be necessary should the first fail to remove all laitance and produce a smooth hard surface.

The finished lining shall be dense, firm and adhere rigidly to the surface. The lining shall be tested by lightly tapping the surface with a light hammer. Any pipe, fitting or special where there is no bond between the lining and the steel shall be rejected. Defective lining shall be repaired to the satisfaction of the Employer's Agent.

PSL 5.11.6 REINFORCEMENT

The lining of all fittings, specials, make-up pieces (where their length is less than their diameter) and at welded joints of nominal diameter 610 mm and greater shall be reinforced by means of a 50 mm x 50 mm x 2,5 mm diameter wire fabric. All reinforcement shall be tack- welded to the fitting or special in such a manner as to lie within the middle third of the lining.

PSL 5.11.7 CURING

PSL 5.11.7.1 GENERAL

After the initial set has taken place, the mortar lining shall be cured by water or steam as hereinafter specified.

PSL 5.11.7.2 WATER CURING

Where water curing is to be used it shall be commenced not longer than twelve hours after completion of the lining. The lining shall be continually sprayed with water by means of approved atomising sprinkler heads, placed inside the pipes, fittings and specials. They shall be so spaced and be of such capacity as to keep the entire surface of the lining continually wet for a period of not less than 96 hours.

Where exterior sheathing is to be applied after lining, its application shall be commenced not less than 72 hours after completion of the lining and, in this case, water spraying may be interrupted for a Maximum of 3 hours for any particular sheathing operation.

When water spraying is recommenced after sheathing, precautions shall be taken so as to ensure that the sheathing is not damaged by the escaping water. Except for the sheathing operation no pipe, fitting or special shall be disturbed or moved during the curing period.

PSL 5.11.7.3 STEAM CURING

When steaming curing is to be used it shall be commenced not longer than 8 hours after completion of the lining. The steam shall be introduced slowly and total surface of the lining kept in contact with moist steam at a temperature of not less than 50° C and not more than 63° C for a period of not less than 14 hours.

When exterior sheathing is to be applied after lining its application shall not be commenced until after completion of the steam curing.

Where connections to existing pipelines are required, the Contractor shall excavate well in advance of pipework being ordered to expose the connection point to verify that the assumed fittings can be used and that the connection as proposed can be made. It should be noted that it may be necessary to expose a full pipe length to verify the size and class of pipe in the ground or to locate an existing fitting.

PSL 7 TESTING

The frequency and level of inspection and testing on steel pipework (i.e. pipes, fittings and specials) including corrosion protection shall be adequate to prove compliance with the specifications.

The following tests shall be done on steel pipework:

- Hydrostatic testing in accordance with Clause PSL 7.5.
- Radiographic examination of all factory welded joints at the place of manufacture in accordance with Clause PSL 7.2.2.
- Radiographic examination of field welded joints on Site in accordance with Clause PSL 7.2.2.
- Dye penetration tests in accordance with Clause PSL 7.2.1 on all field welded joints not subject to radiographic examination.
- Hydraulic field tests in accordance with Clause 7.3.

The Contractor shall adopt an acceptable quality control procedure that includes the records and results of inspections and tests for at least at the following stages:

- After fit up but before welding
- After welding but before surface preparation
- After surface preparation
- After application of the primer or first coat (as applicable)
- After the final coat
- At each of the above-mentioned hydraulic and radiographic tests
- At each of the relevant stages of checking in accordance with Clause PSA 7.1.1

A copy of the final report of the inspections and tests shall be forwarded to the Employer's Agent before delivery of the equipment to site.

If requested by the Employer's Agent, inspections and tests shall be conducted or witnessed (as the case may be) on his behalf by an independent competent inspector (3rd party inspector) appointed by the Contractor. The 3rd party inspector shall have adequate experience and hold an appropriate qualification from either the CISA, the SAIW or the SAQCC and his credentials shall be presented to the Employer's Agent for approval.

The Contractor shall notify the Employer's Agent timeously of all inspections and tests. Although each one may not be conducted or witnessed by the Employer's Agent (or the 3rd party inspector or any other representative) it shall not relieve the Contractor of any obligations under the Contract.

PSL 7.2.1 DYE-PENETRATION TEST

All bends, other fittings and specials whose shape precludes their being tested in terms of Clause PSL 7.5 shall be tested by the application of an approved penetrant dye to all welds. No trace of the dye shall appear on the other side of the weld.

Defective welds shall be repaired in accordance with the fabrication requirements. Fittings and specials which have passed the penetrant dye test shall be stamped with the Contractor's stamp.

Where fittings and specials tested in terms of this Clause have been manufactured from straight pipe, such pipe, before being cut, shall be hydrostatically tested in accordance with this Specification.

PSL 7.2.2 RADIOGRAPHIC EXAMINATION

For each section of pipeline of the same nominal diameter, the Contractor shall make provision for a total of 25 % of the field welded joints to be tested by the use of approved X-ray equipment. In the initial stages of pipe laying for a particular diameter, all field welds shall be X- rayed. Thereafter, the Employer's Agent shall, at his own discretion, select welds to be tested. The percentage of joints to be tested may be varied at the sole discretion of the Employer's Agent.

All welds shall also be visually inspected by the Employer's Agent or his representative.

All welded joints found to be defective in the opinion of the Employer's Agent shall be repaired and re-X-rayed to the approval of the Employer's Agent at no extra cost to the Employer. Such repaired joints shall not form part of the required test sample.

The Contractor shall submit details of the apparatus and method he proposes to use to carry out

these X-ray tests and these shall be to the approval of the Employer's Agent.

The fact that a joint passes the X-ray test does not relieve the Contractor of his obligations under Clause 7.3.

PSL 7.3.1 TEST PRESSURE AND TIME OF TEST

Pipes shall not be tested against isolating valves. Special blank flanges or end caps, fully anchored, shall be provided for testing.

The contents of Clause 7.3.1.1 is applicable for PVC, polyethylene and steel (100 mm diameter and smaller) pipelines, for steel pipelines, add the following:

For steel pipelines 150 mm and larger:

After filling the section to be tested the section shall be allowed to stand for a minimum 24- hours. The Contractor shall then place the pipeline under a test pressure corresponding to the design head for the pipeline determined by interpolation from the design elevation of above mean sea level. Water shall be fed into the system through a calibrated meter and the pressure in the system measured by a calibrated gauge. The Contractor shall provide the necessary pumping system, connections, meter, gauges and labour. Each test shall continue for at least three days. Any decrease in pressure shall be made up every hour and the quantity of makeup water measured.

Replace the contents of subclause 7.3.1.2 with the following:

The test pressure for field testing shall be 1,5 times the rated maximum working pressure of the pipe e.g. class 10 pipe (1 MPa rated working pressure) shall be tested to 1,5 MPa and class 12 pipe (1,2 MPa rated working pressure) to 1,8 MPa.

Replace the contents of subclause 7.3.1.3 with the following:

The test pressure applied according to PSL 7.3.1.2, must with allowance for any level difference along the pipe line, be such that the pressure at any point in the pipe will be at least 1,25 times and not more than 1,5 times the rated working pressure of the pipe.

The contents of Clause 7.3.3 is applicable for PVC, polyethylene and steel (100 mm diameter and smaller), for steel pipelines 150 mm and larger, add the following:

The pipeline will not be considered satisfactory until the average leakage is less than 0,1 litres/mm diameter/kilometre/24-hours/30m head.

If the average leakage per 24-hours from the tested section of the pipeline is greater than that specified, the Contractor shall take immediate steps to reduce the leakage and shall at his own expense do any excavating necessary to locate and repair leaks or other defects which may develop under test, including removal of backfill already placed and shall make all repairs necessary to secure the necessary water tightness. He shall thereupon replace such excavated materials after which the test shall be repeated until the pipe under test is found satisfactory.

Add the following Clause PSL 7.5:

PSL 7.5 HYDROSTATIC TESTING OF PIPES AND SPECIALS

PSL 7.5.1 All pipes shall be subject to and approved hydrostatic test to a test pressure determined as follows:

$$P = \frac{2000}{t} \text{ if } D$$

Where:

P is the test pressure in kPa.

“f” is 85 per cent of the guaranteed minimum yield strength in MPa for the steel plate. “D” is the outside diameter of the pipe in mm.

“t” is wall thickness in mm.

PSL 7.5.2 Hydrostatic testing shall not be carried out until all aspects of fabrication have been completed.

PSL 7.5.3 The pressure shall be applied steadily by approved means and maintained without variation sufficiently long for proof and inspection. While under the test pressure the pipe shall be struck smartly and repeatedly along its length with a hammer of a mass of not less than 1 kg.

PSL 7.5.4 Should water, sweat or ooze from any part or any defects of any nature be discovered the pipe shall be emptied and the defects made good. The pipe shall then be tested again. Should a pipe, after repair, fail to pass the second hydraulic test the Employer's Agent may order its rejection.

PSL 7.5.5 The fact that any pipe may have passed the hydraulic test at the Works shall not exempt the Contractor from his liability under Clause 4.1 of the General Conditions of Contract.

PSL 7.5.6 If a pipe fails to pass any of the above tests it shall be rejected but the Employer's Agent may permit repairs or alterations to be made to enable the pipe to pass the test.

PSL 7.5.7 The Employer's Agent may require one or more pipes to be tested to destruction. If practicable the Employer's Agent may require the Contractor to repair the pipes and retest them. The cost of repairs will be paid by the Employer as an extra to the Contract.

Pipes shall not be tested against isolating valves. Special blank flanges or end caps, fully anchored, shall be provided for testing.

PSL 8.1 MEASUREMENT AND PAYMENT: GENERAL

Unless otherwise stated in the descriptions of the scheduled payment items for pipes, fittings, valves and specials, the tendered rates shall include the cost of corrosion protection, all factory and field testing, disinfection, jointing materials and isolation between dissimilar metals. The rates shall include a 3rd party inspector if an inspector is included in the payment item description.

The laying of pipes shall be deemed as labour intensive. The cost of labour based construction

activity is covered by using the standard payment items with no additional extra-over payment item to cover the additional cost of using labour based construction methods.

PSL 8.2.1 SUPPLY, LAY AND BED PIPES COMPLETE WITH COUPLINGS
Unit: m

Replace the second sentence "No deductions will be made for specials and valves" with the following sentence: "Except for short pipe runs as scheduled under Clause 8.2.5, no deductions will be made for specials and valves".

PSL 8.2.2 EXTRA-OVER 8.2.1 FOR THE SUPPLYING, LAYING AND BEDDING
Unit: No
OF SPECIALS COMPLETE WITH COUPLINGS

Add the following to Payment Item 8.2.2:

The contents of Clause 8.2.3 shall apply to this Clause. For steel pipes welded on site the rate shall cover the cost of cutting and jointing by welding to make the installation complete.

PSL 8.2.5 SUPPLY AND PLACE PIPES, VALVES, AND SPECIALS

Change the unit of measurement of this item to: "Sum or No".

Where the unit is scheduled as a Sum, the scope and detail of the relevant pipes, valves and specials shall be shown on the drawings and/or described in the Bills of Quantities or specifications. In that case the sum shall cover the collective cost of all the relevant pipes, valves and specials.

Where "DESIGN" is added to the description of this payment item in the Bills of Quantities, the rate shall include the cost of design services as specified for this contract (refer to Clause C3.2.1). The detail of the pipework that is given on the drawings is deemed to be adequate for tendering and planning purposes. Any changes deemed necessary by the Contractor to provide a fully reliable and functional system in accordance with the specifications shall be included in the tendered rates. No variations in payment will be entertained during the construction stage.

Where additional supports or brackets are schematically shown on the drawings or deemed necessary by the Contractor, the rate shall include the design, manufacture and construction of required for the supports.

When an "extra-over" item is specified the installation, testing and commissioning shall be measured separately in the Bills of Quantities.

Add the following Payment Items PSL 8.2.16 to PSL 8.2.18:

PSL 8.2.16 PIPE ROUTE MARKERS
Unit: No

Pipe route markers shall be provided in accordance with the drawing details.

The unit of measurement shall be the number of pipe route markers installed. The tendered rate shall include full compensation for manufacturing, installing, painting/coating and inscribing of the identification marks and submitting to the Employer's Agent the records of all the pipe route

markers.

PSL 8.2.17 CUTTING INTO EXISTING PIPES TO CONNECT EXTRA
Unit: Sum
COUPLINGS AND FITTINGS

The tendered sum shall include full compensation for any inconvenience suffered, for normal and exceptional risks and for unforeseen eventualities, for all arrangements and timeous liaison with the service providers, for verification of existing pipe diameters in accordance with PSL Clause 5.1.5, for cutting of the pipe and disposing of unused cut-offs and for construction of all necessary temporary measures like excavating, pumping, pipework, etc. to enable the works to be carried out in dry conditions. Separate items shall be scheduled for different connections.

The supply and installation of the couplings and fittings shall be measured separately. The excavation for exposing the pipeline shall be measured separately.



STANDARD MECHANICAL SPECIFICATIONS

MGD MPW GENERAL MECHANICAL PIPEWORK, VALVES AND FITTINGS MT INSTRUMENTS AND ANCILLARIES

MGD : GENERAL MECHANICAL MGD 1 SCOPE

This section covers workmanship, materials of construction and other miscellaneous items of a general nature. Where specifications are not given in the following Sections of the Standard Mechanical and Electrical Specifications, these specifications shall be applicable.

MGD 2 MATERIALS AND WORKMANSHIP

All submerged moving parts of the Plant, or the pins and spindles, etc., of the submerged moving parts or the faces, etc., in contact with them shall be of corrosion-resistant metals. All parts in direct contact with various chemicals, shall be completely resistant to corrosion, or abrasion by these chemicals, and shall also maintain their properties without ageing due to the passage of time, exposure to light or any other cause.

Particular attention shall be made to the prevention of seizure by fretting where two corrosion-resistant metals are in contact, by the selection of materials of suitable relative hardness and surface finish and the application of lubricants. Where bronze is specified or used it shall be zinc-free.

Particular attention shall be paid to the prevention of corrosion due to the close proximity of dissimilar metals. Where it is necessary to use dissimilar metals in contact, they shall be selected so that the bimetallic corrosion is as low as possible.

Workmanship and general finish shall be of first class commercial quality and in accordance with best workshop practice.

All similar items of Plant and their component parts shall be completely interchangeable. Spare parts shall be manufactured from the same materials as the originals and shall fit all similar items of Plant. Machining fits on renewable parts shall be accurate and to specified tolerances so that replacements made to manufacturer's drawings may be readily installed.

All Plant shall operate without excessive vibration and with the minimum of noise. All revolving parts shall be dynamically balanced so that when running at all operating speeds and any load up to the maximum there shall be no vibration due to lack of balance.

All parts that can be worn or damaged by dust shall be totally enclosed in dustproof housings. All materials used in the manufacture and construction of plant and equipment shall be new, unused and shall be the best of their respective kinds. The Contractor shall ensure that the materials are selected in accordance with the best engineering practice to suit the working conditions and the extremely corrosive environment.

MGD 2.1 Steel

All structural steel shall comply with the requirements of SANS 1431 grade 300W and shall be legibly marked with the maker's name or trade mark and identification marks.

MGD 2.2 Stainless Steel

The AISI grade of stainless steel to be used will normally be specified in the Variations to the Standard Specifications and the Particular Specifications.

Unless otherwise specified, rolled material shall be supplied with a matt, annealed and pickled or otherwise de-scaled surface finish. For wrought steels, the equivalent BS 970 grade may in each case be used. The common applications are as follows:

APPLICATION	AISI	BS 970
Wastewater Treatment Works (all applications)		
Welded	316L	316S12
Not welded	316	316S16
Low Corrosion Interior		
Welded	304L	304S12
Not Welded	304	304S15
Exterior and Corrosive Interior		
Welded	316L	316S12
Not Welded	316	316S16

A manufacturer's test certificate shall be provided for each batch of stainless-steel giving details of the material analysis and any mechanical tests carried out on the material. Each stainless-steel item supplied shall be clearly and permanently marked with the grade of stainless steel and cross-referenced to the applicable test certificate.

Where grades 316 and 304 are mentioned in the Tender Documents, these shall be taken synonymously with grades 316L and grade 304L, respectively.

MGD 2.3 Fabrication of Carbon Steels

Standards

Steelwork shall be constructed, fabricated and erected in accordance with SABS Standard Building Regulations, Chapter 6, "Structural Steelwork", and with SANS 1200 H where applicable.

Finish

Edges shall be rounded to a radius of at least 2 mm. Weld spatter and other protrusions shall be removed.

MGD 2.4 Requirements for Corrosion Protection

In addition to finishing requirements, the requirements of corrosion protection application shall be taken into consideration. Surfaces must be accessible for surface preparation and coating. Inaccessible pockets and open hollow sections and similar hidden surfaces shall not be permitted unless the corrosion protection system specified for the fabrication is hot-dip galvanizing without painting.

Pits, undercuts, indentations, etc. which would prevent access to blast material are unacceptable.

MGD 2.5 Drawings

General and detailed fabrication drawings shall be submitted by the Contractor for approval by the Employer's Agent. Full details of the welding procedures and standards which he proposes to use shall be shown on these drawings.

MGD 2.6 Inspections



The Contractor shall arrange for the Employer's Agent to inspect fabrications, including fabricated pipework, in the fabrication workshop and prior to corrosion protection.

MGD 2.7 Fabrication of Stainless Steels

The requirements regarding the fabrication of carbon steels apply to the fabrication of stainless steels as well. In addition, the following requirements apply to the fabrication of stainless steels:

Fabrication of stainless steels and 3CR12 shall follow the recommendations in "The Stainless Steel User Manual" and "The 3CR12 Fabrication Guide" issued by Columbus Stainless. Only fabricators experienced with stainless steel will be considered acceptable. Such fabricators shall use permanently dedicated storage and fabrication areas and shall use machines, tools and handling equipment suited and permanently dedicated to this type of material.

Surfaces which become contaminated with steel or otherwise stained or otherwise marked so as to be of uneven colour, shall be cleaned by pickling or electro-cleaning rather than by grinding. The Contractor shall arrange for the Employer's Agent to inspect fabrications, including fabricated pipework, in the fabrication workshop.

MGD 3 DESIGN LIFE

Unless otherwise specified, all items of Plant shall be rated for continuous service at the specified duties under the prevailing atmospheric and operational conditions on site. All materials and Plant shall be designed for long life with a minimum of maintenance and the Contractor may be called upon to demonstrate this for any component either by the service record of similar Plant elsewhere or by records of extensive type tests.

Routine maintenance and repair shall, as far as possible, not require the services of highly skilled personnel.

Except for consumable items such as gland packings, carbon brushes, etc., which normally require replacement more frequently, no part subject to wear shall have a life from new to replacement or repair of less than three years of continuous normal operation and where major dismantling is required to replace a part, such life shall be not less than ten years.

MGD 4 WELDING

MGD 4.1 General Welding Requirements

Standards

Standards complying with good modern practice, and acceptable to the Employer's Agent, shall be adopted. These include the following:

BS EN 1011	-	Arc welding carbon and carbon manganese steelwork. BS
4677	-	Arc welding austenitic stainless steel pipework.
BS 2633	-	Class 1 Arc welding of steel pipework.
BS 2971	-	Class II Arc welding of steel pipework.
BS 806	-	Design and construction of ferrous piping in connection with
land boilers (used for arc welding specification of all pipe flanges).		

Welders shall be experienced competent artisans approved in accordance with BS 4872.
Continuous Welding and Elimination of Crevices

Welding shall be continuous on all sides of any joint. All crevices, including those arising from welding on one side only, shall be eliminated. This requirement applies to the welding of all metals and, in this respect, it should be noted that welding deformation results from incorrect welding procedure rather than from

continuous welding.

In special cases only, non-continuous welding might be approved in writing by the Employer's Agent. The resulting crevices shall be sealed with either a coal tar product which can be applied at thicknesses of up to 1 000 µm such as Carboline Bitumastic 50 or equivalent; or a two part solvent free epoxy which can be applied at thicknesses of up to 600 µm such as Sigmaline 523 or equivalent.

Weld Appearance

Welding shall be free of blowholes, projections, pinholes, splatter and undercuts and all welding flux shall be removed. All weld spatter and other sharp imperfections shall be removed prior to abrasive drilling. Prior to painting, weld beads with a surface irregularity exceeding 3 mm or with sharp crests having a radius under 2 mm shall be ground. Weld grinding must not be performed on 304L or 316L stainless steel, however, unless unavoidable and in approval by the Employer's Agent.

MGD 4.2 Site Welding

Site welding shall be kept to a minimum and shall only be undertaken with the approval of the Employer's Agent.

MGD 4.3 Welding of Stainless Steel and 3CR12

The following apply in addition to all of the above. Stainless Steel Welding

Stainless steels shall be welded strictly as recommended in "The Stainless Steel User Manual" issued by Columbus Stainless.

3CR12 Welding

3CR12 shall be welded strictly as recommended in "The 3CR12 Fabrication Guide" issued by Columbus Stainless.

Stainless Steel Type

Austenitic stainless steels to be welded shall be of the low carbon grade (i.e.: 304L, 316L, etc.). Welding Rods

The welding rods used shall be the most suitable for the metal and purpose. Type 309 stainless steel welding rods shall be used for welding 3CR12 unless otherwise approved in writing.

Welders

Only welders experienced with welding stainless materials shall be used.

General

All possible steps shall be taken to ensure maximum corrosion resistance and strength of the welds and welded material. Special care shall be taken to avoid prolonged heating. Welds shall be passivated. Discolouration and steel contamination must be removed by pickling or electro-cleaning as approved by the Employer's Agent but should rather be avoided by taking the appropriate measures.

MGD 5 CASTINGS

Castings shall comply with the relevant South African or British Standard for the material used, including the following:

Grey Cast Iron	SANS 1034	BS 1452
S. G. Iron	SANS 936/7	BS 2789
Steel (General	SANS	BS 3100



Purpose)	1465	
Aluminium	SANS 989/992	BS 1490
Copper and Copper Alloy	SANS 200	BS 1400

Particular attention shall be paid to cleanliness, soundness and neat fettling and dressing of castings. Surfaces shall be smooth and irregularities caused by mould washaways, and the presence of porosity and sand and slag inclusions will not be tolerated. Areas under bolt heads, nuts and washers, shall be machined or spot faced to ensure a flat and smooth pressure bearing area, and sufficient space shall be provided for the use of ring or socket spanners.

All pressure retaining castings shall be hydrostatically tested to not less than 1,5 times the maximum working pressure after machining and shall be pressure tight.

No repairs shall be undertaken to castings without the written permission of the Employer's Agent and welding will not be permitted on cast iron castings.

Castings shall be heat treated to provide optimum corrosion resistance and toughness combined with reasonable machinability. In particular, stainless steel castings shall be heat treated so as to ensure that all carbides are in solution, to ensure optimum grain size, and to provide maximum corrosion resistance.

The Contractor shall provide a test certificate for each casting or batch of castings, except for those made of grey cast iron, giving details of the material analysis, the heat treatment and any mechanical tests carried out.

MGD 6 FORGINGS

All major, stress-bearing forgings shall be made to a standard specification that shall be submitted to the Employer's Agent for approval before work is commenced. They shall be subject to internal examination and non-destructive tests for the detection of flaws, and shall be heat treated for the relief of residual stresses. The name of the maker and particulars of the heat treatment proposed for each such forging shall be submitted to the Employer's Agent. The Employer's Agent may arrange for such forgings to be inspected at the place of manufacture with a representative of the Contractor.

MGD 7 FIXINGS

Nuts, bolts, studs and washers for incorporation in the Plant shall conform to the requirements of the appropriate South African or other approved standard. Nuts and bolts for pressure parts shall be of the best quality bright steel, machined on the shank and under the head and nut. Bolts shall be of sufficient length such that one thread shall show through the nut when in the fully tightened condition.

Fitted bolts shall be a light driving fit in the reamed holes they occupy, shall have the screwed portion of a diameter such that it will not be damaged in driving and shall be marked in a conspicuous position to ensure correct assembly at Site.

Washers, locking devices and anti-vibration arrangements shall be provided where necessary and shall be subject to the approval of the Employer's Agent.

Where bolts pass through structural members taper washers shall be fitted where necessary to ensure that no bending stress is caused in the bolt.



Where there is a risk of corrosion, bolts and studs shall be designed so that the maximum stress in the bolt and nut does not exceed half the yield stress of the material under all conditions.

All bolts, nuts and screws which are submerged in water shall be made of nickel-bearing stainless steel.

MGD 8 ALLOWANCE FOR WASTAGE

The Contractor shall supply as specified and to the satisfaction of the Employer's Agent reasonable excess quantities to cover wastage of those materials which will normally be subject to waste during erection, commissioning and setting to work.

MGD 13 GUARDING

Guards shall be provided to prevent access to electrical apparatus and moving parts of machinery. They shall be designed to be secure but removable without disturbing other parts of the Plant. The Contractor shall ensure that stationery points, requiring access, are located safely, outside the guards. Large guards shall be equipped with small removable panels for the inspection and checking of enclosed components.

MGD 14 NOISE AND VIBRATION

The Contractor shall provide a quiet installation. All items of Plant shown on the drawings shall be carefully chosen with a view to quiet operation.

All Plant must be capable of being operated without excessive vibration and the minimum amount of noise. Should the overall sound level of any item of Plant exceed 85dB(A) at one metre radius the Contractor shall include for suitable sound attenuation to achieve this level. This will apply in the audible frequency range 20 Hz - 20 kHz. Above 20 kHz, the Contractor must state whether any fundamental frequencies are generated in the ultrasonic region. Where Plant is operating in the vicinity of residential buildings then the sound level at one metre radius from the outside of the pump or plant house enclosure or building shall not exceed 65dB(A).

The Contractor shall provide and fix all material for the prevention of transmission of noise and vibration through the structure. All fans, motors, A/C package units, compressors, diesel engines and other motive Plant shall be mounted on resilient mountings in such a manner that the Plant foundations are isolated from the floor or structure. In addition, all rotating Plant shall be statically and dynamically balanced. Mechanical vibration shall be isolated by the use of anti-vibration mountings and flexible connections to ensure an isolation efficiency of 95% from the building structure.

Vibration in equipment, pipework, valves, etc., under all conditions, including when one, two or more units are in operation, shall be limited so that have the instantaneous acceleration due to vibration in any axis is limited to 0.2g (where g is gravity).

MGD 18 TAGGING OF EQUIPMENT

Identification tags shall be attached to all plant, equipment, motors, control gear, cables and control panels. Tags and labels shall be manufactured from an approved non-corrosive material, and shall be attached to the appropriate item with non-corrosive screws. Tags shall display the following information (as relevant): Manufacturer's name, Serial number, Model number and type, Impeller type/diameter installed, Performance specifications like operating head and flow, Rotational speed, Bearing numbers, Lubricant details, Lubrication intervals.

The nameplate shall have clearly legible punched or embossed lettering and shall be affixed to the pump in a position where it can be easily read.



Electrical cables shall be labelled at each end, and on each side of a permanent obstruction through which the cable passes.

Tag lettering shall be black on a white background, and the information to be included on the tag shall be as instructed by the Employer's Agent. The wording shall be in English, and the character size shall be as prescribed by the Employer's Agent.

MGD 19 PAYMENT ITEMS

Payment for actions to be taken and specifications to be applied in accordance with this specification shall be deemed included in the tendered rates and prices for the items to which such actions and specifications relate.

MPW : PIPEWORK, VALVES AND FITTINGS MPW 1 SCOPE

This specification covers the manufacture, supply, delivery, installation, testing and commissioning of pipework, valves and fittings associated with mechanical equipment.

MPW 2 PIPEWORK

MPW 2.1 Pipes and Fittings

Stainless Steel Pipework

Stainless steel pipework shall be to ASTM 312. Schedule 10 pipes and fittings shall be used except where otherwise specified.

Butt Weld Fittings

Steel butt welding pipe fittings shall be to ANSI B 16.9, BS 1965 or BS 1640 of the same schedule as the pipework or heavier. Butt weld fittings in stainless steel shall be to ASA B 36.19 for schedule 5S and 10S and ASA B 16.9 for schedule 40S and 80S. Alternatively, fittings may be to BS 1640.

Plastic Pipework

Polyethylene or Polypropylene pipes shall comply with SANS 533 and SANS 1315 respectively and shall carry the SABS mark. The contractor manufacturing and installing the pipework shall satisfy the requirements of SANS 9001. PVC pipework is not acceptable except where specified.

An operating life of 50 years shall be designed for and appropriate derating factors shall be applied to suit the application. The rated maximum working pressure at operating conditions of the class of pipe selected shall be not less than 1.5 times the actual maximum operating pressure. If the material used has insufficient resistance to solar radiation (U.V. light) for the application, suitable protection must be provided to achieve the required life.

Note that nominal bores and pipe diameters specified must be regarded as the minimum inside diameter.

MPW 2.2 Pipework Design

Pipe Type and Material

The type and material of pipe to be used will be given in the Project Specifications.

Pipe Diameters

Unless otherwise specified in the Detailed Mechanical Specification, pipe diameters shall be based on the following velocities. The velocities shall be based on the compressed volume at the operating pressure in

the case of steam, air and other gases. Valves and other ancillaries shall generally be of the same nominal diameter as the pipe. Non-standard sizes shall not be used.

FLUID	FLUID FLOW [l/s]			
	0- 2,5	2,5- 15	15- 100	100- 500
	ALLOWABLE FLOW VELOCITY [m/s]			
LIQUID: GRIT FREE: HIGH SOLIDS OR GRIT:	0.75 max	1,25 max 0,8 min	1,5 max 1 min	2 max 1 min 2 max
STEAM		1,5 max	1,75 max	
	10 max	15 max	20 max	25 max
AIR AND GAS:				
FLUID	FLUID FLOW [l/s]			
	0- 2,5	2,5- 15	15- 100	100- 500
	ALLOWABLE FLOW VELOCITY [m/s]			
above 10 kPa below 10 kPa	5 max 2,5 max	8 max 3 max	10 max 4 max	12 max 5 max

Grit free liquids include potable water, final effluent, centrate, supernatant, etc. Liquids considered to have high solids content will include raw sewage, sludge and grit slurry.

If anomalies occur within the same system using the above table, the larger pipe diameter shall generally be used.

Coupling Arrangement

Screwed fittings may be used on DN 50 and smaller provided that sufficient unions or flanges are provided for disassembly and removal of equipment. Reducing sockets and reducing bushes shall be used where required.

All steel pipes larger than DN 50 shall be flanged or fitted with mechanical pipe couplings as applicable.

Suitable pipe couplings shall be incorporated wherever necessary to facilitate maintenance or isolate vibration. A coupling shall be provided on each pump suction. Couplings shall be adequately restrained by harnesses as specified in the Clause "Pipe Couplings".

Draining, Venting and Purging

On liquid lines provision shall be made for draining and venting where necessary. Vents shall be provided at all vertical down bends on gravity lines. On gas lines provision shall be made for purging.

Condensate Drains for Air Lines

Automatic condensate traps with isolating valves and valved by-passes shall be provided at all necessary points including ahead of any globe type valve, orifice plate or concentric reducer in a horizontal line, at each



change of level and immediately ahead of the user equipment.

A suitable well of a diameter equal to the pipe diameter with a bottom drain shall be provided at each condensate removal point. Condensate traps and valves shall be accessible and condensate shall be piped to the nearest drain. Pipework shall be sloped in the direction of flow towards a drain point with a slope of 1 in 150 and care shall be taken to avoid sagging at any point.

By-Passes

Isolating valves and valved by-passes shall be provided around condensate traps, pressure reducing valves and valves with solenoid or other actuation which do not have provision for manual operation.

Encased Pipes

Pipework to be permanently encased in concrete, cement or similar shall be of cast iron or 316 SS, or better, for steel and stainless steel pipework respectively. The encased portion shall be a short, straight length of pipe, flanged both ends with adequate clearance between the wall surface and the flanges for inserting flange bolts. Victaulic type couplings may in some instances be permitted instead of flanges.

Pipe sections through walls below ground or water level shall be provided with a puddle flange the same diameter as a standard flange.

Isolation

The layout design shall make provision for isolation and easy removal of mechanical equipment. Nozzles for

Fittings, Gauges, etc.

Nozzles on pipework (for installation of gauges, transmitters, drain pipes, cooling water take-offs, air release valves, etc.) shall be designed so that the pipework corrosion prevention system is not affected.

Nozzles shall consist of a flanged, welded tee-off of at least 100 mm diameter, and provided with a blank flange, all in grade 316 stainless steel. The blank flange shall be provided with tapped holes suitable for the equipment installation.

MPW 2.3 Pipework Installation

Appearance

Pipes and fittings shall be conservatively selected to suit the application, neatly installed, straight to line and level, adequately supported and shall operate without vibration.

Valve Orientation

On sludge or raw sewage pipelines, check valves shall, wherever possible, be mounted horizontally and isolating valves with spindles vertical. Valve handwheels shall be arranged so that they are accessible to the operators.

Supports

Proposed designs of pipe supports shall be submitted to the Employer's Agent for acceptance prior to manufacture. Specific requirements are:

- Steel supports shall be fabricated from heavy duty hot-rolled steel sections. The complete assembly shall be hot-dip galvanised after all fabrication is completed.
- Welds shall be "all-round".
- Each foot shall feature at least four anchor fasteners.
- For cantilevered pipe supports, the spacing between anchor fasteners shall be not less than one third of the

cantilevered length

The spacing between pipe supports shall be as follows:

APPROXIMATE DISTANCE BETWEEN SUPPORTS FOR STEEL PIPE		
Pipe Diameter (DN)	Distance (mm)	Between Supports
0 – 15	800	
20 – 50	1 500	
65 – 100	2 500	
125 – 200	3 500	
250 – 500	5 000	
> 500	6 000	
Distance between supports must be halved for pipe materials other than carbon steels and stainless steels.		

Pipe supports shall be so located that when an item of mechanical equipment is removed, the associated valves and pipework are still adequately supported. Supports shall be provided close to heavy items such as valves. No external loads shall be placed on items of mechanical equipment such as pumps, compressors, etc. Adequate provision shall be made for expansion and contraction due to variations in temperature or pressure.



3 mm thick neoprene strips shall be placed between pipes and supports or clamps to protect the paintwork and limit corrosion. Where roller or sliding supports are used to accommodate movement, suitable wear blocks shall be fixed to the pipe to prevent damage.

Floor pipe supports shall be aligned using a nut above and below the foot. A space of at least 20 mm shall be left between the foot and the floor and this space shall be filled using non-shrink grout in accordance with the manufacturer's recommendations once alignment has been completed. Alternative designs and installations may be submitted by the Contractor. Wall pipe supports shall be similar.

Where the Employer's Agent approves the use of concrete pipe supports to be built by a civil contractor under a separate contract, these will be constructed after installation of the pipework and temporary supports shall be provided by the Contractor in positions which will not interfere with the construction of the concrete supports.

MPW 2.4 Pipework Testing

The cost of all specified testing as required in this specification shall be borne by the Contractor and include in the rates.

The frequency and level of inspection and testing on steel pipework (i.e. pipes, fittings and specials) including corrosion protection shall be adequate to prove compliance with the specifications.

The following tests shall be done on steel pipework:

- Hydrostatic testing in accordance with the clauses contained in this section.
- Radiographic examination of all factory welded joints at the place of manufacture in accordance with the clauses contained in this section.
- Radiographic examination of field welded joints on site in accordance with the clauses contained in this section
- Dye penetration tests in accordance with the clauses contained in this section, on all field welded joints not subject to radiographic examination.

Hydraulic field tests in accordance with the clauses contained in this section.

The Contractor shall adopt an acceptable quality control procedure that includes the records and results of inspections and tests for at least at the following stages:

- After fit up but before welding
- After welding but before surface preparation
- After surface preparation
- After application of the primer or first coat (as applicable)
- After the final coat
- At each of the above-mentioned hydraulic and radiographic or dye penetrations tests

A copy of the final report of the inspections and tests shall be forwarded to the Employer's Agent before delivery of the equipment to site.

If requested by the Employer's Agent, inspections and tests shall be conducted or witnessed (as the case may be) on his behalf by an independent competent inspector (3rd party inspector) appointed by the Contractor. The 3rd party inspector shall have adequate experience and hold an appropriate qualification from either the CISA, the SAIW or the SAQCC and his credentials shall be presented to the Employer's Agent for approval.



The Contractor shall notify the Employer's Agent timeously of all inspections and tests. Although each one may not be conducted or witnessed by the Employer's Agent (or the 3rd party inspector or any other representative) it shall not relieve the Contractor of any obligations under the Contract.

Radiographic Examination

For each section of pipeline of the same nominal diameter, the Contractor shall make provision for a total of 25% of the field welded joints to be tested by the use of approved X-ray equipment. In the initial stages of pipe laying for a particular diameter, all field welds shall be X-rayed. Thereafter, the Employer's Agent shall, at his own discretion, select welds to be tested. The percentage of joints to be tested may be varied at the sole discretion of the Employer's Agent.

All welds shall also be visually inspected by the Employer's Agent or his representative.

All welded joints found to be defective in the opinion of the Employer's Agent shall be repaired and re-X-rayed to the approval of the Employer's Agent at no extra cost to the Employer. Such repaired joints shall not form part of the required test sample.

The Contractor shall submit details of the apparatus and method he proposes to use to carry out these X-ray tests and these shall be to the approval of the Employer's Agent.

The fact that a joint passes the X-ray test does not relieve the Contractor of his obligations. Hydrostatic

Testing

Before being cleaned, lined or sheathed, all straight pipes, fittings and specials shall be hydrostatically tested, under cover at the Contractor's factory, in a testing machine to a pressure which will stress the steel circumferentially to 85% of its yield stress. Tees shall have their flanged branches closed during this test by means of a bolted-on blanking plate of sufficient thickness to withstand the test pressure.

The testing machine shall be of a design which will allow a steady application of the test pressure and shall be equipped with an accurate pressure gauge. Provision shall be made for attaching the Employer's Agent's pressure gauge. Provision shall also be made for expelling all air from any pipe, fitting or special under test during filling and before application of the pressure. Records of all hydrostatic tests shall be kept and submitted to the Employer's Agent prior to delivery of the pipe.

The pressure shall be steadily applied and be maintained sufficiently long for proof and inspection but in no case for less than three minutes. Each pipe, fitting and special shall withstand this test without showing any leakage, weep, sweat or other defect. Should leakage occur at any weld, such weld shall be repaired in accordance with the specification.

If required, this test shall be carried out in the presence of the Employer's Agent.

All pipes, fittings and specials which have passed the hydrostatic test shall be stamped with the Contractor's test stamp.

Dye Penetration Testing of Fittings and Specials

All bends, other fittings and specials whose shape precludes their being tested in terms hydrostatic testing, shall be tested by the application of an approved penetrant dye to all welds. No trace of the dye shall appear on the other side of the weld.

Defective welds shall be repaired in accordance with the fabrication requirements.

Fittings and specials which have passed the penetrant dye test shall be stamped with the

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Contractor's stamp.



Where fittings and specials tested in terms of this Clause have been manufactured from straight pipe, such pipe, before being cut, shall be hydrostatically tested in accordance with this Specification.

Visual Inspection

All finished pipes and specials shall be visually examined and shall be free of injurious defects as defined in API 5L section 10.7.

MPW 4 FLANGES

MPW 4.1 Standards

All standard flanges shall comply with SANS 1123. For flange sizes not included in the SANS, BS4504 shall be used. Cast iron flanges and their mating flanges shall have flat faces. The flange table shall be as specified or, if not specified, selected to suit the maximum possible operating pressure but not less than Table 1000. Drilling and installation of flanges shall be "off-centre".

MPW 4.2 Flange Fixing

Flanges DN 50 and smaller may be of the screwed on type. Metal flanges above DN 50 shall be welded on in accordance with BS 806 Type 6 unless otherwise agreed or specified.

MPW 4.3 Machining of Flanges

All flanges shall be machined on the sealing face. Flanges cut from plate shall also be machined on the bore and outside diameter. Cast iron flanges shall also be machined or spot faced on the back of the flange to ensure a flat bearing surface for the fastener's head or nut and washer. All edges, including bolt-holes, shall be chamfered or rounded to a 2 mm radius.

MPW 4.5 Gaskets

The jointing material used on flange joints shall be of rubber or compressed asbestos fibre at least 3 mm thick complying respectively with BS 2494 or BS 1832, as applicable. Full face gaskets shall be used for full face flanges. Inner bolt circle gaskets shall be used on raised face flanges and when clamping items such as wafer type valves between flanges inside the bolt circle. Properly designed O-ring seals are also acceptable.

MPW 4.6 Puddle Flanges

Puddle flanges shall be fitted to pipes where the structure through which they pass is required to take thrust resulting from the pipe. Puddle flanges shall also be fitted where a water barrier is required.

MPW 5 PIPE COUPLINGS

MPW 5.1 General

Where pipework movement, misalignment or dismantling must be allowed for, or if necessary for any other reason, pipe couplings may be used if approved by the Employer's Agent. Pipe couplings shall be of the mechanical type, stainless steel bellows type or rubber bellows type.

MPW 5.2 Supports and Anchors

Pipework using couplings shall be supported and anchored strictly in accordance with the coupling manufacturer's recommendations.



If the pipework configuration does not provide axial restraint, harnesses against separating forces shall be provided. Systems incorporating additional flanges or lugs and connected by tie bars or positively fixed to anchors will be acceptable. Systems relying purely on friction will not be acceptable. Tie bar harnesses shall incorporate three tie bars or more.

MPW 5.3 Mechanical Pipe Couplings

Mechanical pipe couplings shall:

- be of rolled steel, forgings or of high grade castings;
- be coated;
- have rubber seals of a suitable grade;
- shall have stainless steel fasteners, and,
- be supplied without centre register unless otherwise specified.

Pipe ends shall be in accordance with the coupling manufacturer's recommendations. Where machining is required, as in the case of cast iron pipes, the length of machining on each pipe shall be approximately equal to the total length of the coupling to ensure that the coupling can be separated for pipe removal.

Couplings for air applications below 60 °C shall be hot-dip galvanized for air applications above 60 °C shall be of stainless steel. Couplings for stainless steel pipework shall be stainless steel.

Fasteners, including coupling studs, stub studs (i.e. studs welded to the flanges of flange adaptors), washers and nuts shall be of grade 316 SS, or better.

When couplings are part of a buried pipeline, the metallic surfaces shall be coated as specified above and then covered and wrapped. Couplings shall be covered with mastic to a smooth finish, wrapped with tape and then wrapped with a polythene sheet which is strapped in place. "Denso mastic" and "Denso tape", or equivalent products, are suitable. If the operating temperature is likely to exceed 70 °C, the mastic and tape shall be replaced with a suitable grease or a suitable sealer.

MPW 5.4 Stainless Steel Bellows Pipe Couplings

Stainless steel bellows shall incorporate stainless steel flanges and fasteners.

MPW 5.5 Rubber Bellows Pipe Couplings

Rubber bellows couplings are acceptable for machinery which is flexibly mounted and also in applications which require isolation of driven machinery from the surrounding pipework and/or structures.

The flexible material used for rubber expansion joints shall be chosen specifically for maximum resistance to bursting.

Metal backing flanges for rubber expansion joints shall be of stainless steel.

MPW 6 VALVES FOR LIQUIDS OR GASES

MPW 6.1 General

The valves to be used on the more common applications are specified below.

Where special valves are necessary for special applications, these will be specified in the Project Specifications but, if not, tenderers must select suitable valves and provide details in the tender.

For the purpose of this Specification the latest issues of the following standard specifications will apply:

SANS 1700	:	Fasteners
SANS 135	:	Isometric Bold Screws and Nuts (Lexagon & square/coarse thread free fit series)
SANS 136	:	Isometric Precision Hexagon Head Bolts and Screws and Hexagon Nuts (coarse thread medium fit series)
SANS 144	:	Cast Iron Single-door Reflux Valves
SANS 191	:	Cast Steel Gate Valves
SANS 192	:	Cast Steel Single-door Reflux Valves
SANS 644	:	Cast Iron Gate Valves for Waterworks and Heavy Industrial Purposes
SANS 936	:	Cast Iron Spheroidal Graphite Iron Castings
SANS 1431	:	Steel
BS 3100	:	Cast Steel
BS 4504	:	Flange Drilling
BS 5155	:	Cast Iron and Carbon Steel Butterfly Valves
SIS 05 59 00	:	Pictorial Surface Preparation Standards for Painting Steel Surfaces
ISO 2441	:	Pipe Line Flanges for General Use – Shapes and Dimensions of Pressure Tight Surfaces
SANS 1123	:	Steel Pipe Flanges

MPW 6.2 Requirements for All Valves

All valves shall comply with the following (unless inapplicable):

- Valves shall be designed and constructed to ensure reliable operation after long periods of non-operation.
- Valves shall be double-flanged unless unavailable or otherwise specified.
- Valves and their method of actuation shall be designed to operate under the full pressure rating of the valve.
- If not obvious from the configuration, all valves, including valves with gearboxes and valves with actuators, shall be provided with an indication of the current position as well as an indication of the closing and/or the opening direction.
- Spindle covers shall be provided for valves with rising spindles.
- The specific application shall be taken into account in the corrosion protection of valves.
- Cast iron valve components, including valve bodies, shall be protected with a fusion bonded epoxy or a hot-applied thermoplastic system.
- Metal plating of ferrous materials is not an adequate corrosion protection system.



- Lever handles on small bore valves and position indicator plates shall be of stainless steel.
- Fasteners shall be of grade 316 SS, or better.

MPW 6.3 Cast Iron Gate Valves with Resilient Seals

Resilient seal gate valves may be used on raw sewage, raw water, effluent and general duties where some solids may be present but must not be used on high solid applications such as sludge and grit duties. The valves shall comply with the following:

- The valves shall comply with SANS 664 or SANS 665, Class 10 or higher as required.
- The valves shall be double flanged.
- Valves shall have rising spindles unless otherwise specified or necessary because of space restrictions. Non-rising spindle valves shall be fitted with indicators showing the valve opening position.
- Handwheels shall be of cast-iron.
- The spindle shall be of grade 316 SS.
- Fixing lugs for end of travel limit switches shall be provided
- Handwheel size and construction shall permit easy opening of the gate when subjected to a differential pressure equal to the maximum operating pressure anticipated. Suitable gearboxes shall be fitted to provide easy opening when necessary. These gearboxes shall be grease filled.
- Valves larger than DN 150 shall be provided with bypass arrangements.

MPW 6.4 Cast Iron Gate Valves (Wedge Gate)

Wedge gate valves shall be used on raw water and treated water duties but shall not be used on raw sewage, raw water, effluent, sludge and general duties where some solids may be present. The valves shall comply with the following:

- The valves shall comply with SANS 664 or SANS 665, Class 10 or higher as required.
- The valves shall be double flanged.
- The material of the body seat and the material of the gate trim shall be of copper alloy or stainless steel.
- The body shall be provided with channel guides for gate travel. The gate shall be provided with shoes which slide within the channel guides. Guides and shoes shall be of a copper based alloy or of stainless steel and shall guide the gate along the complete travel distance.
- Fixing lugs for end of travel limit switches shall be provided.
- Valves shall have rising spindles unless otherwise specified or necessary because of space restrictions. Non-rising spindle valves shall be fitted with indicators showing the gate position.
- The spindle shall be of grade 316 SS.
- Handwheels shall be of cast-iron. Handwheel size and construction shall permit easy opening of the gate when subjected to a differential pressure equal to the maximum operating pressure anticipated. Suitable gearboxes shall be fitted to provide easy opening when necessary. These gearboxes shall be grease filled.
- Valves larger than DN 150 shall be provided with bypass arrangements, normally isolated by brass ball valves.
- Valves larger than DN 250 shall be provided with doors for inspection and cleaning.

MPW 6.5 Knife-Gate Valves

Knife-gate valves shall be used on water sludges as well as on primary, waste activated and digested sludge duties. They shall also be used on raw sewage and other liquid/solids application and may be used for duties specified under Clause "Cast Iron Gate Valves with Resilient Seals".

The valves shall comply with the following:



- Valves shall have cast iron bodies, stainless steel blades, cast handwheels, and shall have no carbon steel parts.
- Valves shall be clockwise closing.
- Valves shall have chamfered blade edges and resilient body seals.
- Blade faces shall be surface ground or otherwise provided with two flat, parallel surfaces.
- The blade seal shall be protected by a non-metallic scraper or similar device.
- Suitable sealing shall be provided to prevent leakage from the valve and it shall be possible to adjust these seals while the valve is in line under pressure.
- Valves shall be droptight but need not be designed for bi-directional flow.
- Internal and external surfaces of the valve body shall be protected with a water resistant, non-toxic and non-tainting, fusion bonded epoxy coating.
- Valves shall be double-flanged and shall suit the standard flange ratings.

MPW 6.6 Waterworks Type Butterfly Valve

These are the type which utilise a replaceable rubber seal with retaining ring and shall be used on raw and potable water duties.



MPW 6.7 Resilient Seal Butterfly Valves

These are the type which either utilise a resilient body liner with a stainless steel disc or utilise a resilient-lined disc for sealing. They may be used on air, gas and clean liquid duties where approved by the Employer's Agent and shall comply with the following:

- Shafts and fittings shall be of stainless steel and bearing bushes shall be of Teflon or similar. Seals shall be selected to suit the application. No carbon steel components shall be permitted internally and externally such components shall be properly protected.
- Valves shall be air, gas and water tight when closed, as applicable.
- Hand lever valve actuation with a locking system for incremental valve setting from fully shut to fully open shall be provided for valves up to and including DN 200. Valves larger than DN 200 shall be equipped with robust, weatherproof grease-filled gearboxes with an indicator to show the degree of valve opening.
- For normal usage, the valves may be of the type which is clamped between two flanges. Where it is necessary to remove equipment on either side for maintenance purposes, suitable spacer pipes must be provided or the valves shall be flanged and provided with drilled and tapped holes.
- The valves shall be installed with their disc shafts in horizontal orientation.

MPW 6.8 Bronze Isolating Valves

These may be used for isolating duties on clean air and liquid duties up to DN 50. Bronze gate valves shall be to SANS 776.

Ball or plug valves of appropriate construction may also be used where preferred.

MPW 6.9 Needle Valves (above DN 150)

Needle valves, VAG Plunger Valve or equivalent, shall be used for the regulation of flow and/or pressure in pipelines containing water where the size is DN 150 or greater unless this is overridden by the Project Specifications. The configuration shall be double-flanged with co-axial flanges unless otherwise specified.

The seal seat and associated downstream parts shall be selected to prevent any cavitation for the application. Such parts shall be of stainless steel or copper based alloy.

MPW 6.10 Telescopic Overflow Valves

Telescopic overflow valves, (Fulton, or equivalent), shall be vertically mounted and shall be specifically designed for the purpose intended.

Operation shall be by handwheel mounted on an independently mounted headstock. Rising spindles are preferred. The outer tube shall be flanged and bolted to a similarly flanged vertical pipe. The inner tube shall incorporate a conical bellmouth. The bridge connecting the inner tube to the valve's spindle shall be attached to the outside of the bellmouth in order to limit the effect of fouling rags, etc.

The spindle, outer and inner tube, headstock and handwheel shall be of grade 316 SS.

MPW 6.11 Check Valves

General

Where special valves are necessary for special applications, these will be specified in the Project Specifications but, if not, tenderers must select suitable valves and provide details in the tender. Check valves to be used on the more common applications are specified below.



Single-door and double-door check valves shall comply with SANS 1551-1 unless overridden by the requirements of this Clause.

Bronze swing type check valves may be used for pipework up to DN 50. Requirements for All Check Valves
Check valve installations shall comply with the following:

- Valves shall be designed and constructed to ensure reliable operation after long periods of non-operation.
- Valves shall be double-flanged unless unavailable or otherwise specified.
- Valves shall be designed to function correctly under the full pressure rating of the valve.
- The specific application shall be taken into account in the corrosion protection of valves. Steel and cast iron valve components, including valve bodies, shall be protected with fusion bonded epoxy or a hot-applied thermoplastic system.
- Fasteners shall be of grade 316 SS.
- Check valves shall be sized to open fully at the system's design flow rate.
- The check valve installation shall ensure that the valve is able to operate without interference from a physical obstruction such as a shut-off valve, bend, mortar lining, etc. Where a check valve is located close to another valve, a straight pipe shall be provided and this shall have a flange-to-flange length of not less than 1,5 times the valve diameter.
- Indelible body markings, as per SANS 1551-1, shall include the manufacturer's name, pressure rating (PN), nominal size (DN) and the direction of flow.
- A shut-off valve shall be installed downstream of each check valve.

Axially-Sprung Check Valves for Water

Axially-sprung check valves (nozzle check valves) for treated water and raw water duty shall be double-flanged; RGR Concentric, Vent-O-Mat Maxiflo or equivalent.

The valve design shall prevent shock closing and shall incorporate a hydrodynamically efficient flow path to minimise head loss.

The spring shall be of stainless steel and the guide rod shall be supported within a non-corroding, non-galling bearing material.

Double-Flap Check Valves for Water

Double-flap check valves for treated water and raw water duty shall be of the positive-closing type; Crane Duo-Chek II or equivalent.

Bodies shall be of cast-iron or cast-steel. Flaps shall be of the light, leaf type, shall be of bronze or stainless steel with machined sealing faces, shall be specifically designed to be non-sticking, and shall have teflon bearing washers. Seals shall be of resilient material.

The axis of rotation of the flaps shall be vertical, pins shall be of 316 SS, or better, and closure shall be initiated by stainless steel springs, suitably rated for the duty so that closing is initiated prior to the onset of reverse flow.

Positive, external indication of the position of both plates shall be provided. Rubber Diaphragm Check

Valves

Rubber diaphragm check valves shall be of the double-flanged configuration and shall incorporate a hydrodynamically efficient flow path to minimise head loss; VAG Top-Stop or equivalent. Valves featuring multiple small orifices will only be acceptable for nominal flow speeds below 0,5 metres/second.

The flexible rubber diaphragm shall be replaceable. Ball Check Valves



Ball check valves, AVK Series 53 or equivalent, may be used on sewage, sludge or similar applications.

The ball shall be rubber coated and it shall be possible to inspect and/or replace it without removing the valve from the pipework.

Swing Check Valves

Suitably designed swing check valves may be used on sewage, sludge or similar applications. Orientation of the valve shall comply with the manufacturer's recommendation.

Swing check valves shall:

- be of double-flanged configuration.
- have ductile iron bodies.
- be suitable for a working pressure of at least 1 000 KPa.
- be fitted with a side lever and adjustable weight.
- be provided with a bolted cover which provides access, without dismantling or removing the valve, to the swing flap.
- have stainless steel hinge pins.
- have engineered plastic or non-ferrous bearings.

MPW 6.12 Air Release Valves

General

Air release valves for water pipework shall be of the non-slamming type, A.R.I. or Vent-O-Mat or equivalent.

Valves for sewage and similar duties shall be specifically designed for the application. Arrangement and

Installation

Air valves shall be installed above pockets designed to collect the air entrained with the water flow. The pockets shall be designed in accordance with the requirements for nozzles in the Clause "Pipework". The diameter of the nozzle shall be at least half the diameter of the parent pipework.

Valves shall have flanged connections and shall be provided with upstream isolating cocks.

MPW 6.13 Pressure Relief and Vacuum Breaker Valves

The valve is generally used to protect anaerobic digesters and shall be selected to suit this duty.

The valve shall be of a type using removable lead weights on the pressure pallet. Each lead weight shall represent a pressure of 25 mm w.g. and the valve shall be supplied with sufficient weights for the operating pressure given in the Particular Specifications for Valves for Liquids and Gases. Below this operating pressure setting the valve shall not leak. The vacuum pallet shall be set to 50 mm w.g.

The valve shall be of aluminium construction with 316 stainless steel wire mesh screens over the intake and exhaust ports. Pallets shall be centre and side guided and provided with seat inserts of a suitable material which is not subject to distortion. Seat rings and pallets shall be removable.

MPW 6.14 Payment Items

The payment of pipework, valves, fittings and specials shall be as detailed under SANS 1200 L and Clause PSL 8.2.5.



MT : INSTRUMENTS AND ANCILLARIES

MT 1 GENERAL

All instruments, gauges and control gear that perform similar duties shall be of uniform type and manufacture throughout the Works in order to facilitate maintenance and the stocking of spare parts.

Panel mounted instruments shall have damp-protecting and dust-protecting cases. Instruments mounted outside instrument panels shall have weatherproof and dustproof cases. Instrument cases shall be of corrosion-resistant material or finish. Instrument screws (unless forming part of a magnetic circuit) shall be of brass or bronze. Access to terminal compartments of instruments mounted outside panels or other enclosures shall not expose any working part. Moving parts and contacts shall be adequately protected from the ingress of dust.

Unless otherwise specified instruments shall be finished in the manufacturer's standard colour. Instrument dials shall be of such material that no peeling or discoloration will take place with age. Plant-mounted indicators and gauges shall be sized to give full legibility when viewed from a position with convenient and easy access or from the point at which any operation requiring observation of the gauge is performed. The minimum diameter for any gauge shall be 100mm except where forming part of standard instruments and accessories such as airsets.

Dials and bezels shall be of bronze and internal components shall be of stainless steel, bronze or other corrosion-resistant material.

Plant mounted in enclosures shall be suitable for continuous operation at the maximum internal temperature possible in service, due account being taken of internally-generated heat and heat dissipated by other Plant. All components shall be rated adequately and circuits shall be designed so that changes of component characteristics within the manufacturers' tolerances shall not affect the performance of Plant. All Plant shall be designed to operate without artificial cooling. Instruments shall be easily withdrawable from cases without interrupting their circuits. Plant provided with anti-condensation heaters shall be capable of operating without damage if the heaters are left on continuously.

Measuring instruments shall have zero and span adjustment.

Instruments not mounted in panels shall be supplied complete with all brackets, stands, supporting steelwork and weatherproof enclosures (separate from the instrument cases) necessary for securing them in their working positions and affording complete protection at all times including periods of servicing, adjustment, calibration and maintenance. Instruments mounted in open areas that could be vandalised shall be mounted in lockable vandal proof boxes.

MT 2 MECHANICAL WATER METERS

Mechanical water meters shall be of the in-line helical vane type conforming to the Class B requirements of BS 5728.

Meters shall have flanged spheroidal graphite iron casings to BS EN 1563:1997 coated with two- pack epoxy enamel.

The rotors shall be manufactured from polypropylene with stainless steel shafts.

The counter housing shall be sealed and be provided with a seven figure straight reading digital counter and



have a centre sweep hand calibrated to give 10% of the smallest unit on the counter per revolution. The units shall be cubic metres or litres, dependant on the application.

The counter covers shall be provided with a hinged polyacetal or brass cover to protect the counter face from dirt and damage.

The meter shall be flanged to BS EN 1092: 1997 and be supplied complete with a low loss strainer to prevent any large particles in the water from clogging or damaging the meter.

MT 3 ELECTROMAGNETIC FLOW METERS

Electromagnetic flowmeters shall comply with the requirements of BS EN ISO 6817:1997. They shall operate on electromagnetic induction principles and give an output signal directly proportional to the liquid rate of flow.

Each meter shall have a stainless steel metering tube (detector head) and a non-conductive liner suitable for potable water. End connections shall be steel flanged. The detector head shall be complete with corrosion resistant earthing rings and matching flange adapters of the self-locking type suitable for use on the pipes. One flange of the detector head shall be connected to a flanged pipe, while the other shall be connected with the flange adapter to facilitate removal.

The flow meter shall be carefully sited in the process pipework in accordance with BS 5792 and the flow meter supplier's instructions. Particular attention should be paid to the provision of the correct velocity range, earthing rings and the correct number of upstream and downstream clear diameters. A bypass and isolating valves shall be provided to allow the removal of the flow meter for maintenance.

The Contractor shall provide any taper pieces necessary to give the correct velocity range through the flowmeter.

The primary flowhead shall be suitable for continuous submersion to BS EN 60529:1992 IP68 or better. The maximum depth of submergence shall be three metres. The primary flowhead shall have electrodes that may be removed for cleaning or replacement without interrupting the flow. Plant mounting enclosures for signal converters shall be to IEC 529, standard IP65 or better. Measuring ranges shall be continuously adjustable from 1 to 9.999 metres per second with facility to change to 0.5 to 5.5 m/s for high accuracy measurement of low flows.

For flows between 50-100% of the range, the accuracy shall be better than or equal to $\pm 0.5\%$ of the actual flow rate; for flows between 10-50% of the range accuracy shall be better than or equal to $\pm 0.3\%$ of the actual flow rate; and for flows between 1-10%, accuracy shall be better than or equal to $\pm 0.1\%$ full scale value.

The effects of ambient temperature on the output signals shall not exceed 0.15% per 10°C.

MT 4 LEVEL SWITCHES AND INDICATORS

Level transmitters shall be of the float, pressure bulb, displacer, diaphragm or air-bubbler types. Float-operated transmitters shall have counterweights. Floats and displacers of transmitters and switches shall be of corrosion-resistant material or shall be coated with epoxy resin.

Level switches of the buoyancy type shall consist of a mercury switch with changeover action enclosed in a non-corrosive material. A balance weight shall also be incorporated in the switch to counteract the buoyancy effect for the specific gravity of the particular fluid. The connecting cable shall be sealed into the switch. Buoyancy switches shall be installed with a minimum of two metres of spare connecting cable neatly coiled



at a supporting bracket. The connecting cable fixing shall facilitate any alteration in operating level within the limit of the spare cable.

Level switches operating on the conductivity principle shall have three electrodes per relay or control unit except where a differential between the "cut-in" and "cut-out" values is not required or where two or more relays are associated with the same vessel, when a common "earth" electrode shall be used.

Electrodes for the same vessel shall be mounted on a common plate that shall be made in sections if desirable to facilitate handling. Electrode heads shall permit an adjustment in operating levels of not less than 90mm without necessitating cutting or extending electrodes.

Electrodes shall be of a noble metal to resist corrosion, and shall be insulated for most of their lengths. The thickness of electrodes and points of intermediate support shall be chosen so that no bending of the electrodes occurs under Plant operation conditions. This includes temporary bending.

Relay units operating with level electrodes shall have adjustable sensitivity. Electrodes for use in fluids of low or variable conductivity shall have conductivity discs.

MT 5 PRESSURE GAUGES

The equipment shall be supplied and installed, complete with mountings, housings, tubing, fittings, etc. necessary for the display of pressure in pipes.

The Contractor shall be responsible for the provision of detail information for the successful and complete installation of his equipment, and for carrying out the installation, testing and commissioning.

Pressure gauges shall comply with BS EN 837-1:1998. Pressure gauges, transmitters and switches shall have over range protection. No plastic material shall be used in their construction. Internal parts shall be of stainless steel, bronze or approved corrosion-resistant material. Pressure gauges shall have concentric scales.

Where compensation of more than 2% of the instrument span is needed for the difference in level between the instrument and the tapping point, the reading shall be suitably adjusted and the amount of compensation shall be marked on the dial.

The gauge shall have a range of measurement not less than 1.25 times the operational range of the equipment to which it is connected. In cases where gauges are used to indicate pressures above and below atmospheric pressure, the gauge range shall be not less than 125% of the maximum positive and maximum negative pressure.

The normal working pressure shall be indicated at a point between 50% and 75% of the full-scale deflection of the gauge.

The instrument shall indicate accurately to within 3% of the full-scale deflection.

All pressure gauges shall be equipped with an isolating valve or a gauge cock to allow it to be isolated from the pipe. The cost of the valve or gauge cock shall be deemed included in the tendered rate for the equipment.

Where a pressure gauge is to be installed on a pipe conveying corrosive liquids or slurries, or where there is a risk that the pressure ports of the gauge could become blocked as a result of the properties of the medium conveyed, such gauges shall be equipped with gauge protectors. Glycerine-filled gauges shall be used for applications involving hydraulic pipelines, while vacuum-damped gauges shall be employed where they are to be installed on air or gas lines.



Labels shall be provided, especially on remote-mounted gauges, to indicate the locations where pressure is measured.

The operating set point of all meters and indicators shall be clearly marked in red.

After installation, pressure gauges shall be tested and commissioned together with the equipment to which they are connected, such as pumps or compressors and their associated pipework.

MT 6 ELECTRICAL INDICATORS AND INTEGRATORS

Indicators for use with analogue signal transmission systems shall comply with BS 89 and have an accuracy class index of 1.0. Indicator movements shall be critically damped (dead-beat). Indicators for use on more than one circuit shall have rotary switches to select the circuit, with engraved plates to show the circuit selected.

Indicators shall have circular scales or shall be of the vertical edgewise type and shall be designed to avoid parallax error. Scales shall be clearly marked in the specified units and shall comply with BS 3693. All instruments that are mounted on one panel or board, or are in adjacent groupings, shall have similar styles of figures and letters. Dials shall be white with black scales and lettering not subject to fading.

The material for scales shall be such that no peeling or discoloration will take place with age under all environmental conditions.

Major scale marks and numerals shall be of the same size and thickness and shall be separated by not more than twenty five minor marks. Pointers shall taper to the width of the scale marks. Integrators shall be of the multi-digit cyclometer type. Each integrator shall have an integral or separate current-to-pulse converter with sufficient adjustment of the pulse rate to avoid the use of any multiplying factor except in integer power of ten. Each integrator shall incorporate an adjustable limiter whereby any input below a preset value is inoperative. Unless otherwise specified, integrators shall have a minimum of eight digits with a decimal point where applicable.

MT 7 LEVEL INSTRUMENTATION

MT 7.1 Ultrasonic Devices

Ultrasonic level measuring devices shall offer the minimum facilities described below: Level sensor

The sensor head shall be protected to IP68.

Sensing heads shall be mounted on stainless steel brackets and positioned with due regard given to an unhindered beam path and within easy reach of maintenance personnel.
Signal converter

The signal converter shall be supplied in an IP55 (indoors) or IP65 (outdoors) minimum polycarbonate enclosure and shall comprise a base unit and a programming device. Communication between the programmer and signal converter shall be in such a manner that the IP rating is not prejudiced.

A 3.5" or larger digit liquid crystal display shall be used to indicate key programming features, setting and output conditions. The display shall be in the English language. The unit shall also be provided with a keypad for calibration and configuration.

The unit shall be suitable for either 24 V dc or 240 V ac operation. Accuracy of the signal converter shall be better than $\pm 0.5\%$ of reading.



The signal converter shall have the following programmable outputs:

- i. 4-20 mA proportional to user definable engineering units;
- ii. SPDT relay contact output closing upon failure of the signal converter or lost echo;
- iii. off SPDT contact outputs with independently set trip points. These outputs shall be programmed to energise upon high/low level, rate of change or to allow a number of pump sequencing operations.

MT 7.2 Float Switches

Level switches of the buoyancy type shall consist of a mercury switch with changeover action enclosed in a non-corrodable material. A balance weight shall also be incorporated in the switch to counteract the buoyancy effect of the specific gravity of the particular fluid. The connecting cable shall be factory sealed into the switch.

Level switches shall be installed with a minimum of two metres of spare connecting cable neatly coiled at a supporting bracket. The connecting cable fixing shall facilitate any alteration in operating level within the limit of the spare cable.

MT 7.3 Conductivity Electrodes and Level Relay Systems

Conductivity electrodes shall be formed from stainless steel tubes encapsulated in PVC sleeving down to 75mm from the end of the electrode. The electrode shall be sealed.

Where necessary, intermediate insulated support brackets shall be installed to prevent the electrodes swaying. The intermediate supports shall be installed above normal top water level at the particular location. An earth electrode shall be provided at each electrode installation. Pipework shall not be used for the earth.

The electrode holders shall comprise a moulded back phenolic body capable of accepting 20mm BS pipe. Plated clamping collars complete with cable termination shall be provided to locate the electrode. The holder cap shall also be of moulded phenolic material. A gasket shall be placed between body and cap. The body shall be arranged to receive screwed conduit.

Electrode holders shall permit adjustment in operating levels of not less than 100mm without necessitating cutting or extending electrodes.

Relay units operating with level electrodes shall have adjustable sensitivity. Electrodes for use in fluids of low or variable conductivity shall have conductivity discs. Electrodes shall be energised with an alternating voltage not exceeding 25 V open circuit.

MT 7.4 Pressure Devices

Pressure transducer level measuring sensors shall be of the stainless steel submersible type operating on the piezo-resistive silicon strain gauge principle. Compatible power supply and signal processing units shall be provided with protection against radio frequency interference and supply transients. The final output shall be a 4-20 mA signal proportional to level. Lightning protection shall be provided where applicable.

The transducer/cable shall be suitably supported with stainless steel brackets. A bracketed stainless steel restraining tube shall be provided in deep sumps etc.

This specification covers the manufacture, supply, delivery, installation, testing and commissioning of pipework, valves and fittings associated with mechanical equipment.

PE

ELECTRICAL WORK

The electrical wiring of buildings shall be carried out by registered and licensed electricians in accordance with the requirements of SANS 0142 and the regulations of the Employer. The electrician shall work in close co-operation with the Contractor to ensure that all conduits, switchboards, plug boxes and switch boxes are installed in their correct position.

The work shall be carried out in accordance with the Drawings and to the satisfaction of the Employer's Agent and the Local Authority.

PE 8.1 General

The following earthing systems are required for the works:

- A ring earth and test points for lightning protection at each building.
- Bare copper earth conductors installed together with all feeder cables to the MCC.
- Connections of the above by brazing.
- Connections to MCC earth bars.
- Connections of earth points to roof earths for lightning protection
- Connections of control equipment as specified.
- Earthing of motors.
- Bonding of steel handrails and steel walkways on structures to main earth systems.
- General earthing and bonding of electrical installation consisting of lights, power points and other small power equipment.
- Earthing of the transformer
- Earthing and lightning protection of the reservoir and tower tanks

All earthing shall be carried out as specified further herein and shall comply with the requirements of the General Technical Specifications GTS 9.0 hereof, as well as the requirements for earthing as stated in SANS 10142-1 : Part 1 : Low Voltage Installations (as amended).

The lightning protection earthing installation specified herein shall further comply with the SANS Codes of Practice 10199 (2004) and 10313 (2008) in conjunction with SANS 62305-1 -2 -3 - 4:2007 and IEC 62305 -1 -2-3 -4: 2006.

NOTE: All main earth conductors installed at earth mats; together with MCC power supply cables; all rings earths at the building; and all lightning down conductors shall be done using 70 mm² copper earth wire.

PE 8.2 Building and Roof Earths

A ring earth conductor shall be installed in a trench, 600mm deep and 1,5m from the building outer structure to connect this ring earth the test point at the building.

The test points shall be installed against the walls of the building or structures and shall consist of conductor ends which are lugged and bolted together at a stand-off insulator which is suitable for the bolting together of 70 mm² bare copper earth conductor.

An earth rod shall be installed at each test point in the bottom of the trench for earthing around the building.

The connections between the test points and the earth rods at each test point shall be done with a 70 mm² insulated copper earth conductor.

The earth rods shall be brazed to the ring earth conductors and the brazed connections shall be taped with "DENSOL" tape or 3M self-bonding tape.

A 70 mm² insulated copper earth conductor shall be installed vertically from each test point to the steel roof or concrete roof of the building where the connections shall be made as follows:

- Copper-to-steel special connector for steel roofs and steel structures
 - Copper-to-aluminium special connector for aluminium rings on top of concrete slab roofs.
- Where such lugged copper conductors are connected to dissimilar metals, the connection shall be done with the use of "DENSOL" paste or shall be taped with "DENSOL" tape or 3M self-bonding tape.

The vertical insulated conductors shall be housed in 20 mm Ø hot dipped galvanised conduit on conduit saddled to the walls of the building by means of hot dipped galvanised conduit spacer saddles at 1m distances. The conduits shall reach from below the roof overhang or the slab overhang to just above the test points on the walls.

The vertical rising 70 mm² conductors shall be bonded to the steel structure or roof structure by lugging and bolting with copper-to-steel connections.

The vertical rising 70 mm² conductors shall be bonded to the aluminium rings on concrete roofs by lugging and bolting with copper-to-aluminium connections.

The ring conductors for lightning protection on top of concrete roofs shall be done using solid aluminium conductors.

The solid aluminium conductors shall be 6,3 mm Ø shall be installed all round the perimeter of the concrete roofs.

The aluminium conductors shall be placed on the concrete roof perimeter shall be supported by aluminium stand-off support at 1 m distances with two support placed both sides of the corner bends.

Bends in the aluminium conductor shall have a minimum radius of 500 mm.

The aluminium conductors on concrete roofs shall be mounted on aluminium spacer saddles which is available from lightning conductor suppliers.

The spacer saddles shall be installed at 1m distances and the saddles shall be fixed to the concrete or on top of concrete waterproofing materials by means of 2-pack epoxy adhesives.

PE8.3. General Earthing of Motors, Switchgear, and Small Power Installations

Note: PVC wire in conduit installations is not acceptable in this Contract.

The general electrical installation consisting of lighting circuits, power point circuits, instrumentation equipment, housings, metal cable supports, brackets, draw boxes, all conductive materials in contact with or housing electrical wiring or equipment in or on the building, shall be properly bonded with continuous earth wires or solid earth connections to the main earth bar of the MCC.

The earthing installation shall be tested before being powered up, in terms of SANS 10142-1 : Part 1 : Low Voltage Installations (as amended).

The doors or hinged face panels of MCC shall be bonded to earth with braided copper earth straps.

Each motor shall be earthed by means of the fourth core of the 4-core cable which supplies the motor with power. The insulation of this core shall be green/yellow in colour. In the case where the core used for earthing is not green/yellow in colour then both ends of such core shall be sleeved with green air shrink or heat shrink material to identify the earth as such.

If applicable, any MV cable armouring shall also be properly bonded to the earth equipment in the transformer.

All 400/230 V power distribution in this Contract shall be done using PVC armoured cables as scheduled in the 400V/230 V cable specification schedule of this project specification.

All small power cable earth cores shall be terminated on the MCC and earth points in instrumentation cabinets.

All earth wire ends shall be properly lugged and bolted.

All instrument earth connections shall be properly terminated in junction boxes or in the PLC marshalling cabinet earth points.

All earthing shall be tested in accordance with SANS 10142-1 and the test report shall be submitted to the Employer's Agent

PE8.4. Earthing of Instrumentation

All junction boxes and instrumentation housings or control panels containing electronic equipment, shall be provided with earth studs or earth bars.

These earth points shall be bonded to the main earth system or the earth bar of the MCC.

The outer screens or screen drain earth wires of instrumentation cables or multi-core control cables shall be bonded, at one end only, to the earth points in instrument housings and junction boxes and in the PLC marshalling cabinets.

PE9 400/230 V Installation

P9.1 General

This Contract includes the 400 V MCC, cables, light fittings, power sockets and small power equipment.

The associated earthing systems which consist of ECC cable armouring, cable cores of 3- or 4- core cables or separate earthing conductors are also specified herein.

The contract shall include for all costs entailed in the design and preparing of all works; drawings for the MCC's and/or control panels, all cost of supplying and delivery of the works on the site, all cost entailed in commissioning the works, all supervision, labour, tools and materials necessary to erect and to test the works and to hand over the works in working order to the Employer.

P9.2 Scope of 400/230 V Installation

The 400/230V installation shall include, but is not limited to, the following portions of the Contract.

- The floor mounted Motor Control Centre.
- The small wall mounted distribution boards.
- All power cables.
- Light fittings internal- and external to the building.
- Single phase socket outlets.
- Welding sockets.
- Isolators for the cranes, ventilation equipment and actuators.
- 400/230 V Main and secondary cables.
- Cable ladders and supports (hot dip galvanised or stainless steel as detailed further herein).
- E-stop hot dip galvanised pedestals.
- The Earthing- and lightning protection system.
- Drawings and manuals as specified in the General Technical Specification of this document.
- Wall mounted "As Built" drawings.
- Maintenance of the Works as specified in the Conditions of Contract.

Note: The lighting and power point layout drawings are issued together with this specification.

Control and instrumentation equipment and cable and PLC network cables are specified in this document.

All the earthing of the 400/230V installation shall be carried out as specified further herein and shall comply with the requirements of the Standard Specifications GTS 9.0 hereof, as well as the requirements for earthing as stated in SANS 10142-1 : Part 1 : Low Voltage Installations (as amended).

The Contractor shall issue the necessary completion certificates and Certificate of Compliance to the Employer's Agent and the applicable Authorities as contained herein or in SANS 10142: Part 1: Low Voltage Installations, or as required in terms of the Occupational Health and Safety Act, Act 85 of 1993, as and when required by the Employer's Agent or the Authorities.

The certificates shall include the Certificate of Compliance as would be required by SANS 10142 where any 231/400 Volt (or higher voltage) work is carried out by the Contractor.

The original Certificate of Compliance for every separate site or installation shall be handed to the Employer. Copies must be issued to the Employer's Agent and the Supply Authority and copies can further be included in the Operational and Maintenance manuals.

P9.3 Lighting Installations

Tubular fluorescent light fittings shall comply with Clause GTS7.0 of the Standard Specification.

The light fittings inside the pump room shall be approved by the Employer's Agent.

Fluorescent fittings required shall be installed as per the layout drawings and shall be placed horizontally along the walls of the building, unless specified differently on the particular layout drawing.

The wall mounted light fittings (Type B) required for outside lighting of the building and shall be approved by the Employer's Agent, and shall be complete with wire guards.

The general requirements of this contract is that all light fittings, inside building and outside building shall be installed at not more than 3,5 m from floor level or landing level or from any surface where a 3m step ladder can be safely placed for maintenance purposes.

In addition flood lighting shall be installed for flood lighting in certain areas as shown in the relevant lighting layout.

All fittings shall further be complete with lamps and shall be fixed in accordance with the fixing stipulations of the GTS Specification.

The positions of light fittings are shown on the layout drawings.

All light circuits shall consist of 2,5mm² 3- and 4 core armoured cable mounted on cable ladders or mounted in BOSAL conduit on the surface of the building.

Circuit supply wires, switch return wires, neutral wires, earth wiring shall all form part of such a single cable run and only one 230 V supply phase must be present in any such cable run.

Cabled circuits to lights shall follow cable ladder routes as far as possible.

Straight runs of cables on surface from a cable ladder shall be mounted in 20 or 25 mm Ø

BOSAL conduit which shall be saddled at 1 m intervals on electro-galvanised spacer saddles (hospital saddles). Cable bends shall be left unsupported only for the radius section of cable between conduit ends.

Cabled circuits shall pass through PRATLEY boxes with compression cable glands and T-off on cable runs to switches shall be by means of PRATLEY boxes and compression cable glands.

Cable T-off to light fittings shall be done with a short section of heavy duty 2,5mm² 3-core

Cabletyre, making use of Cabletyre gripper glands at the box end and fitting end of the Cabletyre.

Compression cable glands may not be used for entry into Type A light fittings as the fitting body is not suitable for standard compression glands.

Cable for light circuits may not be routed directly through light fittings as cable cores are not rated for high temperatures. Where light fittings are mounted above or below cable ladder routes the fitting connection PRATLEY box shall be mounted next to the cable ladder on the wall surface and the supply cable of the circuit shall leave the cable ladders at the back of the ladder to loop at 45° angles to the box before and after the

box. 90° Bends in cable will not be allowed and minimum bending radius of cable shall always be in accordance with SANS requirements.

All the cabling and light fittings must be tested on completion of the system by the Electrical Contractor for this Contract together with the Supply Authority and the Employer's Agent.

All the materials for the lighting installation have been allowed for in the Schedules of Quantities.

Cable ladder must be installed vertically between the MCC and the roof area to route the lighting cables to roof structure level.

The cables from the MCC to roof level shall be done in 2,5mm² 3- core armoured cable which shall end in PRATLEY boxes at each lip channel run. SURFIX cable shall only be used in lip channels.

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C3.4 HIV/AIDS REQUIREMENTS

1. **SCOPE**

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers
- Informing Workers of their rights with regard to HIV/AIDS in the workplace
- Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices

2. **DEFINITIONS AND ABBREVIATIONS**

2.1 **Definitions**

Service Provider: The natural or juristic person recognised and approved by the Lepelle Northern Water as a specialist in conducting HIV/AIDS awareness programmes.

Service Provider Workshop Plan: A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent.

Worker: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in all.

2.2 **Abbreviations**

HIV	:	Human Immunodeficiency Virus
AIDS	:	Acquired Immune Deficiency Syndrome
STI	:	Sexually Transmitted Infection

3. **BASIC METHOD REQUIREMENT**

The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.

The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- Number of Workers and Sub-contractors on site
- When new Workers or Sub-contractors will join the construction project
- Duration of Workers and Sub-contractors on site
- How the maximum number of Workers can be targeted with workshops
- How the Contractor prefers workshops to be scheduled, e.g. three hourly sessions per Worker, or one 2.5 hour workshop per Worker
- Profile of Workers, including educational level, age and gender (if available)
- Preferred time of day or month to conduct workshops
- A Gantt chart reflecting the construction programme, for scheduling of workshops
- Suitable venues for workshops The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Lepelle Northern Water Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training.

The Service Provider Workshop Plan shall address, but will not be limited to the following:

- 3.1 The nature of the disease;
- 3.2 How it is transmitted;
- 3.3 Safe sexual behaviour;
- 3.4 Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- 3.5 Attitudes towards other people with HIV/AIDS;
- 3.6 Rights of the Worker in the workplace;
- 3.7 How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
- 3.8 How the Service Provider will support the Awareness Champion;
- 3.9 Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- 3.10 How the workshops will be presented, including frequency and duration;
- 3.11 How the workshops will fit in with the construction programme;

- 3.12 How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- 3.13 How the video will be used;
- 3.14 How the Service Provider will elicit maximum participation from the Workers;
- 3.15 A questions and answers slot (interactive session)

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated.

4. HIV/ AIDS AWARENESS EDUCATION AND TRAINING

4.1 Workshops

The Contractor shall ensure that all Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Offices of the Lepelle Northern Water, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

4.2 Recommended practice

4.2.1 Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan. Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session.

4.2.2 Service Providers

A database of recommended Service Providers is available from all Offices of the Lepelle Northern Water.

4.2.3 HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met

4.2.3.1 UNIT 1: The nature of HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will

also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:

1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

4.2.3.2 UNIT 2: Transmission of the HI virus

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

Assessment Criteria:

1. Record in what bodily fluids the HI virus can be found
2. Describe how HIV/AIDS can be transmitted
3. Demonstrate the ability to distinguish between how HIV/AIDS transmitted and misconceptions around transmittance of HIV/AIDS

4.2.3.3 UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HIV virus from entering the bloodstream.

Assessment Criteria:

1. Report on how to minimise the risk of HIV/AIDS infection
2. Report on precautions that can be taken to prevent HIV/AIDS infection
3. Explain or demonstrate how to use a male and female condom.
4. List the factors that could jeopardize the safety of condoms provided against HIV/AIDS transmission

4.2.3.4 UNIT 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling.

Assessment Criteria:

1. Describe methods of testing for HIV/AIDS infection
2. Report on why voluntary testing is important
3. Report on why pre- and post-test counselling is important

4.2.3.5 UNIT 5: Living with HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria:

1. List and describe ways to manage HIV/AIDS
2. Describe nutritional needs of people living with HIV/AIDS
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS
4. Explain the need for counselling and support to people living with HIV/AIDS

4.2.3.6 UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people.

Assessment Criteria:

1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS
4. Describe post exposure prophylactics.

4.3 Displaying of plastic laminated posters and distribution of information booklets

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from Offices of the Lepelle Northern Water.

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's.

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover.

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.

The posters on display must always be intact, clear and readable.

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site.

5. PROVIDING WORKERS WITH ACCESS TO CONDOMS

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health.

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover.

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

6 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

7. APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the instruction period.

The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner.

The Awareness Champion shall be responsible for:

- 7.1 Liaising with the Service Provider on organizing awareness workshops;
- 7.2 Filling condom dispensers and monitoring condom distribution;
- 7.3 Handing out information booklets;
- 7.4 Placing and maintaining posters

8 MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent.

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C3.5 OCCUPATIONAL HEALTH AND SAFETY



C3.5.1 OHS GENERAL

C3.5.1.1 TENDER DOCUMENT

This document is the pre-contract Health and Safety Specification which must be used by the Principal Contractor and Sub Contractors appointed by the Principal Contractor to compile Health and Safety Plans for this project and forms part of the tender documentation.

The Principal Contractor and Sub Contractors' particular attention is drawn to this specification whereby

"Upon award of the contract, the contractor is to assume and adopt the function and duties of the Principal Contractor as set out in the Construction Regulations 2014 No. 10113 promulgated 07 February 2018."

The health and safety specifications outlined herein must be taken into account and due allowance made within the pricing of appropriate items contained within the specification. Where the tenderer is of the opinion that a requirement is missing or is not adequately specified then this shall be drawn to the Client attention during the tender period. In the absence of any direction to the contrary, the tenderer shall as part of the tender submission, set out the details of such discrepancy together with the costs associated therewith, separately identified and included within the tender figure.

C3.5.1.2 PRINCIPAL CONTRACTOR

The successful tenderer will on signing of the contract for:

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be required to fulfil the function and duties of the Principal Contractor as set out in the Construction Regulations 2014 No. 10113 promulgated 07 February 2018.

C3.5.1.3 START OF CONSTRUCTION PHASE

The construction phase shall not commence until the Principal Contractor's Health and Safety Plan was considered and approved by the Client and Design Team. The Client shall discuss and negotiate with the Principal Contractor the contents of the Health and Safety Plan submitted by the Principal Contractor before finally approving it for implementation.

The construction phase shall not commence until written permission is received from the Client. In this respect the Client may rely on the advice of the Technical Team as to the adequacy and comprehensiveness of the Plan offered by the Principal Contractor.

In preparing their detailed Health and Safety Plan based on the relevant sections of this Health and safety Specifications supplied to them by the Client, contractors must allow for the adoption of safe working procedures and co-ordinate and rationalize activities to avoid controllable hazards arising due to clashes of activities.



C3.5.1.4 SUB-CONTRACTORS, SUPPLIERS & DESIGNERS

The Principal Contractor shall ensure that all direct appointments in connection with this project include provisions for the compliance of his sub-contractors, suppliers and designers, etc, with the relevant provision of the Occupational Health and Safety Act (Act 85 of 1993) and it's Regulations, in particular the Construction Regulations 2014 No. 10113 promulgated 07 February 2018.

C3.5.1.5 LIAISON

The Principal Contractor shall together with all his appointees, liaison with the Client as required under the Regulations and agrees procedures for the transfer of relevant Information in respect of designs and in connection with the preparation of the Health and Safety File.

C3.5.1.6 ADVICE

The tenderer shall, as part of the tender submission, indicate where advice will or may be required of the Client in respect of the competence of the tenderer's designers and the adequacy of resources allocated or to be allocated by them.

C3.5.1.7 UNDERTAKING BY PRINCIPAL CONTRACTOR AND SUB-CONTRACTORS APPOINTED BY THE PRINCIPAL CONTRACTOR.

The Principal Contractor as well as Sub-Contractors appointed by him / her shall undertake in writing to ensure that the provisions of the Occupational Health and Safety Act (Act 85 of 1993) and it's Regulations, in particular the Construction Regulation of 2014 No. 10113 promulgated 07 February 2018 and any amendments or re-enactments thereto are complied with.

The attached Occupational Health and Safety provisions undertaking form for the Principal Contractor shall be completed and signed by the Project Manager of the company / firm awarded the tender.

Client's Occupational Health and Safety Agent: To be appointed

C3.5.2 INFORMATION REQUIREMENTS

The contractor must provide the following information.

C3.5.2.1 GENERAL

- The Principal Contractor / Sub-Contractor shall have an OHS Policy in accordance with the OHS(Occupational Health and Safety Act, Act 85 of 1993) and include a copy of the Policy in the Health and Safety Plan to be submitted by the Principal Contractor / Sub-Contractor.
- The Principal Contractor / Sub-Contractor shall promptly display a copy of the Company's OHS Policy on the OHS Notice Board for the duration of the contract and include it into information provided to persons at the contract OHS induction.



- The Principal Contractor shall develop a Contract specific OHS Management Commitment Statement based on the Company's OHS Policy.
- The Principal Contractor's Project Managing shall sign the Commitment statement and prominently display a copy on the OHS Notice Board for the duration of the contract. A copy of the Commitment Statement shall be included in information provided to persons at the Contract OHS induction and a copy shall also be supplied to each sub-contractor.

C3.5.2.2 MANAGEMENT

- Details of the personnel and management systems to be put in place to prepare, manage, implement, conduct and monitor the Health and Safety Plan for the project.

Broadly speaking your:

- Organization's internal structure that establishes SHE (Safety, Health and Environmental) ROLES, RESPONSIBILITIES, ACCOUNTABILITIES, and REPORTING RELATIONSHIPS,
- SHE (Safety, Health and Environmental) PLANS, POLICIES, PROCEDURES, DIRECTIVES and STANDARDS that provide instructions as to how activities and functions are to be carried out,
- SHE (Safety, Health and Environmental) CONTROLS, INSPECTIONS, REVIEWS, etc. built into construction operations to ensure that performance is consistent with SHE (Safety, Health and Environmental) objectives and requirements,
- SHE (Safety, Health and Environmental) COMMUNICATION MECHANISMS for collecting, handling and reporting information.

In other words Management Systems that specifies WHO is going to do WHAT, WHERE, WHEN, WHY and HOW.

- Details of relevant qualifications and experience held by the persons nominated above, including recent health and safety education and training undertaken.
- Procedures for determining the competence of contractors engaged on the project, whether employed by the contractor directly or by others, to fulfil their duties under the Construction Regulations 2014 No. 10113 promulgated 07 February 2018.

C3.5.2.3 HAZARD IDENTIFICATION, RISK MANAGEMENT AND CONTROL

- The Principal Contractor / Sub-Contractor shall detail and implement procedures that will identify hazards, assess risks and determine suitable control measures as they arise throughout term of the contract. These procedures shall both comply with and be implemented and managed in accordance with the specification.
- The Principal Contractor / Sub-Contractor shall detail and implement procedures that ensure control measures are evaluated for effectiveness and modified as necessary. The evaluation procedure shall detail the responsibilities, timelines and records that will be kept as part of the process.



- Where Risk is controlled through administrative control measures, the Principal Contractor / Sub-Contractor shall ensure that the administrative measures are:
 - a) Clearly documented and those personnel responsible for implementation and management are explicitly defined;
 - b) Understood by all relevant personnel through training and assessment;
 - c) Implemented as documented and promptly reviewed for effectiveness following initial implementation;
 - d) Amended and authorised as required;
 - e) Adequately supervised, managed and audited to ensure continuing compliance;
 - f) Available at all times wherever the measures are being implemented.
- ❖ Any piece of plant or equipment not complying with the specification shall cease operation until the Principal Contractor / Sub-Contractor can demonstrate to the satisfaction of the Client / Client's Agent that the piece of non-conforming plant or equipment conforms to these requirements.



C3.5.2.4 HEALTH AND SAFETY PLAN

The Principal Contractor / Sub-Contractor shall develop a Health & Safety Plan to reflect variations in design or changes in site conditions and liaise with the Client / Client's Agent.

The Principal Contractor shall develop this Health and Safety Plan so that it:

- a) Incorporates the contractor's approach to managing the construction work to ensure the health and safety of all persons carrying out the construction work and all persons who may be affected by their work.
- b) Includes the risk assessments prepared by all Contractors under their duties set out in the Construction Regulations 2014 and any other relevant legislation (i.e. the OHS Act and Regulations, etc).
- c) Includes the arrangements for ensuring that, where appropriate or specifically requested, all Contractors / Sub-Contractors prepare suitable and sufficient method statements for their construction works which incorporate adequate measures for ensuring the health and safety of all persons who may be affected by these works.
- d) Incorporates the common arrangements for site safety, statutory notices and registers etc.
- e) Includes the site rules to be adopted for controlling the risks to health and safety during the construction phase(s) or the project.
- f) Includes reasonable arrangements for monitoring compliance with health and safety legislation and site rules.
- g) Includes reasonable measures to ensure co-operation between all Contractors and Sub-Contractors in respect of health and safety provisions and prohibitions.
- h) Includes the steps to be taken to ensure that only authorised persons are allowed into any premises or parts of the site / premises where construction work is being carried out.
- i) Includes arrangements for emergency procedures.
- j) Includes arrangements for ensuring that, so far as is reasonably practicable, every Contractor and Sub-Contractor is provided with comprehensible information about the risks to health and safety of that Contractor / Sub-Contractor, or of any employees or other persons under their control, arising out of the construction works, including the emergency procedures
- k) Includes details of the arrangements for ensuring, so far as is reasonably practicable, that the employees or other persons under the control of any Contractor / Sub-Contractor, and any visitors to the site, receive adequate information about the risks to their health and safety arising out of the construction works and, where necessary, adequate training to carry out their work in a safe and healthy manner.
- l) Includes arrangements for providing all persons at work on the site and visitors to the site with the opportunity and means of discussing and offering advice on health and safety issues relating to the construction works.



- m) Includes arrangements for the reporting of any accidents, injuries or dangerous occurrences, including conforming with the statutory requirements.
- n) Can be modified as the work proceeds to take account of any information received from Contactors / Sub-Contractors, any experience gained during the course of the project or any changes necessary as a result of unforeseen circumstances or alterations to the design.

C3.5.2.5 PROGRAMME

A time estimate required by the contractor to implement the Health & Safety Plan sufficiently for works to commence on site.

C3.5.2.6 COST

A detailed breakdown of costs allowed in the contractor's tender for preparing, managing, implementing and monitoring the Health and Safety Plan, and for complying with the requirements imposed on the Principal Contractors under the Construction Regulations of 2014 No. 10113 promulgated 07 February 2018.

C3.5.3 GENERAL SITE SAFETY

C3.5.3.1 SAFETY TRAINING & EDUCATION

The Principal Contractor shall detail the OHS competencies and training received by its contract management personnel.

The Principal Contractor's Health and Safety Plan shall have a detailed register of the skills and competencies for all personnel for the activities that the personnel will undertake under the contract. (E.g. Mobile plant operators, crane operators etc.)

The Principal Contractor shall demonstrate and maintain documentary evidence of competencies on site for the duration of the contract.

C3.5.3.2 INDUCTION TRAINING

The Principal Contractor / Sub-Contractor shall develop and detail a Site Induction Training Programme as part of the Occupational Health and Safety Plan to be submitted to the Client prior to commencement of construction that includes as a minimum:

- a) Training related to hazards likely to be encountered on Site and control measures that have been developed in response to these hazards;
- b) Roles and Responsibilities;
- c) The requirements of the Health and Safety Plan submitted and approved
- d) Address the identified issues in the Fire Safety, Emergency, Evacuation and Rescue Plan to ensure that all Site personnel are aware of procedures in the event of an incident or emergency occurring;



The Principal Contractor / Sub-Contractor shall evaluate all persons undertaking the site Induction Training through a written test to ensure that inductees have an understanding of the OHS (Occupational Health and Safety) requirements for the contract. The written tests shall be signed and dated by the person undertaking the induction training to attest to their understanding and be retained by the Principal Contractor / Sub-Contractor as a record that the training has been completed.

C3.5.3.3 INDUCTION TRAINING FOR SPECIFIED WORK

The Principal Contractor / Sub-Contractor shall conduct Site Specific Occupational Health and Safety Induction Training for all personnel, the Client and all visitors not escorted on Site by inducted persons.

The Principal Contractor / Sub-Contractor shall evaluate all persons undertaking the Site Induction Training through a written test to ensure that inductees have an understanding of the OHS (Occupational Health and Safety) requirements for the contract. The written tests shall be signed and dated by the person undertaking the induction training to attest to their understanding and be retained by the Principal Contractor / Sub-Contractor as a record that the training has been completed.

C3.5.3.4 RECORDING & REPORTING OF INJURIES

Make arrangements for all contractors to report accidents, ill health and dangerous occurrences notifiable to the Department of Labour under Section 24 of the OHS Act (Occupational Health and Safety Act, Act 85 of 1993) (Reporting to DOL (Department of Labour) Inspector regarding certain incidents).

All lost time incidents associated with the contract works or reportable as defined by **Section 24** of the OHS Act shall be immediately reported to the Client.

The Principal Contractor / Sub-Contractor shall provide a detailed report of all accidents / incidents, including events that could have become lost time incidents were it not for fortuitous circumstances to the Client within 5 days of the incident occurring. The Principal Contractor / Sub-Contractor shall provide copies of all reports and information associated with the incidents to the Client. Copies of reports must be placed on the Health and Safety File.

Where the Principal Contractor / Sub-Contractor has been:

- Served with a prohibition, contravention or improvement notice under the OHS Act; or
 - Required to comply with any order issued by an inspector for the Department of Labour;
- The Principal Contractor / Sub-Contractor shall immediately supply a copy of that notice, order or notification to the Client.
 - Where the Principal Contractor / Sub-Contractor have been served with a summons or is convicted of any offence in relation to occupational health and safety, the Principal Contractor / Sub Contractor shall immediately supply a copy of that summons to the Client.
 - The Principal Contractor / Sub-Contractor shall detail the reporting and investigation procedures for incident investigation. The procedures shall include the investigating officer responsible and the time limits imposed



for reporting and investigating the incident and to implement corrective action in a timely manner so as to prevent a recurrence.

- The client may participate in or undertake an investigation into the incident, injury or illness at its discretion and the Principal Contractor / Sub-Contractor shall cooperate with and provide assistance to the investigation organized and undertaken by the Client.

C3.5.3.5 FIRST AID

- o Establish and implement a first-aid programme to provide emergency treatment to victims of accidents, chemical substances or excessive exposure to toxic substances.

The programme shall include:

- proper first aid facilities administered by qualified personnel,
 - first-aid boxes,
 - first-aid room, where there are 500 or more workers on site,
 - training and re-training of first-aiders,
 - first-aid treatment procedures,
 - standard procedures,
 - special procedures, e.g. for poisoning,
 - maintenance of first-aid facilities
- o All first-aid provisions shall comply with the OHS Act (Act 85 of 1993)

C3.5.3.6 FIRE PROTECTION AND PREVENTION

- Appropriate measures must be taken to avoid the risk of fire.
- Sufficient and suitable storage must be provided for flammable liquids, solids and gases.
- Smoking must be prohibited and notices in this regard must be prominently displayed in all places containing readily combustible or flammable materials;
- Combustible materials must not accumulate on the construction site.
- Welding, flame cutting and other hot work may only be done after the appropriate precautions have been taken to reduce the risk of fire.
- Suitable and sufficient fire-extinguishing equipment must be placed at strategic locations and such equipment must be maintained in good working order.
- A sufficient number of workers must be trained in the use of fire-extinguishing equipment.

C3.5.3.7 SITE EMERGENCY PROCEDURES

The Principal Contractor / Sub-Contractor shall establish an Emergency Evacuation and Rescue plan.

The plan shall include the following detail:

- The role and responsibility of every individual in the work area on fire safety emergency evacuation and rescue;



- General work area precautions, fire prevention, detection, protection and warning alarm systems;
- Fire fighting and rescue equipment including types of fire extinguishers;
- Fire safety measures for Site accommodation;
- Escape and communication;
- Fire brigade access, facilities and coordination;
- Fire drills and training including the use of fire fighting equipment;
- Material storage including flammable liquids, gasses and waste;

The Principal Contractor / Sub-Contractor shall ensure that all procedures, precautionary measures and safety standards stipulated in the Plan are communicated, implemented and complied with by all workers including other interfacing contractors on Site.

The Principal Contractor / Sub-Contractor shall practice their emergency preparedness within six (6) weeks of the commencement of work and at least four (4) monthly intervals thereafter.

The Principal Contractor / Sub-Contractor shall review and ensure the adequacy of the Plan as the work progress.

The Principal Contractor / Sub-Contractor shall conduct monthly checks on fire fighting equipment and test alarms and detection devices installed on Site and document findings in a register which shall be on site at all times for inspection.

The Principal Contractor / Sub-Contractor shall conduct weekly inspections of escape routes, fire brigade access, fire fighting facilities and working areas to ensure that the requirements stipulated in the Fire Safety, Emergency, Evacuation and Rescue Plan are complied with. All inspection records shall be documented in registers and kept in the Health and Safety file for inspection at any time.

C3.5.3.8 HOUSEKEEPING

Suitable housekeeping must continuously be implemented on the construction site, including:

- proper storage of materials and equipment
- removal of scrap, waste and debris at appropriate intervals;

Loose materials shall not be placed or allowed to accumulate on the site so as to obstruct access and egress from workplaces and passageways.

C3.5.3.9 STACKING & STORAGE

- Adequate storage areas are must be provided.
- Storage areas must be kept neat and under control.

C3.5.3.10 ILLUMINATION



Provide adequate artificial lighting when work is carried out after dark or inside buildings.

C3.5.3.11 SANITATION / HYGIENE

Provision of site hygiene facilities:

- One sanitary facility for every 30 workers.
- Adequate washing facilities.
- One shower facility for every 15 workers;

Drying sheds, huts, rooms or other accommodation for sheltering during bad weather, storing clothes and taking meals. Facilities should include tables and chairs, suitable means for boiling water and a supply of wholesome drinking water.

The contractor shall provide reasonable and suitable living accommodation for the workers at construction sites which are remote from their homes and where adequate transportation between the site and their homes, or other suitable living accommodation, is not available.

C3.5.3.12 PERSONAL PROTECTIVE EQUIPMENT

The Principal Contractor / Sub-Contractor shall provide and maintain suitable PPE (Personal Protective Equipment) for all employees employed on the Site.

The Principal Contractor / Sub-Contractor shall ensure that such PPE comply with the requirements of the OHS Act (Occupational Health and Safety Act, Act 85 of 1993).

The Principal Contractor / Sub-Contractor shall also ensure that all equipment is properly used by his / her employees during the course of their work.

The Principal Contractor / Sub-Contractor shall record all issues of all equipment to his / her employees in documented registers and such registers shall be kept in the Health and Safety File on site and made available for inspection at all times.

The Principal Contractor / Sub-Contractor shall provide the Client / Client's Agent with a colour code by which employees will be identified with regard to occupations, responsibilities, accountabilities, reporting relationships and access to different locations on site. (e.g. hard hats, overalls).

PPE shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards.

All personal protective equipment shall be of safe design and construction for the work to be performed.

C3.5.3.13 PERMIT TO WORK REQUIREMENTS

Institute a "hot work" permit system in respect of:



- metalwork flame cutting,
- site welding,

C3.5.3.14 LOCK-OUT

Institute a "Lock-out" procedure in respect of controlling energy so as to prevent unexpected operation or activation of machinery or equipment. This procedure must include a written policy, specific procedures, rules and supervisory follow-up, covering the positive locking of switches and valves to ensure that alterations, maintenance, set-up and or other work can be performed safely.

C3.5.3.15 MONTHLY HEALTH AND SAFETY AUDITS

The Principal Contractor shall carry out monthly Health and Safety Audits on the measures contained within his / her Health and Safety Plan submitted to the Client as well as Health and Safety Plans submitted by Sub-Contractors appointed by the Principal Contractor to demonstrate that the required level of health and safety are being achieved and maintained and compile a full report to the Client on such audit.

The Client will audit the Principal Contractor as well as his / her Sub-contractor's Health and Safety Plans from time to time and will advise the Principal Contractor of any matter with which he / she is not satisfied and the Principal Contractor shall take such steps as are necessary to satisfy the Client.

The Client will carry out such audits as he / she considers necessary but not less than monthly.

The Principal Contractor shall make available, specialist personnel as the Client may consider necessary for the performance of such audits.

The Principal Contractor shall develop and maintain an Audit Schedule that details the audits planned to be undertaken by the Principal Contractor of the work under the contract, including sub-contractors, for the duration of the contract. The Audit Schedule shall form part of the Health and Safety Plan that needs to be submitted by the Principal Contractor.

Audit reports shall detail the scope of the audit, the audit questions and the audit findings.

The Client shall be promptly provided with copies of all audit reports together with other documentation to show that all matters raised have been appropriately addressed.

Unless otherwise directed by the Client the Principal Contractor / Sub-Contractor shall undertake its initial OHS Audit within 4 weeks of commencement of work. The Principal Contractor / Sub-Contractor shall undertake subsequent OHS Audits at a frequency not less than once every 3 months.

All Principal Contractor's OHS Audits shall include an assessment of Sub-Contractor compliance with the approved OHS Plan.

C3.5.3.16 MANAGEMENT REVIEW

The Principal Contractor shall undertake an independent review of the Health and Safety Plan for the contract in accordance with the requirements of the OHS Act, relevant Regulations and in particular the Construction Regulations 2014.



A review shall be undertaken 3 months after commencement of the contract and every 6 months thereafter for the duration of the contract.

Following the completion of the review, the Principal Contractor shall submit a written report that details the suitability, adequacy and effectiveness of the OHS Plan and to certify that the Site procedures, practices and operations are in accordance with the contract.

C3.5.3.17 PROVISION OF INFORMATION

- Provide Sub-Contractors appointed by him / her with the relevant sections of the Health and Safety specifications pertaining to the construction work which has to be performed.
- Where changes are brought to the design and construction, provide sufficient information and appropriate resources to the Sub-Contractor to execute the work safely.
- Discuss and negotiate with Sub-Contractors the contents of the Health and Safety Plan / Plans submitted by them and finally approve such plans for implementation.
- Ensure that copies of Health and Safety plans compiled by the Principal Contractor and his / her Sub-Contractors are available on request to an employee, DOL Inspector, contractor, Client.
- The Principal Contractor / Sub-Contractor shall detail procedures that will ensure that personnel are suitably consulted and communicated with during the planning and application of work activities associated with the contract.
- The Principal Contractor / Sub-Contractor shall detail the procedures for the identification, assessment and control of hazards associated with the day-to-day work activities. These procedures shall include requirements for consultation with personnel involved in the work activity.
- The Principal Contractor / Sub-Contractor shall have procedures for ensuring that OHS information is communicated to and from its personnel. The Principal Contractor / Sub-Contractor shall hold OHS meetings with all personnel or their representatives at the site on a weekly basis.
- Minutes shall be recorded for all OHS meetings and posted on OHS notice boards within 48 hours of the meeting.
- The Principal Contractor / Sub-Contractor shall maintain at the Site an OHS Notice Board located in a prominent position and accessible to all personnel, for the distribution of OHS information.
- The Principal Contractor / Sub-Contractor shall as a minimum, establish and implement procedures for reporting relevant and timely information with regard to OHS Performance and incidents.
- The Principal Contractor / Sub-Contractor shall establish, implement and maintain a controlled copy of all Contract OHS documentation on Site.
- Where the Principal Contractor / Sub-Contractor's Health and Safety Plan references other documentation including the contract, the Principal Contractor / Sub-Contractor shall ensure that section and clause



numbers are clearly denoted in its Health and Safety Plan. All documentation referenced in the Health and Safety Plan shall be available on Site for the duration of the contract.

- Ensure that Health and Safety Files kept by Sub-Contractors appointed by the Principal Contractor is kept on site and made available to an inspector, Client.
- Hand over a consolidated health and safety file to the Client upon completion of construction work, including all drawings, designs, materials used and other similar information concerning the completed structure.
- In addition to the Health and Safety File compile a comprehensive and updated list of all contractors on site accountable to the Principal Contractor as well as the agreements between the parties and the type of work done by them.

C3.5.3.18 STOP THE EXECUTION OF CONSTRUCTION WORK

Stop any construction / construction related work conducted by any person on the construction site, which is not in accordance with the Principal Contractor's health and safety plan and or the health and safety plans of Sub-Contractors which possess a threat to the health and or safety of persons.

C3.5.3.19 HANDING OVER OF PROJECT HEALTH AND SAFETY FILE

- Hand over a consolidated health and safety file to the Client upon completion of construction work, including all drawings, designs, materials used and other similar information concerning the completed structure.
- In addition to the Health and Safety File compile and hand over a comprehensive and updated list of all contractors on site accountable to the Principal Contractor as well as the agreements between the parties and the type of work done by them.

C3.5.3.20 RECORDS AND RECORDS MANAGEMENT

- The control of records shall be in accordance with the Principal Contractor's / Sub-Contractor's approved Health and Safety Plan for the contract.
- Records shall be registered, ordered and retained on Site in the Health and Safety File for the duration of the contract.

C3.5.4 CHEMICAL HAZARDS

The following construction materials and substances to be used in the works have been identified as potentially posing special health and/or safety hazards during the project:



NOTE:

The above mentioned is not a definitive list of all potential harmful products. Other materials and substances commonly used during construction may also present health or safety hazards, however, it is deemed that these should be familiar to the average competent Contractor as part of routine risk and OSHS (Occupational Health, Safety and Hygiene) assessments and are therefore not included here.

Adopt all precautionary measures provided by manufacturers for storage, use and application of specified materials.

Data sheets for these, and any other materials that will be used for the works, are to be obtained by the contractor from the manufacturers.

C3.5.5 SAFETY HAZARDS

C3.5.5.1 TOOLS

C3.7.5.1.1 Hand tools

- Employers shall not issue or permit the use of unsafe hand tools.
- Wrenches, including adjustable, pipe, end, and socket wrenches shall not be used when jaws are sprung to the point that slippage occurs.
- Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads.
- The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

C3.5.5.2 PORTABLE ELECTRICAL TOOLS

No person shall use a portable electric tool with an operating voltage which exceeds 50 to earth unless –

- it is connected to a source of electrical energy incorporating an earth leakage protection device which meets the requirements of section 36 of the OHS Act or,
- it is connected to a source of high frequency electrical energy derived from a generator which is used solely for supplying energy to such portable electric tool and which arrangement is approved by the chief inspector; or
- it is clearly marked that it is constructed with double or reinforced insulation.

Portable electric tools, together with its flexible cord and plug shall be maintained in a serviceable condition.

C3.5.6 EXCAVATIONS

- The contractor shall ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing.
- The contractor shall evaluate the stability of the ground before excavation work begins.
- The Contractor shall take suitable and sufficient steps in order to prevent any person from being buried or trapped by a fall or dislodgement of material in an excavation;



- The contractor shall not permit any person to work in an excavation which has not been adequately shored or braced.
- Shoring and bracing may not be necessary where-
 - the sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or
 - such an excavation is in stable material;
 - Provided that-
 - permission being given in writing by the appointed competent person upon evaluation by him or her of the site conditions; and
 - where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations shall be decisive and such a decision shall be noted in writing and signed by both the competent person and a professional engineer or technologist, as the case may be;
- Take steps to ensure that the shoring or bracing is designed and constructed in such manner rendering it strong enough to support the sides of the excavation in question;
- Ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it is likely to cause its collapse and thereby endangering the safety of, any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;
- Cause convenient and safe means of access to be provided to every excavation in which persons are required to work and such access shall not be further than 6m from the point where any worker within the excavation is working;
- Cause every excavation, including all bracing and shoring, to be inspected-
 - i. daily, prior to each shift;
 - ii. after every drilling operation;
 - iii. after an unexpected fall of ground;
 - iv. after substantial damage to supports; and
 - v. after rain,
- by a competent person in order to pronounce the safety of the excavation to ensure the safety of persons, and those results are to be recorded in a register kept on site and made available to an inspector, client, client's agent, contractor or employee upon request;
- Cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be-
 - adequately protected by a barrier or fence of at least one meter in height and as close to the excavation as is practicable; and
 - provided with warning illuminates or any other clearly visible boundary indicators at night or when visibility is poor
 - Cause warning signs to be positioned next to an excavation within which persons are working or carrying out inspections or tests.



C3.5.7 FORMWORK & SUPPORT WORK

The contractor shall ensure that-

- all formwork and support work operations are carried out under the supervision of a competent person who has been appointed in writing for that purpose;
- all formwork and support work structures, are adequately designed, erected, supported, braced and maintained so that they will be capable of supporting all anticipated vertical and lateral loads that may be applied to them and also that no loads are imposed onto the structure that the structure is not designed to withstand.
- The designs of formwork and support work structures are done with close reference to the structural design drawings and where any uncertainty exists, the structural designer should be consulted.
- All drawing pertaining to the design of formwork or support work structures are kept on the site and are available on request by an inspector, contractor, client, client's agent or employee.
- All equipment used in the formwork or support work structure are carefully examined and checked for suitability by a competent person, before being used.
- All formwork and support work structures are inspected by a competent person immediately before, during and after the placement of concrete or any other imposed load and thereafter on a daily basis until the formwork and support work structure has been removed and the results have been recorded in a register and made available on site.
- If, after erection, any formwork and support work structure is found to be damaged or weakened to such a degree that its integrity is affected, it shall be safely removed or reinforced immediately.
- Adequate precautionary measures are taken in order to-
- Secure any deck panels against displacement, and
- Prevent any person from slipping on support work or formwork due to the application of formwork or support work release agents.
- The health of any person is not affected through the use of solvents or oils or any other similar substances.
- Upon casting concrete, the support work or formwork structure should be left in place until the concrete has acquired sufficient strength to support safely, not only its own weight but also any imposed loads and not removed until authorization has been given by a competent person.
- Provision is made for safe access by means of secure ladders or staircases for all work to be carried out above the foundation bearing level.
- All employees required to erect, ,move or dismantle formwork and support work structures are provided with adequate training and instruction to perform these operations safely
- The foundation conditions are suitable to withstand the weight caused by the formwork and support work structure and any imposed loads, such that the formwork and support work structure are stable.

C3.5.8 CONSTRUCTION VEHICLES

The contractor shall ensure that all construction vehicles and mobile plants-

- are of an acceptable design and construction;
 - are maintained in a good working order;
 - are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
 - are operated by workers who-
- i. have received appropriate training and been certified competent and been authorised to operate such machinery; and



- ii. are physically and psychologically fit to operate such construction vehicles and mobile plant by being in possession of a medical certificate of fitness;
- have safe and suitable means of access;
 - are properly organized and controlled by providing adequate signalling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
 - are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;
 - where appropriate, are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
 - are equipped with an electrically operated acoustic signalling device and a reversing alarm;
 - are on a daily basis inspected prior to use, by a competent person who has been appointed in writing and the findings of such inspection is recorded in a register.

The contractor shall furthermore ensure that-

- no person rides or be required or permitted to ride on any construction vehicle or
 - mobile plant otherwise than in a safe place provided thereon for that purpose;
- every construction site is organized in such a way that pedestrians and vehicles can move safely and without risks to health;
- the traffic routes are suitable for the persons using them, sufficient in number, in suitable positions and of sufficient size;
- every traffic route is, where necessary indicated by suitable signs.
- all construction vehicles and mobile plant left unattended at night, adjacent to a freeway in normal use or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of the vehicles or plant;
- bulldozers, scrapers, loaders, and other similar mobile plant are, when being repaired or when not in use, fully lowered or blocked with controls in a neutral position, motors stopped and brakes set;
- whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
- tools and material are secured in order to prevent movement when transported in the same compartment with employees;
- vehicles used to transport employees have seats firmly secured and adequate for the number of employees to be carried; and
- when workers are working on or adjacent to public roads, reflective indicators are provided and worn by the workers.

C3.5.9 ELECTRICAL INSTALLATIONS

- Before construction commences and during the progress thereof, adequate steps must be taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus.
- All parts of electrical installations and machinery must be of adequate strength to withstand the working conditions on construction sites;
- In working areas where the exact location of underground electric power lines unknown, employees using jackhammers, shovels or other hand tools which may make contact with a power line, must be provided with insulated protective gloves or otherwise that the handle of the tool being used is insulated;
- All temporary electrical installations must be inspected at least once a week and electrical machinery on a daily basis before use on a construction site by competent persons and the records of these inspections must be recorded in a register to be kept on site.



- The control of all temporary electrical installations on the construction site must be designated to a competent person who has been appointed in writing.

C3.5.10 USE & STORAGE OF FLAMMABLE LIQUIDS

- Where flammable liquids are being used, applied or stored it must be done in such a manner that would cause no fire or explosion hazard, and that the workplace is effectively ventilated:
 - Provided that where the workplace cannot effectively be ventilated-
 - i. every employee involved is provided with a respirator, mask or breathing apparatus of a type approved by the chief inspector, and
 - ii. steps are taken to ensure that every such employee, while using or applying flammable liquid, uses the apparatus supplied to him or her;
- No person smokes in any place in which flammable liquid is used or stored, and the contractor shall affix a suitable and conspicuous notice at all entrances to any such areas prohibiting such smoking;
- Flammable liquids on a construction site is stored in a well-ventilated reasonably fire resistant container, cage or room and kept locked with proper access control measures in place;
- An adequate amount of efficient fire-fighting equipment is installed in suitable locations around the flammable liquids store with the recognized symbolic signs;
- Only the quantity of flammable liquid needed for work on one day is to be taken out of the store for use;
- All containers holding flammable liquids are kept tightly closed when not in actual use and, after their contents have been used up, to be removed from the construction site and safely disposed of;
- Where flammable liquids are decanted, the metal containers are bonded or earthed;
- No flammable material such as cotton waste, paper, cleaning rags or similar material is stored together with flammable liquids.

C3.5.11 WELDING & CUTTING

No contractor shall require or permit welding or flame cutting operations to be undertaken, unless –

- the person operating the equipment has been fully instructed in the safe operation and use of such equipment and in the hazards which may arise from its use;
- effective protection is provided and used for the eyes and respiratory system and, where necessary, for the face, hands, feet, legs, body and clothing of persons performing such operations, as well as against heat, incandescent or flying particles or dangerous radiation;
- leads and electrode holders are effectively insulated; and
- the workplace is effectively partitioned off and where not practicable all other persons exposed to the hazards are warned and provided with suitable protective equipment.

No contractor shall require or permit electric welding to be undertaken in wet or damp places, inside metal vessels or in contact with large masses of metal, unless –

- the insulation of the electrical leads is in a sound condition;
- the electrode holder is completely insulated to prevent accidental contact with current-carrying parts;
- the welder is completely insulated by means of boots, gloves or rubber mats; and



- at least one other person who has been properly instructed to assist the welder in case of an emergency is and remains in attendance during operations

No contractor shall require or permit welding, flame cutting, grinding, soldering or similar work to be undertaken in respect of any tube, tank, drum, vessel or similar object or container where such object or container –

- is completely closed, unless a rise in internal pressure cannot render it dangerous; or
- contains any substance which, under the action of heat, may –
 - i. ignite or explode; or
 - ii. react to form dangerous or poisonous substances,

Where hot work involving welding, cutting, brazing or soldering operations is carried out at places, other than workplaces which have been specifically designated and equipped for such work, the employer shall take steps to ensure that proper and adequate fire precautions are taken.

C3.5.12.3 DANGEROUS AREAS

The contractor shall ensure that entry and exit from danger areas is only permitted

- at the permanent authorized point of entry or exit: Provided that entry or exit at any other point may be authorized by the explosives manager or a person authorized by him if the authorized gatekeeper has been informed thereof;
- for persons and vehicles authorized thereto by the explosives manager or a person authorized by him;
- to visitors under escort by an authorized person who is aware of the hazards attached to the danger area.

The contractor shall keep a register of the entries and exits and that register shall be available on the premises for inspection by an inspector.

No person shall –

- enter the danger area with –
 - a. tobacco;
 - b. matches, cigarette lighters or other devices capable of generating heat or spark sources;
 - c. intoxicating liquor or narcotics;
 - d. food, medicine or drinkable fluids: Provided that authorization to enter with such articles may be granted by the explosives manager for purposes of consumption in licensed mess rooms and smoking areas: Provided further that special rules for the control of such consumption and smoking, approved by the chief inspector of occupational health and safety shall be made in writing and shall be enforced by the employer, self-employed person or user; or
 - e. radio transmitters or cellular telephones; or

The contractor shall ensure that hazard warning signs are clearly displayed at the entrance to any danger area.



C3.5.12.5 VESSELS UNDER PRESSURE

C3.5.12.6 MANUFACTURER'S DATA PLATE

Every user of a boiler or pressure vessel shall cause a manufacturer's plate with the following minimum particulars to be securely fixed in a conspicuous place to the shell of every such a boiler or pressure vessel:

- a) Name of manufacturer;
- b) country or origin;
- c) year of manufacture;
- d) manufacturer's serial number;
- e) name, number and date of the standard of design;
- f) design gauge pressure in Pascal's; (design pressure)
- g) maximum permissible operating pressure in Pascal's;
- h) operating temperature;
- i.) capacity in cubic meters; and
- j) mark of an approved inspection authority.

No person shall remove such a manufacturer's plate or wilfully damage or alter the particulars stamped thereon.

C3.5.12.7 PORTABLE GAS CONTAINERS

No user shall use or require or permit a portable gas container to be used, and no user shall fill, place in service, handle, modify, repair, inspect or test any portable gas container, other than in compliance with standards incorporated into the Vessels under Pressure regulations.

C3.5.12.8 HAND HELD FIRE EXTINGUISHERS

No user shall use, require or permit the use of a hand held fire extinguisher unless designed, constructed, filled, recharged, reconditioned, modified, repaired, inspected or tested in accordance with a safety standard incorporated into the Vessels under Pressure regulations.

No person shall fill, recharge, recondition, modify, repair, inspect or test any hand held fire extinguisher unless a holder of a permit issued by the South African Bureau of Standards in terms of SABS 1475.

C3.5.12.9 GAS FUEL USE, EQUIPMENT AND SYSTEMS

No person shall handle, store or distribute a gas fuel in any manner, including the filling of a container, other than in accordance with a health and safety standards.



C3.5.12.10 INSPECTION AND TEST

Any user of a boiler or pressure vessel shall cause, where reasonably practicable, such a boiler or pressure vessel, including the appurtenances and automatic controls and indicators, to be subjected to an internal and external inspection, and a hydraulic pressure test to 1.25 times the maximum permissible safe operating pressure as the case may be –

- by an approved inspection authority before commissioning after installation, re-erection or repairs;
- by a person appointed in writing by the user and who is competent to do such inspections and tests by virtue of their training, knowledge and experience in the operation, maintenance, inspection and testing of a boiler or pressure vessel within 36 months from the date of the previous internal and external inspection and hydraulic pressure test: Provided that where a pressure vessel is not subjected to corrosion, the user may dispense with the internal inspection and hydraulic pressure test subject to the written approval of an approved inspection authority:

Provided further that an inspector may require a specific boiler or pressure vessel to be inspected or tested more frequently or permit a specific boiler or pressure vessel to be inspected or tested less frequently:

C3.5.12.11 RECORDKEEPING

Any user of a vessel under pressure shall keep on his premises a record which shall be open for inspection by an inspector in which the results of inspections, tests, modifications and repairs shall be recorded, dated and signed by the competent person.

C3.5.12.12 MAINTENANCE

No user shall use, cause or permit a vessel under pressure or gas fuel system, including all automatic controls, indicators and appurtenances, to be used unless it is at all times maintained in a safe working condition and the efficiency thereof is proved by regular testing.

No user shall use or cause or permit a vessel under pressure to be used unless it is kept clean and free from any:

- ❖ carbonized oil or other inflammable material which may ignite under working conditions;
- ❖ material which may cause corrosion; or
- ❖ material which is liable to chemical reaction which may cause an uncontrolled rise in pressure.

C3.5.13 PHYSICAL HAZARDS

C3.5.13.1 ERGONOMICS

- Ensure that assigned tasks do not exceed the limits of the performance capacities of the worker.
- Prevent injury or any detrimental effects to the health of the worker



- Provide that tasks and working conditions will not lead to impairments.

C3.5.13.2 NOISE

No contractor shall require or permit an employee to work in an environment in which he is exposed to an equivalent noise level equal to 85 dB(A) or higher. The contractor shall reduce the equivalent noise level to below 85 dB(A) or, where this is not reasonably practicable, he shall reduce the level to as low as is reasonably practicable and take all reasonable steps to isolate the source of the noise acoustically. Where the equivalent noise level in any workplace cannot be reduced to below 85 dB(A) the contractor shall –

- prohibit any person from entering a noise zone unless such person wears hearing protectors.

The contractor shall provide, free of charge, hearing protectors to each employee who works in or, to any person who is required or permitted to enter a noise zone, and no contractor shall require or permit any person to work in or enter such noise zone, and no person shall work in or enter such noise zone, unless he wears such hearing protectors in the correct manner: Provided that where the

equivalent noise level to which employees are exposed, is such that the attenuation of the hearing protectors does not reduce the said noise to below 85 dB(A) the employer concerned shall limit the time during which employees work in that noise zone in such a way that they are not exposed to an equivalent noise level equal to 85 dB(A) or higher.

The contractor shall properly instruct any person who is required to wear hearing protectors in the use of such protectors and inform him of noise zones where the wearing thereof is compulsory.

The contractor shall –

- ensure that every employee employed in a noise zone is subjected to audiometric examinations conducted in accordance with section 7 of SABS 083, by an audiometrist approved by the chief inspector;
- keep records of the results of each audiometric examination and make such records available for inspection by an inspector if he so requires; and
- keep such records for a minimum period of 30 years after termination of employment: Provided that if the employer ceases activities all such records shall be forwarded to the regional director.

C3.5.13.3 VIBRATION

Whole-body vibration occurs when the body is supported on a surface which is vibrating (e.g., when sitting on a seat which vibrates, standing on a vibrating floor or recumbent on a vibrating surface). Whole-body vibration occurs in all forms of transport and when working near some industrial machinery.

Hand-transmitted vibration is the vibration that enters the body through the hands. It is caused by various processes where vibrating tools or work pieces are grasped or pushed by the hands or fingers. Exposure to hand-transmitted vibration can lead to the development of several disorders.



C3.5.14 SITE WIDE ELEMENTS

C3.5.15 SITE ACCESS AND EGRESS

- Access to the site will involve crossing the public footpath.
- Store materials and plant away from means of access for the general public and occupants.
- Remove rubbish and demolition materials regularly. Do not allow to accumulate on flat roofs.
- Maintain free access through designated means of escape at all times
- Agree with the Client / Client's Agent delivery points for materials before commencing works.

C3.5.15.1 VISITORS TO THE SITE

- All visitors to report to the Principal Contractor's reception area for OHS Induction training.
- All visitors to sign the visitor's registration document.
- All visitors to be provided with a Visitors Permit to enable them to access the construction site.
- All un-inducted visitors must be accompanied on the construction site by an inducted person.
- No visitors shall be allowed to access the construction site without wearing the necessary PPE.

C3.5.15.2 DELIVERIES

Access will involve crossing the public footpath.

C3.5.15.3 EMERGENCIES

Ensure that there are adequate escape routes and that they are kept clear at all times.

C3.5.15.4 LOCATION OF TEMPORARY SITE ACCOMMODATION

See Site Lay-out Plan.

C3.5.15.5 LOCATION OF MATERIALS UNLOADING AND STORAGE

Materials are to be unloaded and stored in locations which will not in any way affect access or egress to the site nor the works.

C3.5.15.6 TRAFFIC AND PEDESTRIAN ROUTES



The road, public footpaths and access way are to be kept open at all times. All necessary signage and barriers are to be put in place to protect pedestrians at the site entrance and access and egress points.

C3.5.15.7 SAFETY

- Ensure that all employees are aware of the Health and Safety policy and put into place arrangements to ensure that all visitors and workers new to the site are aware of the site safety provisions.
- Locate underground electricity cables, mark and take precautions to avoid.
- Ensure that cartridge operated tools are operated by trained personnel and in accordance with the maker's instructions that the gun is cleaned regularly and kept in a secure place when not in use.
- Protect people who may be exposed to health risks arising from hazardous substances.

C3.5.16 CONTINUING LIAISON

The procedures for consideration and evaluation of the health and safety implications of Contractor designed elements of the works must follow the recognised principles of prevention and protection and take account of the issues highlighted in this OHS Specification.

The following information is to be submitted by the Contractor to the Client / Client's Agent in sufficient time to allow adequate consideration by the Client / Client's Agent and, where appropriate, the design team, and the provision of relevant information to those persons affected by the works, prior to the commencement of the relevant works:

- Suitable and sufficient information to demonstrate that health or safety issues have been adequately considered.
- Risk assessments.
- A list of health and/or safety hazards identified which cannot be designed out.
- A list of any materials or substances which are specified or inherent in the design which is potentially hazardous to health and/or safety.

C3.5.16.1 UNFORESEEN EVENTUALITIES

The following action is to be taken in the event of unforeseen eventualities arising during the construction stage of the project which require significant design changes, or affect the resources required to carry out the work without risk to health and/or safety, or have other health or safety implications.

The Client / Client's Agent and, where possible, the Principal Contractor are to be advised as soon as possible.

Full details of the relevant health and safety issues involved are to be reviewed with the Client / Client's Agent and Principal Contractor as soon as possible.

Full details of any revised designs, risk assessments and identified hazards and/or hazardous materials and substances are to be issued to the Client / Client's Agent and Principal Contractor in sufficient time to



allow for the revision of the Health and Safety Plan and notification of all persons affected by the health and/or safety implications of the changes prior to the commencement of the affected works.

C3.5.16.2 SITE LIAISON

Liaise with all other contractors and implement any agreed changes to the Health and Safety Plan arising from such liaison. Set up regular training for all operatives including induction training for all staff upon arrival to site.

C3.5.16.3 HEALTH AND SAFETY FILE

Provide the Planning Supervisor with any relevant information which the contractor believes should be incorporated into the Health and Safety File.

C3.5.16.4 DESIGN DEVELOPMENT

Provide the Client with all design information prepared by sub-Contractors.

Arrange liaison meetings with sub-contractors to discuss and review health and safety issues arising from the sub-contractors' designs.

C3.5.17 CONCLUSION

The hazards listed above were identified posing potential threats to the health and or safety of persons that will work on the contract. Although every effort were made to ensure that every possible hazard was identified the Employer cannot guarantee this, therefore it is imperative for the contractor to conduct a comprehensive risk identification and hazard assessment in order to make certain that all hazards are identified.

C3.5.18 MANAGEMENT

Management of the works

The management of the site shall be in accordance with the provisions of the SANS Standard Specification for Road and Bridge Works for State Authorities (1998 edition).



ADDENDUM TO CONSTRUCTION HEALTH AND SAFETY BASELINE SPECIFICATION

C3.5.19 INTRODUCTION

Empowered by section of the Disaster Management Act 57 of 2002, (DMA), President Ramaphosa declared a national state of disaster. The declaration of a national disaster meant that the government determined the medical emergency (international pandemic) posed by the COVID-19 virus, precipitated special circumstances beyond what is provided for in existing legislation in order to prevent the threat of the virus to the healthcare system, the economy and the people of South Africa.

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers, and the public, it is important for all employers to plan and ensure preparedness for COVID-19.

LEPELLE WATER needs to ensure that everything reasonable practicable is being done at all construction projects to protect the employees, stakeholders, service providers, contractors and the community which could be negatively impacted by the Construction activities so as to minimise the spread of any infectious disease such as the Coronavirus COVID-19.

The Professional Service providers, Contractor and contractors shall be responsible for the Health & Safety on all construction/maintenance and health and safety requirements of any activities may not be compromised during this time. If any activity cannot be undertaken in a health and safety manner due to lack of suitable qualified personnel being available or social distancing being implemented, the activity should not commence.

C3.5.20 REFERENCES

The Department of Employment and Labour has appealed to employers to use the prescriptions of the Occupational Health and Safety Act, Act 85 of 1993 in particular the Hazardous Biological Agents Regulations governing workplaces in relation to Coronavirus Disease 2019 caused by the SARS-CoV-2



and the COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020.

The OHS Act read with the Hazardous Biological Agents Regulations requires the employer to provide and maintain as far as is reasonably practicable a working environment that is safe and without risks to the health of employees.

Section 8(2)(b) requires steps such as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard before resorting to personal protective equipment (PPE). However, in the case of COVID-19, a combination of controls is required, although the main principle is to follow the hierarchy of controls.

Section 14 of the Occupational Health and Safety, (OHS) Act obliges employees to take reasonable care for health and safety of him- or herself and others who may be affected by their acts or omissions. This obliges employees to comply with any duty or requirement imposed by the employer or any other person by OHS Act to co-operate with the employer or person to enable that duty or requirement to be performed or complied with. Employees are also required by OHS Act to carry out lawful orders and obey the health and safety rules and procedures laid down by his employer or by anyone authorized by his employer in the interest of health and safety.

However, before the implementation of control measures, current risk assessments need to be reviewed and updated, considering the new hazards posed by exposure to COVID-19 in the workplace. This is in accordance with all above mentioned references.

C3.5.21 AMENDED CONSTRUCTION HEALTH AND SAFETY BASELINE SPECIFICATION

The Amended Health and Safety Baseline specification document provides Professional service providers, stakeholders, Contractors with guidelines to respond safely, effectively, and efficiently to the COVID-19 outbreak aligned to Government and other leading local authorities until Regulations are implemented.

C3.5.22 RISK ASSESSMENT

The Contractor/Contractor significant health and safety requirements and aspects of the construction project must focus on the following Pre-Construction Start-up:



HIRA Methodology

The HIRA methodology is to provide specific focus on COVID-19 and adapt the measures required and taking into account the specific circumstances of the workplace.

The Contractor must focus on the identification of different exposure level, high contact activities and identification of vulnerable workers e.g. immunocompromised employees and employees 60 years and above and special measures for their protection, including protection against unfair discrimination or victimization.

C3.5.23 ENGINEERING CONTROLS

Ventilation

Contractor must ensure all workplaces are well ventilated by natural or mechanical means to reduce the SARS-CoV-2 viral load. Contractor must ensure that all windows are opened for natural ventilation.

Physical Barriers

Contractor must arrange physical barrier to be placed between work stations or erected on work stations to form a solid physical barrier between workers while they are working and where required the Contractor must provide the employees with face shields or visors.

Adaption of workstations to increase social distancing

The Contractor must as far as practicable, minimize the number of workers on site at the workplace at any given time through rotation, staggered working hours, shift systems, remove working arrangements or similar measures in order to achieve social distancing practice of work stations spaced at least 1.5 metres apart.

C3.5.24 ADMINISTRATIVE CONTROLS

Screening

Screening of all employees entering the Construction site is vital in ensuring that all LEPELLE WATER



Construction site remains COVID-19 free. The Contractors preventative control measures must include:

- Travel declaration questionnaire must be completed by all security personnel, professional teams, client teams, contractor employees and contractors before entering the site gate.
- Adequately train (directly or indirectly) identified employee/s to perform daily workplace COVID-19 symptom screening. The average normal body temperature is generally accepted as (37°C).
- Provide compulsory medical screening equipment example: No-contact Thermometers.
- Provide prescribed personal protective equipment (PPE) to those assigned to perform the screening. Face Shields and masks will be made available to screening personnel.
- All required items to operate safely must be available at the screening desk, these include, hand sanitizers, pens for filling in registers and travel declaration questionnaire. Should employees or visitors fail the questionnaire to be completed they should not be allowed to enter site.
- Any employee/team member displaying a temperature between 37.1°C and 37.9°C will be isolated and placed either next to the Security Guardhouse or in his/her vehicle until second temperature testing is done.
- The employee/team member temperature will be taken again after 15 min. If the temperature has increased the person will be required to leave and go to the closest Clinic, access to site will be denied.
- If the employee/team member temperature has decreased to an acceptable/normal level, access will be granted.
- Any employee/team member with a temperature of 38°C or above will be denied access and will be required to leave immediately and be advised to visit a Doctor;
- All cases where persons were denied access a detailed register kept on site of the date, name of contractor, name of employee, contact number.
- Contractor should keep record of all such screening, and should an employee show any positive symptoms related to COVID-19, then such an employee must be isolated from other employees, provided with gloves and mask, and the **Department of Health Hotline 0800 029 999** immediately contacted.

Communication and Training information Strategies

The Contractor must provide workers with information that raises awareness in any form or manner, including where reasonably practicable leaflets and notices placed in conspicuous places in the workplace informing workers of the:

- dangers of the virus
- manner of its transmission



- the measures to prevent transmission such as personal hygiene
- social distancing
- use of masks
- cough etiquette
- where to go for screening or testing if presenting with the symptoms

Health and Safety Committees

The requirements and the role of the health and safety committee should not deviate from the requirements and functions set in Section 19 and 20 of the OHS Act. Above and beyond what is described as the functions of the health and Committee in Section 20 of the OHS Act the health and safety committee must assist with recommendations and guidance on handling the impact of COVID-19 on the specific project.

Security & Access Controls

Public access to any construction site is to be limited at all times, and non-essential visitors are not to be allowed entry. Contractor must ensure access to site are managed at all times. The following aspects must be included in the Health and Safety plan:

- Introduce staggered start and finish times to reduce congestion.
- Monitor site access points to enable social distancing.
- Require all workers to wash and clean their hands before arriving at security control to sign in the register.

Induction

The Contractor must ensure induction to all security personnel, professional teams, client teams, contractor employees and contractors educating all on COVID-19 signs, symptoms, processes on site, social distancing before entering the site gate and a register must be provided to sign.

Employee Medicals

Contractor must ensure that all employees medical certificates of fitness are still valid. In a case where medicals expired, the Contractor must provide a list of which employees, occupation and when they will be scheduled for medicals.



Facilities

Contractor must ensure that sanitizers must be one that has at least 70% alcohol content and is in accordance with the recommendations of the Department of Health.

The Contractor must ensure there are sufficient quantities of hand sanitizer based on the number of workers or other persons who access the workplace at the entrance of, and in, the workplace which the employees and other persons.

The Contractor must ensure that there are:

- adequate facilities for the washing of hands with soap
- clean water available on site
- only paper towels are provided to dry hands after washing
- the use of fabric towelling is prohibited the workers are required to wash their hands and sanitize their hands regularly while at work
- the workers interacting with the public are instructed to sanitize their hands between each interaction with public
- surfaces that employees and teams come into contact with are routinely cleaned and disinfected.

Provision of such facilities for safekeeping to be accompanied with a procedure which includes:

- Employees should avoid bringing personal items to site.
- Food bought from home must be placed in an enclosed container, packet, and returned home for cleaning.
- Do not share any food or water.
- Training and awareness to address the importance of good hygiene practice.
- Apart from extra clean personal clothing no other personal belongings allowed on site except if kept in area provided by the Contractor or in the designated works area.
- Employees should also be required to stay on site once they have entered it and avoid using local shops.
- Consider increasing the number or size of facilities available on site if possible, especially depending on the amount of employees currently and taking into account the social distancing requirements of 1.5m
- The capacity of each rest area should be clearly identified at the entry to each facility, and where necessary attendants provided to supervise compliance with social distancing measures.
- Break times should be staggered to reduce congestion and contact at all times.
- Drinking water should be provided with enhanced cleaning measures of the tap mechanism introduced.
- Frequently clean surfaces that are touched regularly.



- Hand cleaning facilities or hand sanitiser should be available at the entrance to any facility where people eat and should be used by employees when entering and leaving the area.
- All rubbish should be put straight in the bin and not left for someone else to clear up.
- Tables should be cleaned between each use.
- Crockery, eating utensils, cups etc. should not be used unless they are disposable or are washed and dried between use.

Contractor must ensure that social distancing measures are implemented through supervision in common areas.

Reporting of incidents for regulatory purposes

If a worker has been diagnosed with COVID-19, the contractor must-

- Report it to the Department of Health, the Department of Employment and Labour and LEPELLE WATER
- Investigate the cause including any control failure and review its risk assessment to ensure that the necessary controls and PPE requirements are in place; and
- It must give administrative support to any contact-tracing measures implemented by the Department of Health.

Medical Surveillance Programme

Contractor must ensure that all employees on site undergo routine medical examinations specific to the work to be performed taking into account the hazard and risk exposures. This is to address pre-employment examination, periodic examination as required, and exit examinations.

Where medical examinations are governed by legislation, the contractor to ensure that legislative requirements are complied with by all employees.

Contractor must ensure that all the employees performing work on site are declared medically fit for the work they are to perform.

Copies of valid medical certificates of fitness to be available in the occupational health and safety file.

Accommodation Arrangements

Where accommodation is provided by the Contractor/sub-contractor, factors to be considered in the procedure include, inter alia:

- Density of occupants to allow for adequate social distancing (minimum 1.5m) in sleeping and dining



quarters;

- Restriction on the number of persons using the same sanitary/hygiene facilities;
- Provision of dedicated crockery and cutlery for each occupant, together with a procedure for effective cleaning and safe storage of same and a prohibition on the sharing of utensils;
- Dedicated facilities for safekeeping of personal belongings and abovementioned utensils for each person. Such facilities are to allow for total segregation of belongings and must be easy to sanitize. Provision of such facilities for safekeeping to be accompanied with a procedure for the use and sanitizing of the storage facility to reduce the risk of cross-contamination;
- Facilities for accommodation provided by the contractor to have in place stringent procedures for personal hygiene, ongoing maintenance of sanitizing and social distancing, and
- Additional rules to include a prohibition on the sharing of clothing, towels and other personal belongings, as well as the laundering of clothing for multiple persons at the same time.
- Handwashing / Sanitizing stations to be available at contractor accommodation. Employees to ensure washing and disinfecting of hand before entering the accommodation.
- Sealable bags provided to each person for keeping PPE requiring laundering, such as gloves and overalls, to ensure each person's PPE is contained and not cross contaminate other employees PPE.

C3.5.25 HEALTH AND SAFE WORK PRACTICES

Deep Cleaning at Construction Sites

The Contractor must ensure that the construction site, particularly in communal areas such as security access control room, site office, working areas, ablution facilities, welfare facilities, eating facilities, hand washing facilities and confined spaces are disinfected and cleaned, regularly, in addition, this must include, all touch points such as taps, toilets flushers and seats, door handles and push plates, handrails and corridors, lift and hoist controls, machinery and equipment controls, eating area chairs, telephone equipment, keyboards, photocopiers and other office equipment.

Employees that are appointed to conduct deep cleaning must be trained on all the Health and Safety protocols, including the Handling of Hazardous Chemical Substances, the Material Safety Data sheet and must be provided with the correct PPE and supervision in accordance with Regulations for Hazardous Biological Agents 4 Information and Training.

Waste Disposal

Contractor must ensure that all waste is disposed in the correct and required manner. All disposal

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masks and gloves are biological waste and must be disposed:

- Separate waste bins (must be labeled) for used PPE (gloves, masks) must be supplied by the contractor.
-



Dust masks and Gloves to be disposed as hazardous waste.

- Waste must be disposed at a registered waste facility.
- Proof of waste disposal must be kept for record keeping.
- Employees handling waste must comply to the PPE requirements before handling such.

C3.5.26 PPE

Contractor must ensure that all accessing the Construction site will be required to sanitize or wash hands at the entry and exit point of the site. The Contractor is responsible to issue the appropriate PPE as per the job description and according to HIRA critical task activities, with a minimum of two cloth masks which complies with the requirements set out in the Guidelines issued by the Department of Trade, Industry and Competition. Before construction, the Contractor must ensure that he has made arrangements for PPE to be available at site with construction start-up. The Contractor must enforce that:

- No employees are allowed to share any of their PPE.
- PPE must be worn at all times on site.
- PPE such as face masks is required for all employees or member entering the site, the said masks are to be worn on site.
- Masks should fit properly, completely covering the face from bridge of nose to chin.
- Always clean hand before putting on or removing face masks.
- Only touch the cord or elastic at the back when removing the masks.
- Contractor must ensure that a PPE procedure are implemented for the usage and the disposing (if applicable) of PPE.



- Contractor must ensure that the employees are informed, instructed, trained how to use the mask correctly.

C3.5.27 PROVISION OF SAFE TRANSPORT FOR EMPLOYEES

Transportation of Employees

Wherever possible Contractor employees must travel to site alone making use of their own transport. If contractor employees have no option but to share transport the following must be adhered to:

- Journeys should be shared with the same individuals and with the minimum number of people at any one time as per Government guidelines.
- Good ventilation (i.e. keeping the windows open) and facing away from each other may help to reduce the risk of transmission.
- The vehicle should be cleaned regularly, using gloves and standard cleaning products, with particular emphasis on handles and other areas where passengers may touch surfaces.
- Hand cleaning facilities must be provided at entrances and exits.

Travelling to and from Construction site

Professional teams, Contractor management and LEPELLE WATER project team to minimize travelling to site. Work from home should be priority as far as reasonably practicable especially for office staff. Progress and Technical meetings must be scheduled through available technology platforms such as Microsoft teams, Zoom or Skype.

Professional teams travelling to sites by vehicle will be limited to 2 persons, if 1 person drives/operate the vehicle and another person need to be seated at the back. If the vehicle is a single cab, strictly only 1 person will be allowed in the vehicle. Bus services and e- hailing services shall not carry more than 50% of the licensed capacity and taxi services shall not carry more than 70% of the licensed capacity.

All Vehicles/public transport must be disinfected. Before entering public transport ensure to sanitize or wash your hands with soap, as soon as arrival on site ensure to wash your hands with soap or sanitize before entering the construction area.



C3.5.28 GENERAL

Compliance to the OHS Act 85 of 1993 and its regulations should not be limited to this amendment made to the Health and Safety Baseline Specifications. The amendment must be read in concurrence with the existing Baseline Health and Safety Baseline Specifications, COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020 and Section 27 (2) of the Disaster Management ACT, 2002 (ACT NO. 57 OF 2002).

In terms of the Government Notice, No R. 480 of 29 April 2020, the COVID-19 Ready Workplace Plan must be in place before the reopening of any project, it should also include the following information that must be submitted to the appointed Construction Health and Safety Agent, Health and Safety Consultants or the appointed Lepelle Water SHEQ Specialist:

1. The planned date the construction site will open;
2. The hours it will be open
3. A timetable setting out the phased return of employees to enable appropriate measures to be taken to avoid and reduce the spread of the virus;
4. List of employees who can work from home, employees who are 60 years or older and those with comorbidities.
5. Proof of Appointment of a COVID-19 compliance officer responsible for the duties as outlined in regulation 16(6) of the said Notice COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020.

Once construction has commenced the appointed Construction Health and Safety Agent, Health and Safety Consultant or the LEPELLE WATER SHEQ Specialist will conduct a compliance audit to ensure compliance. Due to the Risk level of COVID-19 spreading in the communities, all non-compliant site will be stopped with immediate effect.

C3.5.29 ACCEPTANCE

Hereby I confirm that I have read and understood and confirm my intention to comply with all the legal requirements set out under the OHS Act 85 of 1993 and its regulations, COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020, Section 27 (2) of the Disaster Management ACT, 2002 (ACT NO. 57 OF 2002) and this amendment to the Baseline Health and Safety Specification:

THUS AGREED TO AND SIGNED AT _____ on this the

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Phase 1B: - Mawa 8 & Mookgo 6 Booster Pump Stations -
Electrical And Mechanical Works (Re-Advert)



_____ day of _____ 2021, in the

presence of the undersigned witness:

Signature _____ Date _____

Witness Name _____ Signature _____

SIGNED ON BEHALF OF CONTRACTOR

THUS AGREED TO AND SIGNED AT _____ on this the _____ day

of _____ 2021, in the presence of the undersigned witness:

Signature _____ Date _____

Witness Name _____ Signature _____

SIGNED ON BEHALF OF LEPELLE NORTHERN WATER



Project		COVID-19 Construction Sites		Evaluator Name				BASELINE RISK ASSESSMENTS34-BRA-0001										
Compiled By		LEPELLE-IDD-SHEQ		Signature				00										
Date of Assessment				Responsible Manager														
				Signature														
PROBABILITY INDEX	5	Almost certain to inevitable	SEVERITY INDEX INJURY/DISEASE (I)	5	Fatal	SEVERITY INDEX PRODUCTION (P)	5	No production	SEVERITY INDEX ENVIRONMENT (E)	5	Permanent effects	SEVERITY INDEX COST (C)	5	> R500 000	FREQUENCY INDEX	5	Hazard permanently present	PROBABILITY VALUE X SEVERITY VALUE X FREQUENCY VALUE /125 = TOTAL SCORE (%)
	4	Probable		4	Permanent to Slight Disability		4	Long term 2 years		4	R100 000 - R499 999		4	Hazard arises every week				
	3	Improbable		3	14 Days with complete recovery		3	Loss of 1 week of production		3	R10 000 - R99 999		3	Hazard arises every month				
	2	Less than even chance		2	Medical attention 14 Days with complete recovery		2	Loss of 1 day's production		2	R1 000 - R9 999		2	Hazard arises every year				
	1	High improbable		1	First aid only		1	Loss of 1 man shift		1	R0 - R999		1	Hazard arises every 5 years				
Risk Value		PPE Requirement & Safety Signs																
A	80 - 100%	Very High Risk	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
B	60 - 79%	High Risk																
C	40 - 59%	Medium Risk																
D	20 - 39%	Lower Risk																
E	0 - 19%	Low Risk																
Item	Task / General Activities	Hazard Identified	Risks i.r.t the hazard	Severity Index										PPE	Signs	Corrective Action	Responsible Person & Time Frame	
				I	P	E	C	Tot	Asses. Count	5 Points Each	Formula = 5*5	Probability Index	Frequency Index	Risk Score	Risk Value			
1	Site Preparation - Disinfecting Facilities (offices, bathrooms/toilets, eating areas), ensuring sufficient handwashing stations and or hand sanitizing stations, Procuring of sufficient amount of required PPE.	1) Handling of chemicals to clean surfaces (Health Hazards) Eye contact with splashing chemicals, skin irritations and even burns from strong chemicals used to clean, dizziness and nausea from inhaling of hazardous chemicals 2) Dust 3) Touching of surfaces, door handles and materials that might have been contaminated with Covid - 19	1. Health & safety (I) 2. Cost (C) 3. Productivity (P) 4. Environment (E) Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus.	4				4	1	5	125	5	5	100	80%	Specific PPE required for handling of chemicals (PVC gloves, dustmasks, overall Is or coveralls) Above and beyond the mandatory PPE for the site	1) The Principal contractor must ensure that the construction site, particularly in communal areas such as security access control room, site office, working areas, ablution facilities, welfare facilities, eating facilities, hand washing facilities and confined spaces are disinfected and cleaned, regularly, in addition, this must include, all touch points such as taps, toilets flushers and seats, door handles and push plates, handrails and corridors, lift and hoist controls, machinery and equipment controls, eating area chairs, telephone equipment, keyboards, photocopiers and other office equipment. 2) Employees that are appointed to conduct deep cleaning must be trained on all the Health and Safety protocols, including the Handling of Hazardous Chemical Substances, the Material Safety Data sheet and must be provided with the correct PPE and supervision.	Principal Contractor
								4	1	5	125	5	5	100	80%			
				5				5	1	5	125	5	5	125	100%			
					2			2	1	5	125	5	5	50	40%			
				Total Average Risk Value														



2	Travel to and from construction site	1) PSP's , contractor management and LEPELLE project teams traveling from 1 province to another. 2) Flights(domestic) / Airports 3) Teams traveling in big groups 4) Contaminated vehicle / transport /taxi's / busses 5) Pick up and drop off areas for public transport	1. Health & safety (I) 4 4 1 5 125 5 5 100 80% 2. Cost (C) 4 4 1 5 125 5 5 100 80% 3. Productivity (P) 5 5 1 5 125 5 5 125 100% 4. Environment (E) 2 2 1 5 125 5 5 50 40% Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value 75%	PPE requirements for traveling are not limited, but the following PPE must be considered - Dustmasks / respiratory protection and gloves	1) PSP's, Contractor management and LEPELLE project team to minimize travel to site. Work from home should be priority, meetings can be scheduled through available technology platforms. 2) Flights Will not be allowed until proven save by President of the Republic 3) Professional teams travelling to sites by vehicle will be limited to 2 persons, if 1 person drives/operate the vehicle and another person need to be seated at the back. If vehicle is a single cab, strictly only 1 person will be allowed in the vehicle. bus services and e-hailing services shall not carry more than 50% of the licensed capacity and taxi services shall not carry more than 70% of the licensed capacity 4) All Vehicles / public transport must be disinfected / sanitized before entering. Before entering public transport ensure to sanitize or wash your hands with soap, as soon as arrival on site ensure to wash your hands with soap or sanitize before entering the construction area. All employees 5) Pick up and drop off areas for public transport the employees and general public must ensure social distancing is adhered to. Do not sit or stand next to other people , keep at least a safe distance of between 1.5m and 2m.	Principal Contractor
3	Security / Access Control to construction site	1) PSP's , contractor management and LEPELLE project teams visiting sites 2) Employees returning to sites 3) Material deliveries 4) Public / unauthorised persons entering construction sites 5) Employees / visitors / public / project team with confirmed positiveCovid-19 or with flu-like symptoms entering sites 6) Employees gathering in groups at site laydown area or site entrance	1. Health & safety (I) 4 4 1 5 125 5 5 100 80% 2. Cost (C) 4 4 1 5 125 5 5 100 80% 3. Productivity (P) 5 5 1 5 125 5 5 125 100% 4. Environment (E) 2 2 1 5 125 5 5 50 40% Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value 75%	PPE must be supplied to all employees / visitors entering the site	1) PSP's, Contractor management and LEPELLE project team must ensure compliance to regulations and access procedures for the specific sites 2) All employees and visitors to the site must undergo general medical screening (Non-contrast Thermometer) to take the persons temprature.Any employee or visitor with a temprature of 38' degrees shall not be allowed to enter the site. This person must immediately be isolated from other persons and must be revered to a nearby testing station. 3) All employees and visitors must complete travel declaration that must include travel to any possible hot spot areas. If traveled to any hot spot areas the person must first be medically declared safe / not positive for Covid-19 before allowed to entering the site. 4) All employees or visitors entering site with flu-like symptoms will not be allowed to enter the site. If employees or visitor do not declare they have flu-like symptoms and it is noticed by construction team or employees , criminal action will be taken against such person . 5) Deliveries to site must be handled with the same policy or procedure as for all employees and visitors on site. Employees handling the delivery or the offloading must ensure PPE requirements are met. 6) Social distancing to be implemented at site entrances, principal contractor to ensure procedure is implemeted and adhered to. 7) every worker to report whether they suffer from any of the following additional symptoms: body aches, loss of smell or loss of taste, nausea, vomiting, diarrhoea, fatigue, weakness or tiredness.	Principal Contractor
4	Site specific Health and safety Induction	1) Large groups of employees to undergo induction 2) Induction not addressing procedures, risk assessment and information in relation with Covid-19 3) Inductions conducted in confined spaces 4) Inappropriate social distancingwhen conducting inductions 5) No control of amount of employees to be or that wereinducted.	1. Health & safety (I) 4 4 1 5 125 5 5 100 80% 2. Cost (C) 4 4 1 5 125 5 5 100 80% 3. Productivity (P) 5 5 1 5 125 5 5 125 100% 4. Environment (E) 2 2 1 5 125 5 5 50 40% Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value 75%	PPE must be supplied to all employees / visitors entering the site	1) Current Health and Safety Inductions to be reviewed and amended to ensure information regarding procedures, safe working procedure and risk assessments address risk associated with Covid-19 2) Inductions to be conducted in small groups not larger than 15 employees / visitors at a time. This Induction must be conducted in an open well ventilated area (like in the open air). 3) When conducted Induction all employees to comply to the social distancing requirements of having at least 1.5 m- 2m between eachother. 4) Registers for all employees to be available and kept updatedwith the following information: - Age of Employees - Health status – (High risk immunocompromised) - Socio economic status/Unskilled Labour - Accommodation	Principal Contractor



5	Site Facilities / Toilets / Hand wash Stations / Eating areas / Offices or boardrooms	1) Bathrooms, toilets, hand wash stations, offices and eating areas surfaces contaminated and not cleaned on a regular basis throughout the duration of the day 2) Insufficient amount of soap, hand sanitizer, cleaning materials 3) Insufficient amount of Toilets (chemical and flushable toilets) 4) Inappropriate social distancing at these mentioned areas 5) Offices, eating area not well ventilated 6) Site offices over populated (to many managers/supervisors sharing a office)	<table><tr><td>1. Health & safety (I)</td><td>4</td><td></td><td></td><td>4</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>100</td><td>80%</td></tr><tr><td>2. Cost (C)</td><td></td><td></td><td>4</td><td>4</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>100</td><td>80%</td></tr><tr><td>3. Productivity (P)</td><td>5</td><td></td><td></td><td>5</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>125</td><td>100%</td></tr><tr><td>4. Environment (E)</td><td></td><td>2</td><td></td><td>2</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>50</td><td>40%</td></tr></table> Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value 75%	1. Health & safety (I)	4			4	1	5	125	5	5	100	80%	2. Cost (C)			4	4	1	5	125	5	5	100	80%	3. Productivity (P)	5			5	1	5	125	5	5	125	100%	4. Environment (E)		2		2	1	5	125	5	5	50	40%	Cloth masks and gloves are required at all times	Signages to be displayed location for Offices, Eating areas, Bathroom facilities	1) Eating areas to be set up in such a way that the maximum number of persons who will use the area at any one time are able to maintain the required social distancing of 1 metre. Should this not be practicable, meal times are to be staggered on a rotational basis to avoid contact between persons. No communal drinking facilities at eating areas (shared cups etc.). The PC to provide adequate supplies of bottled water to all employees on site. Empty bottles to be disposed of as normal waste. Training and awareness to address procedures and the importance of good hygiene practice. Workers are required to stay on site once they have entered it and not use local shops. • Break times should be staggered to reduce congestion and contact at all times. • Workers should be asked to bring pre-prepared meals and refillable drinking bottles from home. 2) Ablution facilities are an essential facility that must be available for workers across a site. Facilities are a high risk area and increased cleaning regimes are required to be introduced. A policy on how this will be done is required, that will cover both portable and permanent facilities. The following are considerations, which include, inter alia: • Portable toilets to be provided at a 1:10 ratio • Cleaners to continually clean and have a formal cleaning regime (checklist to be conducted and kept for records) • Hand washing facilities (soap and water, paper towel) to be available where possible, and if not, to provide hand sanitizer • Flush toilets preferably 1:15 unless increased cleaning regime present; • Restrict the number of people using toilet facilities at any one time e.g. use a welfare attendant; • Wash hands before and after using the facilities; • Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush; • Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently; • Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal that need to be managed as hazardous waste;	Principal Contractor
1. Health & safety (I)	4			4	1	5	125	5	5	100	80%																																												
2. Cost (C)			4	4	1	5	125	5	5	100	80%																																												
3. Productivity (P)	5			5	1	5	125	5	5	125	100%																																												
4. Environment (E)		2		2	1	5	125	5	5	50	40%																																												
6	Site inspections / visits and site meetings	1) Coming into contact with infectious surfaces/ item/ individuals 2) Inappropriate social distancing when meetings are held in container office 3) Large group of Teams, managers, agent and client representatives visiting site and moving around on site 4) Insufficient amount of PPE for visitors 5) Procedures / Induction not followed 6) Visitors not aware of Emergency procedures	<table><tr><td>1. Health & safety (I)</td><td>4</td><td></td><td></td><td>4</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>100</td><td>80%</td></tr><tr><td>2. Cost (C)</td><td></td><td></td><td>4</td><td>4</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>100</td><td>80%</td></tr><tr><td>3. Productivity (P)</td><td>5</td><td></td><td></td><td>5</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>125</td><td>100%</td></tr><tr><td>4. Environment (E)</td><td></td><td>2</td><td></td><td>2</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>50</td><td>40%</td></tr></table> Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value 75%	1. Health & safety (I)	4			4	1	5	125	5	5	100	80%	2. Cost (C)			4	4	1	5	125	5	5	100	80%	3. Productivity (P)	5			5	1	5	125	5	5	125	100%	4. Environment (E)		2		2	1	5	125	5	5	50	40%	All visitor must comply to the PPE requirements. If not, the visitors will not be allowed to enter the site	Signages at site entrance to indicate site office and rules	1) Meeting areas/ preferably use technology (Skype, Zoom, Microsoft teams). The PC is to limit the number of employees at all activities to the minimum required to do the work in a safe manner. Where possible meetings must be held in open areas limited to essential personnel. Technological alternatives to be exploited for meeting attendance if possible. 2) All visitors attending site meetings must undergo site induction were all procedures and rules are explained in relation with Covid-19 requirements.	
1. Health & safety (I)	4			4	1	5	125	5	5	100	80%																																												
2. Cost (C)			4	4	1	5	125	5	5	100	80%																																												
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7	Accommodation for contractor employees	1) Accommodation for employees over populated 2) Inappropriate social distancing practised within a house environment 3) Insufficient cleaning practises in the house (disinfecting of surfaces and laundry) 4) No handwash station or hand sanitizer available before entering the house 5) Employees bringing visitors/family to the house	1. Health & safety (I) 2. Cost (C) 3. Productivity (P) 4. Environment (E) Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value	4 4 5 2 4 1 1 5 125 5 5 100 80% 80% 100% 40% 75%		1) Where accommodation is provided by the contractor/sub-contractor, factors to be considered in the procedure include, inter alia: - Density of occupants to allow for adequate social distancing (minimum 1.5m) in sleeping and dining quarters; - Restriction on the number of persons using the same sanitary/hygiene facilities; - Provision of dedicated crockery and cutlery for each occupant, together with a procedure for effective cleaning and safe storage of same and a prohibition on the sharing of utensils; - Dedicated facilities for safekeeping of personal belongings and abovementioned utensils for each person. Such facilities are to allow for total segregation of belongings and must be easy to sanitize. Provision of such facilities for safekeeping to be accompanied with a procedure for the use and sanitizing of the storage facility to reduce the risk of cross-contamination; - Facilities for accommodation provided by the contractor to have in place stringent procedures for personal hygiene, ongoing maintenance of sanitizing and social distancing, and - Additional rules to include a prohibition on the sharing of clothing, towels and other personal belongings, as well as the laundering of clothing for multiple persons at the same time. 2) Handwashing / Sanitizing stations to be available at contractor accommodation. Employees to ensure washing and disinfecting of hands before entering the accommodation. 3) Sealable bags provided to each person for keeping PPE requiring laundering, such as gloves and overalls, to ensure each person's PPE is contained and not cross contaminate other employees PPE.	Principal Contractor
8	Handling of tools, equipment and materials	1) Coming into contact with infectious surfaces/ item/ individuals	1. Health & safety (I) 2. Cost (C) 3. Productivity (P) 4. Environment (E) Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of Total Average Risk Value	4 4 5 2 4 1 1 5 125 5 5 100 80% 80% 100% 40% 75%	Mandatory PPE required as per site requirements and Specific PPE required to ensure employees are protected in respect of Covid-19	1) All tools used by employees to be disinfected daily before and after use. 2) Materials handled by employees to be disinfected before handled by another employee. 3) Storage areas must be strictly controlled with handwash stations or sanitizer available before handling materials or tools. 4) Social distancing to be implemented within the storage area.	Principal Contractor
9	Construction Trades in close proximity (Brickwork, Plaster work, Steelfixing, Work from scaffold, Confined space activities, excavations, plumbing, tiling) (this list is not ultimate and is only as a guide)	1) Large group of employees working in close proximity of each other 2) Coming into contact with infectious surfaces/ item/ individuals	1. Health & safety (I) 2. Cost (C) 3. Productivity (P) 4. Environment (E) Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus. Total Average Risk Value	4 4 5 2 4 1 1 5 125 5 5 100 80% 80% 100% 40% 75%	Mandatory PPE required as per site requirements and Specific PPE required to ensure employees are protected in respect of Covid-19	1) Where it is not possible to maintain the required distance between workers due to the nature of the work activity, e.g. curb laying, confined working areas, rebar tying, preparing wire cages, the contractor will be required to implement, maintain and enforce a procedure to adequately protect such workers against potential infection with the corona virus. This includes but is not limited to: - Providing adequate supplies of suitable PPE such as face masks, task specific gloves, safety glasses, disposable/additional overalls; - PPE used during multi-person activities to be exchanged immediately after the task is completed;	Principal Contractor



10	Training / Informations	1) Employees, visitors and communities in surrounding areas has a lack of knowledge in respect of Covid-19	1. Health & safety (I) 4 2. Cost (C) 4 3. Productivity (P) 5 4. Environment (E) 2 Total Average Risk Value 75%		Training information to be displayed on site at offices and at site entrances.	1) Toolbox talks to be conducted outdoors when possible in order for persons to maintain social distancing. Where inclement weather does not allow for this, toolbox talks to be conducted with smaller groupings of workers in a sheltered area large enough to maintain social distancing. 2) Regular training sessions to be held to ensure employees are updated on Covid-19 cases, information and control measures. 3) Awareness posters displayed on site and site entrances. 4) The Principal Contractor must provide workers with information that raises awareness in any form or manner, including where reasonably practicable leaflets and notices placed in conspicuous places in the workplace informing workers of the dangers of the virus, the manner of its transmission, the measures to prevent transmission such as personal hygiene, social distancing, use of masks, cough etiquette and where to go for screening or testing if presenting with the symptoms.	Principal Contractor
11	Waste disposals	1) Exposure to Group 4 Hazardous Biological Agent 2) Coming into contact with infectious items / PPE like dustmasks, gloves 3) Inappropriate disposal of worn PPE	1. Health & safety (I) 4 2. Cost (C) 4 3. Productivity (P) 5 4. Environment (E) 2 Total Average Risk Value 75%	Specific PPE required for handling of chemicals / hazardous waste (PVC gloves, dustmasks, overalls or coveralls) Above and beyond the mandatory PPE for the site		1) Separate waste bins (must be labeled) for used PPE (gloves, masks) must be supplied by the principal contractor. Dustmasks and gloves to be disposed as hazardous waste  2) Waste must be disposed at a registered waste facility. (Proof of waste disposal must be kept for record keeping). 3) Employees handling waste must comply to the PPE requirements before handling such.	Principal Contractor
12	Medical Surveillance	1) Employees not medically fit to work 2) Employees with chronic conditions / Tuberculosis / HIV 3) Employees over the age of 50	1. Health & safety (I) 4 2. Cost (C) 4 3. Productivity (P) 5 4. Environment (E) 2 Total Average Risk Value 75%			1) All employees on site undergo routine medical examinations specific to the work to be performed taking into account the hazard and risk exposures. This to address pre-employment examination, periodic examination as required, and exit examinations. 2) Where medical examinations are governed by legislation, the principal contractor to ensure the legislative requirements are complied with by all employees. 3) All the employees performing work on site are declared medically fit for the work they are to perform. 4) Employees are notified confidentially by the construction health and safety officer or other appropriate delegated person of the results and interpretation of their medical examinations and any abnormal findings, health conditions, referrals or recommendations made as well as any restrictions that may become evident from medical examinations. 5) In the event of referrals or recommendations for additional testing or consultation with health specialists, proof of action taken by the principal contractor to be maintained. Action taken could be a scheduled appointment with a specialist, an appointment for the additional testing etcetera. 6) Copies of valid medical certificates of fitness to be available in the occupational health and safety file. The requirements above to be founded on a duty of care towards employees to ensure employees are made aware of any health conditions or health restrictions which may have resulted from or may be aggravated by work activities on site or associated areas. The consultation, notification and communication with the employee to, with the employees' written consent, be made available upon request for verification by the client.	Principal Contractor

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13	Emergency Procedures	1) No emergency procedure addressing the handling of suspected infected employees. 2) Inappropriate social distancing at emergency evacuation points 3) Insufficient First Aid box content 4) No Specific PPE available for first aiders to attend to injured employees	1. Health & safety (I) 4 4 1 5 125 5 5 100 80% 2. Cost (C) 4 4 1 5 125 5 5 100 80% 3. Productivity (P) 5 5 1 5 125 5 5 125 100% 4. Environment (E) 2 2 1 5 125 5 5 50 40% Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus.	Specific PPE required for first aiders to attend to injured employees	Signages required to indicate the location of First Aid facilities, emergency evacuation route / location, emergency contacts	1) An updated emergency plan is to be completed that is in line with the current Regulations of the National Disaster Management Act. First aid Extra gloves, and disinfectants are to be available, first aiders are to be issued with at least FFPT2 masks should they be required to respond Evacuation plans Evacuation plans should consider social distancing. Isolation of potentially infected workers The emergency plan is to consider how anyone who arrives on site and displays any of the symptoms, or has a raised temperature. 2) Emergency response plan must be developed, implemented and communicated for persons suspected of being infected with or exposed to the virus. The procedure is to be applicable to all levels of management and supervision, employees and local labour.	Principal Contractor
14	Social Distancing	1) Large groups of employees in close proximity 2) Employees working close to each other 3) Site entrance / access 4) Site facilities / ablutions / offices / eating areas	1. Health & safety (I) 4 4 1 5 125 5 5 100 80% 2. Cost (C) 4 4 1 5 125 5 5 100 80% 3. Productivity (P) 5 5 1 5 125 5 5 125 100% 4. Environment (E) 2 2 1 5 125 5 5 50 40% Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus.			Principal contractor to ensure that the construction site and facilities are set up in such a way that it will be possible as far as is practicable to maintain the required social distancing of a minimum of 1 metre between persons when at work. Floor vinyls / markers can be used to indicate the correct spacing inbetween each other. 1) Tasks that require more than 1 person to complete Where it is not possible to maintain the required distance between workers due to the nature of the work activity, the contractor will be required to implement, maintain and enforce a procedure to adequately protect such workers against potential infection with the corona virus. - Adequate supplies of suitable PPE such as face masks, task specific gloves, safety glasses, disposable/additional coveralls to be issued to employees; - The PPE used during multi-person activities to be exchanged and disposed as hazardous waste immediately after the task is completed; - Sealed bins to be provided for disposable PPE such as masks, disposable coveralls, disposable gloves, etc.; - Sealable bags provided to each person for keeping PPE requiring laundering, such as gloves and overalls, and - Sanitising/washing facilities provided for immediate sanitizing of hard hats, safety glasses, shoes, safety harnesses etc. on completion of multi-person tasks. All the above to be utilized when breaking for lunch or leaving the site, and before commencing with the next or new work activity. 2) It must, as far as practicable, minimize the number of workers on at the workplace at any given time through rotation, staggered working hours, shift systems, remote working arrangements or similar measures in order to achieve social distancing. 3) If it is not practicable to arrange work stations to be spaced at least one and a half metres apart, the employer must- arrange physical barriers to be placed between work stations or erected on work stations	Principal Contractor
15	Health Hazards	1) Handling of Hazardous chemical when Cleaning and disinfecting surfaces (skin, eye, inhaling)	1. Health & safety (I) 4 4 1 5 125 5 5 100 80% 2. Cost (C) 4 4 1 5 125 5 5 100 80% 3. Productivity (P) 5 5 1 5 125 5 5 125 100% 4. Environment (E) 2 2 1 5 125 5 5 50 40% 1) Skin contact with hazardous chemicals could cause skin irritation and even burns (Dermatitis) 2) Eye contact with chemicals splashing could cause serious eye burns and even temporary blindness 3) Inhaling of chemical fumes could cause headache, dizziness and even nausea	Task Specific PPE require to handle hazardous chemicals	Signage required at storage area for all hazardous chemicals / MSDS must be available at storage area	1) MSDS / SDS to be available for all chemicals used on site. MSDS / SDS to be communicated to all the exposed employees to ensure they gain the required knowledge on how to handle the specific hazardous chemicals safely. 2) Employees that is required to deep clean facilities before start of project and daily is required to wear the required PPE (Dustmask / respiratory protection, safety goggles, PVC gloves, overalls or coveralls).	Principal Contractor

Phase 1B:- Construction Of Mawa 8 & Mookgo 6 Booster Pump Stations For Electrical and Mechanical Works

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Phase 1B:- Construction Of Mawa 8 & Mookgo 6 Booster Pump Stations For Electrical and Mechanical Works



	Pre - site entrance screening	1) Coming into contact with infectious individuals	Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus.		Personnel conducting pre-entering screening to ensure they are fully compliant with PPE requirements	75%	1) Travel declaration questionnaire must be completed by all security personnel, professional teams, client teams, principal contractor employees and contractors before entering the site gate. 2) Adequately train (directly or indirectly) identified employee/s to perform daily workplace COVID-19 symptom screening. The average normal body temperature is generally accepted as (37°C). 3) Provide compulsory medical screening equipment example: Non- contact Thermometers. 4) Provide prescribed personal protective equipment (PPE) to those assigned to perform the screening. Face Shields and masks will be made available to screening personnel. 5) All required items to operate safely must be available at the screening desk, these includes, hand sanitizers, pens for filling in registers and travel declaration questionnaire Should employees or visitors fail the questionnaire to be completed they should not be allowed to enter site. 6) Any employee/team member displaying a temperature between 37.1°C and 37.9°C will be isolated and place either next to the Security Guardhouse or in his/her vehicle until second temperature testing is done. 7) The employee/team member temperature will be taken again after 15 min. If the temperature has increased the person will be required to leave and go to the closest Clinic, access to site will be denied. 8) If the employee/team member temperature has decreased to an acceptable/normal level, access will be granted. 9) Any employee/team member with a temperature of 38°C or above will be denied access and will be required to leave immediately and be advised to visit a Doctor; 10) All cases where persons were denied access a detailed register kept on site of the date, name of contractor, name of employee, contact number. 11) Principal contractor should keep record of all such screening, and should an employee show any positive symptoms related to COVID-19, then such an employee must be isolated from other employees, provided with gloves and mask, and the Department of Health Hotline 0800 029 999 immediately contacted.	Principal Contractor																																												
18	Procurement of PPE and Sanitizers, disinfectants and other measures	1) Insufficient amount of PPE available for all employees 2) No Soap, sanitizers or disinfectants available on site	Exposure (close contact) to a person with confirmed or suspected COVID-19 or getting in contact with surfaces that might have been contaminated could lead to severe health effects and even fatality, and if not attended to or self isolation could lead to the spread of the virus.	<table><tr><td>1. Health & safety (I)</td><td>4</td><td></td><td>4</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>100</td><td>80%</td></tr><tr><td>2. Cost (C)</td><td></td><td>4</td><td>4</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>100</td><td>80%</td></tr><tr><td>3. Productivity (P)</td><td>5</td><td></td><td>5</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>125</td><td>100%</td></tr><tr><td>4. Environment (E)</td><td></td><td>2</td><td>2</td><td>1</td><td>5</td><td>125</td><td>5</td><td>5</td><td>50</td><td>40%</td></tr></table>	1. Health & safety (I)	4		4	1	5	125	5	5	100	80%	2. Cost (C)		4	4	1	5	125	5	5	100	80%	3. Productivity (P)	5		5	1	5	125	5	5	125	100%	4. Environment (E)		2	2	1	5	125	5	5	50	40%	Personnel conducting pre-entering screening to ensure they are fully compliant with PPE requirements	75%	1) All required PPE must be available on site prior to start of work 2) Employees to be issued with a minimum of 2 overalls. 3) Material masks at least 2 per person to be issued to all employees on site. All employees, visitors on site must wear a dustmask or a material face mask. 4) Procedure for disposing of used PPE to be implemented, monitored and communicated to all employees and visitors. 5) Dustmasks and latex gloves to be disposed after each use and should not be used over a period of 1 day 6) Every employer must, free of charge, ensure that – there are sufficient quantities of hand sanitizer based on the number of workers or other persons who access the workplace at the entrance of, and in, the workplace which the workers or other persons are required to use and every employee who works away from the workplace, other than at home, must be provided with an adequate supply of hand sanitizer.	Principal Contractor
1. Health & safety (I)	4		4	1	5	125	5	5	100	80%																																										
2. Cost (C)		4	4	1	5	125	5	5	100	80%																																										
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BABANANA WATER PROJECT RS 135 -
Phase 1B:- Construction Of Mawa 8 & Mookgo
6 Booster Pump Stations For Electrical and
Mechanical Works

GCC (GOVERNMENT)



C3.6 GENERAL CONDITIONS OF CONTRACT (GOVERNMENT)

GENERAL CONDITIONS OF CONTRACT (GCC)

NOTES:

The purpose of this document is to:

- (i) Draw special attention to certain general conditions applicable to government Bids, contracts and orders; and
- (ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.

In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.

- The General Conditions of Contract (GCC) will form part of all Bid documents and may not be amended.

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1. Definitions

1. The following terms shall be interpreted as indicated:

- 1.1 **“Acceptable bid”** means any bid, which, in all respects, complies with the specifications and conditions of the bid as set out in the bid document.
- 1.2 **“Bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of State for the provision of goods, works or services.
- 1.3 **“Black enterprise”** means an enterprise that is 50,1% owned by black persons and where there is substantial management control. Ownership refers to economic interest while management refers to the membership of any board or similar governing body of the enterprise.
- 1.4 **“Black empowered enterprise”** means an enterprise that is at least 25,1% owned by black persons and where there is substantial management control. Ownership refers to economic interests. Management refers to executive directors. This is whether the black enterprise has control or not.
- 1.5 **“Black people”** includes all African, Coloured or Indian persons who are South African citizens by birth or by descent or who were naturalised prior to the commencement of the constitution in 1993. In addition, the term also includes black people who became South African citizens after the constitution’s commencement but who would have been able to be naturalised prior to this, were it not for the Apartheid laws which prohibited naturalisation of certain persons. This means that an African, Coloured or Indian person who was not a South African citizen before the commencement of the constitution in 1993 but who would have been entitled to apply to be naturalised prior to 1993, will also be considered a black person and therefore a beneficiary of BEE.
- 1.6 **“Black woman-owned enterprise”** means an enterprise with at least 25,1% representation of black women within the black equity and management portion.
- 1.7 **“Closing time”** means the date and hour specified in the bidding documents for the receipt of bids.
- 1.8 **“Comparative price”** means the price after the factors of a non-firm price and all unconditional discounts that can be utilised have been taken into consideration.
- 1.9 **“Community or broad-based enterprise”** means an enterprise that has an empowerment shareholder who represents a broad base of members such as a local community or where the benefits support a target group, for example black women, people living with disabilities, the youth and workers. Shares are held via direct equity, non-profit organisations and trusts.

Benefits from the shareholding should in a measurable sense be directed towards the uplifting of the community through job creation, welfare, skills development, entrepreneurship and human rights. At the same time, directors and management of groups should significantly comprise black persons.

These arrangements are appropriate in situations where the activities or operations of an enterprise or industry directly impact on a community or are located in a community, or may benefit a community. Notable examples are large industrial projects, mining and tourism. Other instances, which do assist in broadening the

shareholder base, are employee share ownership schemes; these are a viable empowerment shareholder option. In this and other circumstances, these arrangements should not detract from the ability of the shareholder to exercise significant influence or control over the operations of the business.

- 1.10 **“Consortium or joint venture”** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skills and knowledge in an activity for the execution of a contract.
- 1.11 **“Contract”** means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- 1.12 **“Contract price”** means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
- 1.13 **“Control”** means the possession and exercise of legal authority and power to manage the assets, goodwill and daily operations of a business and the active and continuous exercise of appropriate managerial authority and power in determining the policies and directing the operations of the business.
- 1.14 **“Co-operative or collective enterprise”** is an autonomous association of persons who voluntarily join together to meet their economic, social and cultural needs and aspirations through the formation of a jointly-owned enterprise and democratically controlled enterprise.
- 1.15 **“Corrupt practice”** means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.
- 1.16 **“Countervailing duties”** are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
- 1.17 **“Country of origin”** means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
- 1.18 **“Day”** means calendar day.
- 1.19 **“Delivery”** means delivery in compliance with the conditions of the contract or order.
- 1.20 **“Delivery ex stock”** means immediate delivery directly from stock actually on hand.

- 1.21 **“Delivery into consignees store or to his site”** means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
- 1.22 **“Disability”** means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.
- 1.23 **“Dumping”** occurs when a private enterprise abroad markets its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.
- 1.24 **“Equity Ownership”** means the percentage ownership and control, exercised by individuals within an enterprise.
- 1.25 **“Force majeure”** means an event beyond the control of the supplier and not involving the supplier’s fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 1.26 **“Fraudulent practice”** means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.
- 1.27 **“GCC”** means the General Conditions of Contract.
- 1.28 **“Goods”** means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.29 **“Historically Disadvantaged Individual (HDI)”** means a South African citizen -
- 1.29.1 who, due to the Apartheid policy that had been in place, had no franchise in national elections prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act 110 of 1983) or the Constitution of the Republic of South Africa, 1993, (Act 200 of 1993) (“the interim Constitution); and/or
- 1.29.2 who is a female; and/or
- 1.29.3 who has a disability:

provided that a person who obtained South African citizenship on or after the coming to effect of the Interim Constitution, is deemed not to be a HDI.

- 1.30 **“Imported content”** means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.
- 1.31 **“Local content”** means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.
- 1.32 **“Management”** means an activity inclusive of control and performed on a daily basis, by any person who is a principal executive officer of the company, by whatever name that person may be designated, and whether or not that person is a director.
- 1.33 **“Manufacture”** means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.34 **“Order”** means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.35 **“Owned”** means having all the customary elements of ownership, including the right of decision-making and sharing all the risks and profits commensurate with the degree of ownership interests as demonstrated by an examination of the substance, rather than the form of ownership arrangements.
- 1.36 **“Parliament”** means Parliament of the Republic of South Africa as set out in Chapter Four of the Constitution.
- 1.37 **“Person”** includes reference to a juristic person.
- 1.38 **“Project site”** where applicable, means the place indicated in bidding documents.
- 1.39 **“Purchaser”** means the organization purchasing the goods.
- 1.40 **“Rand value”** means the total estimated value of a contract in Rand denomination that is calculated at the time of the bid invitations, and includes all applicable taxes and excise duties.
- 1.41 **“Republic” or “RSA”** means the Republic of South Africa.
- 1.42 **“RFP”** means Request for Proposal.
- 1.43 **“RFT”** means Request for Tender.

- 1.44 **“RFQ”** means Request for Quotation.
- 1.45 **“SCC”** means the Special Conditions of Contract.
- 1.46 **“Secretary”** means the Secretary to Parliament.
- 1.47 **“Services”** means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.
- 1.48 **“Specific contract participation goals”** means the goals as stipulated in the Preferential Procurement Regulations, 2001. In addition to above-mentioned goals, the Regulations [12. (1)] also make provision for organs of State to give particular consideration to procuring locally manufactured products.
- 1.49 **“Small, Medium and Micro Enterprises (SMMEs)”** bears the same meaning assigned to this expression in the National Small Business Act, 1996 (Act 102 of 1996).
- 1.50 **“Sub-contracting”** means the primary contractor’s assigning or leasing or making out work to, or employing another person to support such a primary contractor in the execution of part of a project in terms of the contract.
- 1.51 **“Trust”** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person.
- 1.52 **“Trustee”** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.
- 1.53 **“Written”** or **“in writing”** means handwritten in ink or any form of electronic or mechanical writing.

2. Application

- 2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.
- 2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.

- 2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

- 3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.
- 3.2 With certain exceptions, invitations to bid can be accessed electronically from www.parliament.gov.za

4. Standards

- 4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection

- 5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.
- 5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.
- 5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

- 5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent rights

- 6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

7. Performance security

- 7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.
- 7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
- 7.3 The performance security shall be denominated in the currency of the contract or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:
- (a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
 - (b) a cashier's or certified cheque
- 7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

8. Inspections, tests and analyses

- 8.1 All pre-bidding testing will be for the account of the bidder.
- 8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of Parliament or an organisation acting on behalf of Parliament.
- 8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.
- 8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.
- 8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.
- 8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.
- 8.7 Any contract supplies may on or after delivery be inspected, tested or analysed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.
- 8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

- 9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

- 10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.
- 10.2 Documents to be submitted by the supplier are specified in SCC.

11. Insurance

- 11.1 The goods supplied under the contract shall be fully insured by the bidder in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

12. Transportation

- 12.1 Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

13. Incidental services

13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

- (a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
- (d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
- (e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare parts

14.1 As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

- (a) such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and
- (b) in the event of termination of production of the spare parts:

- (i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
- (ii) following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

- 15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.
- 15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.
- 15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.
- 15.4 Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.
- 15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

- 16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.

- 16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.
- 16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.
- 16.4 Payment will be made in Rand unless otherwise stipulated in SCC.

17. Prices

- 17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.

18. Variation orders

- 18.1 In cases where the estimated value of the envisaged changes in purchase does not vary more than **15%** of the total value of the original contract, the contractor may be instructed to deliver the goods or render the services as such. In cases of measurable quantities, the contractor may be approached to reduce the unit price, and such offers may be accepted provided that there is no escalation in price.

19. Assignment

- 19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

- 20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

- 21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.
- 21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.
- 21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.
- 21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.
- 21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.
- 21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

- 22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the

current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

- 23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:
- (a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
 - (b) if the Supplier fails to perform any other obligation(s) under the contract; or
 - (c) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

24. Anti-dumping and countervailing duties and rights

- 24.1 When, after the date of bid, provisional payments are required, or antidumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

25. Force Majeure

- 25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent

that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

- 25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

- 26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

- 27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
- 27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
- 27.4 Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.
- 27.5 Notwithstanding any reference to mediation and/or court proceedings herein,
- (a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
 - (b) the purchaser shall pay the supplier any monies due the supplier.

28. Limitation of liability

- 28.1 Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;
- (a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss

of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and

- (b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

- 29.1 The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

- 30.1 The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.

31. Notices

- 31.1 Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice
- 31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

- 32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
- 32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
- 32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid, Parliament must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services (SARS).

33. Transfer of contracts

- 33.1 The contractor shall not abandon, transfer, cede assign or sublet a contract or part thereof without the written permission of the purchaser

34. Amendment of contracts

- 34.1 No agreement to amend or vary a contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement that the agreement to amend or vary shall be in writing, shall also be in writing.

35. Prohibition of restrictive practices

- 35.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder(s) is / are or a contractor(s) was / were involved in collusive bidding.
- 35.2 If a bidder(s) or contractor(s) based on reasonable grounds or evidence obtained by the purchaser has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in section 59 of the Competition Act No 89 Of 1998.
- 35.3 If a bidder(s) or contractor(s) has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

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6 Booster Pump Stations For Electrical and
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ADDITIONAL SPECIFICATIONS



C3.8 LABOUR INTENSIVE CONSTRUCTION

SJ: LABOUR INTENSIVE SPECIFICATION

CONTENTS

SJ 01	SCOPE
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SJ 14	GRASSING
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SJ 16	MANUFACTURED ELEMENTS

SJ 01 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 1.5 metres
- b) stormwater drainage
- c) low-volume roads and sidewalks

SJ 02 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.

SJ 03 HAND EXCAVATEABLE MATERIAL

Hand excavate able 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;

- Note:
- 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 SJ1: 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 unto 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.

SJ 04 TRENCH EXCAVATION

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

SJ 05 COMPACTION OF BACKFILLING TO TRENCHES (areas not subject to traffic)

ADDITIONAL SPECIFICATIONS

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 cone 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.

SJ 06 EXCAVATION

All hand excavate able material including topsoil classified as hand excavate able 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.

SJ 07 CLEARING AND GRUBBING

Grass and small bushes shall be cleared by hand.

SJ 08 SHAPING

All shaping shall be undertaken by hand.

SJ 09 LOADING

All loading shall be done by hand, regardless of the method of haulage.

SJ 10 HAUL

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

SJ 11 OFFLOADING

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

SJ 12 SPREADING

All material shall be spread by hand.

SJ 13 COMPACTION

Small areas may be compacted by hand provided that the specified compaction is achieved.

SJ 14 GRASSING

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

SJ 15 STONE PITCHING AND RUBBLE CONCRETE MASONRY

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

SJ 16 MANUFACTURED ELEMENTS

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.

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SITE INFORMATION



C4 SITE INFORMATION

SITE INFORMATION

C4.1 LOCATION OF SITE

The plants, with their coordinates, are:

RESERVOIR/PS	Latitude	Longitude	Approximate perimeter length
Mawa 8 PS	-23.584142°	30.512622°	7000 m

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ANNEXURE 1: MATERIALS LIST AND GENERAL ARRANGEMENT DRAWINGS

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SITE INFORMATION



ANNEXURE 2: BASELINE RISK ASSESSMENT

BASELINE RISK ASSESSMENT**SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF PMC
NON-RETURN, ISOLATING VALVES, FLOW METERS AND PIPE FITTINGS.**

Activity Description:	BASELINE RISK ASSESSMENT				Project No:	LNW 31/18/19	
Assessment Team:	LNW		Assessment Date:	July 2019	Review Date:		

Tas k #	Task Description	Hazards / Aspects / Failures	Potential Risks / Impacts	SHEQ Category	Likelihood	Consequence	Raw Risk Rating	Mitigation / Control Measures	SHEQ Category	Likelihood	Consequence	Residual Risk Rating	Resp Person
1	Induction and training	- Injuries due to employees not aware of dangers in work area - Long hours of induction. - Use of unfamiliar language. - Imcompetent trainer/facilitator. - Issuing Incorrect PPE afterwards.	Injury Disability Property damage	S&H BI/AD L&R	4	5	20 (H)	- Inductions- Employees to be informed to all hazards in the work area as well as the recommended precautionary measures - Site specific induction to be conducted to all employees, sub-contractors and visitor's - Employees to be trained on all tools and equipment. - Ensuring that all the employees understood the training including questionnaires raised. - Ensure all employees get the correct PPE. - The contractor to hire people that are legal to work in terms of age. - Medical fitness examinations must be conducted to all the employees prior commencement of work.	S&H BI/AD L&R	2	4	8 (M)	Safety Officer Site Agent General Foreman

BASELINE RISK ASSESSMENT

		Employment of underaged employees.											
2	Site establishment	- Fence erection. - Exposure to hazardous materials. - Exposure to moving machinery and vehicles. - Exposure to existing services. - Office building and installation of ventilations. - Installation of electrical connections. - Clearing of site	Injury, disease, Property damage,	S&H BI/AD L&R	3	4	12 (H)	- Management to ensure site layout be approved by relevant engineer to consider site traffic, plant movement and other interfacing contractor site layouts. - Ensure that proper PPE is provided. - Ensure that Plants used for clearing are inspected and well serviced. - Contractor to ensure that competent persons are hired for installations.	S&H BI/AD L&R	2	4	8 (M)	Site Agent General Foreman
3	Environmental control	Environmental risks	Environmental	EN	2	3	6 (M)	- Ensure all waste areas controlling hazardous waste is kept clear - Ensure area housing hazardous waste is banded to prevent run-off and absorption into the ground water systems - Ensure the area is well demarcated and screened off - Ensure that waste is disposed legally with an appointment letter from legal appointee. - Ensure all spills are reported immediately - Ensure drip trays are used when the risk to spillage is high	EN	1	3	3 (L)	Environmental officer

BASELINE RISK ASSESSMENT

								- Ensure the waste storage area has sufficient capacity - Ensure that all loose materials are covered and tied down to prevent wind picking the loose items out of the storage area or facility - Ensure storage areas and facilities are kept neat and tidy at all times - Ensure these areas are cleared regularly of waste material - Ensure all hazardous waste is removed to an approved dumping site/facility - Ensure correct colour coded waste bin for the discarding of waste					
4	Access/egress to site & correct placing of units	Restricted/unsafe access & parking of vehicles and plant	Injury Property damage	S&H BI/AD L&R	4	4	16 (H)	Management to ensure site layout approved by client to consider site traffic, plant movement and other interfacing contractor site layouts	S&H BI/AD L&R	2	4	10 (M)	Site Agent General Foreman
5	Create access through berm using TLB	Substandard plant	Injury Property damage Production loss	S&H BI L&R	3	4	14 (M)	- Only certified and approved operator to be used. - Plant pre-inspection checklist to be completed - Tool box talk and risk assessment training before work commences - Work area to be barricaded and flag man to control people and plant movement	S&H BI L&R	1	4	4(L)	Site Agent General Foreman
6	Truck onto site and lay down area	- Reckless driving - Uncertified driver - Substandard truck Conditions	Injury Fatality Property damage	S&H BI/AD L&R	3	5	15 (H)	- Ensure drivers are qualified and competent. - Ensure drivers are informed of route and site traffic requirements - Vehicle to be approved and licensed to enter site - Ensure that the plant is serviced on intervals and by competent and certified personnel.	S&H BI/AD L&R	2	4	10 (M)	Site Agent General Foreman
7	Pedestrian access to site	Unsafe pedestrian	Injury Property damage	S&H BI L&R	4	4	16 (H)	Safe demarcated walkway to be conducted	S&H BI L&R	1	4	4 (L)	Site Agent General Foreman

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	(LNW labourers) Construction plant access to site.	- access (Walkway) - Plants that are not road worthy - Incompetent drivers or operators.	Production loss					- Walkway to be barricaded with snow netting - Pedestrian crossings to be conducted and utilised. - Pedestrian and plants access must be separated. - Vehicle and plant signages must be made available. - Monitoring of site. - Appointment of qualified security service provider.						

BASELINE RISK ASSESSMENT

8	Offloading and positioning of containers/offices (mobile crane)	- Equipment failure - Load falling - Rigger (falling) - Load striking employees - Load striking other containers - Load swinging	Injury Property damage Production loss Fatality	S&H BI L&R	4	5	20 (H)	- Management (supervisor) to ensure that only certified and approved operator, crane and lifting tackle to be used. - All lifting equipment to be inspected and registered - Plant pre-inspection checklist to be completed - Operator and rigger to attend tool box talk and risk assessment training before work commences - Supervisor and rigger to ensure correct lifting tackle and attaching method/procedures applied - Qualified and competent rigger allocated to specific crane (one on one communication) - Rigger to wear safety harness and tie-off at all times. - Step ladder must be used for access to top of container - If working on top of load the rigger must then be hooked on the crane or on a life line - Area to be barricaded off during lifting activities to prevent unauthorised entry - Two guide ropes to be used on load to ensure stable movement - No lifting during high winds or inclement weather - Heavy equipment must be identified and a rigging study to be in place - Swing radius must be identified to ensure that the load can be of loaded in a safe manner - Stay out of the swing radius of the crane - Ensure there are barrier guards showing swing radius	S&H BI L&R	1	4	4 (L)	Site Agent General Foreman



BASELINE RISK ASSESSMENT

								A boom angle indicator must be on the crane					

BASELINE RISK ASSESSMENT

9	Erecting safety and security fencing	Employees Fencing material (Wire and poles) Tools (Tensioners and pliers) Theft (Unauthorised entry) Hi-hub Crane truck Unfenced borrow pits	Injury Disability, Production loss, Property damage, animal loss	S&H BI/AD L&R	2	4	8 (M)	- Ensure outriggers are in full extended position and on firm and stable ground using spreader boards - Crane may not travel with outriggers in extended position - Trained and competent workers to be used under supervision for fence erecting - Only approved and correct hand tools for the job may be used - No homemade or modified tools allowed on site - Tools to be inspected before commencing of work - Security guard will be appointed to provide security and access controll. - Labelled tools or plants.	S&H BI/AD L&R	1	2	2(L)	Site Agent General Foreman
10	Installation of safety signs and notice boards	Un-informed employees Inadequate signage Incorrect signage	Injury Property damage	S&H BI/AD L&R	2	2	4 (L)	- Legal required signage must be displayed to be clearly visible at all times. - All required signage to be available - Informative, prohibitive, mandatory and emergency signs - Signage change and applicability should be maintained	S&H BI/AD L&R	1	1	2 (L)	Site Agent General Foreman
11	Emergency preparedness	Fire fighting equipment Insufficient no's	Injury Property damage Production loss	S&H BI/AD L&R	2	3	6 (M)	- Fire fighting equipment must be placed in accordance to survey conducted during site establishment - Identification and signage must be clear and visible - All relevant equipment to be inspected and on register	S&H BI/AD L&R	1	4	4 (L)	Site Agent General Foreman Safety Officer
12	First aid	Inadequate medical assistance Untreated injuries	Diseases, disability	S&H BI L&R	2	4	8 (M)	First aid boxes to be available at each work area clearly identified, signage installed and qualified first aider identified	S&H BI L&R	1	3	3 (L)	Safety Officer First Aider

BASELINE RISK ASSESSMENT

								First aid boxes to comply with minimum requirements inspected and registered					
13	Facilities	Hygiene Insufficient no Waste Eating area Drinking water	Hygiene Environmental Poor hygiene Illnesses and ailments Water contaminated	S&H BI L&R	2	2	4 (L)	- Separate toilets for both genders must be available and clearly identified - Ration 1 to 20 and to be cleaned 3 times a week - Separate waste bins for different waste categories to be available and identified - Waste disposal plan and schedule must be maintained - Skips must have lids - Adequate, clean and shaded eating area to be ensured - Facilities to be ensured from start of site establishment - Clean drinking water must be available - Signage to be installed to all drinking and non drinking water	S&H BI L&R	1	2	2 (L)	Safety Officer Site Agent
14	Power supply and electricity to office area	Generator	Injury	S&H	4	4	16 (H)	- DB board must stand on firm level base and should be locked at all times - DB board to be inspected and approved by qualified electrician	S&H	2	4	8 (M)	Site Agent General Foreman
		Electrical cables	Injury Electrocution	S&H BI L&R	3	4	12 (H)	- All cables to be routed underground - Only qualified electrician to do installation and termination	S&H BI L&R	2	4	8 (M)	Site Agent General Foreman
15	Refuelling Tank	Environmental spillage	Soil contamination Fire risk	S&H EN	3	3	12 (H)	- Bunding or drip tray to be utilised - Spill kit to be available at all times - MSDS available at generator - Fire extinguisher and relevant required signage to be installed (no smoking, no open flames and hearing protection) - Boundary wall to be available.	S&H EN	1	3	3 (L)	Site Agent General Foreman Environmental officer

BASELINE RISK ASSESSMENT

16	Lay down area Stacking and storage	Inadequate space	Injury	S&H BI L&R	3	3	12 (H)	Lay down area must be well planned to ensure adequate space	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
		Poor stack/storage practices	Property damage	S&H BI L&R	2	5	10 (H)	- Safe stacking and storing practices/procedures must be maintained - Access and off-loading space must be a priority - Area to be barricaded - Flammable material not to be stacked together.	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
		Dunnage	Injury Property damage	S&H BI L&R	3	3	9 (M)	Timber poles (Dunnage) to be used for stacking material	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman
17	Loading and off-loading of truck/machine ry with mobile crane	Unfit personnell on site Incorrect PPE Incompetent personnel Under the influences of alcohol and substances	Injury Fatality	S&H BI/AD L&R	4	4	16 (H)	- Insure all personnell are fit by means of medical clearance certificate - All personnell shall undergo all relative inductions, site inductions and risk assessment training - Daily DSTI plus toolbox talks to be conducted - Correct PPE to be worn for the right job or site requirements - Safety harnesses to be worn when working at heights and safety life lines to be erected when required - Safety harnesses will be issued per person and will be inspected and booked out accordingly - Supervisor to ensure personnell is competent for the task at hand with competency/qualifications certificates - All competency certificates to be kept in the safety officer office - All appointments to be up to date - Crane operator must be licence by an authorised training institution - Only competent rigger to do lifting operations	S&H BI/AD L&R	1	4	4 (L)	Site Agent General Foreman Banksman

BASELINE RISK ASSESSMENT

								- No employee to work when under the influence of drugs or alcohol - Random alcohol test will be conducted					
18	Approval of mobile crane	Non compliance No crane certification	Injury Fatality	S&H BI/AD L&R	3	4	12 (H)	- All cranes to be checked and tested by an testing station - All cranes shall be finally inspected and passed by project vehicle inspector - The crans shall have an up to date and valid load test certificate, rope test certificate, LMI calibration certificate and crane hook certificate - Full maintenance record of crane - Operator competence certificate - Crane pre-use checklist available and checklist completed daily	S&H BI/AD L&R	1	4	4 (L)	Site Agent General Foreman Safety Officer

BASELINE RISK ASSESSMENT

								Crane specification and load chart available in crane cab, understood and used by operator					
19	Select correct lifting equipment	Pinch points Lifting equipment failure	Injury Property damage	S&H BI/AD L&R	3	4	12 (H)	- Pre task assessment for correct lifting equipment above 5 ton – Rigging study - Wear correct PPE - Client representative can inspect tools and equipment and request tools to be replaced or repaired - Competent person/s shall be appointed for the responsibility of looking after equipment and tools must be inspected as required - Hazard awareness briefings - Rigging study to be approved by construction manager and master rigger	S&H BI/AD L&R	2	3	6 (L)	Site Agent General Foreman
20	Hook up lifting equipment , crane and material to be lifted. Hoist up crane slowly to get equipment slack out	Pinch points	Injury	S&H BI/AD L&R	4	4	16 (H)	- Connect lifting equipment to correct procedures - All lifting equipment must have a load certificate inspection and must be updated and lock down in register - Keep hands clear once hooked up - Rigger to ensure all personnel are clear when hoisting, to get slack out	S&H BI/AD L&R	2	4	8 (M)	Site Agent General Foreman

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21	Raise load slowly to check load stability and centre of gravity	Equipment failure	Injury Fatality Disability Property damage	S&H BI L&R	3	5	15 (H)	- Use correct and certified equipment - Work within crane and lifting equipment specification - Rigger only personnel to communicate with crane operator by means of hand signals, radio communications and or whistles - Rigger to remove glove when giving hand signals - Do not exceed wind speed for elevated lifts - Rigger to ensure no person to be under a suspended load. - No personnel within the swing radius of the crane	S&H BI L&R	2	4	8 (M)	Site Agent General Foreman
22	Raise load to desired height and slew to designated installation area Remove lifting equipment	Incorrect lifting practices Lifting equipment failure Crane toppling over	Injury Fatality Property damage Production loss	S&H BI L&R	3	4	12 (H)	- Work to lifting procedures/task analysis - Rigger to communicate with operator - Ensure sufficient guide ropes attached - Work to equipment specifications - Work within crane load chart specification - Work within wind regulations – 6m/s or analyse situation - Rigger to ensure he/she constant eye contact with crane operator or radio contact - Rigger to ensure no person to be under a suspended load	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman
23	Weather conditions	Lightning/wind Storms and thunder storms	Injury Fatality	S&H BI/AD L&R	2	4	14 (H)	- Work within wind regulation – 6m/or analyse situation - Stop task and call manager or rigger for assistance if in doubt ask crane operator - Do not work in thunderstorms and lightning - No work to be conducted on elevated positions when raining	S&H BI/AD L&R	1	4	4 (L)	Site Agent General Foreman

BASELINE RISK ASSESSMENT

								- If possible when load is suspended lower the load to ground level - Do not work with any steel/lifting of any steel when raining					
24	Truck arrived at site	Un informed operator Restricted access to loading area	Injury Property damage	S&H BI L&R	2	4	8 (M)	- Supervisor to inspect driver's public licence and condition of truck by means of an checklist. - Truck maintenance/service record to be with driver of truck - Driver to be send back if condition are not complied with - Supervisor to escort trucks to lie-down area - Communication with truck and crane operator - Area to be identified and barricaded - If delivery truck from a supplier come to site they need to complete the proforma checklist at the warehouse and manager to sign off.	S&H BI L&R	1	4	4 (L)	Site Agent General Foreman
		Truck operator under influence of alcohol and substances	Injury Property damage	S&H BI L&R	3	4	12 (H)	- Randomly drug and alcohol test to be conducted - All truck drivers compulsory to do alcohol test prior of enter site area	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman
		Load not secure	Property damage	S&H BI L&R	3	3	9(M)	- Suppliers must be notified before hand that supplier is not allowed on site. - If delivery truck from an supplier come to site and complete proforma checklist at warehouse and their manager must sign - Signed form accompany with truck to site - Delivery truck to be inspected for secure load before entry on site.	S&H BI L&R	1	2	2 (L)	Site Agent General Foreman
		Not in position of stop blocks and PPE	Injury	S&H BI L&R	2	2	4 (L)	Spare stop blocks to be provided or operator remain in truck.	S&H BI L&R	1	1	1 (L)	Site Agent General Foreman

BASELINE RISK ASSESSMENT

								- Engine to be stopped engage park brakes and stay seated to take action if track comes in motion - Operator not allowed exiting truck without correct PPE					
		Incorrect parking on site	Injury Property damage	S&H BI L&R	3	3	9 (M)	- Supervisor to plan off load area before trucks arrived - Supervisor to eliminate that roads been close for other users - Barricade area off	S&H BI L&R	1	2	2 (M)	Site Agent General Foreman
25	Climbing on to truck to connect lifting equipment	Falling from truck	Injury	S&H BI L&R	3	4	12 (H)	- Personnel must take tripping hazard in consideration and not walk on the edge of truck load bed - Ensure 3 point contact when climbing on and off the truck - Ladder to be used when ascending or descending truck - Workers to wear safety harness attached to life line if working height exceeds 18m; lineyard on harness not exceeds 1 meter	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman Banksman/Slinger
		Caught between	Injury	S&H BI L&R	2	3	6 (M)	- Ensure loads are stable when offloading - Workers to ensure proper footing and keep their feet out from line of fire	S&H BI L&R	1	2	2 (L)	Site Agent General Foreman
		Cuts and bruises	Injury	S&H BI L&R	1	2	2 (L)	- Ensure all material is free from sharp edges and protruding objects - Gloves and safety boots to be worn	S&H BI L&R	1	1	1 (L)	Site Agent General Foreman
26	Traffic Accommodation	Failure to inform members of the public about project thru PSC and CLO Non/incorrect placing of signage	Injury Fatality Disability Property damage due to traffic accidents	S&H BI L&R	3	4	12 (H)	- Discuss Traffic Plan with PSC and CLO and inform members of the public including employees - Placement of correct signage - Pre use inspection prior of use - No damage equipment to be used - Informing members of the public of construction activities thru CLO	S&H BI L&R	1	5	5 (M)	Site Agent General Foreman

BASELINE RISK ASSESSMENT

27	Identifying and Exposing of existing services Hand excavations Setting out points (Survey)	Unsafe conditions unstable ground, incorrect identification Hand tools Incorrect setting out points (Demarcation)	Damage to services and disruption to existing services Production loss Loss of production Injury to employees	S&H BI L&R	2	2	5 4 4(L)	Pre-checks on hand tools Discuss DSTI with employees Identify and expose services Pre-checks on hand tools Warn others in close proximity when excavating using hand tools Barricade all excavations Management, surveyor and supervisor must ensure that SOP's are in accordance with approved and accepted drawings and survey results	S&H BI L&R S&H BI L&R	1	2	3 (L)	Site Agent General Foreman
28	Barricading of work area	Uncontrolled movement	Injury Disability Fatality Property damage Production loss	S&H BI L&R	2	2	5 (L)	- All excavation areas will be barricaded with solid barricading from before excavations start until after backfilling is completed - Excavation to be numbered and put on register - Daily pre-work check list to be completed and permit obtained by appointed supervisor - Signage for barricading to be installed at access to excavation	S&H BI L&R	1	2	3(L)	Site Agent General Foreman
29	Excavation with Excavator Handling and storage of excess spoil	Man and machine interface Failure of equipment Property damage Excess spoil (Rocks, stone boulders etc.) Plant lock out	Injury Fatal Property damage	HS	3	5	15H	- Discuss traffic management plan - Pre-use inspection of plant daily before use - Operator and supervisor to inspect site before actual works - Excess spoil will be removed from excavation work area with tipper - Spoil remain in work site area for backfilling purposes will be stock piled in safe area - All spoil will be stored further than 2m way from excavation edges and outside barricading - Stock pile will not cause restriction to access/egress of work area	S&H BI L&R	1	4	4 (M)	Site Agent General Foreman
30	Placing spoil	Excess material/spoil (Excavation sides collapsing)	Injury Fatality	S&H BI L&R	2	2	4 (L)	No excess spoil will be placed within 2m from excavation	S&H BI L&R	1	2	3(L)	Site Agent General Foreman

BASELINE RISK ASSESSMENT

			Property damage					- All spoil material to be removed offsite to a identified land fill - All excavation sides will be shored to prevent collapsing of materials - Spoil at edges will not exceed height of 2m and will be shored 1-2 at all times					
31	Access/egress to excavation	Poor or no access/egress at excavation	Injury	S&H BI L&R	2	2	5(L)	All excavation will be supplied with sufficient access/egress ladders for entry and exit, placed no further than 6m away from nearest workers and no further than 6m apart.	S&H BI L&R	1	2	3(L)	Site Agent General Foreman
32	Using of drilling machine Pre-use inspection Changing of drill bits	- Inspection not done and on register - Drilling machine not made safe	Injury Equipment damage	S&H BI L&R	3	3	9 (M)	- Inspection to be done by competent person - User of drilling machine to be trained and found competent - Checklist to be signed off by competent appointed supervisor - Permanent lock switch not allowed	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman

BASELINE RISK ASSESSMENT

		- Incorrect tools used - Incorrect bit fitted - Bit fitted wrong way - Damaged bit fitted						- Only trained and found competent employees to change drill bits on a drilling machine - To ensure drilling machine is unplugged - Equipment needs to be inspected prior entering site - Proper tool (Chuck key) to be use - Supervisor to ensure correct bit is provided and fitted - Bit to be inspected prior of fitment by competent and trained employee					
33	Use of drilling machine (drilling thru hard rock)	- Drilling machine used by incompetent employee - Noise - Dust - Bit coming off while working with drilling machine - Employee injured as a result of an electric shock	Injury Disability Fatality	S&H BI L&R	3	3	9 (M)	- Only trained employees allowed to work with drilling machine - Ensure drilling machine not to be left unsupervised - Ear plugs to be worn when drilling - No loose clothing to be worn - Dust mask to be used - Correct PPE to be worn at all times - Employee to ensure drill bit is attached properly and secured with suck key - Drilling machine not to be used while standing in water - Drilling machine to be inspected before use - Faulty equipment to be removed from site - No drilling operations to be done during rain	S&H BI L&R	1	3	3 (L)	Site Agent General Foreman

BASELINE RISK ASSESSMENT

34	Use of mobile compressor	- Unauthorised persons using equipment - Operator not knowing where emergency stop button is - No inspection done prior of commencement of work - Leakage of diesel/petrol - Oil decomposition - Rotating parts - Cleaning of clothes and skin with compressed air	Fire risk Injury Fatality Property damage Injury	S&H BI L&R	3	4	12 (H)	- Only authorised trained employees to use equipment - Supervisor to be present at all times - Supervisor to give employee on the job training as to the hazards and risk associated with the mobile Compressor and emergency preparedness - Only trained employees to use mobile Compressor - Inspection to be done daily by supervisor prior commencement of entering site. - Material safety data sheets must be on site and communicated to all employees by supervisor - Drip trays to be utilised - No smoking or open flames near Mobile Compressors that are in operation - Contaminated soil will be properly disposed in line with construction EMP - Disposal certificate will be kept on record - Only certified companies used to dispose of hazardous waste - Regular cleaning of cylinders and valves - Supervisor to ensure employees comply - All rotating parts must be guarded. - Supervisor to ensure that items are covered in pre start inspection - Supervisor to ensure no employees uses compressed air to dust off clothes or skin as irritation can occur - Communicate to employees in Toolbox Talk	S&H BI L&R	2	3	6 (M)	Site Agent General Foreman

Phase 1B:- Construction Of Mawa 8 & Mookgo 6 Booster Pump Stations For Electrical and Mechanical Works (Re-Advert)

[illegible]

BASELINE RISK ASSESSMENT

35	Hazardous chemical storage	- Employees not familiar with MSDS - Liquid splashing - Employees inhaling fumes - Liquid spilling from container - No information of hazardous substance signage - No fire extinguisher	Injury Disability Fatality	S&H BI L&R	3	4	12 (H)	- Obtain formal approval of flammable store from the relevant local authority and display the certificate at the entrance to the store - Flammable liquid store to conform all legal requirements - Assessment to be carried out to determine the quantity of flammable liquid kept on site - No open flames and no smoking symbolic signs to be displayed in the vicinity of flammable liquid store - All material safety data sheets (MSDS) to be available at all times - Liquid bulk storage tanks to be banded. - Each bund to be capable of containing the maximum volume of the tank +10% - Fire extinguisher to be in 10 meter radius.	S&H BI L&R	2	2	3	6 {M}	Site Agent General Foreman

Tender No: LNW 02/22/23

BABANANA WATER PROJECT RS 135 -

Phase 1B:- Construction Of Mawa 8 &
Mookgo 6 Booster Pump Stations For
Electrical and Mechanical Works (Re-Advert)

ANNEXURE 3: COMPLIANCE WITH REQUIREMENTS OF B.U.I.L.D PROGRAMME IN PROCUREMENT



01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

RE-ADVERT TENDER NO: LNW 02/22/23
PROJECT NAME: BABANANA WATER PROJECT RS 135 -
PHASE 1B: - CONSTRUCTION OF MAWA 8 & MOOKGO 6 BOOSTER
PUMP STATIONS FOR ELECTRICAL AND MECHANICAL WORKS
(RE-ADVERT)
CANCELLATION OF LNW 03/21/22

BOOK 3 OF 3: DRAWINGS

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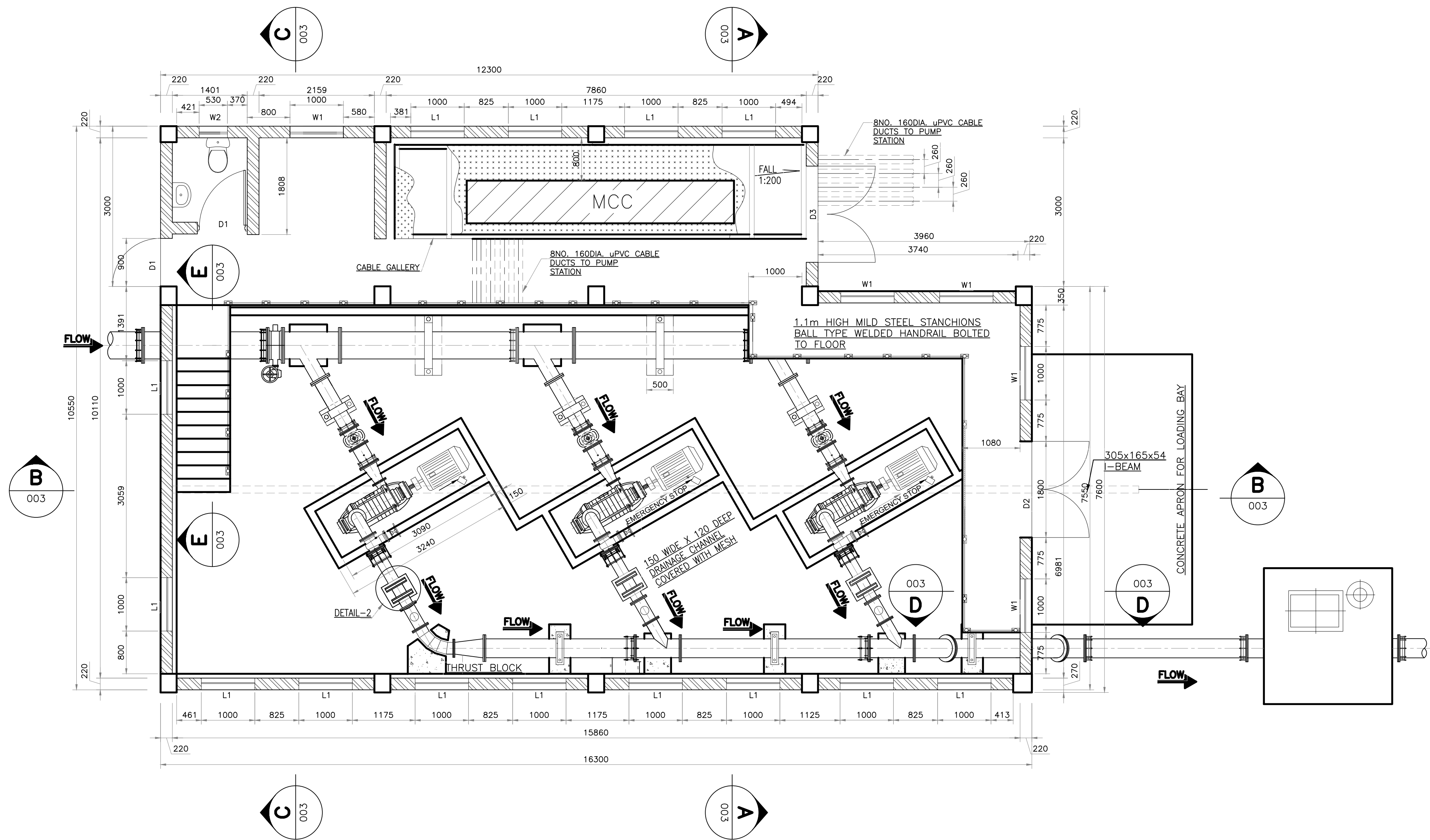
CLOSING DATE: 15 DECEMBER 2022 @ 11:00 AM

BY:  **TANGO'S CONSULTANTS**
A division of Tango's Group (PTY) Limited

LIST OF DRAWINGS			
DESCRIPTION	REV NO.	SHEET	REG NO.
PUMP STATION AT MAWA 8			
LIST OF DRAWINGS	01	1 OF 1	C1201-1590
PUMP STATION AT MAWA 8 SITE LAYOUT PLAN	01	1 OF 1	C1201-1600
PUMP STATION AT MAWA 8 LAYOUT PLAN (UPPER LEVEL)	01	1 OF 7	C1201-1601
PUMP STATION AT MAWA 8 LAYOUT PLAN (LOWER LEVEL)	01	2 OF 7	C1201-1602
PUMP STATION AT MAWA 8 SECTIONS	01	3 OF 7	C1201-1603
PUMP STATION AT MAWA 8 PIPE ITEM LIST	01	7 OF 7	C1201-1607
AIR VALVE CHAMBER (SINGLE PIPE)	01	1 OF 1	C1201-1002
FLOW METER CHAMBER (SINGLE PIPE)	01	1 OF 1	C1201-1285
ELECTRICAL DRAWINGS			
AUTOMATIC CONTROL CIRCUIT	02	1 OF 1	C1201-1670
BLOWER 1 POWER AND CONTROL CIRCUIT	02	1 OF 1	C1201-1671
BLOWER 2 POWER AND CONTROL CIRCUIT	02	1 OF 1	C1201-1672
ELECTRICAL SINGLE LINE DRAWING	02	1 OF 1	C1201-1673
LIGHTING AND SOCKET	02	1 OF 1	C1201-1674
MANUEL/MAINTENANCE MODE CONTROL CIRCUIT 1	02	1 OF 1	C1201-1675
MANUEL/MAINTENANCE MODE CONTROL CIRCUIT 2	02	1 OF 1	C1201-1676
MANUEL/MAINTENANCE MODE CONTROL CIRCUIT 3	02	1 OF 1	C1201-1677
CONTROL CIRCUIT DIAGRAMS (NO.1)	02	1 OF 1	C1201-1678
CONTROL CIRCUIT DIAGRAMS (NO.2)	02	1 OF 1	C1201-1679
P&ID	02	1 OF 1	C1201-1680
SUMP PUMP1 POWER AND CONTROL CIRCUITS	02	1 OF 1	C1201-1681
SUMP PUMP2 POWER AND CONTROL CIRCUITS	02	1 OF 1	C1201-1682
TRUNKING AND SLEEVING LAYOUT	01	1 OF 1	C1201-1691

LIST OF DRAWINGS			
DESCRIPTION	REV NO.	SHEET	REG NO.
PUMP STATION AT MOOKGO 6			
SITE LAYOUT PLAN	01	1 OF 2	C1201-1608
PUMP STATION AT MOOKGO 6 LAYOUT PLAN (LOWER LEVEL)	01	1 OF 2	C1201-1611
PUMP STATION AT MOOKGO 6 SECTIONS	01	1 OF 2	C1201-1612
PUMP STATION AT MOOKGO 6 PIPE ITEM LIST	01	1 OF 2	C1201-1616
FLOW METER CHAMBER	01	1 OF 1	C1201-1630
ELECTRICAL DRAWINGS			
ELECTRICAL SINGLE LINE DAIGRAM	02	1 OF 1	C1201-1683
ELECTRICAL EQUIPMENT LAYOUT	02	1 OF 1	C1201-1684
ELECTRICAL SMALL POWER	02	1 OF 1	C1201-1685
ELECTRICAL LIGHTING LAYOUT	02	1 OF 1	C1201-1686
ELECTRICAL EARTHMAT	02	1 OF 1	C1201-1687
INSTRUMENTAL LAYOUT	02	1 OF 1	C1201-1688
INSTRUMENTAL CABLING	02	1 OF 1	C1201-1689
TRUNKING AND SLEEVING LAYOUT	01	1 OF 1	C1201-1690

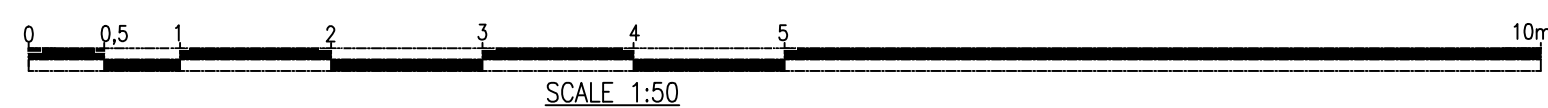
 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited		122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		<table><tr><th colspan="5">REVISION</th></tr><tr><th>MOD No</th><th>DATE</th><th>DESCRIPTION</th><th>FOR</th><th></th></tr><tr><td>01</td><td>18/03/21</td><td>ISSUED FOR CONSTRUCTION</td><td></td><td></td></tr><tr><td>02</td><td>10/11/22</td><td>DRAWINGS ADDED TO LIST</td><td></td><td></td></tr></table>			REVISION					MOD No	DATE	DESCRIPTION	FOR		01	18/03/21	ISSUED FOR CONSTRUCTION			02	10/11/22	DRAWINGS ADDED TO LIST			 LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800																																						
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CHECKED: DATE: DESIGN: CLEMENCE MURINGA DRAWN: AMBER PIETERSEN		ENGINEER: DATE: N/A EXTERNAL APPROVAL: DATE:		DEPARTMENT OF WATER AND SANITATION  49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200																																																													
N/A CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE: TANGO'S DWS No: C1201-1590 FILE No: C1201-1590 DATE: 18/03/2021																																																																	
<table><tr><th colspan="10">GLeWaP-PHASE 1:</th></tr><tr><th colspan="10">BABANANA PIPELINE PROJECT RS 135</th></tr><tr><th colspan="10">WORK PACKAGE 11: XIHOKO BOOSTER PUMP STATIONS DRAWING LIST</th></tr><tr><td>PROVINCE:</td><td>LIMPOPO</td><td>DISTRICT:</td><td>MOPANI</td><td>KEYCODES:</td><td>-</td><td>-</td><td>-</td><td>-</td><td>OTHER</td></tr><tr><td>LOCALITY No:</td><td></td><td>TENDER/ CONTRACT No:</td><td>8/1/3/50</td><td>SHEET</td><td colspan="4">1 OF 1</td><td>REV.</td></tr><tr><td colspan="4">CALCULATION FILE:</td><td>REG. No.</td><td colspan="4">C1201-1590</td><td>02</td></tr></table>						GLeWaP-PHASE 1:										BABANANA PIPELINE PROJECT RS 135										WORK PACKAGE 11: XIHOKO BOOSTER PUMP STATIONS DRAWING LIST										PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER	LOCALITY No:		TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1				REV.	CALCULATION FILE:				REG. No.	C1201-1590				02
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CALCULATION FILE:				REG. No.	C1201-1590				02																																																								



PUMP HOUSE LAYOUT PLAN UPPER LEVEL
SCALE 1:50

GENERAL NOTES:
UNLESS OTHERWISE NOTED, ALL CONCRETE WORK TO CONFORM TO THE FOLLOWING:

1. STANDARD SPECIFICATIONS:
 - 1.1 SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
2. TOLERANCES:
 - 2.1 SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE STATED)
3. CONCRETE GRADE:
 - 3.1 CUBE STRENGTH IN MPa AT 28 DAYS
 - 3.2 MASS CONCRETE:
 - 3.2.1 BLINDING/SCREED: 10 MPa/41mm
 - 3.2.2 FOUNDATIONS: 15 MPa/19mm
 - 3.4 ALL OTHER STRUCTURES: 25 MPa/19mm
4. CONCRETE FINISH:
 - 4.1 FORMWORK:
 - 4.1A "ROUGH" - WHERE FACE IS NOT EXPOSED
 - 4.1B "SMOOTH" - WHERE FACE IS EXPOSED
 - 4.1C SMOOTH OFF-SHUTTER TO ALL EXPOSED SURFACES.
 - 4.1D CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
 - 4.2 FLOAT:
 - 4.2A SMOOTH WOOD TO ALL EXPOSED SURFACES.
5. GROUT GRADE:
 - 5.1 CEMENTITIOUS, NON-SHRINK, SABS APPROVED, MINIMUM STRENGTH 40 MPa
6. 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS
7. 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200 TO BE PROVIDED UNDER ALL GROUND SLABS.
8. ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
9. ANY OVER-BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEER'S INSTRUCTIONS.
10. FOUNDING MATERIAL SPECIFICATION & DESIGN BEARING PRESSURE
 - 10.1 AN ALLOWABLE BEARING PRESSURE OF 250 KPa HAS BEEN USED IN THE DESIGN OF ALL FOUNDATIONS.
 - 10.2 ENGINEERING BACKFILL TO BE CONSTRUCTED WITH SELECTED MATERIAL COMPACTED TO 98 % MOD AASHTO. IN 150 LAYERS WITH OPTIMUM MOISTURE
 - 10.3 ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
11. THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
12. GENERAL INSTRUCTIONS:
 - 12.1 DO NOT SCALE, IF IN DOUBT ASK.
 - 12.2 ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE
- AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
13. SI UNITS:
 - 13.1 DIMENSIONS IN MILLIMETRES.
 - 13.2 CO-ORDINATES AND LEVELS IN METRES.
14. ALL CO-ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
15. ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L. (ABOVE MEAN SEA LEVEL).



TANGO'S CONSULTANTS <i>A division of Tango's Group (Pty) Limited</i>		122 DIEMEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900
CHECKED:	DATE:	DESIGN: CLEMENCE MURINGA DRAWN: ITUMELENG POOE
ENGINEER:	DATE:	N/A
EXTERNAL APPROVAL:	DATE:	
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):
TANGO'S ENG No: C1201-1601	FILE No: C1201-1601	DATE: 01/04/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
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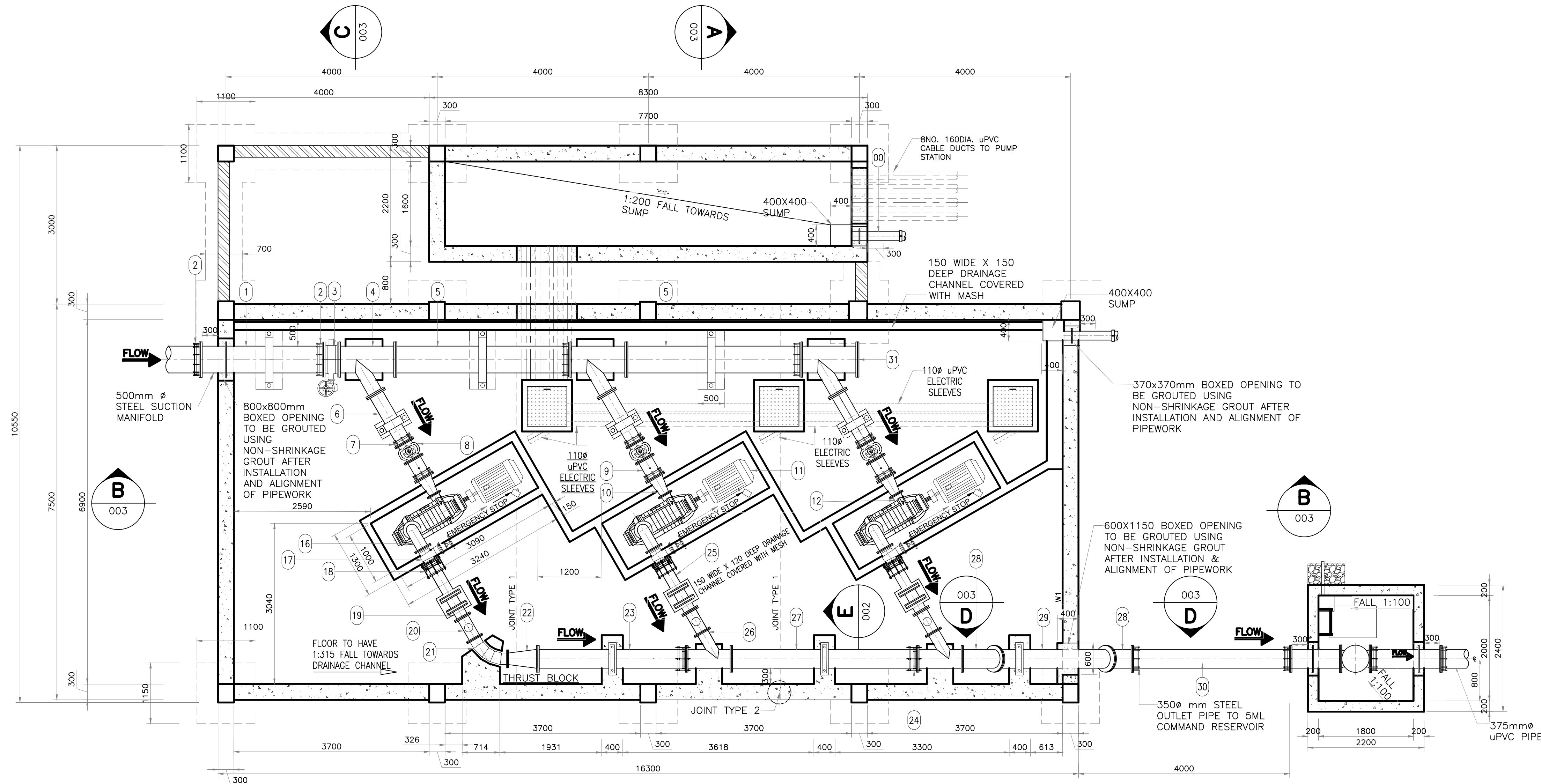
LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLWaP PHASE 1:									
BABANANA PIPELINE PROJECT-RS 135									
WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION MAWA 8 PUMP STATION LAYOUT PLAN (UPPER LEVEL)									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	1 OF 7	REG. No.	C1201-1601	REV.	01
CALCULATION FILE:									

3 OF 7	SECTIONS	C1201-1603
1 OF 1	SITE LAYOUT PLAN	C1201-1600
3 OF 3	DRAWING LIST	C1201-902
1 OF 7	REINFORCEMENT	C1201-1650
SHEET	DESCRIPTION	REG. No
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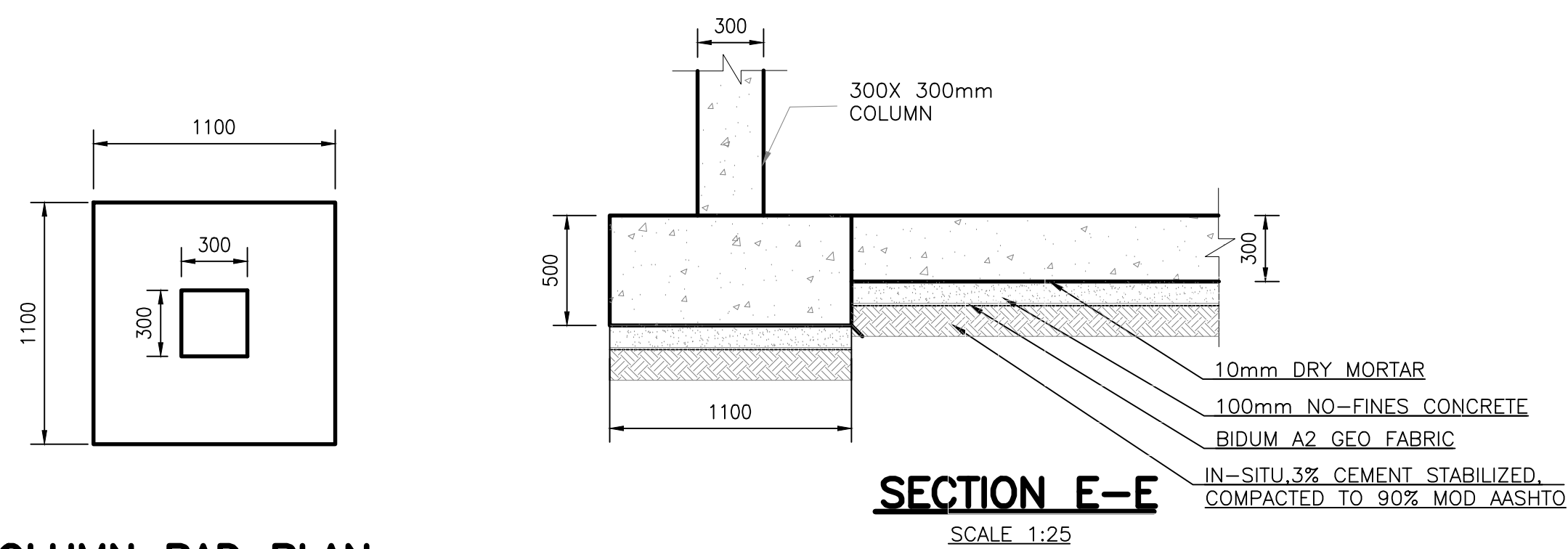
GENERAL NOTES:
UNLESS OTHERWISE NOTED, ALL CONCRETE WORK TO CONFORM TO THE FOLLOWING:

- STANDARD SPECIFICATIONS:
 - SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
- TOLERANCES:
 - SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE STATED)
- CONCRETE GRADE:
 - CUBE STRENGTH IN MPa AT 28 DAYS
 - MASS CONCRETE:
 - BLINDING/SCREED: 10 MPa/41mm
 - FOUNDATIONS: 25 MPa/19mm
 - ALL OTHER STRUCTURES: 25 MPa/19mm
 - CONCRETE FINISH: 25 MPa/19mm
- FORMWORK:
 - 4.1A "ROUGH" - WHERE FACE IS NOT EXPOSED
 - 4.1B "SMOOTH" - WHERE FACE IS EXPOSED.
 - 4.1C SMOOTH OFF-SHUTTER TO ALL EXPOSED SURFACES.
 - 4.1D CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
- FLOAT:
 - 4.2A SMOOTH WOOD TO ALL EXPOSED SURFACES.
- GROUT GRADE:
 - 5.1 CEMENTITIOUS, NON-SHRINK, SABS APPROVED, MINIMUM STRENGTH 40 MPa
- 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS
- 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200 TO BE PROVIDED UNDER ALL GROUND SLABS.
- ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
- ANY OVER-BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEERS INSTRUCTIONS.
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 - 10.3 ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
- THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
- GENERAL INSTRUCTIONS:
 - 12.1 DO NOT SCALE, IF IN DOUBT ASK.
 - 12.2 ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- SI UNITS:
 - 13.1 DIMENSIONS IN MILLIMETRES.
 - 13.2 CO-ORDINATES AND LEVELS IN METRES.
- ALL CO-ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
- ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L (ABOVE MEAN SEA LEVEL).



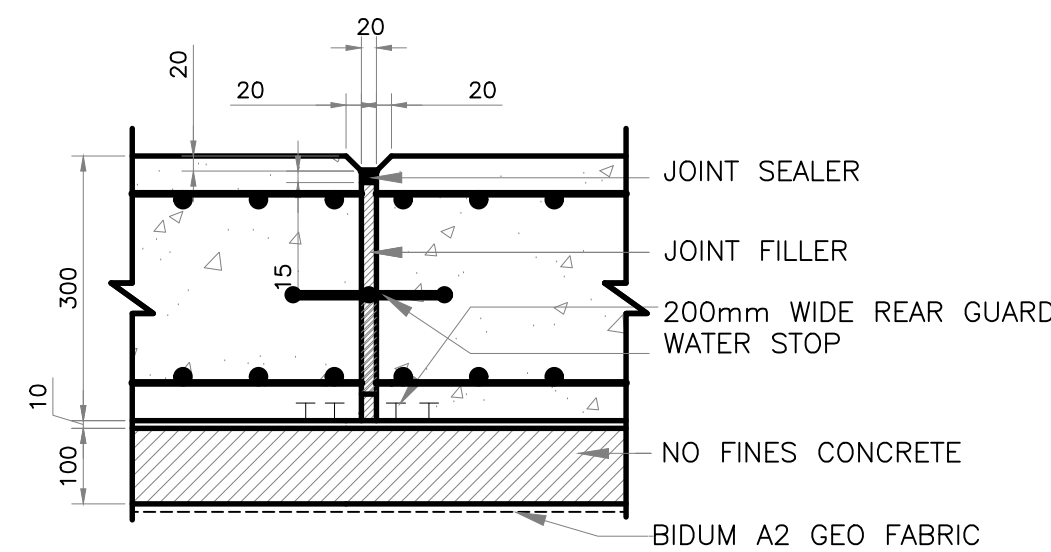
PUMP HOUSE LAYOUT PLAN (LOWER LEVEL)

SCALE 1:50



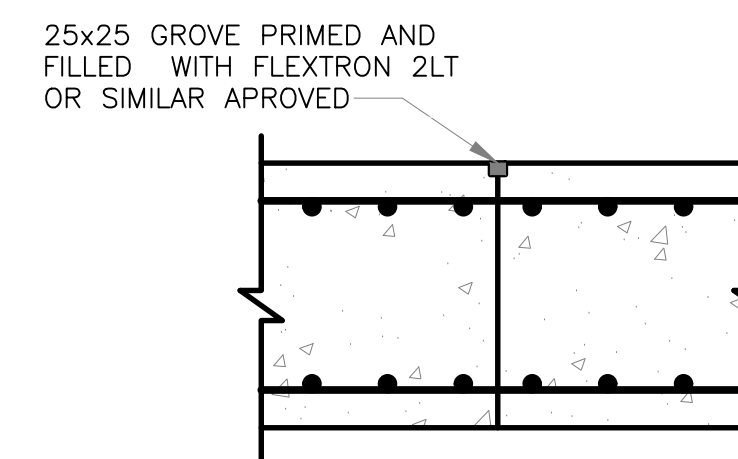
COLUMN PAD PLAN

SCALE 1:25



JOINT TYPE 1

SCALE 1:10



JOINT TYPE 2

SCALE 1:10

1 OF 1	SITE LAYOUT PLAN	C1201-1600
3 OF 3	DRAWING LIST	C1201-902
SHEET	DESCRIPTION	REV. No
	REFERENCES	

GLWaP PHASE 1:

BABANANA PIPELINE PROJECT-RS 135

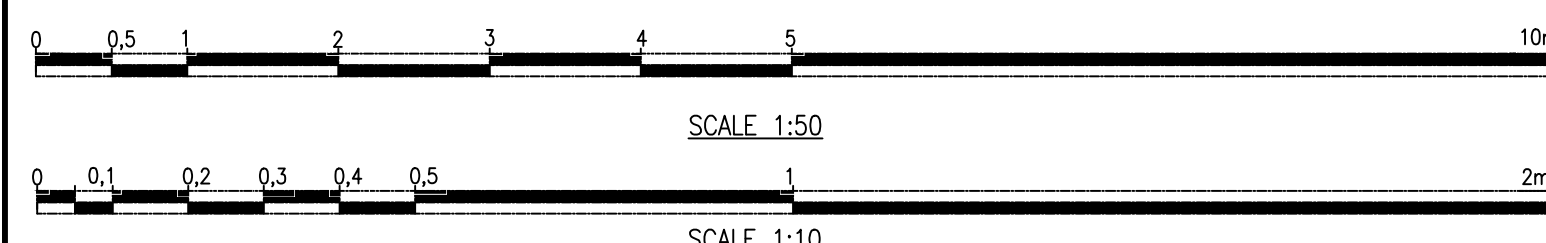
**WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION
MAWA 8 PUMP STATION
LAYOUT PLAN (LOWER LEVEL)**

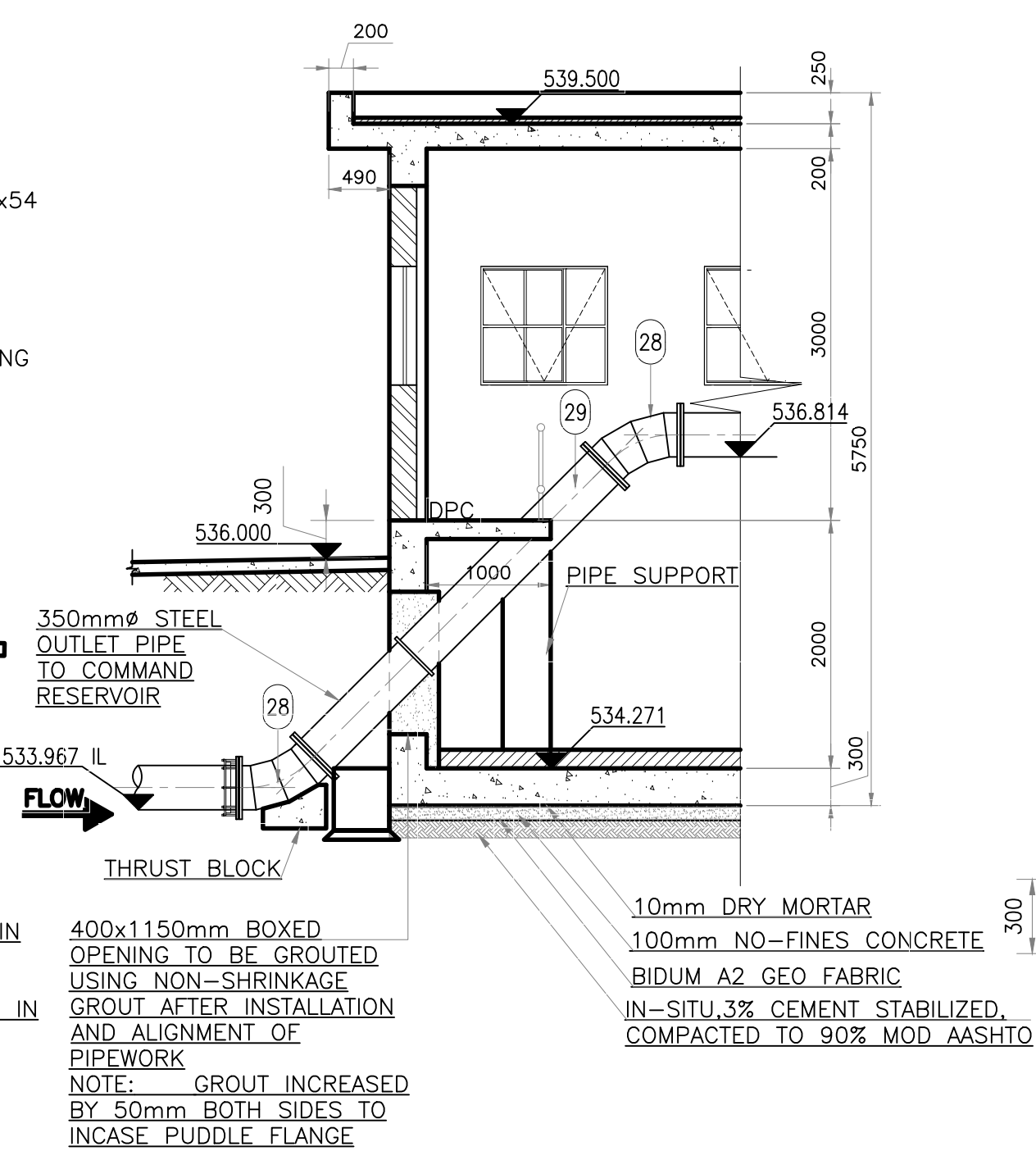
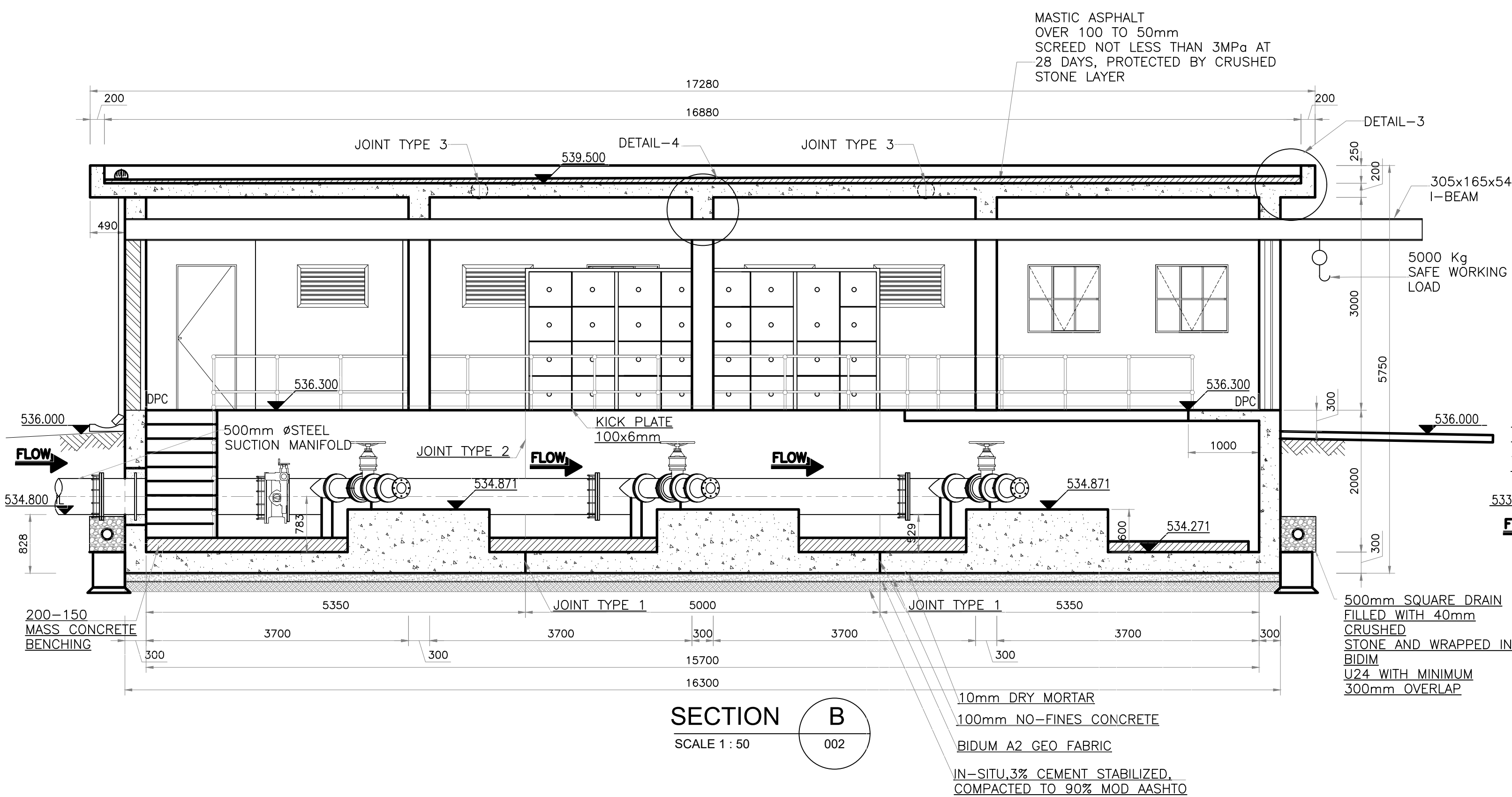
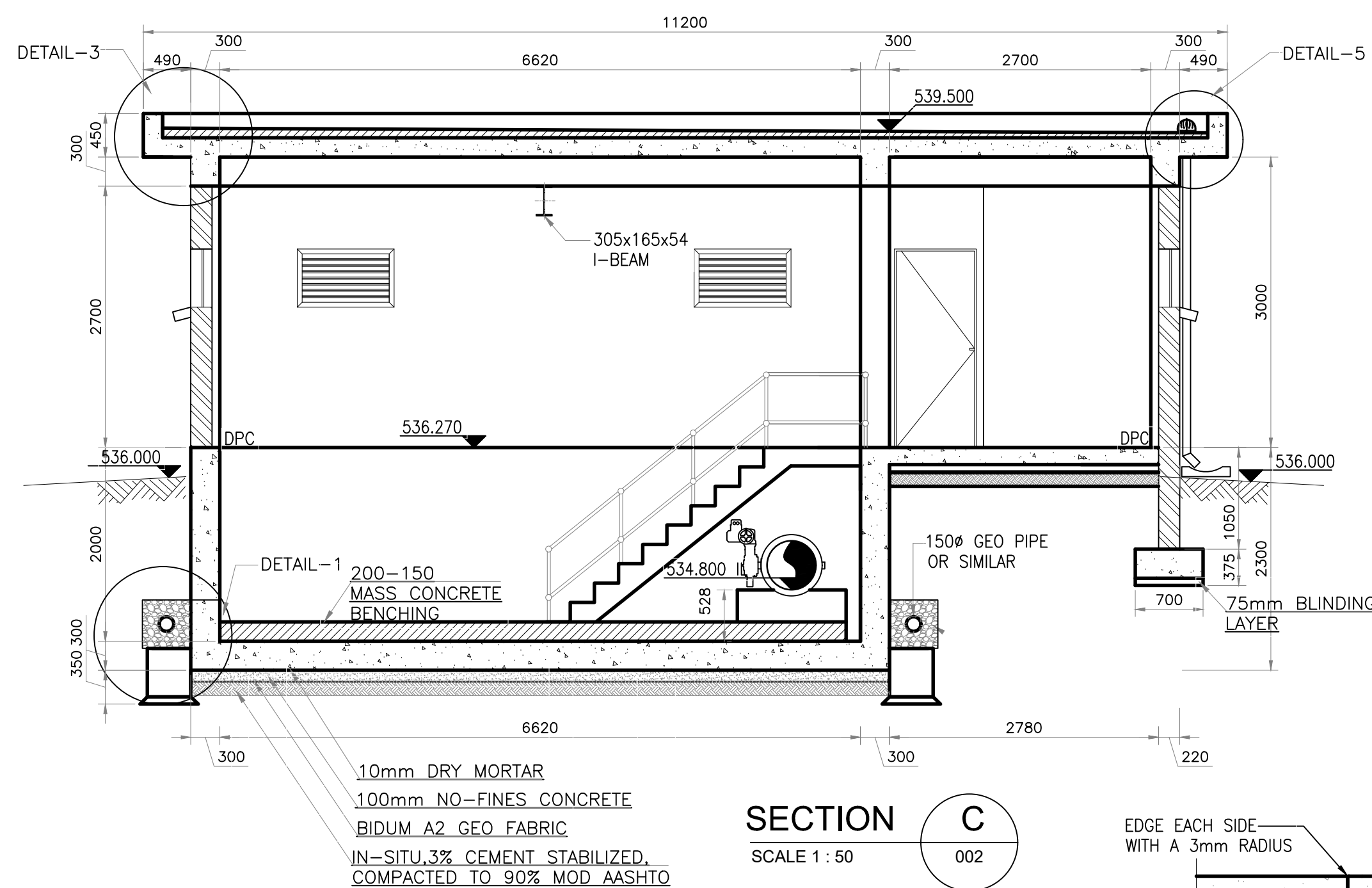
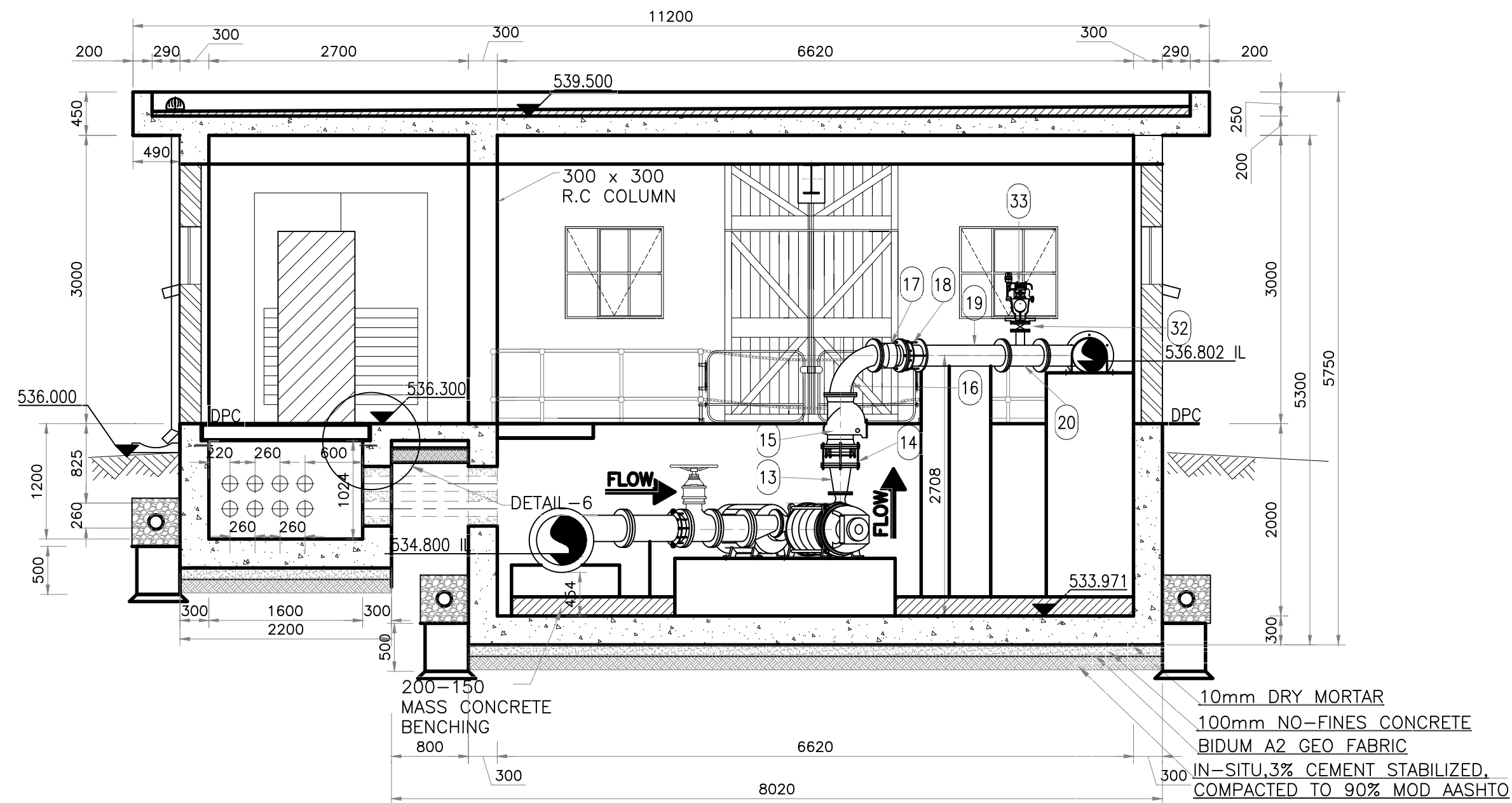
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LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	2 OF 7	REG. No.	C1201-1602	REV.	01	
CALCULATION FILE:										

TANGO'S CONSULTANTS A division of Tango's Group (Pty) Limited		122 DIEMER STREET BENDOR, POKOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900
CHECKED:	DESIGN: CLEMENCE MURINGA	
DATE:	DRAWN: ITUMELENG POOE	
ENGINEER:	N/A	DATE:
EXTERNAL APPROVAL:		DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE: DIRECTOR (Pr. Eng):	DATE:
TANGO'S ENG No: C1201-1602	FILE No: C1201-1602	DATE: 02/04/2021

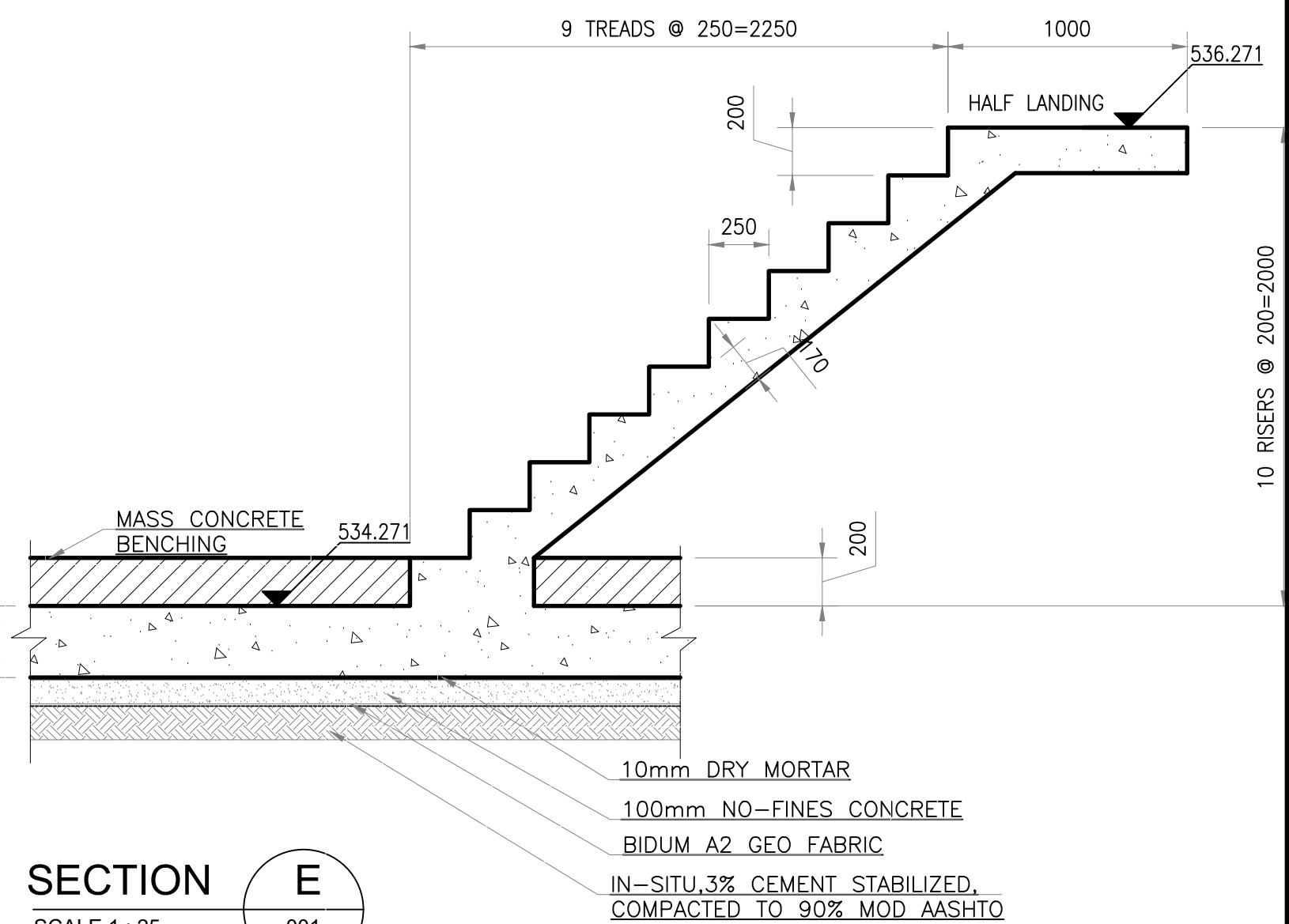
REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	01/04/21	ISSUE FOR CONSTRUCTION	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

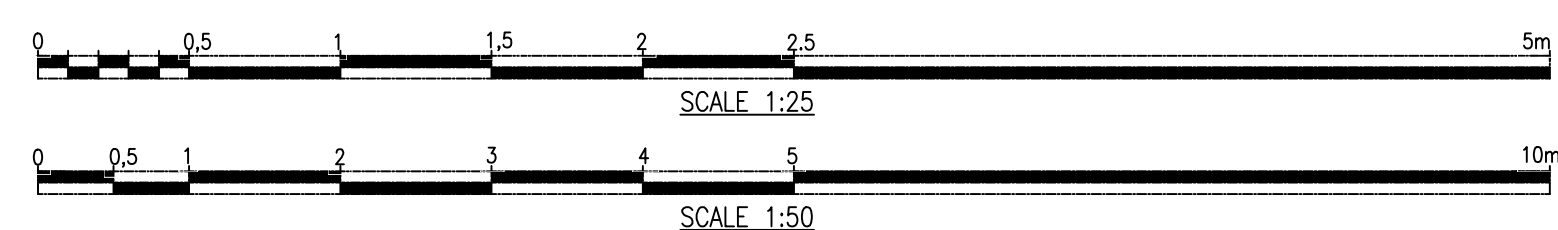




JOINT TYPE 3
SCALE 1:10



- GENERAL NOTES:**
UNLESS OTHERWISE NOTED, ALL CONCRETE WORK TO CONFORM TO THE FOLLOWING:
- STANDARD SPECIFICATIONS:
 - SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
 - TOLERANCES:
 - SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE STATED)
 - CONCRETE GRADE:
 - CUBE STRENGTH IN MPa AT 28 DAYS
 - MASS CONCRETE:
 - BLINDING/SCREED: 10 MPa/41mm
 - FOUNDATIONS: 15 MPa/19mm
 - ALL OTHER STRUCTURES: 25 MPa/19mm
 - CONCRETE FINISH: 25 MPa/19mm
 - FORMWORK:
 - "ROUGH" - WHERE FACE IS NOT EXPOSED
 - "SMOOTH" - WHERE FACE IS EXPOSED
 - SMOOTH OFF-SHUTTER TO ALL EXPOSED SURFACES.
 - CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
 - FLOAT:
 - SMOOTH WOOD TO ALL EXPOSED SURFACES.
 - GROUT GRADE:
 - CEMENTITIOUS, NON-SHRINK, SABS APPROVED, MINIMUM STRENGTH 40 MPa
 - 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS
 - 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200 TO BE PROVIDED UNDER ALL GROUND SLABS.
 - ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
 - ANY OVER-BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEERS INSTRUCTIONS.
 - FOUNDING MATERIAL SPECIFICATION & DESIGN BEARING PRESSURE
 - AN ALLOWABLE BEARING PRESSURE OF 250 kPa HAS BEEN USED IN THE DESIGN OF ALL FOUNDATIONS.
 - ENGINEERING BACKFILL TO BE CONSTRUCTED WITH SELECTED MATERIAL COMPACTED TO 98 % MOD AASHTO, IN 150 LAYERS WITH OPTIMUM MOISTURE
 - ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
 - THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
 - GENERAL INSTRUCTIONS:
 - DO NOT SCALE, IF IN DOUBT ASK.
 - ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE
 - AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - SI UNITS:
 - DIMENSIONS IN MILLIMETRES.
 - CO-ORDINATES AND LEVELS IN METRES.
 - ALL CO-ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
 - ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L. (ABOVE MEAN SEA LEVEL).



TANGO'S CONSULTANTS <i>A division of Tango's Group (Pty) Limited</i>		122 DIEMEER STREET BENDOR, POLKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900
CHECKED:	DATE:	DESIGN: CLEMENCE MURINGA DRAWN: ITUMELENG POOE N/A
ENGINEER:	DATE:	EXTERNAL APPROVAL: DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng): DATE:
TANGO'S ENG No:	FILE No:	C1201-1603
C1201-1603	DATE:	20/07/2020

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	01/04/21	ISSUE FOR CONSTRUCTION	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLKWANE, 0700 P. BAG X9522 POLKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLKWANE, 0700 P. BAG X9506 POLKWANE TEL: (015) 290 1200	

GLWaP PHASE 1:			
BABANANA PIPELINE PROJECT-RS 135			
WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION MAWA 8 PUMP STATION SECTIONS			
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.	
CALCULATION FILE:		KEYCODES:	- - - - - OTHER
		SHEET	3 OF 7
		REG. No.	C1201-1603
		REV.	01

7 OF 7	PIPE SCHEDULE	C1201-1607
1 OF 1	SITE LAYOUT PLAN	C1201-1600
3 OF 3	DRAWING LIST	C1201-902
SHEET	DESCRIPTION	REG. No
	REFERENCES	

PIPES AND SPECIALS: CONNECTION AT BOOSTER PUMP									
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
1	1	500ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PUDDLE FLANGE AS SHOWN PN 16		3.1	3.2	3.3
2	4	500ø			FLANGE ADAPTOR PN 16				
3	1	500ø			BUTTERFLY VALVE, FLANGED, RIGHT HAND ACTUATOR LEFT HAND PROJECTION ON FLOW DIRECTION PN 16				
4	3	500ø TO 250ø	STEEL GRADE X42	4.5	60° UNEQUAL LATERAL FLANGED PN 16		3.1	3.2	3.3
5	2	500ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUITE ON SITE PN 16		3.1	3.2	3.3
6	3	250ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED AND THE OTHER PLAIN CUT TO SUIT ON SITE PN 16		3.1	3.2	3.3
7	6	250			FLANGE ADAPTOR PN 16				
8	3	250			RESILIENT SEAL GATE VALVE, FLANGED. PN 16				
9	3	250ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,OTHER PLAIN FOR CUTTING TO SUITE ON SITE PN 16		3.1	3.2	3.3
10	3	250ø TO 150ø	STEEL GRADE X42	4.5	ECCENTRIC REDUCER BOTH ENDS, FLANGED, PN 16		3.1	3.2	3.3
11	3				ELECTRIC PUMP DRIVE MOTOR				
12	3				PUMP				
13	3	200ø TO 125ø	STEEL GRADE X42	4.5	CONCENTRIC REDUCER, FLANGED PN 40		3.1	3.2	3.3
14	3	200ø			ANCHORED FLANGE ADAPTOR. PN 40				
15	3	200ø			NON RETURN VALVE, FLANGED PN 40				
16	3	200ø	STEEL GRADE X42	4.5	90° MEDIUM RADIUS ELBOW, FLANGED PN 40		3.1	3.2	3.3
17	3	200ø			WEDGE GATE VALVE, FLANGED PN 40				
18	3	200ø			ANCHORED FLANGE ADAPTOR PN 40				
19	1	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PN 40		3.1	3.2	3.3

PIPES AND SPECIALS: CONNECTION AT BOOSTER PUMP									
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
20	3	200ø TO 80ø	STEEL GRADE X42	4.5	REDUCING TEE, FLANGED PN40		3.1	3.2	3.3
21	1	200ø	STEEL GRADE X42	4.5	MEDIUM RADIUS 60° BEND BOTH ENDS FLANGED. PN 40		3.1	3.2	3.3
22	1	200ø TO 350ø	STEEL GRADE X42	4.5	CONCENTRIC REDUCER, FLANGED PN 40		3.1	3.2	3.3
23	1	350ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PN40		3.1	3.2	3.3
24	2	350ø			ANCHORED FLANGE ADAPTOR PN40				
25	2	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PN40		3.1	3.2	3.3
26	2	200ø TO 350ø	STEEL GRADE X42	4.5	60° LATERAL, FLANGED PN 40		3.1	3.2	3.3
27	1	350ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PN40		3.1	3.2	3.3
28	2	350ø	STEEL GRADE X42	4.5	MEDIUM RADIUS 45° BEND, FLANGED. PN 40		3.1	3.2	3.3
29	1	350ø	STEEL GRADE X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED PUDDLE FLANGE AS SHOWN PN40		3.1	3.2	3.3
30	1	350ø	STEEL GRADE X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED, PN 40		3.1	3.2	3.3
31	1	500ø			BLANK FLANGE PN 16				
32	3	80ø			BALL VALVE FULLPORT, FLANGED PN 40				
33	3	80ø			AIR VALVE DOUBLE ORIFICE, FLANGED PN 40				

NOTES:

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3 TABLE 2 500/3 WORKING PRESSURE (NP) : 1 600 kpa. FLANGES TO BE DRILLED OFF-CENTRE AND TO BE FLAT JOINT FACES MACHINED M11.
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900 CLAUSES 7 AND 8.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 – 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT:PICKLE AND PASSIVATE AFTER MANUFACTURE
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, SECTION C1.
- CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 7.2 m³
CLASS 15/19 = 1.1m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
- GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DETAIL"Y" AND DWS 9 900. DRG 164 823/12
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL"Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS(LETTERING: 20mm HIGH)AND VALVE NUMBERS(DETAILS"A"AND"B")BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - PIPE ITEMS SPECIFIED FOR CUTTING TO BE MANUFACTURED WITH 40% EXTRA LENGTH

5 OF 7	SECTIONS	C1201-1603
1 OF 1	SITE LAYOUT PLAN	C1201-1600
5 OF 3	DRAWING LIST	C1201-902
SHEET	DESCRIPTION	REG. No
REFERENCES		

GLeWaP PHASE 1:

BABANANA PIPELINE PROJECT-RS 135

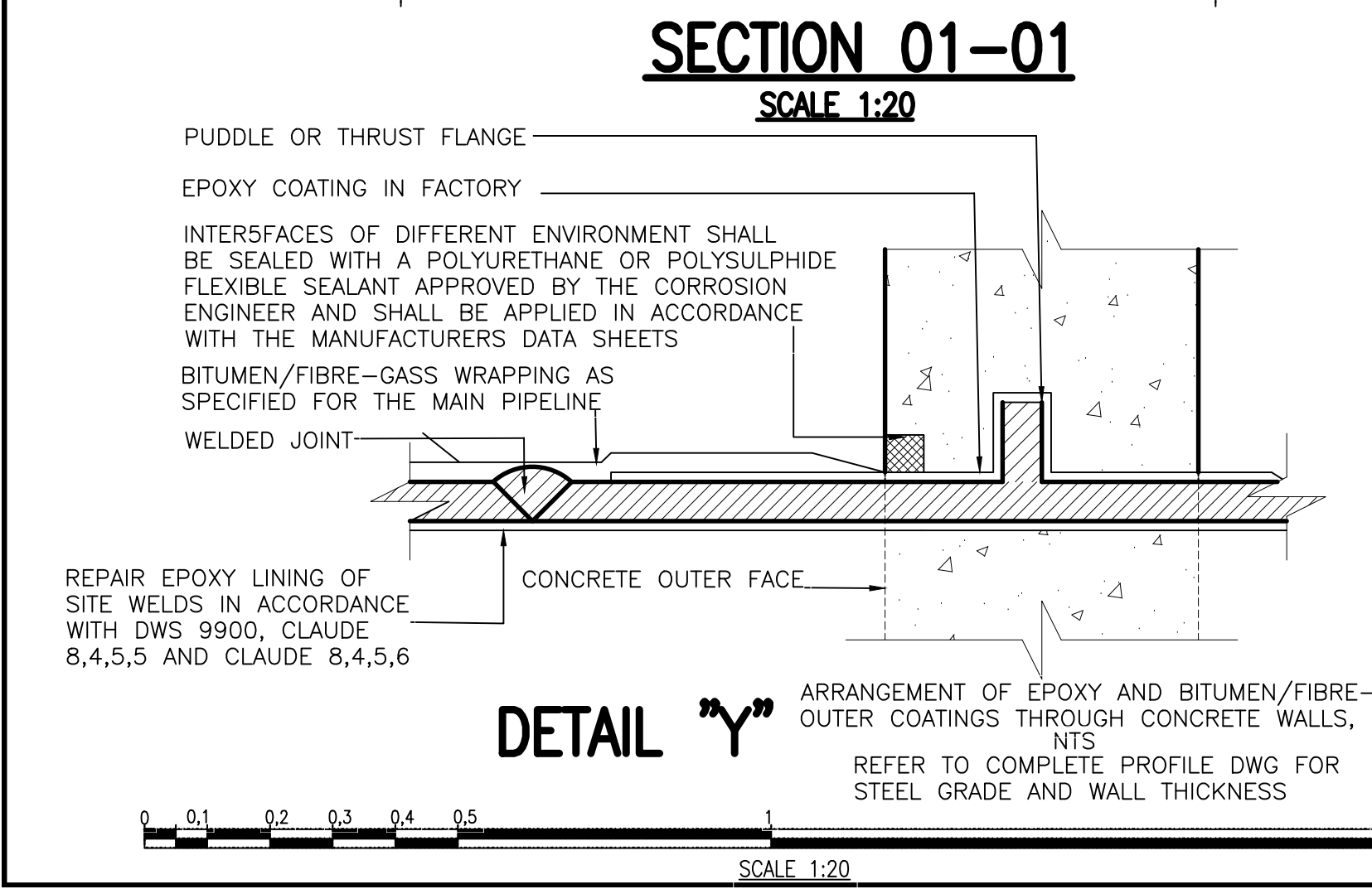
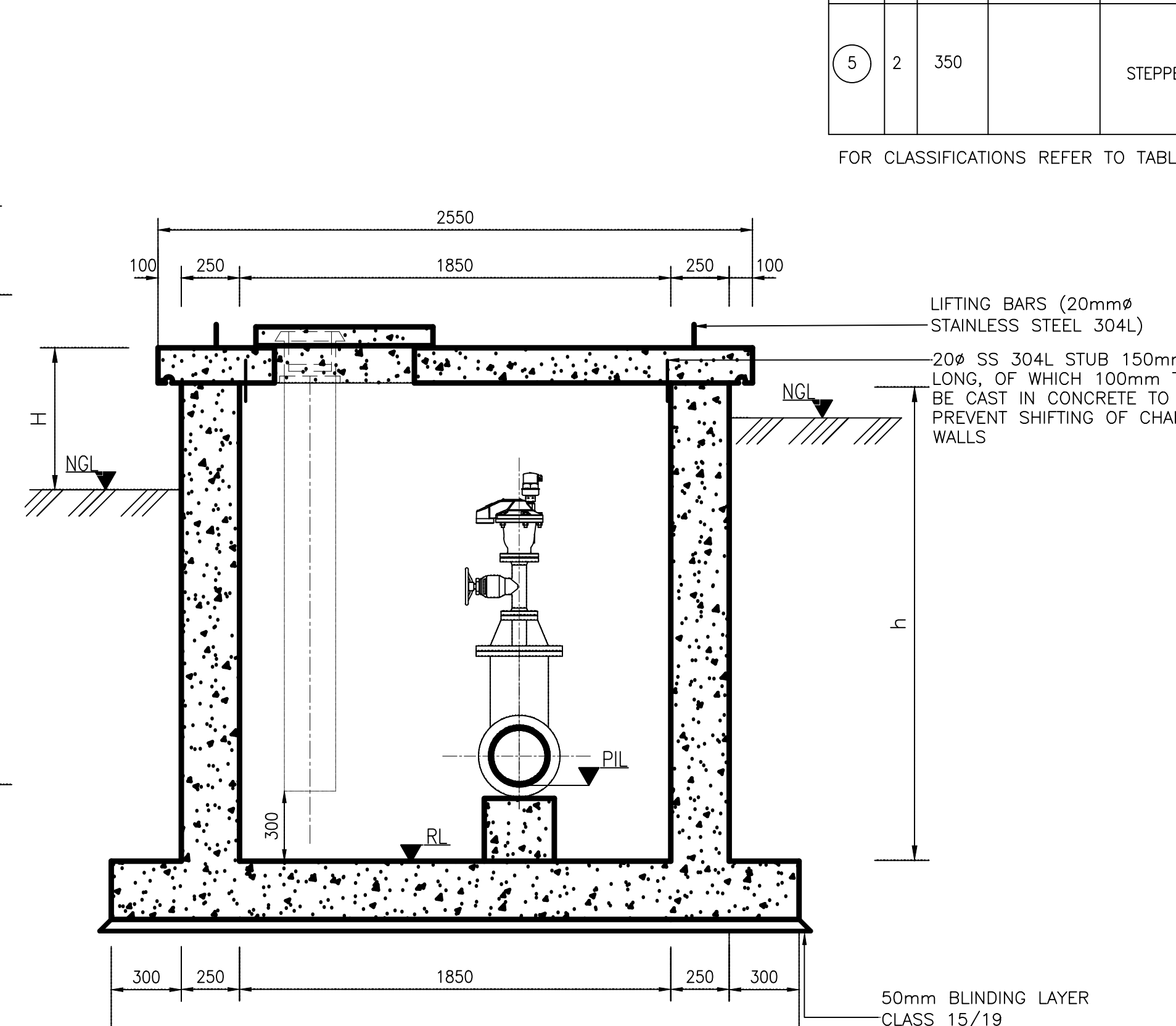
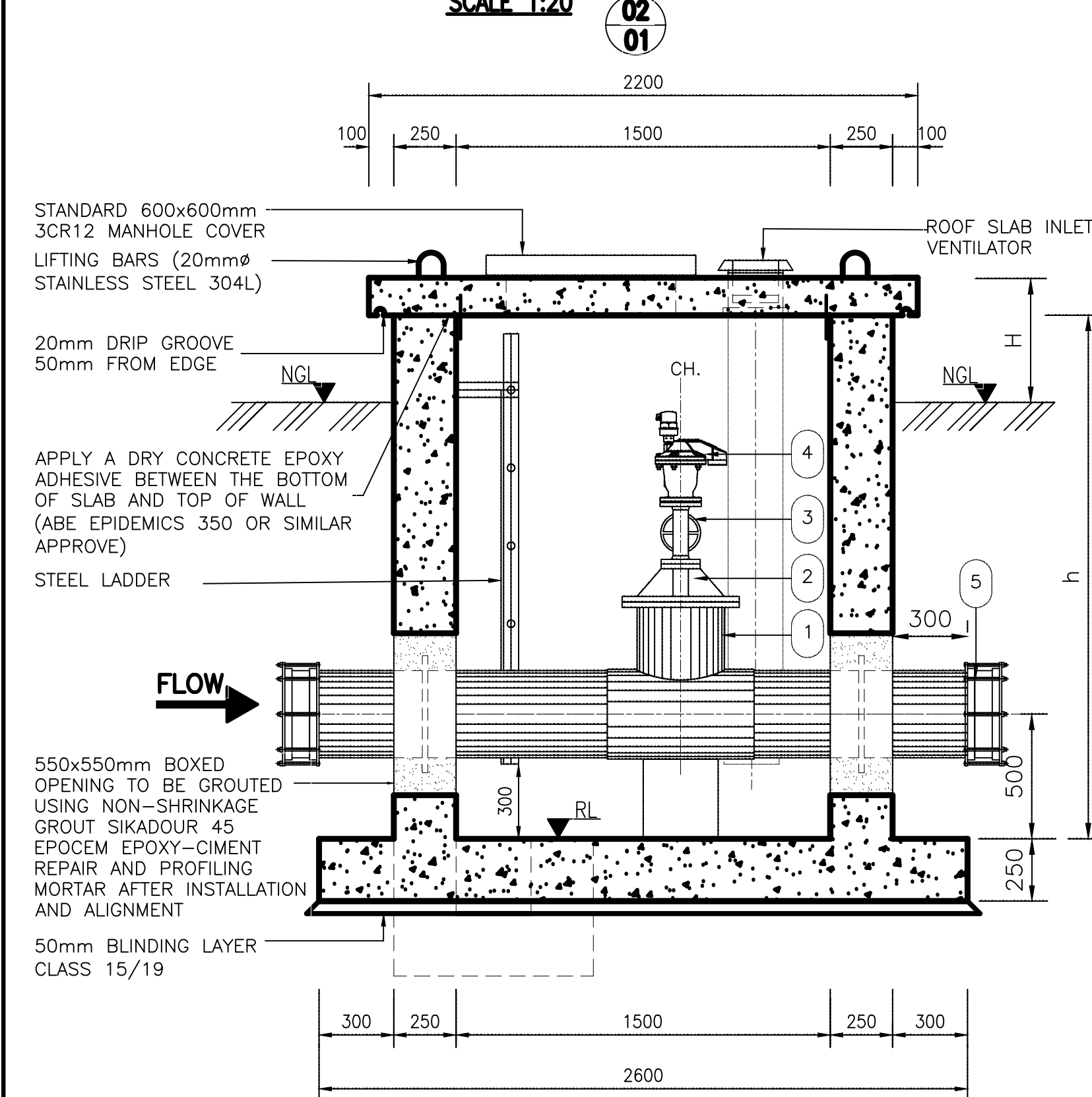
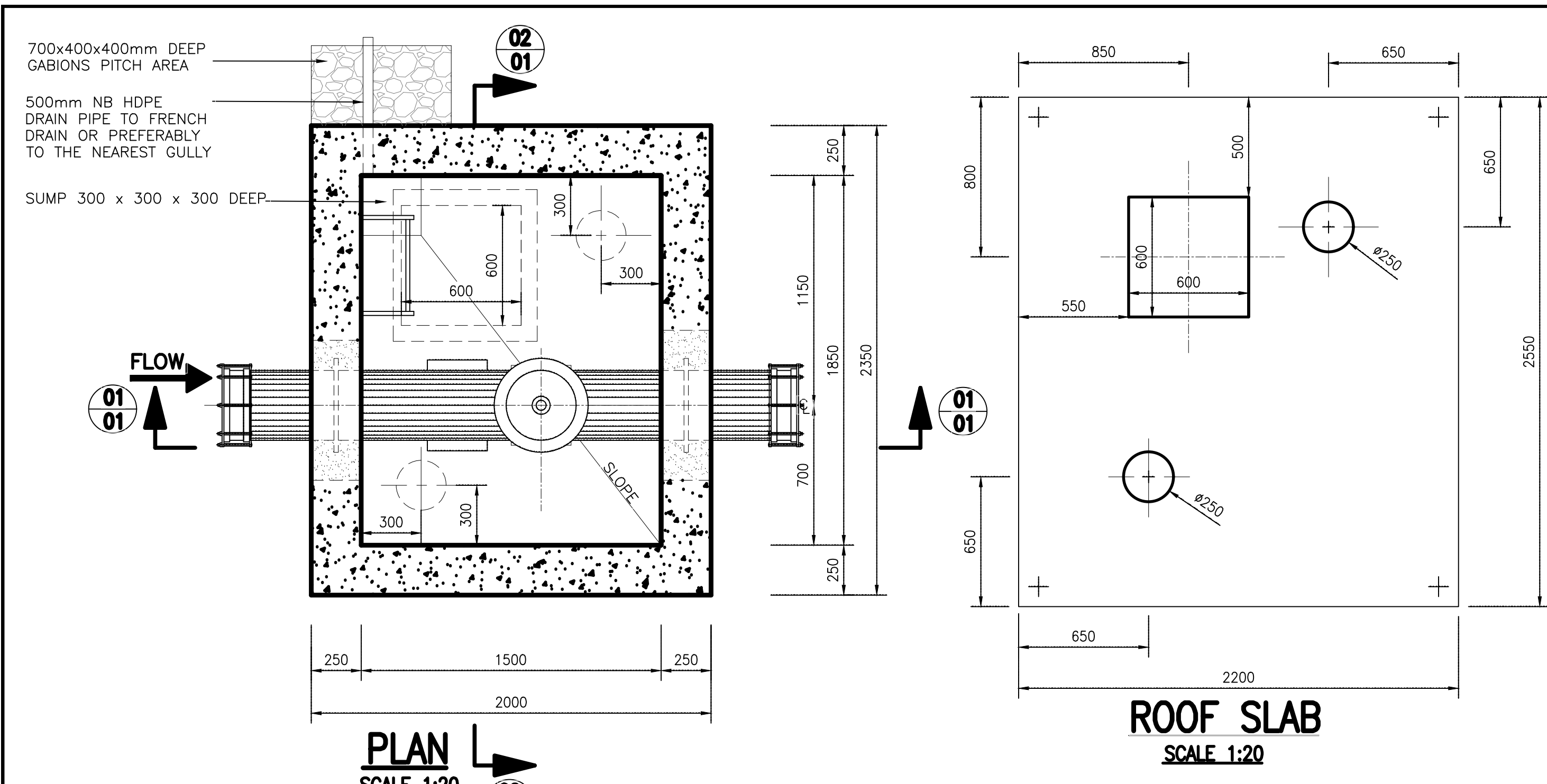
WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION
MAWA 8 PUMP STATION
PIPE ITEM LIST

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	7 OF 7	REG. No.	C1201-1607	REV.	01
CALCULATION FILE:									

 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited		122 DIEMEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax. No. 015-295 3900	
CHECKED:	DATE:	DESIGN: CLEMENCE MURINGA	
		DRAWN: ITUMELENG POOE	
ENGINEER:	DATE:	N/A	
		EXTERNAL APPROVAL:	DATE:
N/A			
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S ENG No: C1201-1607	FILE No: C1201-1607		
	DATE: 01/04/2021		

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	01/04/21	ISSUE FOR CONSTRUCTION	

LEPELLE NORTHERN WATER	
	01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800
DEPARTMENT OF WATER AND SANITATION	
	49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200



ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	350	MS X42 4.5mm WALL THICKNESS	AIR VALVE TEE. 350 mm NB STRAIGHT PIPE BOTH ENDS PLAIN FOR CUTTING TO SUIT ON SITE, 2872mm LONG. 350 mm NB VERTICAL STUB FLANGED, 450mm LONG. PUDDLE FLANGES AS INDICATED. WRAPPER PLATE AS PER THE TABLE BELOW.	
2	1	-	MS CLASS HEAVY 3.9mm WALL THICKNESS	SPECIAL REDUCER. 350 mm NB BLANK FLANGE WITH 50 mm STEEL PIPE 152 mm LONG, WELDED IN THE MIDDLE OF BLANK FLANGES. PIPE FLANGED WITH 4 x 6 mm M.S GUSSET PLATES.	
3	1	50		GATE VALVE. 50 mm NB FLANGED GATE VALVE. WEDGE OR BALL VALVE TYPE	
4	1	50		AIR VALVE. 50 mm NB FLANGED DOUBLE ORIFICE AIR VALVE	
5	2	350		STEPPED COUPLING STEEL TO uPVC	

FOR CLASSIFICATIONS REFER TO TABLE 1

WRAPPER PLATE			
AIR VALVE TEES	T	w	W
356(4)/356(4)/90°	5	119	593

- NOTES:**
- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
 - FASTENERS FOR STAINLESS STELL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
 - CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 - 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DWS 9900.
 - CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 6.7 m³
CLASS 15/19 = 0.4m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
 - GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DWS 9900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS(LETTERING 20mm HIGH)AND VALVE NUMBERS(DETAILS "A"AND "B")BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS.LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS.

AIR VALVE CHAMBERS SCHEDULE FOR LINE 1

RISING (SINGLE) 355mm OD (AIR VALVE NB50)							
No	CH	NGL	PIL	RL	h _{chamber}	H	PN
	(m)	(masl)	(masl)	(masl)	(mm)	(mm)	(kPa)
AIR.VO PS SITE	0	536.27	534.81	534.49	2100	470	4000

TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIEMER STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

DESIGN: KADY MULUNDA
DRAWN: ITUMELENG POOE
N/A
EXTERNAL APPROVAL: DATE:

CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:
TANGO'S DWG No: C1201-1002 FILE No: C1201-1002 DATE: 31/03/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	31/03/21	ISSUED FOR CONSTRUCTION	

LEPELLE NORTHERN WATER

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION

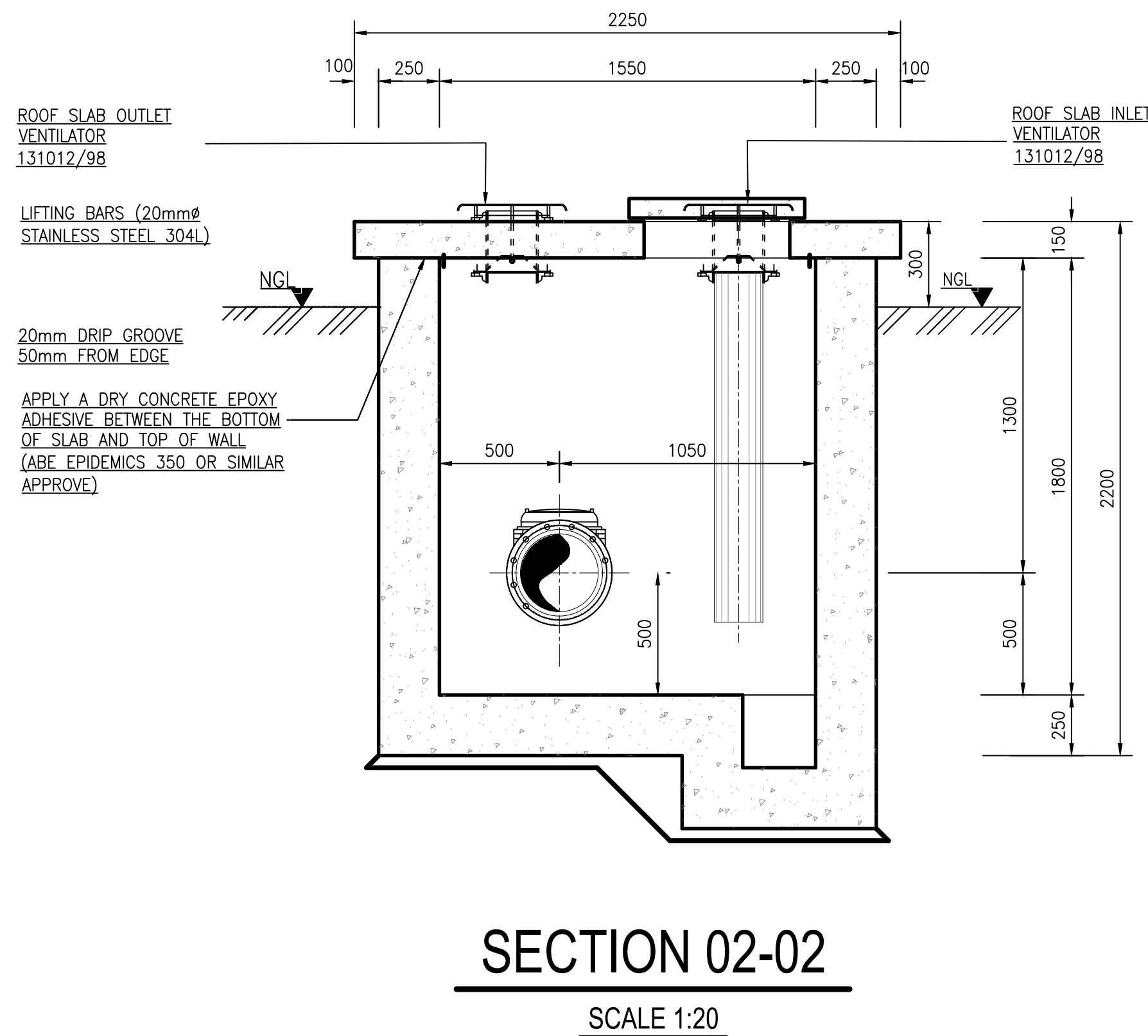
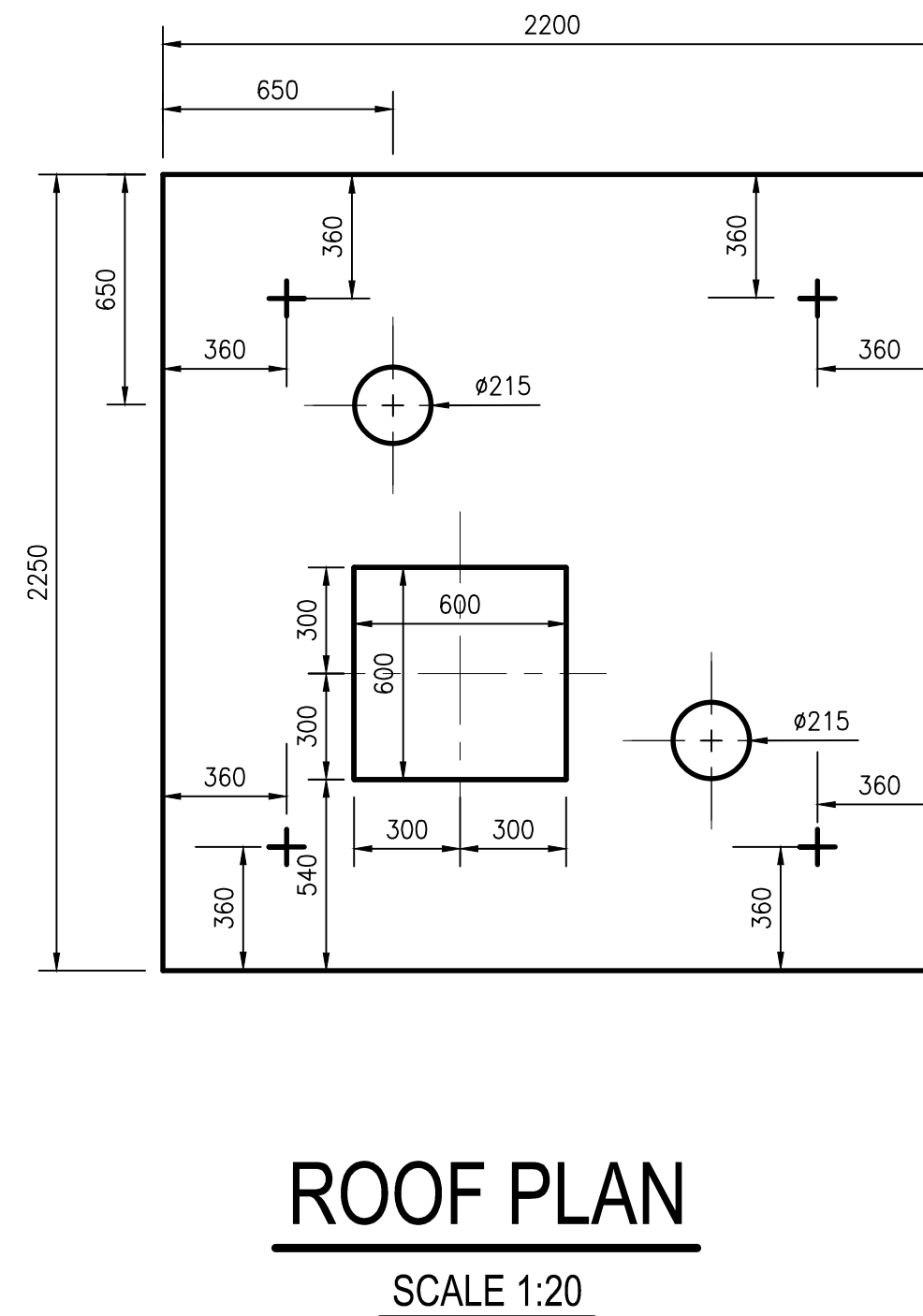
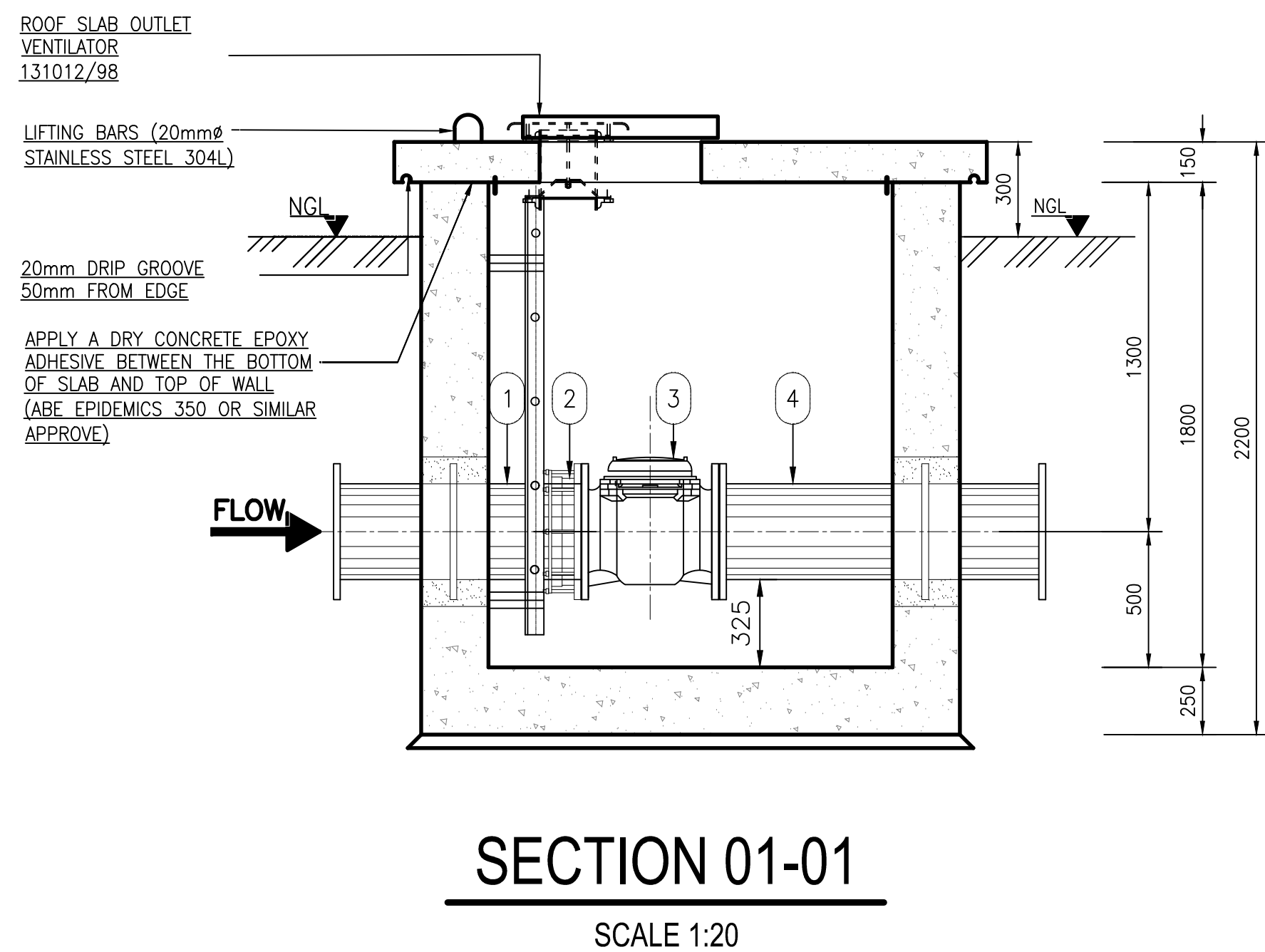
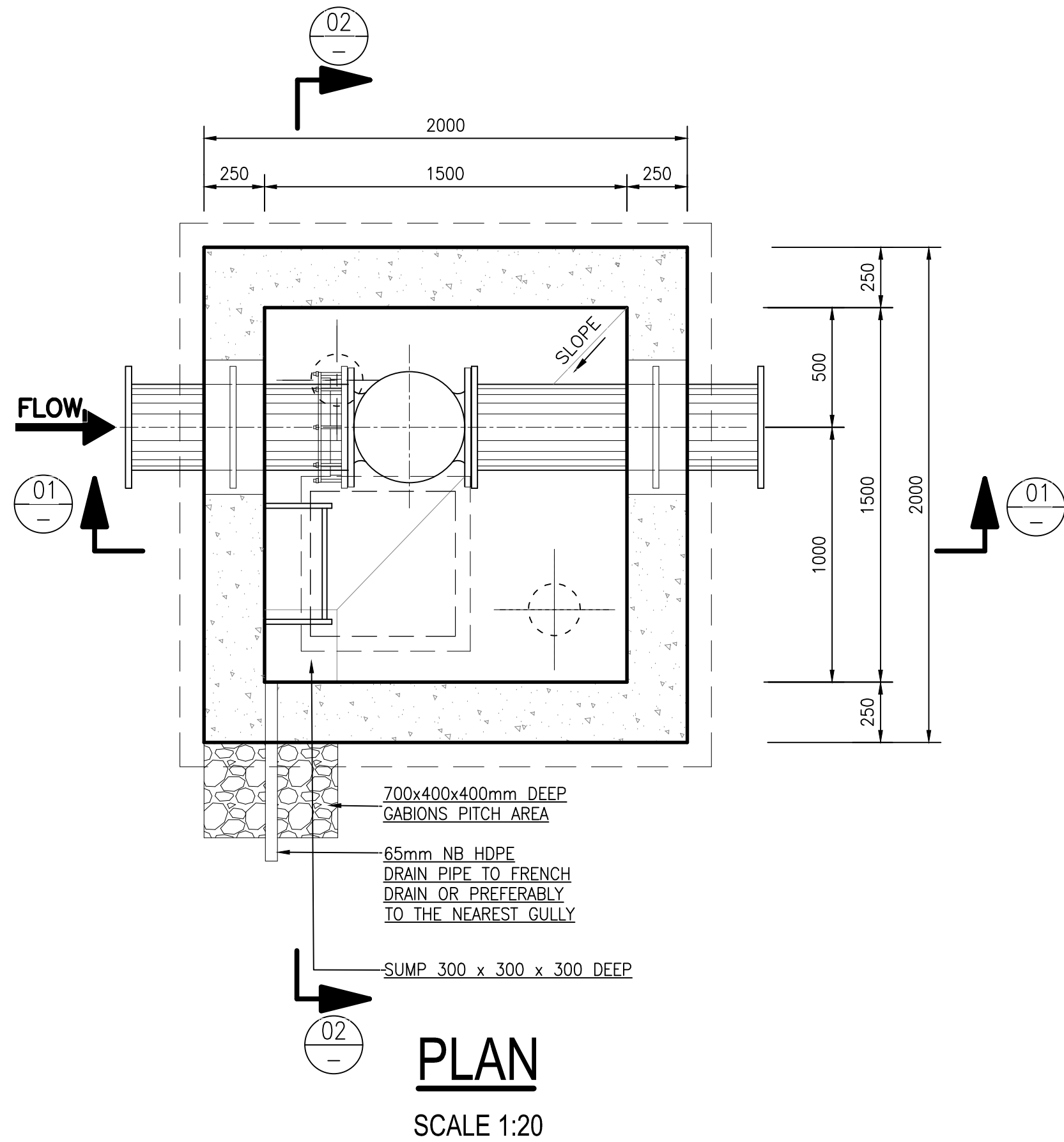
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:

BABANANA PIPELINE PROJECT-RS 135

PACKAGE 10: XIHOKO BOOSTER PUMP STATION
AIR VALVE CHAMBER (TYPE 1) SINGLE PIPE INSTALLATION
PIPE SPECIAL AND CONCRETE DETAILS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	- - - - - OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	1 OF 1
CALCULATION FILE:		REG. No.		C1201-1002	REV. 01



NOTES:

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 – 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DMS 9900.
- CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 12.2m³
CLASS 15/19 = 0.5m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
- GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DMS 9 900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL"Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS(LETTERING 20mm HIGH)AND VALVE NUMBERS(DETAILS"A"AND"B")BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS.LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS.

PIPES AND SPECIALS: CONNECTION CHAMBER FOR 200mmØ PIPE							CORROSION PROTECTION		
ITEM	NO. OFF	DIA(mm) NB/Ø	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	LINING	COATING	FLANGES
1	1	350/356	STEEL X42	4.5	STRAIGHT PIPE ONE END FLANGED FOR CUTTING ON SITE TO SUIT RESTRAINING FLANGE AS INDICATED PN40		3.1	3.2	3.3
2	1	350	STEEL		FLANGE ADAPTOR. PN40				3.3
3	1	350			ELECTROMAGNETIC FLOW METER PN 4000 kpa				
4	1	350/356	STEEL X42	4.5	STRAIGHT PIPE BOTH END FLANGED RESTRAINING FLANGE AS INDICATED PN 4000 kpa		3.1	3.2	3.3

TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited
122 DIEMEER STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

DESIGN: CLEMENCE MURINGA
CHECKED: DATE: DRAWN: ITUMELENG POOE
ENGINEER: DATE: N/A
EXTERNAL APPROVAL: DATE:
N/A
CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:
TANGO'S ENG No: C1201-1285 FILE No: C1201-1285
DATE: 06/04/2021

REVISION				FOR	DWA
MOD No	DATE	DESCRIPTION			
01	06/04/21	ISSUED FOR CONSTRUCTION			

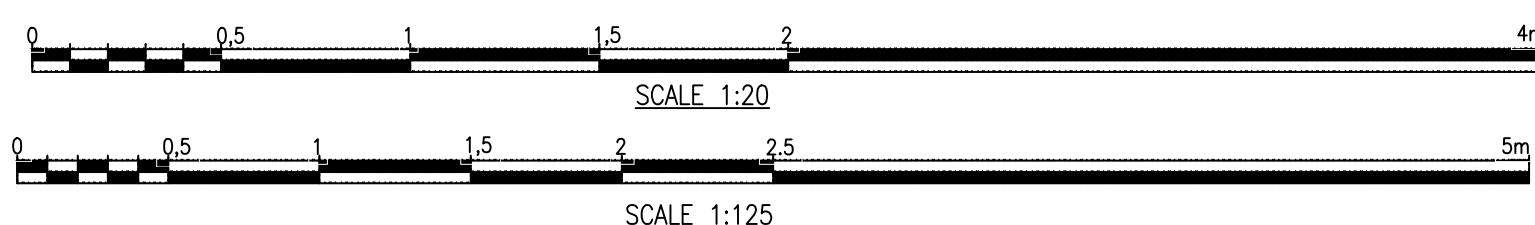
LEPELLE NORTHERN WATER
01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLWaP PHASE 1:
BABANANA PIPELINE PROJECT-RS 135

**WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION
FLOW METER CHAMBER AT MAWA 8 RESERVOIR AND PUMP STATION
PIPE SPECIAL AND CONCRETE DETAILS**

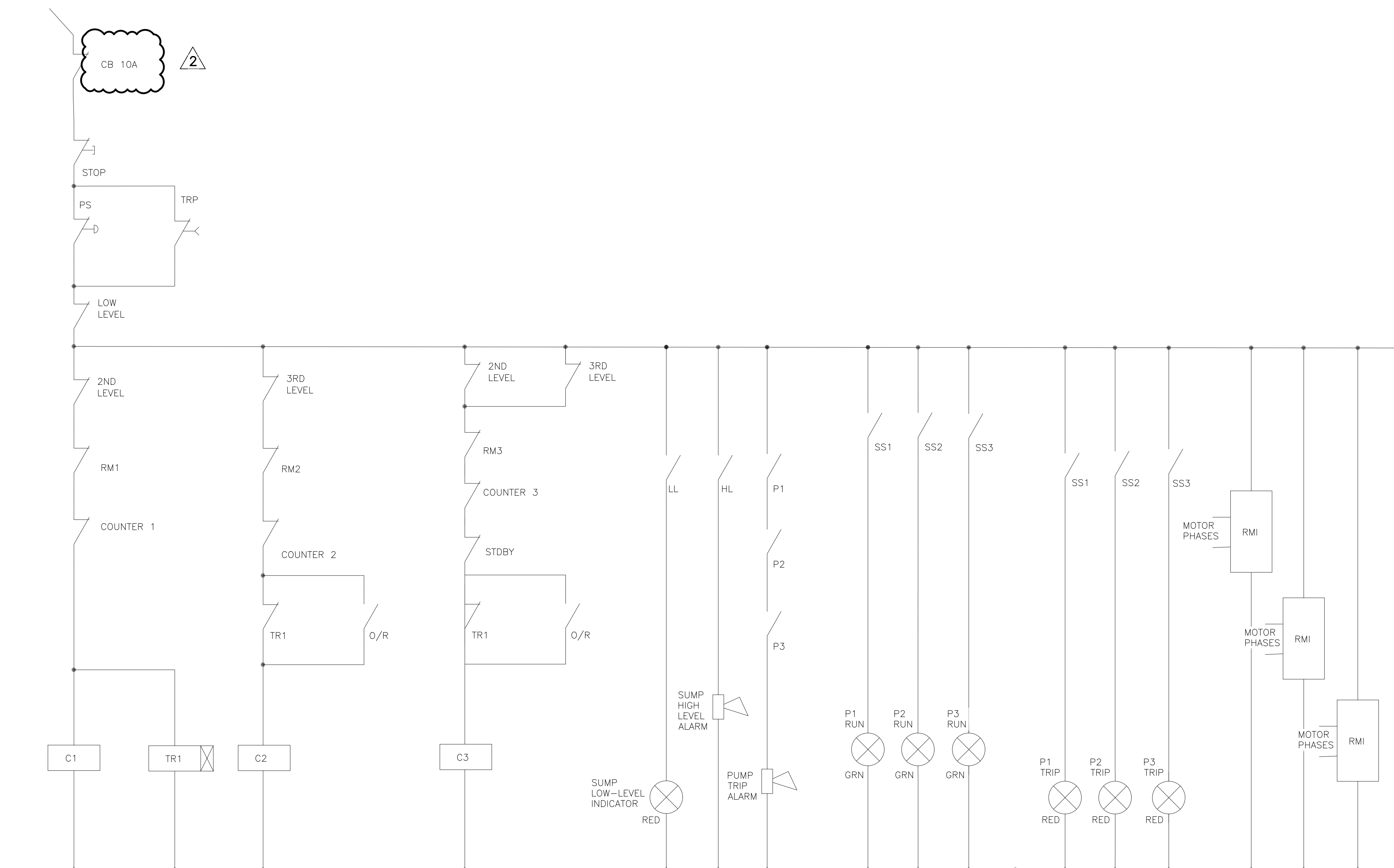
PROVINCE: LIMPOPO DISTRICT: MOPANI KEYCODES: - - - - - OTHER
LOCALITY No: B801-AT TENDER/ CONTRACT No: 8/1/3/50 SHEET: 1 OF 1 REG. No: C1201-1285 REV. 01
CALCULATION FILE:



AUTOMATIC CONTROL CIRCUIT

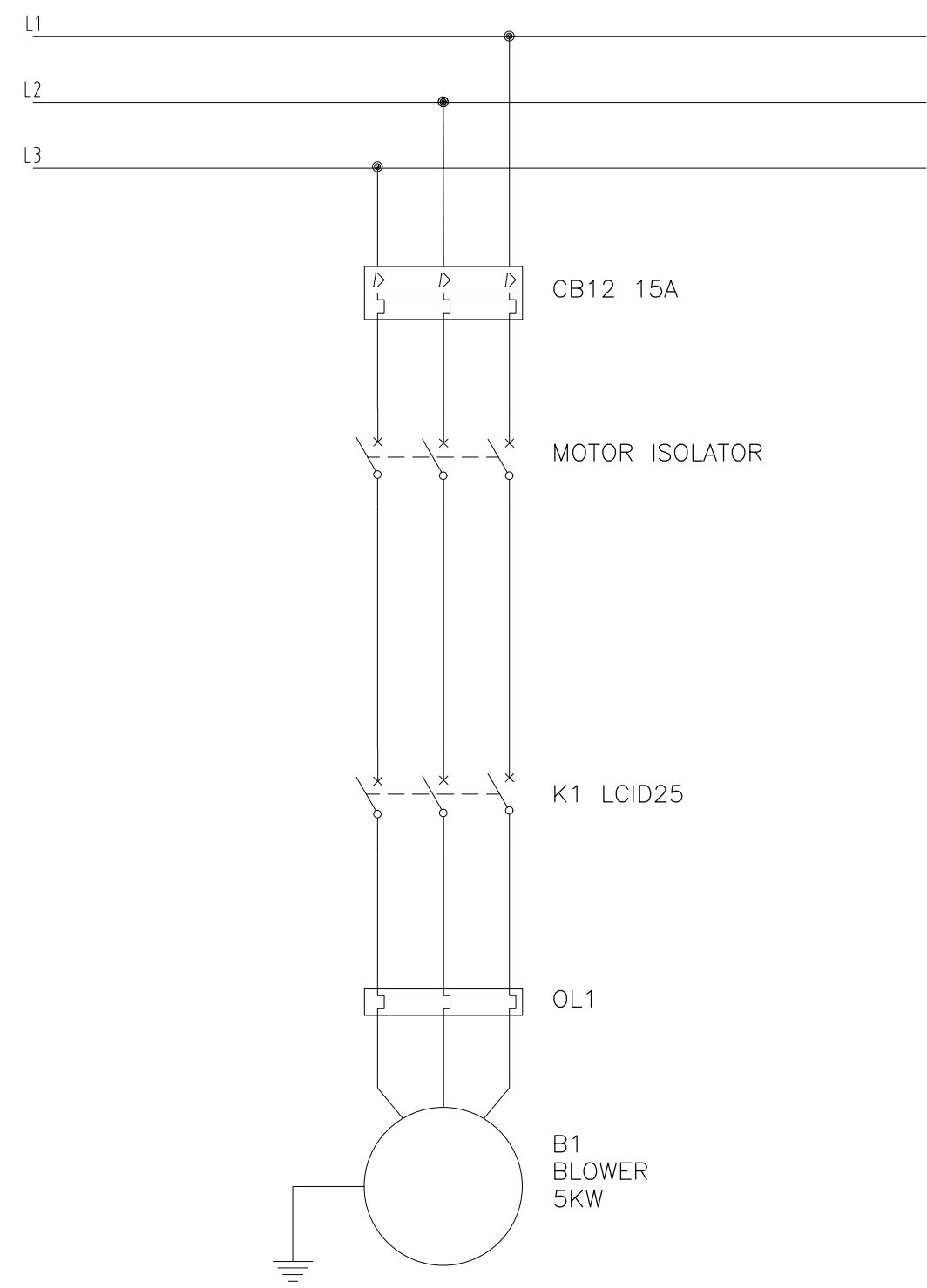
LEGEND

CB	CIRCUIT BREAKER
SS	SELECTOR SWITCH
PS	PRESSURE SWITCH
TRP	TIMER PRESSURE SWITCH
M	MAIN RELAY
SP	SUMP PUMP
TR1	TIMER DELAY RELAY 1
TR2	TIMER DELAY RELAY 1
TR3	TIMER DELAY RELAY 1
C1	COUNTER 1
C2	COUNTER 1
C3	COUNTER 1
DR1	DRIVE RUN RELAY 1
DR2	DRIVE RUN RELAY 2
DR3	DRIVE RUN RELAY 3
LS	LEVEL SWITCH
RM1	ROTATION MONITOR 1
RM2	ROTATION MONITOR 1
RM3	ROTATION MONITOR 1
O/L	OVERLOAD RELAY
ISV-C2	ISOLATOR CONTROL VALVE 2

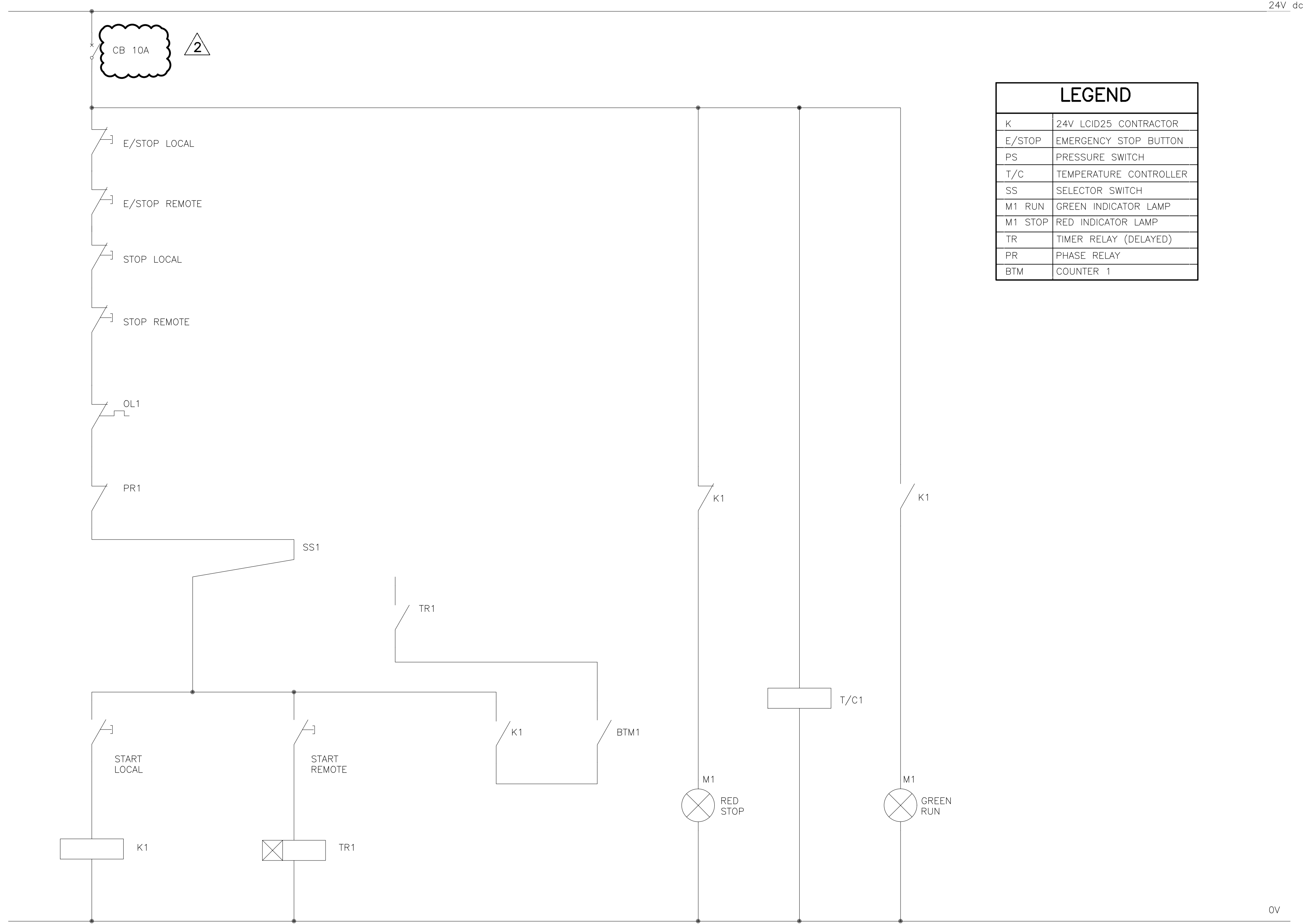


 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited	122 DE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION <table border="1"> <thead> <tr> <th>MOD No</th> <th>DATE</th> <th>DESCRIPTION</th> <th>FOR</th> <th></th> </tr> </thead> <tbody> <tr> <td>01</td> <td>18/03/21</td> <td>ISSUED FOR CONSTRUCTION</td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>10/11/22</td> <td>DRAWING AMENDMENTS</td> <td></td> <td></td> </tr> </tbody> </table>		MOD No	DATE	DESCRIPTION	FOR		01	18/03/21	ISSUED FOR CONSTRUCTION			02	10/11/22	DRAWING AMENDMENTS			 LEPELE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800		GLEWaP-PHASE 1: BABANANA PIPELINE PROJECT RS 135				
	MOD No	DATE	DESCRIPTION	FOR																						
	01	18/03/21	ISSUED FOR CONSTRUCTION																							
	02	10/11/22	DRAWING AMENDMENTS																							
	CHECKED: _____ DATE: _____ DESIGN: B.K DRAWN: A.P				WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS AUTOMATIC CONTROL CIRCUIT																					
ENGINEER: _____ DATE: _____ N/A EXTERNAL APPROVAL: _____ DATE: _____																										
CHIEF ENGINEER / APP (Pr. Eng): _____ DATE: _____ DIRECTOR (Pr. Eng): _____ DATE: _____																										
TANGO'S DWG No: _____ FILE No: _____ DATE: 18/03/2021				 DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200		PROVINCE: LIMPOPO DISTRICT: MOPANI LOCALITY No: _____ TENDERY/ CONTRACT No. 8/1/3/50 CALCULATION FILE: _____		SHEET 1 OF 1 REG. No. C1201-1670		REV. 0																

BLOWER 1 POWER CIRCUIT



BLOWER 1 CONTROL CIRCUIT



LEGEND	
K	24V LCID25 CONTRACTOR
E/STOP	EMERGENCY STOP BUTTON
PS	PRESSURE SWITCH
T/C	TEMPERATURE CONTROLLER
SS	SELECTOR SWITCH
M1 RUN	GREEN INDICATOR LAMP
M1 STOP	RED INDICATOR LAMP
TR	TIMER RELAY (DELAYED)
PR	PHASE RELAY
BTM	COUNTER 1

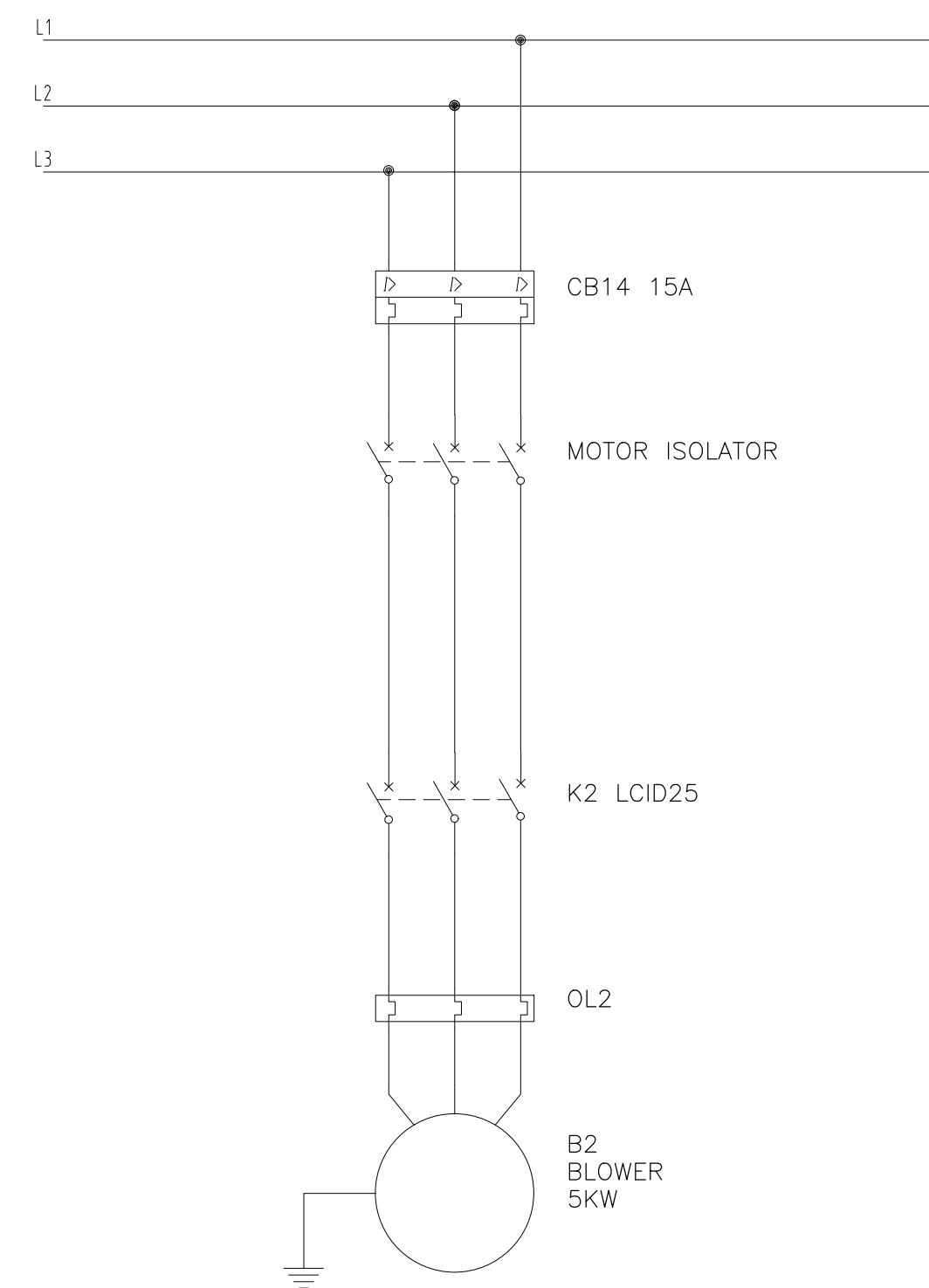
 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited	122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION				LEPELLE NORTHERN WATER				GLeWaP—PHASE 1:															
			 LEPELLE NORTHERN WATER Water to our potential DEPARTMENT OF WATER AND SANITATION  water & sanitation Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA				01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800				BABANANA PIPELINE PROJECT RS 135															
											WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS BLOWER 1 POWER AND CONTROL CIRCUIT															
											PROVINCE: LIMPOPO		DISTRICT: MOPANI		KEYCODES:		— — — — —		OTHER		SHEET 1 OF 1		REG. No. C1201-1671		REV. 01	
											LOCALITY No:		TENDER/ CONTRACT No. 8/1/3/50													
											CALCULATION FILE:															
CHECKED: _____		DATE: _____		DESIGN: B.K DRAWN: A.P																						
ENGINEER: _____		DATE: _____		EXTERNAL APPROVAL: _____		DATE: _____																				
N/A																										
CHIEF ENGINEER / APP (Pr. Eng): _____		DATE: _____		DIRECTOR (Pr. Eng): _____		DATE: _____																				
TANGO'S DWG No: _____		FILE No: _____																								
		DATE: 18/03/2021																								

BLOWER2 POWER CIRCUIT

The diagram illustrates the power supply for a blower motor. It starts with a three-phase supply (L1, L2, L3) connected to a circuit breaker (CB14 15A). The output of the circuit breaker passes through a motor isolator, then a contactor (K2 LCID25), and an overload relay (OL2) before reaching the blower motor (B2 BLOWER 5KW). The motor is grounded.

Legend:

- CB14 15A
- MOTOR ISOLATOR
- K2 LCID25
- OL2
- B2 BLOWER 5KW

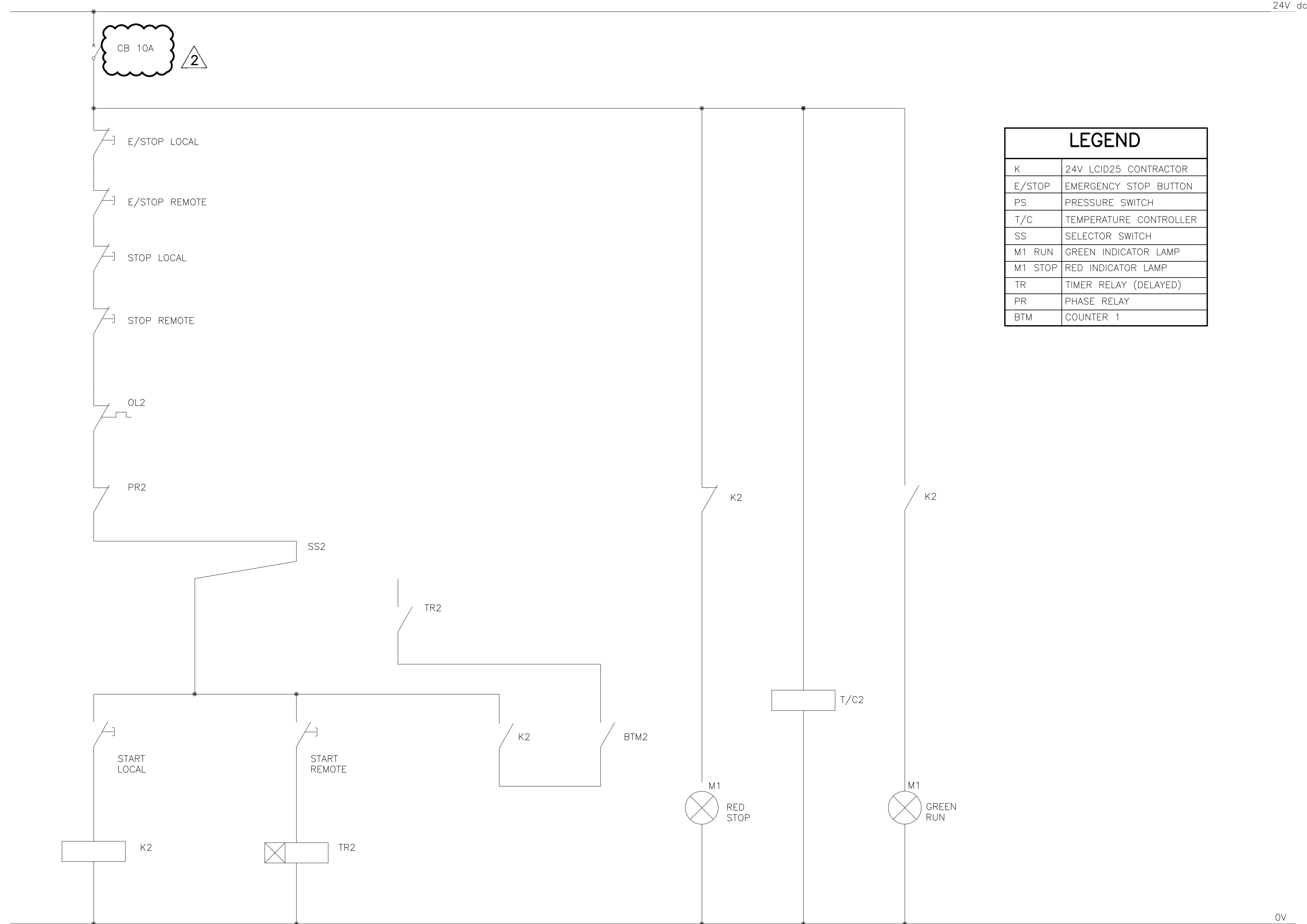


BLOWER2 CONTROL CIRCUIT

24V dc

K	24V LCID25 CONTRACTOR
E/STOP	EMERGENCY STOP BUTTON
PS	PRESSURE SWITCH
T/C	TEMPERATURE CONTROLLER
SS	SELECTOR SWITCH
M1 RUN	GREEN INDICATOR LAMP
M1 STOP	RED INDICATOR LAMP
TR	TIMER RELAY (DELAYED)
PR	PHASE RELAY
BTM	COUNTER 1

0V

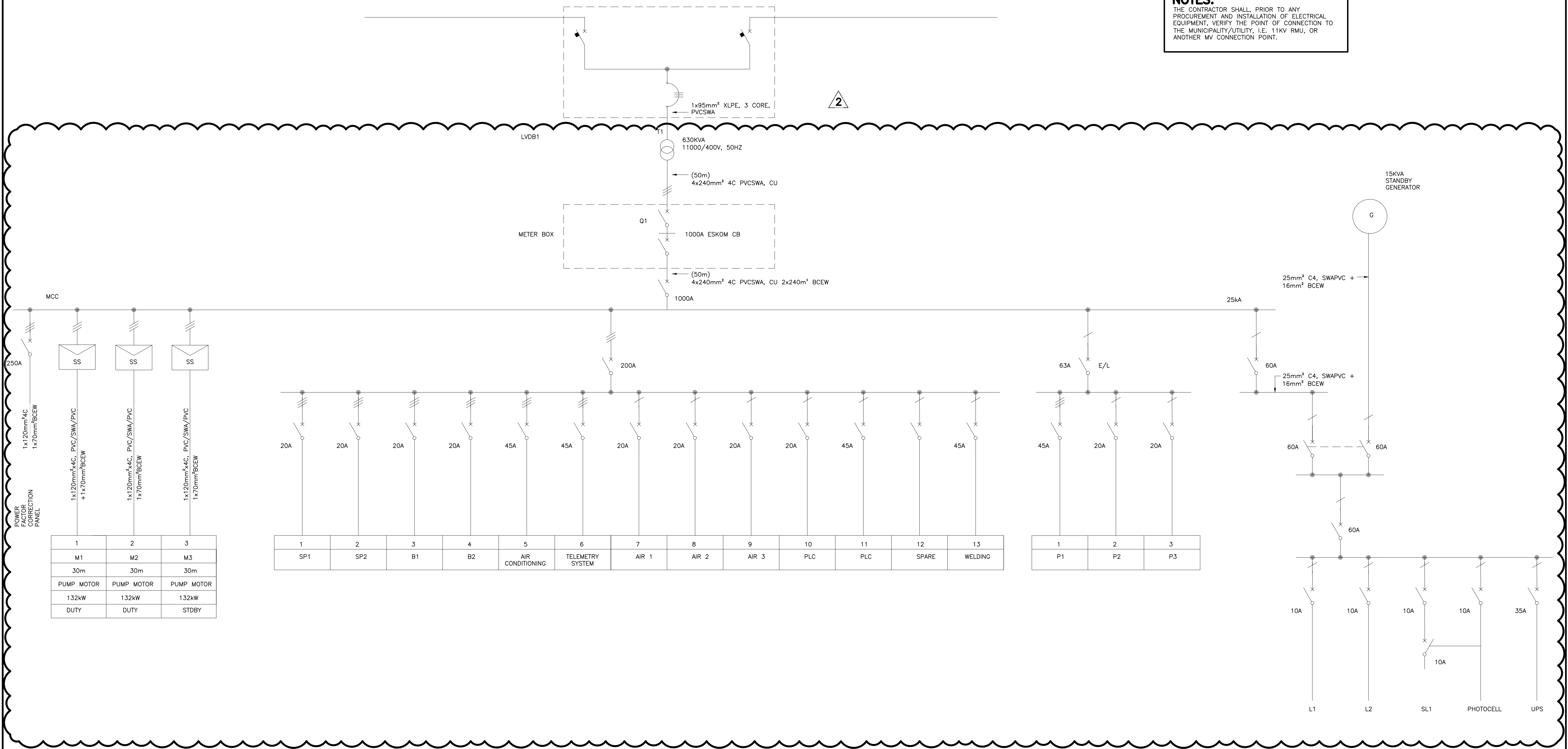


LEGEND	
K	24V LCD25 CONTRACTOR
E/STOP	EMERGENCY STOP BUTTON
PS	PRESSURE SWITCH
T/C	TEMPERATURE CONTROLLER
SS	SELECTOR SWITCH
M1 RUN	GREEN INDICATOR LAMP
M1 STOP	RED INDICATOR LAMP
TR	TIMER RELAY (DELAYED)
PR	PHASE RELAY
BTM	COUNTER 1

 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited	122 DE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION <table border="1"> <thead> <tr> <th>MOD No</th> <th>DATE</th> <th>DESCRIPTION</th> <th>FOR</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>18/03/21</td> <td>ISSUED FOR CONSTRUCTION</td> <td></td> </tr> <tr> <td>02</td> <td>10/11/22</td> <td>DRAWING AMENDMENTS</td> <td></td> </tr> </tbody> </table>		MOD No	DATE	DESCRIPTION	FOR	01	18/03/21	ISSUED FOR CONSTRUCTION		02	10/11/22	DRAWING AMENDMENTS		 LEPELE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800		GLeWaP--PHASE 1: BABANANA PIPELINE PROJECT RS 135			
	MOD No	DATE	DESCRIPTION	FOR																		
	01	18/03/21	ISSUED FOR CONSTRUCTION																			
	02	10/11/22	DRAWING AMENDMENTS																			
CHECKED: DATE: DESIGN: B.K DRAWN: A.P						WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS BLOWER 2 POWER AND CONTROL CIRCUIT																
ENGINEER: DATE: N/A EXTERNAL APPROVAL: DATE:																						
CHIEF ENGINEER / APP (Pr. Eng): DATE: N/A DIRECTOR (Pr. Eng): DATE:																						
TANGO'S DWG No: FILE No: DATE: 18/03/2021				 water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200		PROVINCE: LIMPOPO DISTRICT: MOPANI KEYCODES: - - - - - OTHER LOCALITY No: TENDER/ CONTRACT No. 8/1/3/50 SHEET 1 OF 1 REG. No. C1201-1672 CALCULATION FILE:																

ESKOM RING MAIN UNIT [RMU]

NOTES:
THE CONTRACTOR SHALL, PRIOR TO ANY PROCUREMENT AND INSTALLATION OF ELECTRICAL EQUIPMENT, VERIFY THE POINT OF CONNECTION TO THE MUNICIPALITY/UTILITY, I.E. 11KV RMU, OR ANOTHER MV CONNECTION POINT.



TANGO'S CONSULTANTS
A division of Tango's Group (Pty) Limited

122 DIE MEER STREET
BENDOR, POLOKWANE
0700
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED: _____ DATE: _____
ENGINEER: _____ DATE: _____
N/A
CHIEF ENGINEER / APP (Pr. Eng): _____ DATE: _____
TANGO'S DWG No: _____ DATE: 18/03/2021

DESIGN: B.K
DRAWN: A.P
EXTERNAL APPROVAL: _____ DATE: _____
DIRECTOR (Pr. Eng): _____ DATE: _____

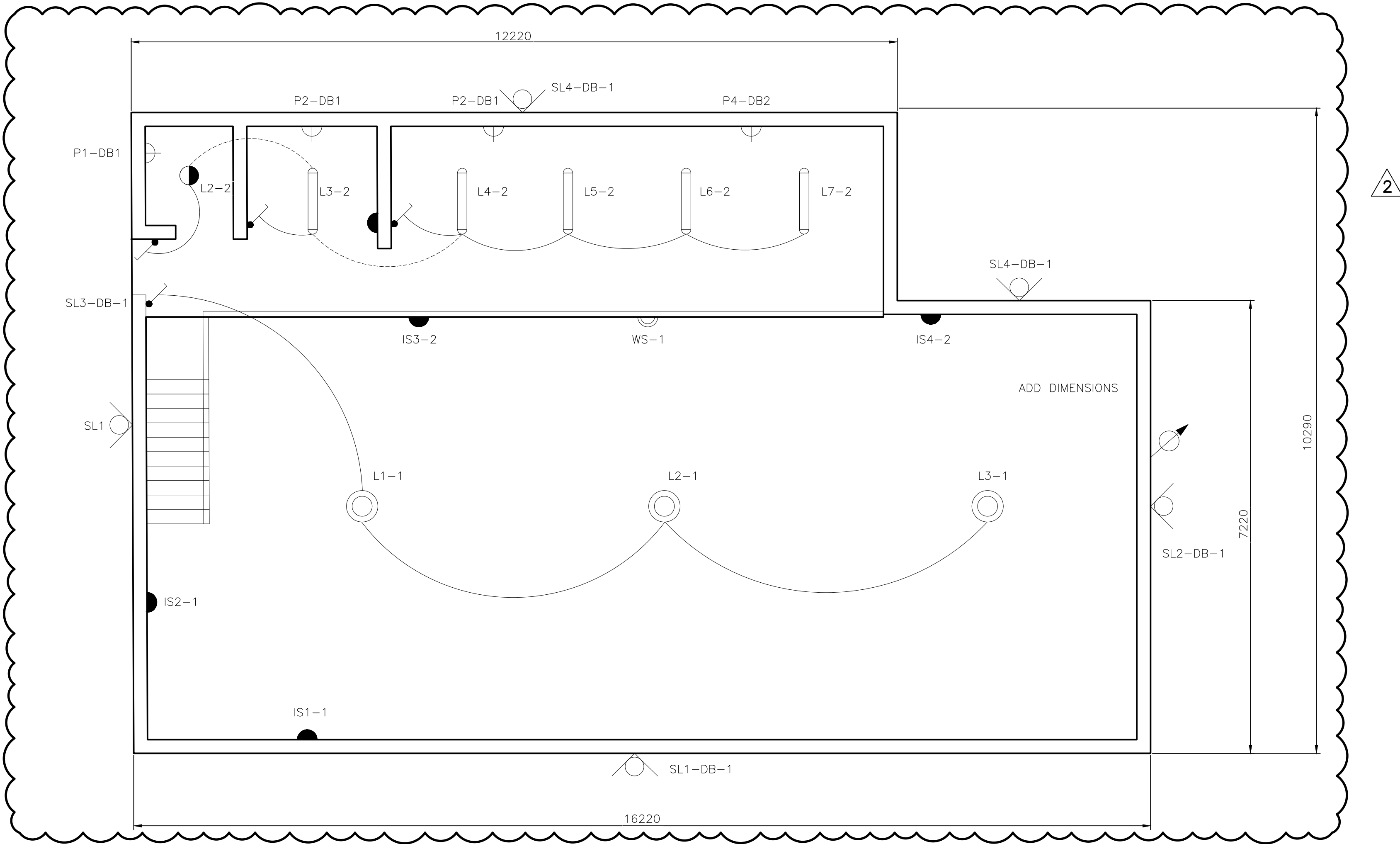
MOD No		DATE	DESCRIPTION	FOR
01	18/03/21	ISSUED FOR CONSTRUCTION		
02	10/11/22	DRAWING AMENDMENTS		

LEPELLE NORTHERN WATER
01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:
BABANANA PIPELINE PROJECT RS 135
WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS
ELECTRICAL SINGLE LINE DRAWING

PROVINCE:	DISTRICT:	KEYCODES:	REG. No.	REV.
LIMPOPO	MOPANI	- - - - - OTHER		
LOCALITY No:	TENDER/ CONTRACT No.	SHEET 1 OF 1	C1201-1673	01
CALCULATION FILE:				



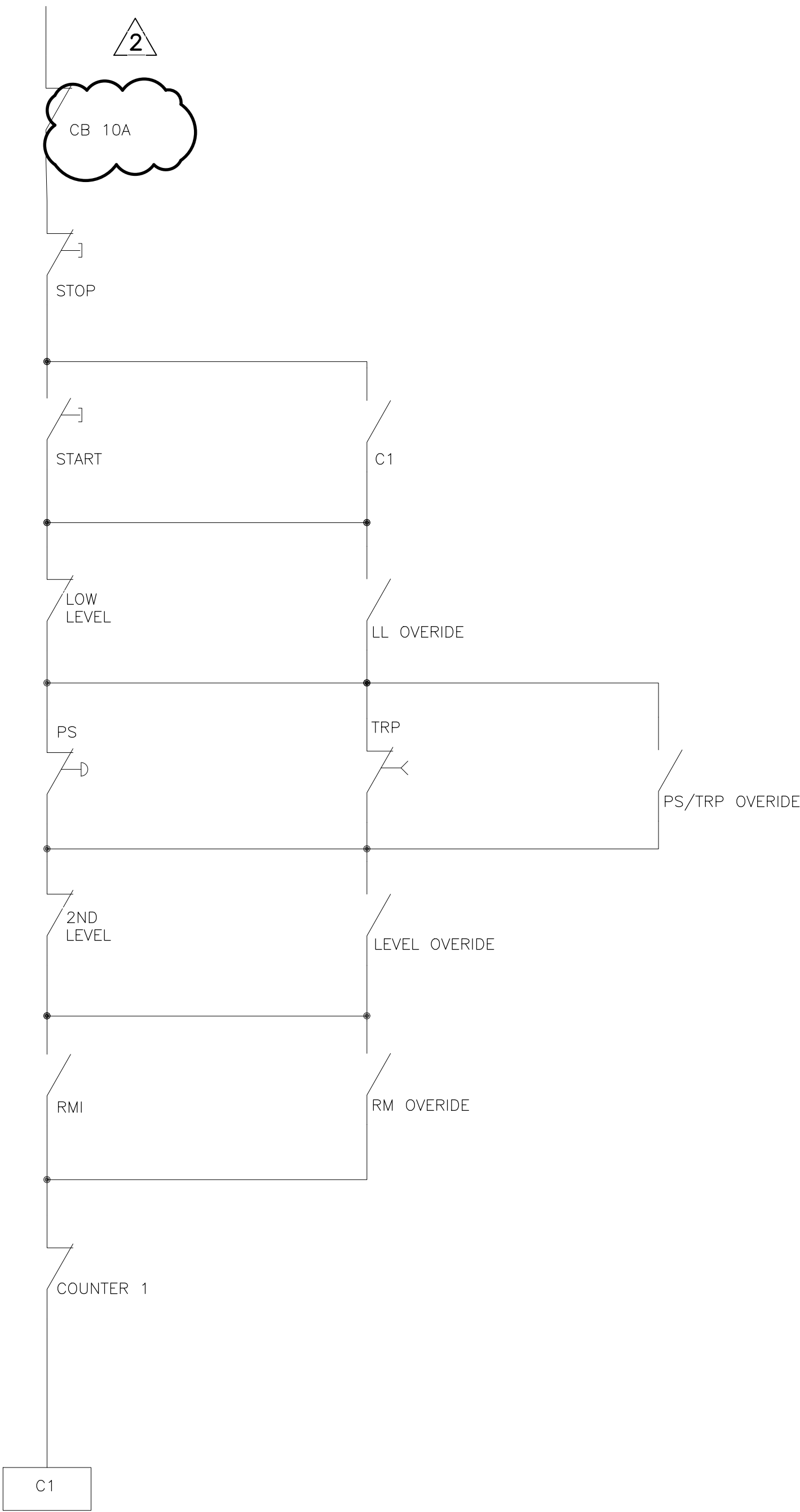
PUMP HOUSE LIGHTING LAYOUT PLAN

LEGEND	
SYMBOL	DESCRIPTION
	2x58W VAPOUR LUME FLUORESCENT LIGHT FITTING
	400WM V INDUSTRIAL Highbay ENCLOSED LUMINAIRE
	2x18W PL EYELID BULKHEAD LUMINAIRE CONTROLLED BY A PHOTOCELL
	4x2 SINGLE LEVER SWITCH C/W C/PLATE
	13A SINGLE INDUSTRIAL SOCKET OUTLET
	4x4 WELDING SOCKET OUTLET
	4x4 13A SINGLE SOCKET OUTLET
	2x25W DECORATIVE SURFACE WATERTIGHT BULKHEAD
	PHOTOCELL

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DESIGN: B.K		DRAWN: A.P		MOD No	DATE	DESCRIPTION	FOR	WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS LIGHTING AND SOCKET											
CHECKED: DATE:		ENGINEER: DATE:		01	18/03/21	ISSUED FOR CONSTRUCTION		PROVINCE: LIMPOPO											
N/A		EXTERNAL APPROVAL: DATE:		02	10/11/22	DRAWING AMENDMENTS		DISTRICT: MOPANI				KEYCODES: - - - - - OTHER							
N/A		N/A		DEPARTMENT OF WATER AND SANITATION				LOCALITY No:				TENDER/ CONTRACT No.							
CHIEF ENGINEER / APP (Pr. Eng): DATE:		DIRECTOR (Pr. Eng): DATE:		water & sanitation Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA				49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200				SHEET 1 OF 1							
TANGO'S DWG No:		FILE No:		REG. No.				8/1/3/50				C1201-1674							
DATE: 18/03/2021				CALCULATION FILE:								REV. 01							

MAINTENANCE/MANUAL MODE CONTROL CIRCUIT 1

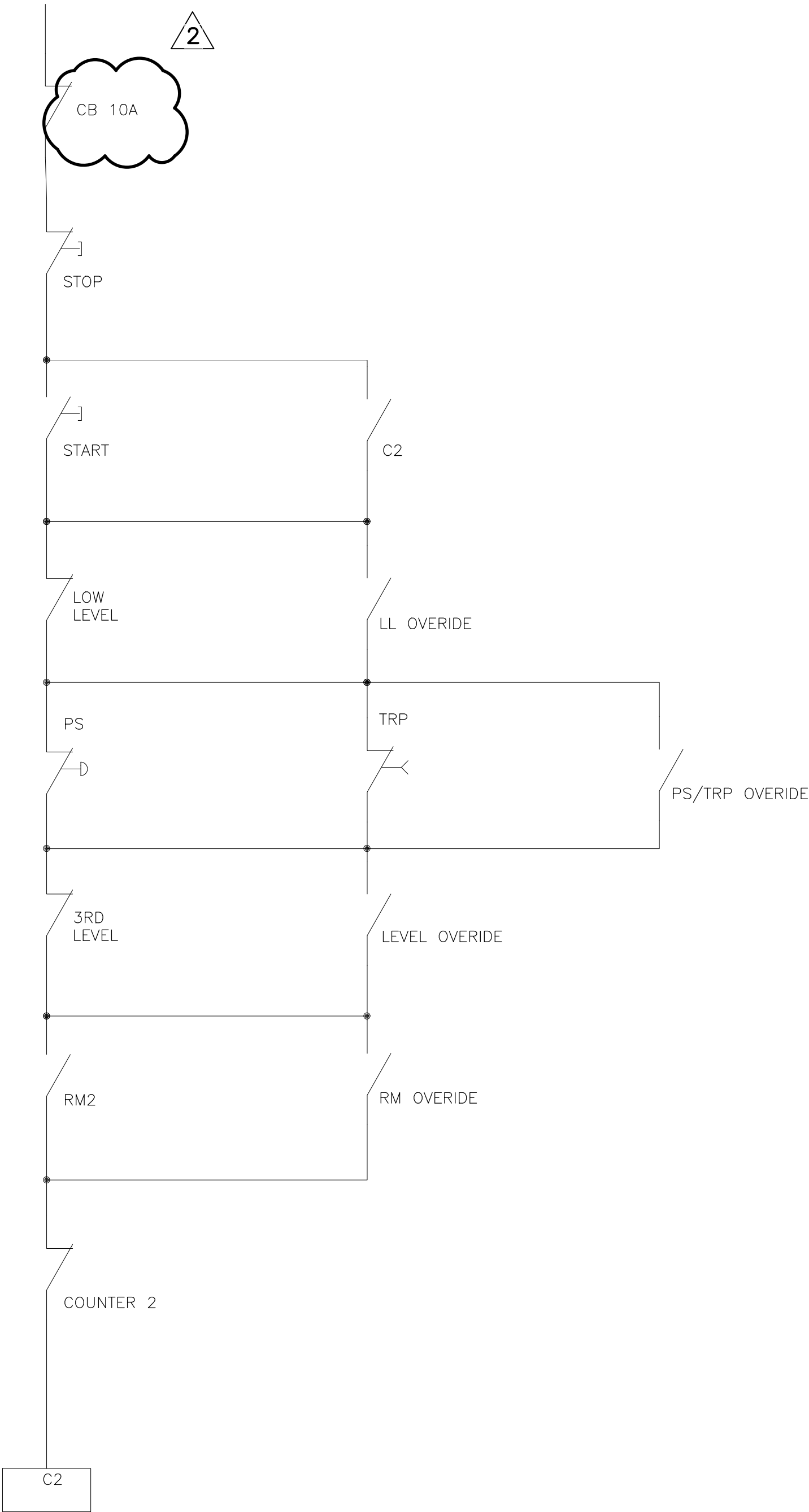
LEGEND	
CB	CIRCUIT BREAKER
SS	SELECTOR SWITCH
PS	PRESSURE SWITCH
TRP	TIMER PRESSURE SWITCH
M	MAIN RELAY
SP	SUMP PUMP
TR1	TIME DELAY RELAY 1
TR2	TIME DELAY RELAY 2
TR3	TIME DELAY RELAY 3
C1	COUNTER 1
C2	COUNTER 2
C3	COUNTER 3
DR1	DRIVE RUN RELAY 1
DR2	DRIVE RUN RELAY 2
DR3	DRIVE RUN RELAY 3
LS	LEVEL SWITCH
RM1	ROTATION MONITOR 1
RM2	ROTATION MONITOR 2
RM3	ROTATION MONITOR 3
O/L	OVERLOAD RELAY
ISV-C2	ISOLATOR CONTROL VALVE 2



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		MOD No	DATE	DESCRIPTION	FOR	BABANANA PIPELINE PROJECT RS 135											
DESIGN: B.K		01	18/03/21	ISSUED FOR CONSTRUCTION	DEPARTMENT OF WATER AND SANITATION water & sanitation 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200												
DRAWN: A.P		02	10/11/22	DRAWING AMENDMENTS													
CHECKED:	DATE:	N/A		DATE:	WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS MANUEL/MAINTENANCE MODE CONTROL CIRCUIT 1												
ENGINEER:	DATE:	EXTERNAL APPROVAL:		DATE:	PROVINCE: LIMPOPO DISTRICT: MOPANI KEYCODES: - - - - - OTHER												
N/A		N/A		DATE:	LOCALITY No: TENDER/ CONTRACT No. 8/13/50 SHEET 1 OF 1 REG. No. C1201-1675 REV. 01												
CHIEF ENGINEER / APP (Pr. Eng):		DIRECTOR (Pr. Eng):		DATE:	CALCULATION FILE:												
TANGO'S DWG No:		FILE No:		DATE:													
		18/03/2021															

MAINTENANCE/MANUAL MODE CONTROL CIRCUIT 2

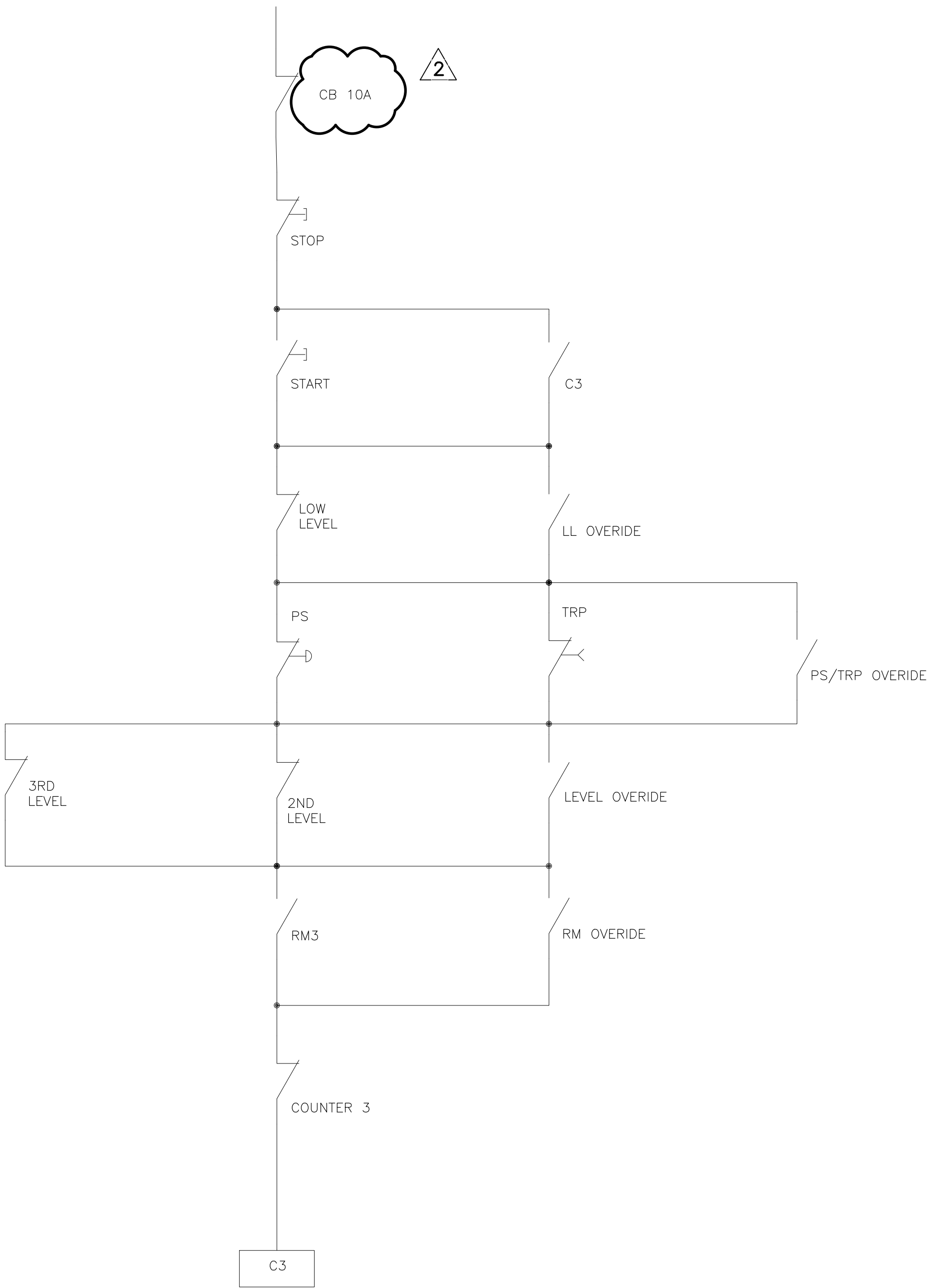
LEGEND	
CB	CIRCUIT BREAKER
SS	SELECTOR SWITCH
PS	PRESSURE SWITCH
TRP	TIMER PRESSURE SWITCH
M	MAIN RELAY
SP	SUMP PUMP
TR1	TIME DELAY RELAY 1
TR2	TIME DELAY RELAY 2
TR3	TIME DELAY RELAY 3
C1	COUNTER 1
C2	COUNTER 2
C3	COUNTER 3
DR1	DRIVE RUN RELAY 1
DR2	DRIVE RUN RELAY 2
DR3	DRIVE RUN RELAY 3
LS	LEVEL SWITCH
RM1	ROTATION MONITOR 1
RM2	ROTATION MONITOR 2
RM3	ROTATION MONITOR 3
O/L	OVERLOAD RELAY
ISV-C2	ISOLATOR CONTROL VALVE 2



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		MOD No	DATE	DESCRIPTION	FOR	BABANANA PIPELINE PROJECT RS 135											
01		18/03/21	ISSUED FOR CONSTRUCTION			DEPARTMENT OF WATER AND SANITATION water & sanitation 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200											
02		10/11/22	DRAWING AMENDMENTS														
CHECKED: _____		DESIGN: B.K		WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS MANUEL/MAINTENANCE MODE CONTROL CIRCUIT 2													
DATE: _____		DRAWN: A.P															
ENGINEER: _____		DATE: _____		EXTERNAL APPROVAL: _____		DATE: _____		PROVINCE: LIMPOPO DISTRICT: MOPANI KEYCODES: — — — — — OTHER LOCALITY No: _____ TENDER/ CONTRACT No. 8/13/50 SHEET 1 OF 1 REG. No. C1201-1676 REV. 01 CALCULATION FILE: _____									
N/A		DATE: _____		DATE: _____		DATE: _____											
CHIEF ENGINEER / APP (Pr. Eng): _____		DATE: _____		DIRECTOR (Pr. Eng): _____		DATE: _____											
TANGO'S DWG No: _____		FILE No: _____															
DATE: 18/03/2021																	

MAINTENANCE/MANUAL MODE CONTROL CIRCUIT 3

LEGEND	
CB	CIRCUIT BREAKER
SS	SELECTOR SWITCH
PS	PRESSURE SWITCH
TRP	TIMER PRESSURE SWITCH
M	MAIN RELAY
SP	SUMP PUMP
TR1	TIME DELAY RELAY 1
TR2	TIME DELAY RELAY 2
TR3	TIME DELAY RELAY 3
C1	COUNTER 1
C2	COUNTER 2
C3	COUNTER 3
DR1	DRIVE RUN RELAY 1
DR2	DRIVE RUN RELAY 2
DR3	DRIVE RUN RELAY 3
LS	LEVEL SWITCH
RM1	ROTATION MONITOR 1
RM2	ROTATION MONITOR 2
RM3	ROTATION MONITOR 3
O/L	OVERLOAD RELAY
ISV-C2	ISOLATOR CONTROL VALVE 2



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DESIGN: B.K		DRAWN: A.P	
CHECKED: DATE:		N/A	
ENGINEER: DATE:		EXTERNAL APPROVAL: DATE:	
N/A		DATE:	
CHIEF ENGINEER / APP (Pr. Eng): DATE:		DIRECTOR (Pr. Eng): DATE:	
TANGO'S ENG No:		FILE No:	
DATE: 18/03/2021			

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	18/03/21	ISSUED FOR CONSTRUCTION	
02	10/11/22	DRAWING AMENDMENTS	

 LEPELLE NORTHERN WATER Water to live with		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800
 DEPARTMENT OF WATER AND SANITATION water & sanitation REPUBLIC OF SOUTH AFRICA		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200

GLeWaP-PHASE 1:									
BABANANA PIPELINE PROJECT RS 135									
WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS MANUEL/MAINTENANCE MODE CONTROL CIRCUIT 3									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:		TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1				REV.
CALCULATION FILE:					C1201-1677				01

Diagram illustrating the electrical connection for a 132kW Heavy Duty Drive 2, including a 132kW motor and a Rotation Monitor (RM2).

The system is connected to a three-phase supply (R, Y, B) through a circuit breaker (CB2 200A OR AS RATED ON INVERTER).

The 132kW HEAVY DUTY DRIVE 2 is connected to the 132kW motor. The motor is grounded to P.E. (Protective Earth).

A Rotation Monitor (RM2) is connected to the drive and the motor.

24V DC+

CB2
RM2
E/STOP REMOTE
E/STOP LOCAL
STOP REMOTE
STOP LOCAL
START REMOTE
START LOCAL
K1
TR1
K2
PR
TR2
KA2
CONTROL RELAY K2

24V DC-

K - 9 PIN, 2A CONTACT RELAY
 RM - ROTATION MONITOR
 CB - 5A CIRCUIT BREAKER
 KA - 9PIN, 2A CONTACT RELAY

[illegible]

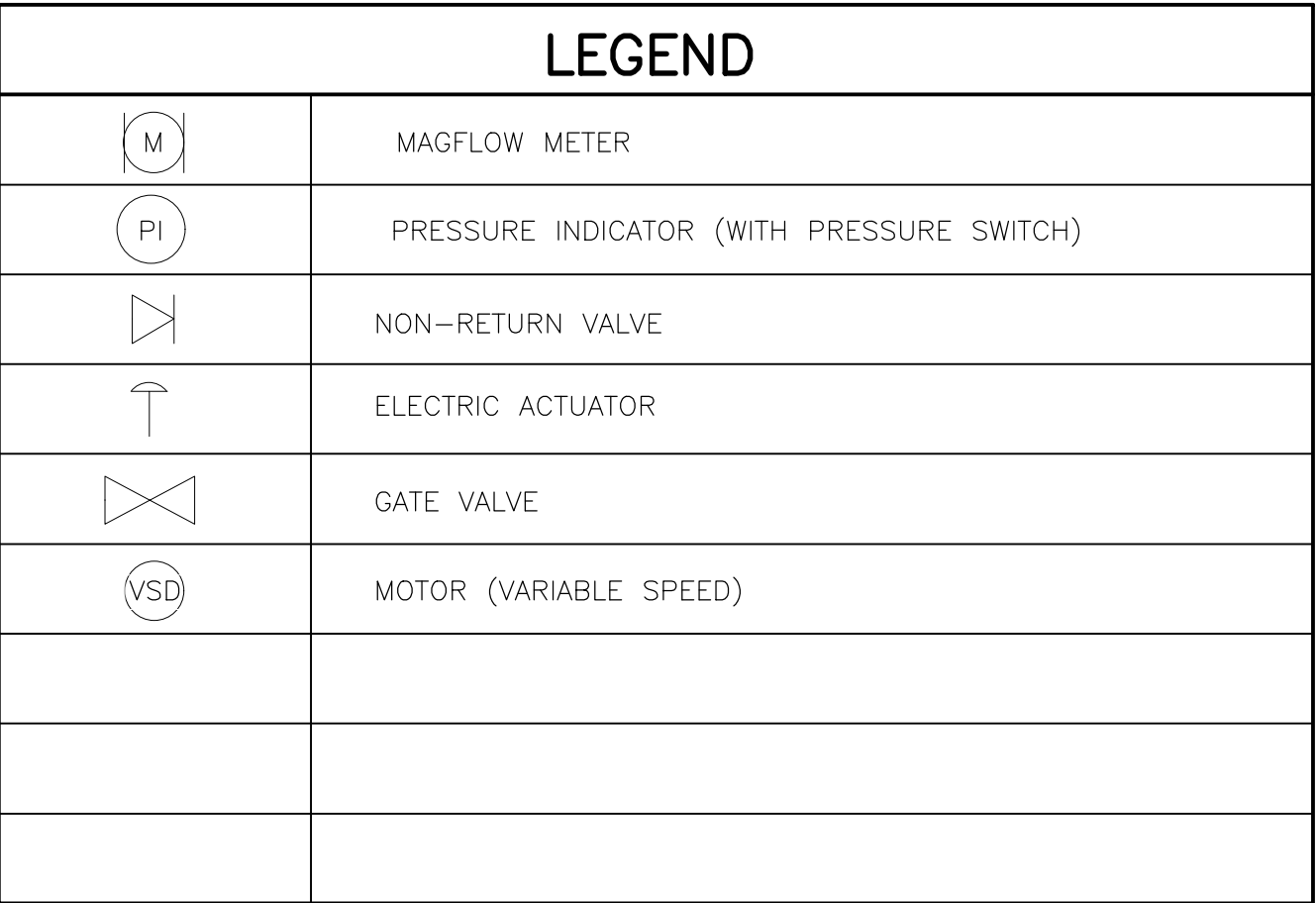
 TANGO'S CONSULTANTS <i>A division of Tango's Group (PTY) Limited</i>		122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015--298 8828 Fax No. 015--295 3900		REVISION <table border="1"> <thead> <tr> <th>MOD No</th> <th>DATE</th> <th>DESCRIPTION</th> <th>FOR</th> <th></th> </tr> </thead> <tbody> <tr> <td>01</td> <td>18/03/21</td> <td>ISSUED FOR CONSTRUCTION</td> <td></td> <td></td> </tr> <tr> <td>02</td> <td>10/11/22</td> <td>DRAWING AMENDMENTS</td> <td></td> <td></td> </tr> </tbody> </table>		MOD No	DATE	DESCRIPTION	FOR		01	18/03/21	ISSUED FOR CONSTRUCTION			02	10/11/22	DRAWING AMENDMENTS			 LEPELE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800  water & sanitation Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA		GLWaP—PHASE 1: BABANANA PIPELINE PROJECT RS 135 WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS CONTROL CIRCUIT DIAGRAMS (NO.1)			
		MOD No	DATE	DESCRIPTION	FOR																					
01	18/03/21	ISSUED FOR CONSTRUCTION																								
02	10/11/22	DRAWING AMENDMENTS																								
CHECKED: _____ DATE: _____ DESIGN: B.K DRAWN: A.P N/A ENGINEER: _____ DATE: _____ EXTERNAL APPROVAL: _____ DATE: _____ N/A CHIEF ENGINEER / APP (Pr. Eng): _____ DATE: _____ DIRECTOR (Pr. Eng): _____ DATE: _____ TANGO S DWG No: _____ FILE No: _____ DATE: 18/03/2021	PROVINCE: LIMPOPO DISTRICT: MOPANI TENDER/ CONTRACT No. 8/13/50 KEYCODES: - - - - - OTHER REG. No. C1201-1678 REV. 01																									

POWER CCT 2

The diagram illustrates a power distribution system for a 132kV bus. At the top, three horizontal lines represent the incoming supply, labeled R, Y, and B. These lines connect to a vertical busbar. A circuit breaker, labeled 'CB2 200A OR AS RATED ON INVERTER', is positioned between the supply busbar and the main 132kV busbar. The main busbar is a large rectangle containing a cloud-shaped symbol with '132kW DRIVE 2' and a triangle with the number '2'. Below the main busbar, the lines split into two paths. One path leads to a circular motor symbol labeled '132kW', which is grounded to a 'P.E.' (Protective Earth) symbol. The other path leads to a 'ROTATION MONITOR' (RM2) block, which is connected to the busbar via three parallel lines.

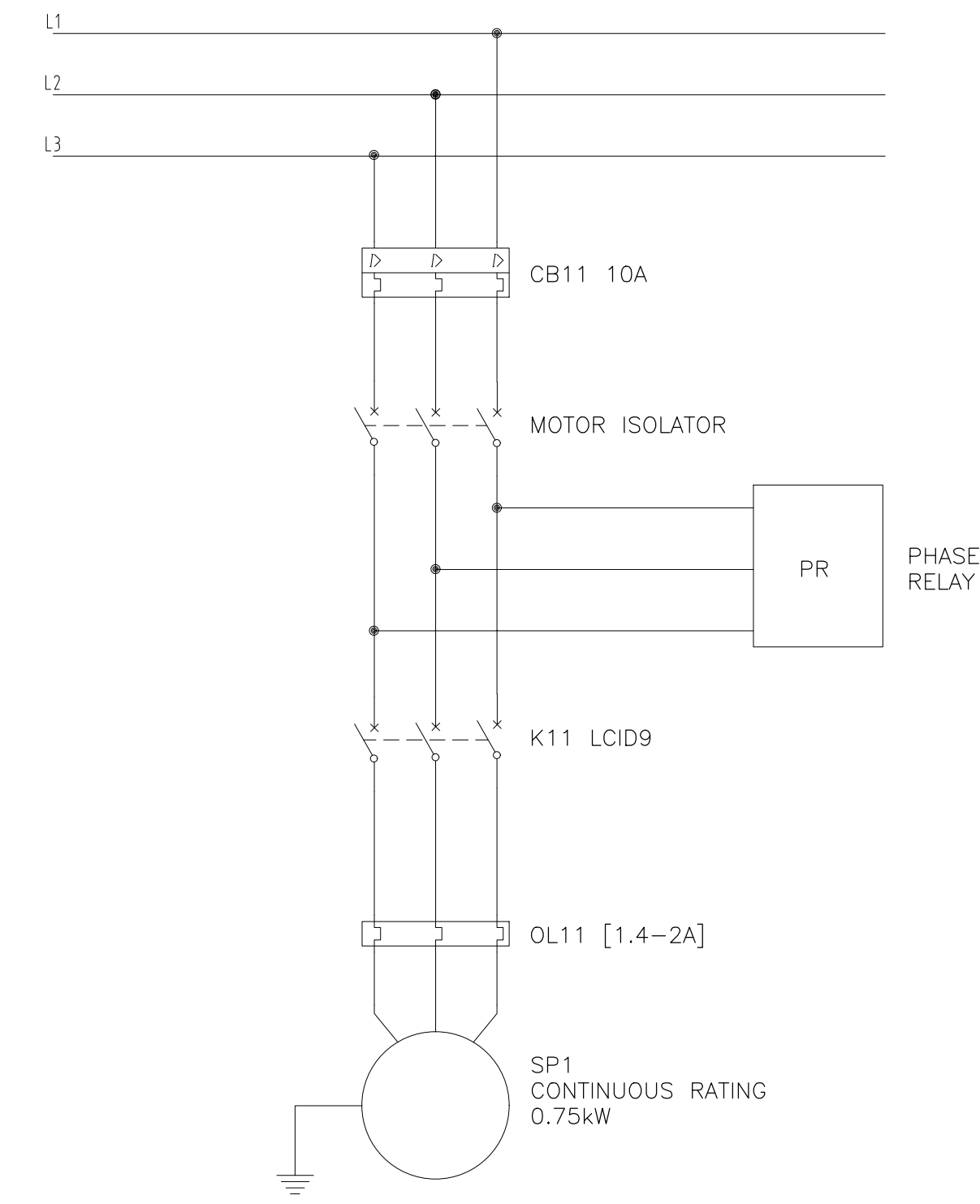
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 TANGO'S CONSULTANTS <i>A division of Tango's Group (PTY) Limited</i>	122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION		LEPELLE NORTHERN WATER		GLWaP-Phase 1:			
	MOD No 01 02	DATE 18/03/21 10/11/22	DESCRIPTION ISSUED FOR CONSTRUCTION DRAWING AMENDMENTS	FOR 		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	BABANANA PIPELINE PROJECT RS 135			
CHECKED: DATE:		DESIGN: B.K DRAWN: A.P N/A		DEPARTMENT OF WATER AND SANITATION		WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS CONTROL CIRCUIT DIAGRAMS (NO.2)				
ENGINEER: DATE:		EXTERNAL APPROVAL: DATE:				PROVINCE: LIMPOPO DISTRICT: MOPANI				
N/A		CHIEF ENGINEER / APP (Pr. Eng): DATE:				49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200		KEYCODES: - - - - - OTHER		
TANGO'S DWG No:		FILE No:		TENDER/ CONTRACT No.		SHEET		REG. No.		
DATE:		18/03/2021		8/1/3/50		1 OF 1		C1201-1679		
CALCULATION FILE:								01		

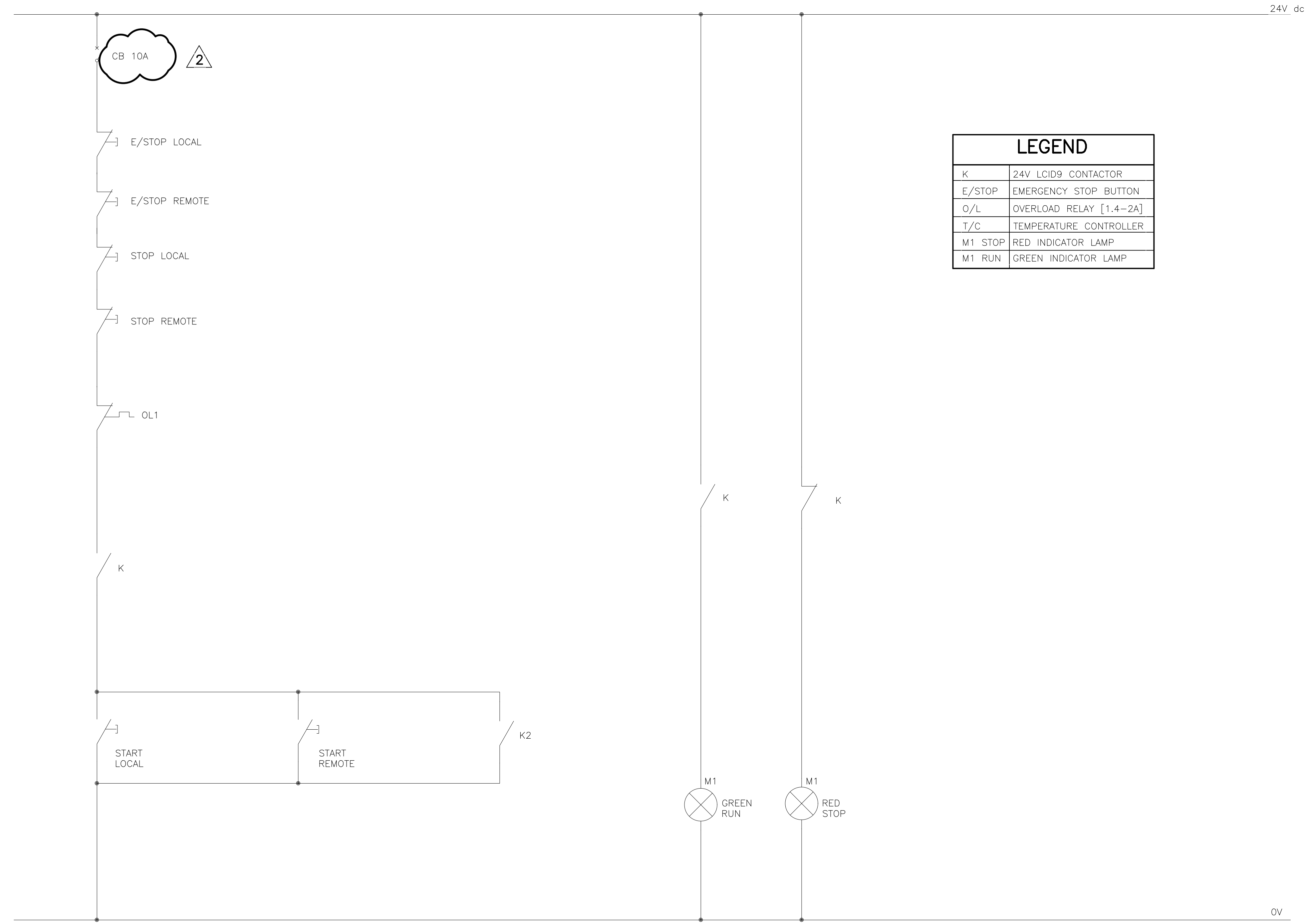


 TANGO'S CONSULTANTS A Division of Tango's Group (PTY) Limited	122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		MOD No DATE 01 18/03/21		REVISION DESCRIPTION ISSUED FOR CONSTRUCTION		FOR		LEPELLE NORTHERN WATER  01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800		GLeWaP—PHASE 1: BABANANA PIPELINE PROJECT RS 135									
	CHECKED: DATE:	DESIGN: B.K DRAWN: A.P							DEPARTMENT OF WATER AND SANITATION  49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200		WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS P&ID									
ENGINEER: DATE:		N/A		EXTERNAL APPROVAL: DATE:						PROVINCE: LIMPOPO		DISTRICT: MOPANI		KEYCODES:		- - - - - OTHER		REV.		
CHIEF ENGINEER / APP (Pr. Eng): DATE:		N/A		DIRECTOR (Pr. Eng): DATE:						LOCALITY No:		TENDER/ CONTRACT No. 8/1/3/50		SHEET 1 OF 1		REG. No. C1201-1680		01		
TANGO'S DWG No:		FILE No:		DATE: 18/03/2021						CALCULATION FILE:										

SUMP PUMP1 POWER CIRCUIT



SUMP PUMP1 CONTROL CIRCUIT



LEGEND	
K	24V LCID9 CONTACTOR
E/STOP	EMERGENCY STOP BUTTON
O/L	OVERLOAD RELAY [1.4~2A]
T/C	TEMPERATURE CONTROLLER
M1 STOP	RED INDICATOR LAMP
M1 RUN	GREEN INDICATOR LAMP

**TANGO'S CONSULTANTS**
A division of Tango's Group (Pty) Limited

122 DIE MEER STREET
BENDOR, POLOKWANE
0700
Tel. No 015-298 8828
Fax No. 015-295 3900

REVISION		FOR	
MOD No	DATE		
01	18/03/21	ISSUED FOR CONSTRUCTION	
02	10/11/22	DRAWING AMENDMENTS	

**LEPELLE NORTHERN WATER**
Water to last generations

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

**water & sanitation**
Department of Water and Sanitation
REPUBLIC OF SOUTH AFRICA

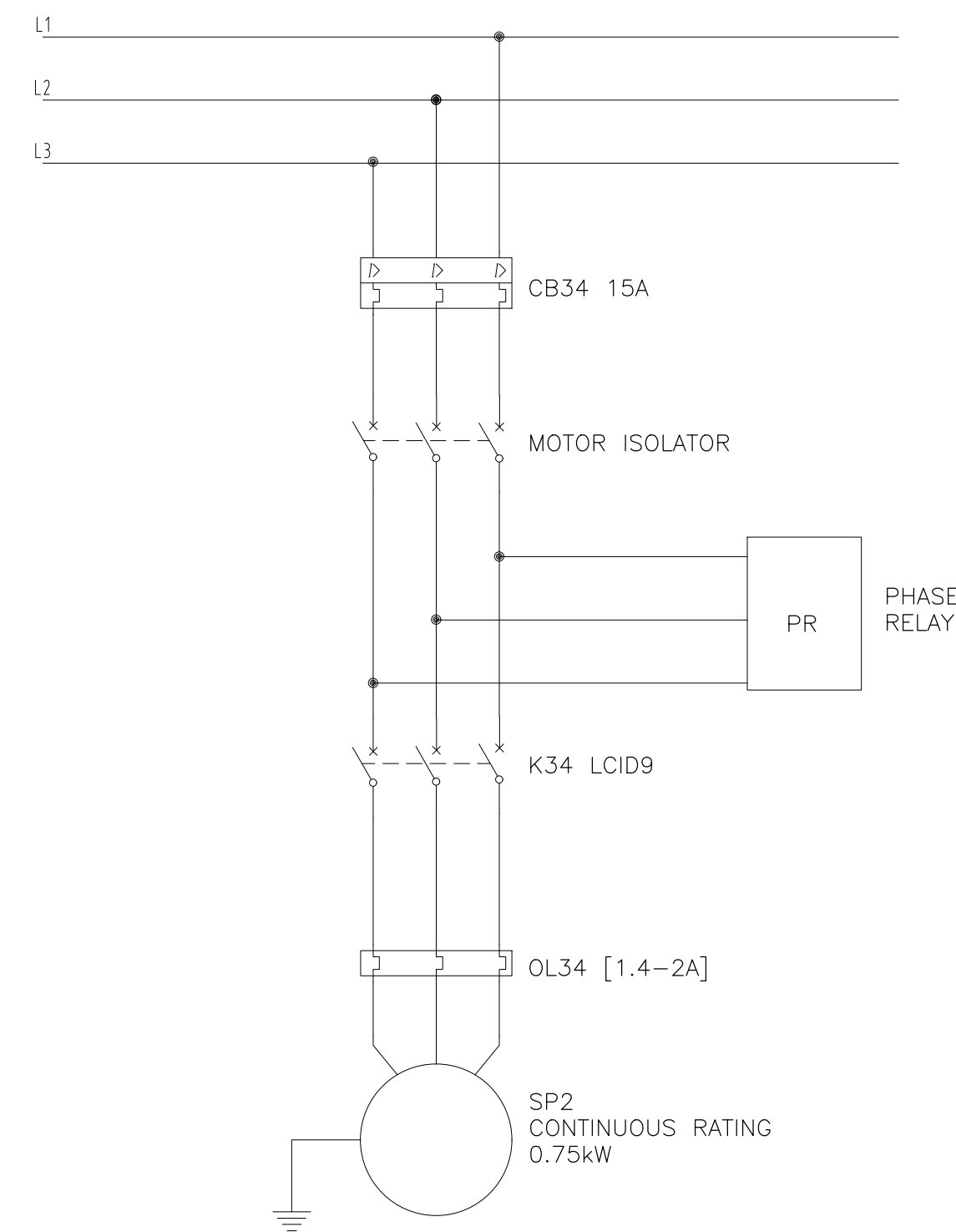
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:
BABANANA PIPELINE PROJECT RS 135

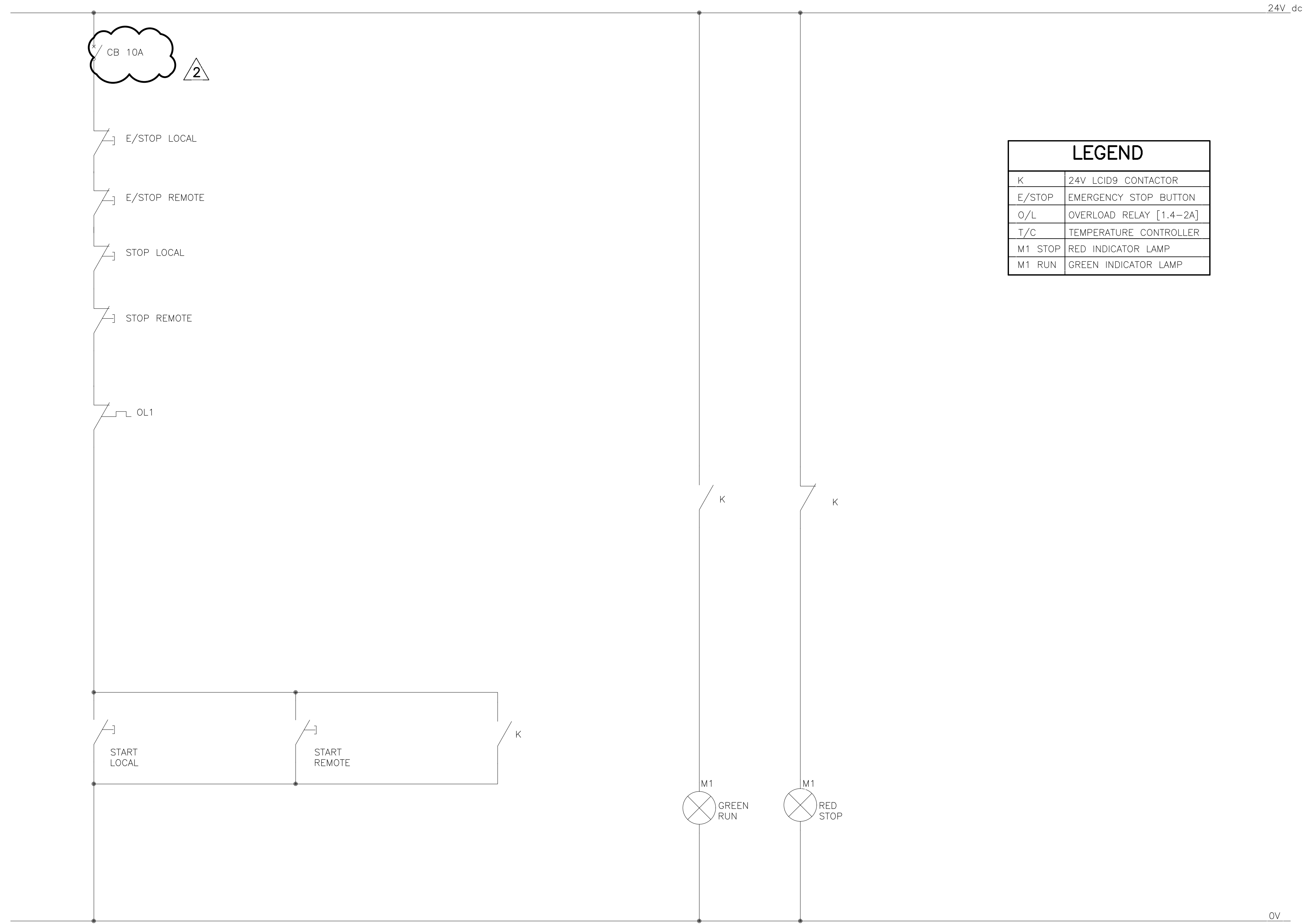
WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS
SUMP PUMP1 POWER AND CONTROL CIRCUITS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	TENDER/ CONTRACT No.		SHEET		REG. No.		REV.			
CALCULATION FILE:		8/1/3/50		1 OF 1		C1201-1681		01		

SUMP PUMP2 POWER CIRCUIT

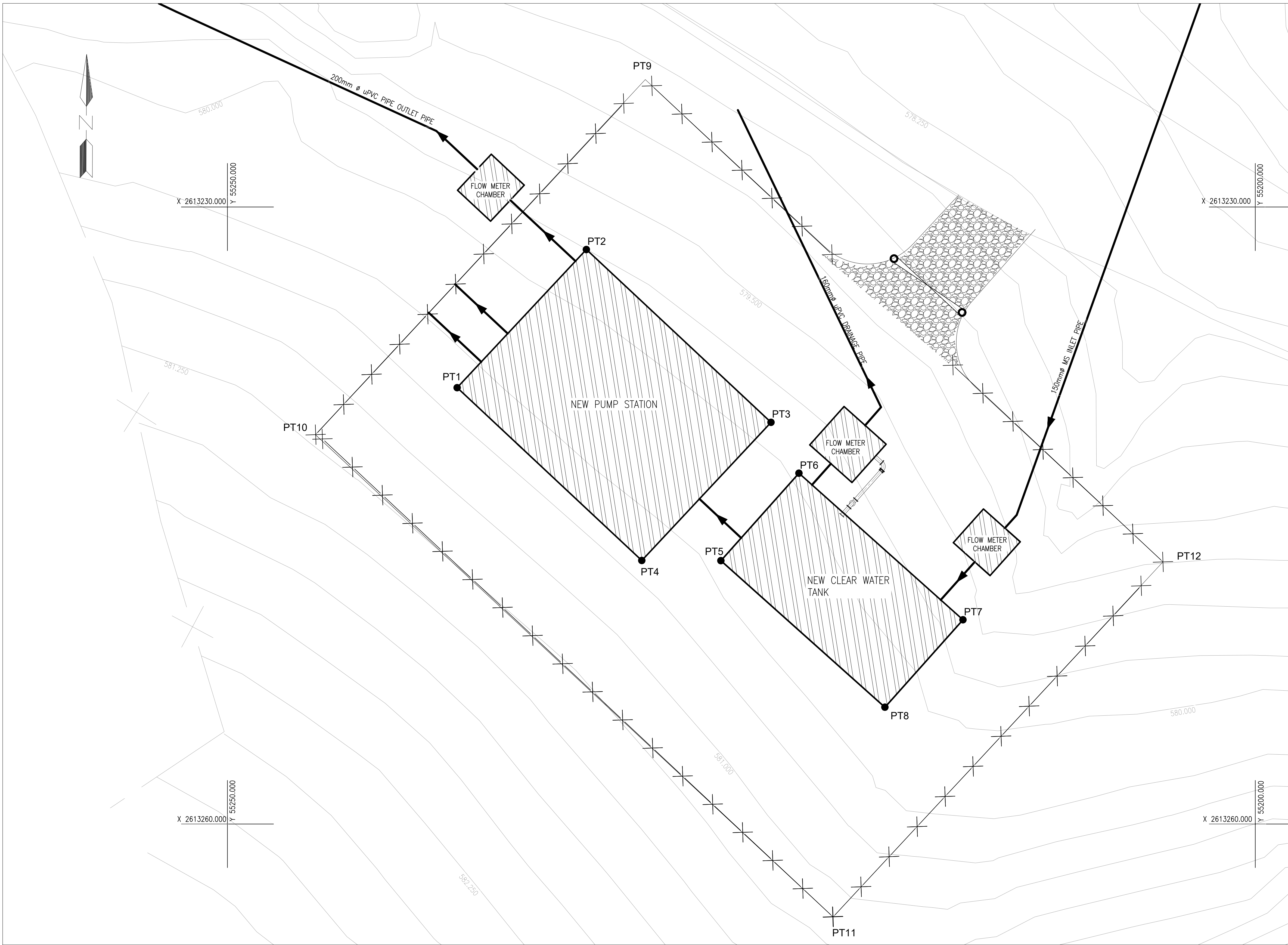


SUMP PUMP2 CONTROL CIRCUIT



LEGEND	
K	24V LCID9 CONTACTOR
E/STOP	EMERGENCY STOP BUTTON
O/L	OVERLOAD RELAY [1.4-2A]
T/C	TEMPERATURE CONTROLLER
M1 STOP	RED INDICATOR LAMP
M1 RUN	GREEN INDICATOR LAMP

 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited		122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION		 LEPELLE NORTHERN WATER Water to our people		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800		GLeWaP-PHASE 1:											
				BABANANA PIPELINE PROJECT RS 135																	
CHECKED: _____		DATE: _____		DESIGN: B.K		DEPARTMENT OF WATER AND SANITATION		 water & sanitation Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200		WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS SUMP PUMP2 POWER AND CONTROL CIRCUITS									
ENGINEER: _____		DATE: _____		EXTERNAL APPROVAL: _____								DATE: _____		PROVINCE: LIMPOPO		DISTRICT: MOPANI		KEYCODES: - - - - - OTHER		SHEET 1 OF 1	
N/A												TENDER/ CONTRACT No. 8/1/3/50		LOCALITY No: _____		REG. No.		C1201-1682			
CHIEF ENGINEER / APP (Pr. Eng): _____		DATE: _____		DIRECTOR (Pr. Eng): _____		DATE: _____						CALCULATION FILE: _____									
TANGO'S DWG No: _____		FILE No: _____																			
		DATE: 18/03/2021																			
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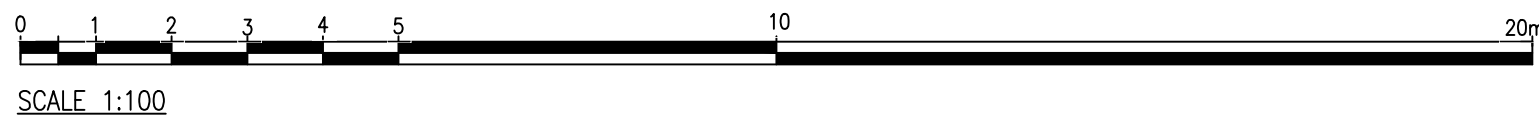
LEGEND

- GRAVEL ROAD
- EXISTING CONCRETE RESERVOIR
- NEW STRUCTURE
- GATE
- FENCE
- CONTOUR LINE
- TREATED WATER PIPE

BENCH MARKS			
CO-ORDINATE SYSTEM WGS 84			
STATION	+Y	+X	RL
X21	+55870.005	+2612986.276	555.664
X22	+55336.856	+2612805.276	551.558

SITE SETTING-OUT POINTS		
	X CO-ORDINATES	Y CO-ORDINATES
PT1	55238.826	2613238.783
PT2	55232.540	2613232.065
PT3	55223.558	2613240.468
PT4	55229.843	2613247.187
PT5	55225.997	2613247.195
PT6	55222.200	2613242.944
PT7	55214.220	2613250.072
PT8	55218.017	2613254.323
PT9	55229.675	2613223.802
PT10	55245.725	2613241.068
PT11	55220.539	2613264.521
PT12	55204.489	2613247.255

SITE LAYOUT PLAN
SCALE 1:100



TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIEMEER STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED:	DATE:	DESIGN: CLEMENCE MURINGA	DRAWN: ITUMELENG POOE
ENGINEER:	DATE:	N/A	DATE:
N/A		DATE:	
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWS No: C1201-1608	FILE No: C1201-1608	DATE: 12/04/2021	

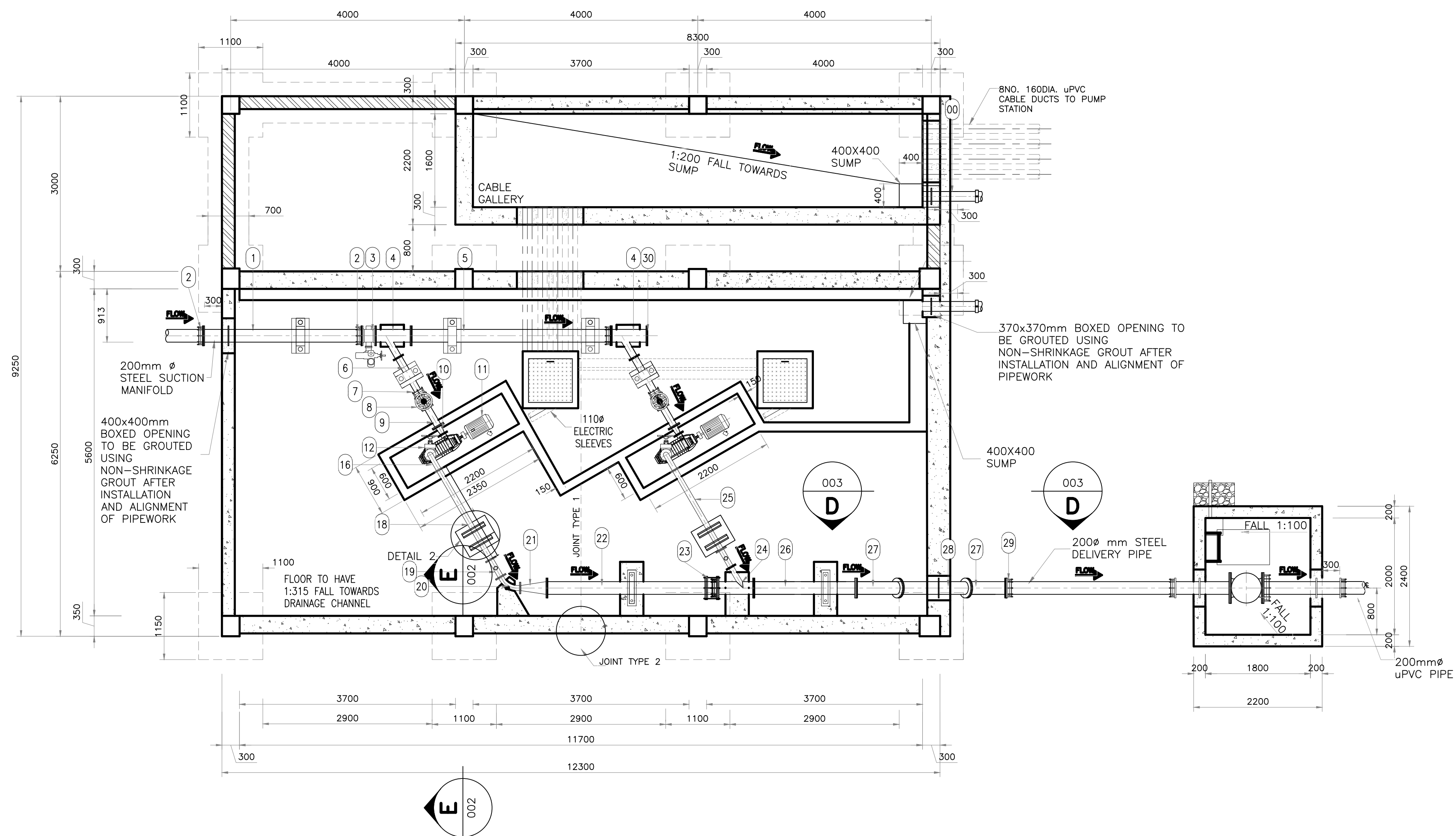
REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	12/04/21	ISSUED FOR CONSTRUCTION	DWA

LEPELLE NORTHERN WATER
01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

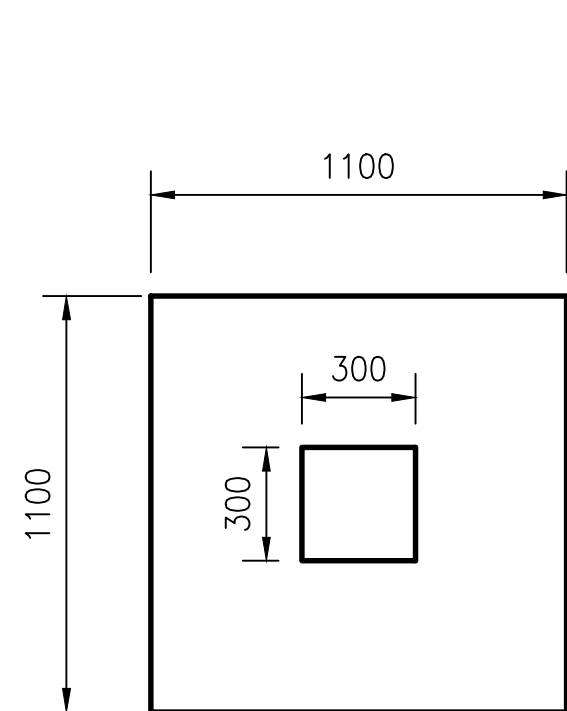
GLeWaP PHASE 1:
BABANANA PIPELINE PROJECT-RS 135
**WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION
MOOKGO 6 PUMP STATION AND RESERVOIR
SITE LAYOUT PLAN**

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER	
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 2					REV.	01
CALCULATION FILE:	20/2/B801-AT/C/1/1										



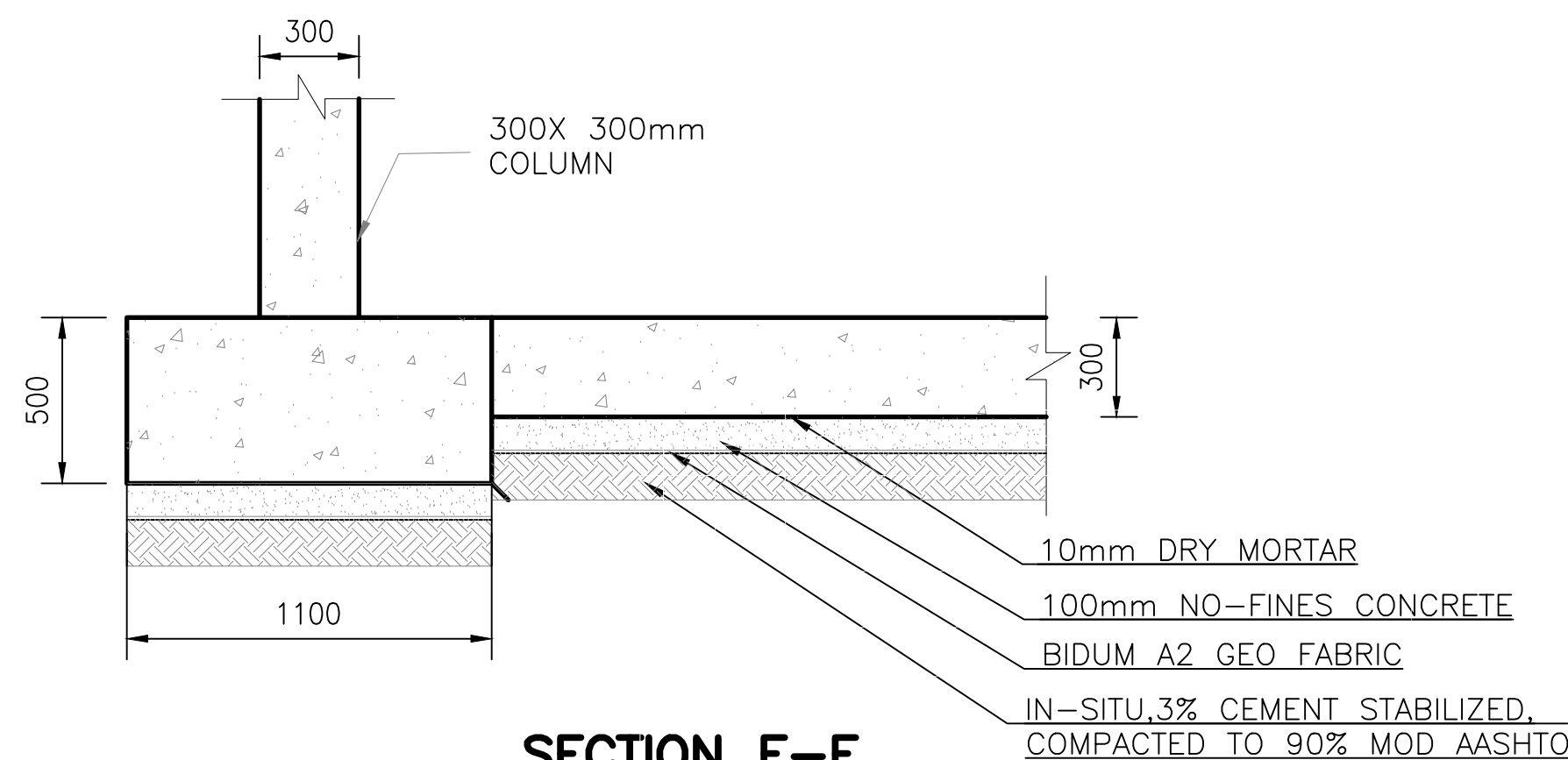
PUMP HOUSE LAYOUT PLAN (LOWER LEVEL)

SCALE 1:50



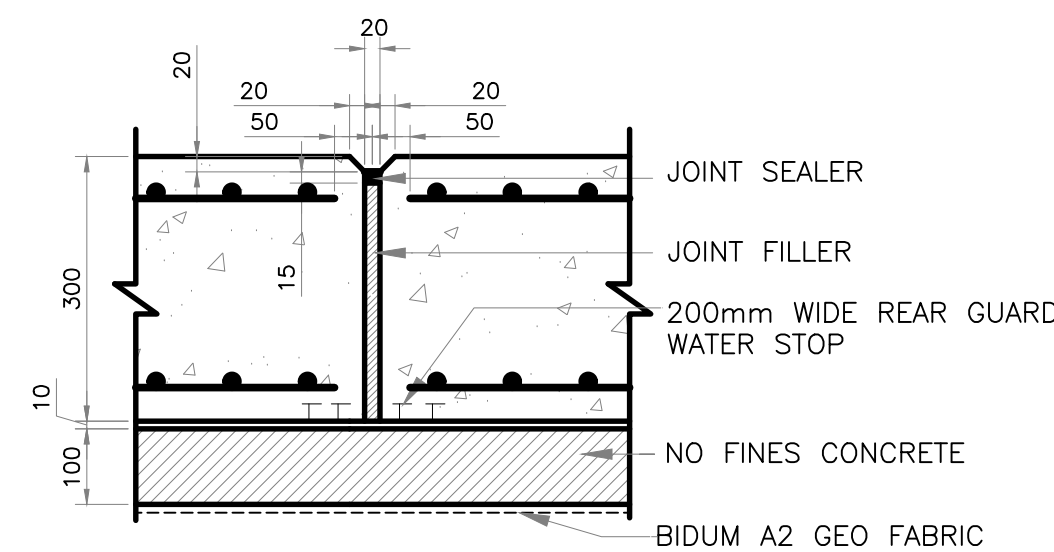
COLUMN PAD PLAN

SCALE 1:25



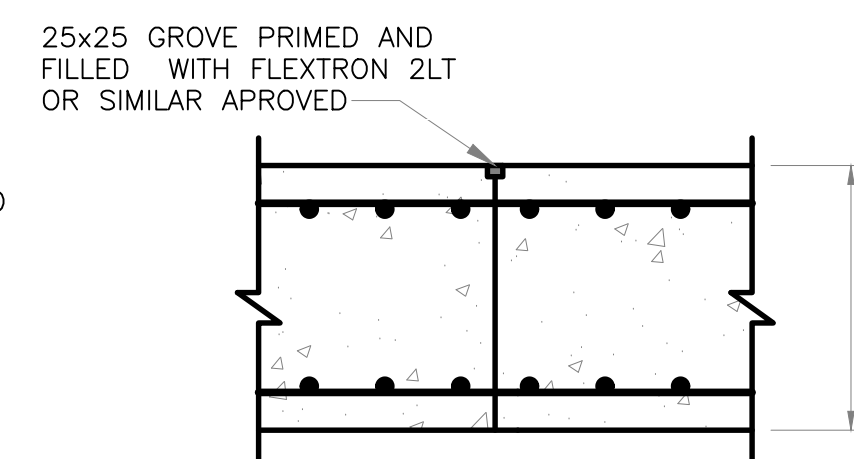
SECTION E-E

SCALE 1:25



JOINT TYPE 1

SCALE 1:10



JOINT TYPE 2

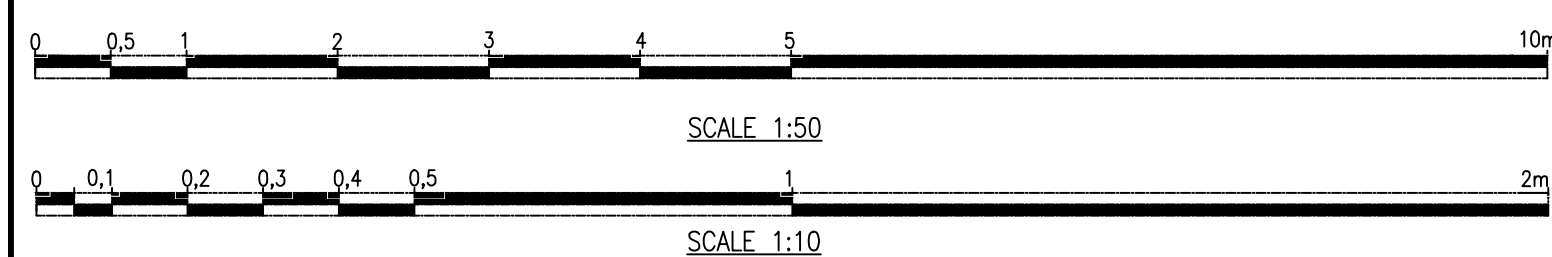
SCALE 1:10

GENERAL NOTES:

UNLESS OTHERWISE NOTED, ALL CONCRETE WORK TO CONFORM TO THE FOLLOWING:

- STANDARD SPECIFICATIONS:
 - SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
- TOLERANCES:
 - SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE STATED)
- CONCRETE GRADE:
 - CUBE STRENGTH IN MPa AT 28 DAYS
 - MASS CONCRETE:
 - BLINDING/SCREED: 10 MPa/41mm
 - FOUNDATIONS: 15 MPa/19mm
 - ALL OTHER STRUCTURES: 25 MPa/19mm
 - CONCRETE FINISH: 25 MPa/19mm
- FORMWORK:
 - 1A "ROUGH" - WHERE FACE IS NOT EXPOSED
 - 1B "SMOOTH" - WHERE FACE IS EXPOSED
 - 1C SMOOTH OFF-SHUTTER TO ALL EXPOSED SURFACES.
 - 1D CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
- FLOAT:
 - 2A SMOOTH WOOD TO ALL EXPOSED SURFACES.
- GROUT GRADE:
 - CEMENTITIOUS, NON-SHRINK, SABS APPROVED, MINIMUM STRENGTH 40 MPa
- 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS
- 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200 TO BE PROVIDED UNDER ALL GROUND SLABS.
- ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
- ANY OVER-BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEERS INSTRUCTIONS.
- FOUNDING MATERIAL SPECIFICATION & DESIGN BEARING PRESSURE
 - 10.1 AN ALLOWABLE BEARING PRESSURE OF 250 KPa HAS BEEN USED IN THE DESIGN OF ALL FOUNDATIONS.
 - 10.2 ENGINEERING BACKFILL TO BE CONSTRUCTED WITH SELECTED MATERIAL COMPACTED TO 98 % MOD AASHTO. IN 150 LAYERS WITH OPTIMUM MOISTURE
 - 10.3 ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
- THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
- GENERAL INSTRUCTIONS:
 - 12.1 DO NOT SCALE, IF IN DOUBT ASK.
 - 12.2 ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- SI UNITS:
 - 13.1 DIMENSIONS IN MILLIMETRES.
 - 13.2 CO-ORDINATES AND LEVELS IN METRES.
- ALL CO-ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
- ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L (ABOVE MEAN SEA LEVEL).

1 of 1	FLOW METER CHAMBER		C1201-1344
1 of 7	REINFORCEMENT DETAILS AND SCHEDULES		C1201-1617 to 1623
3 of 3	DRAWING LIST		C1201-902
SHEET	DESCRIPTION	OTHER No.	REG. No.
LIST OF DRAWINGS			

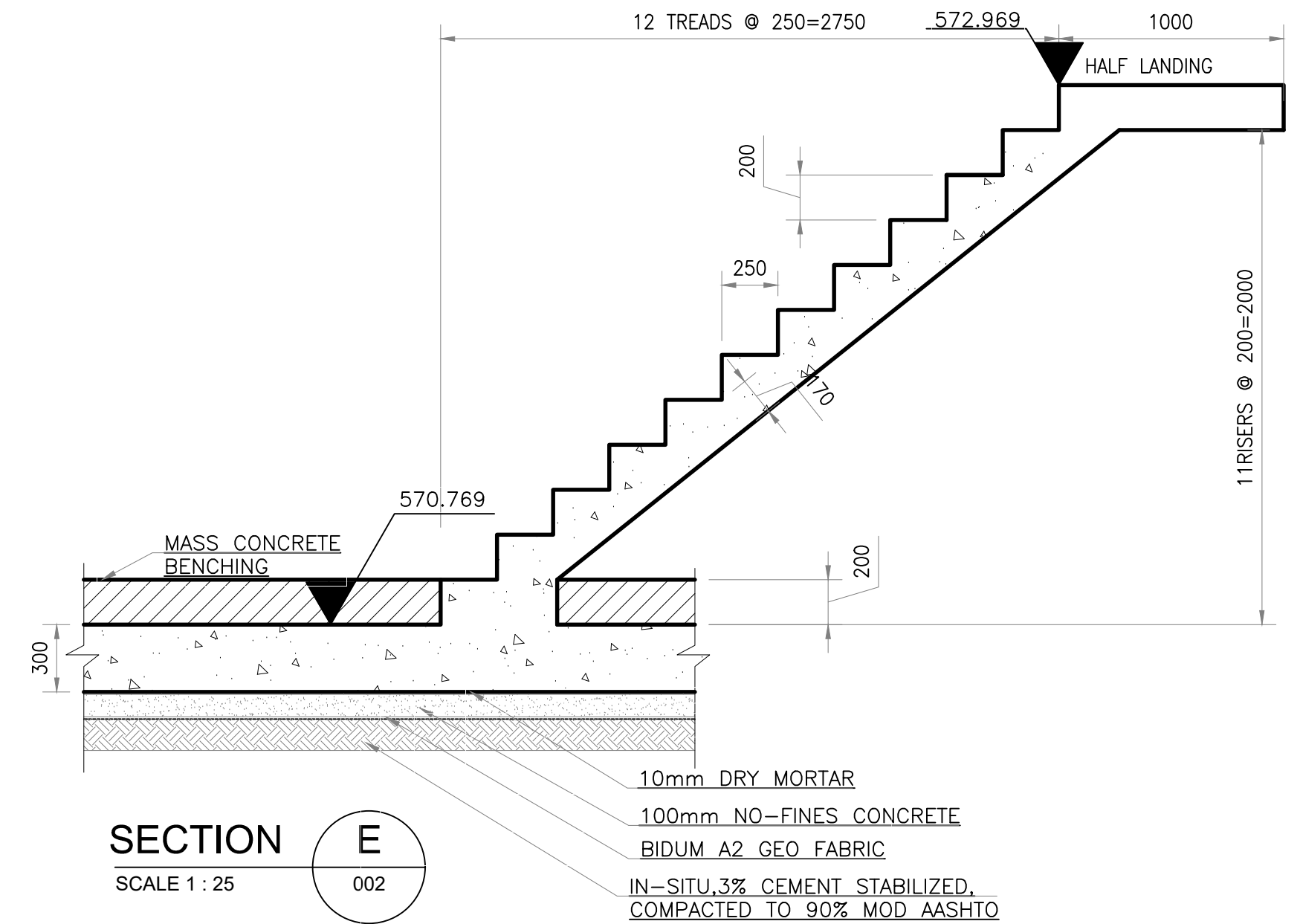
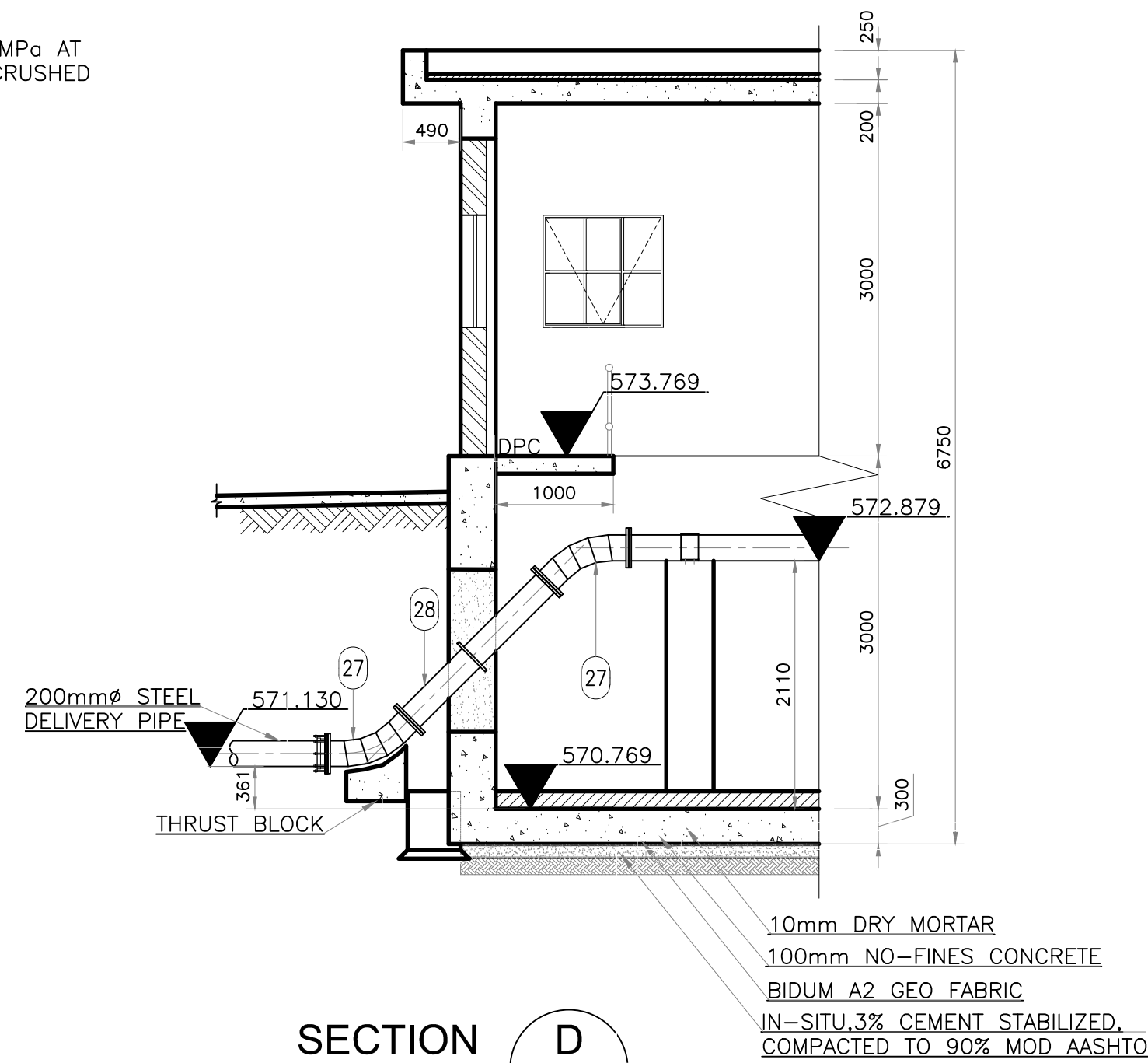
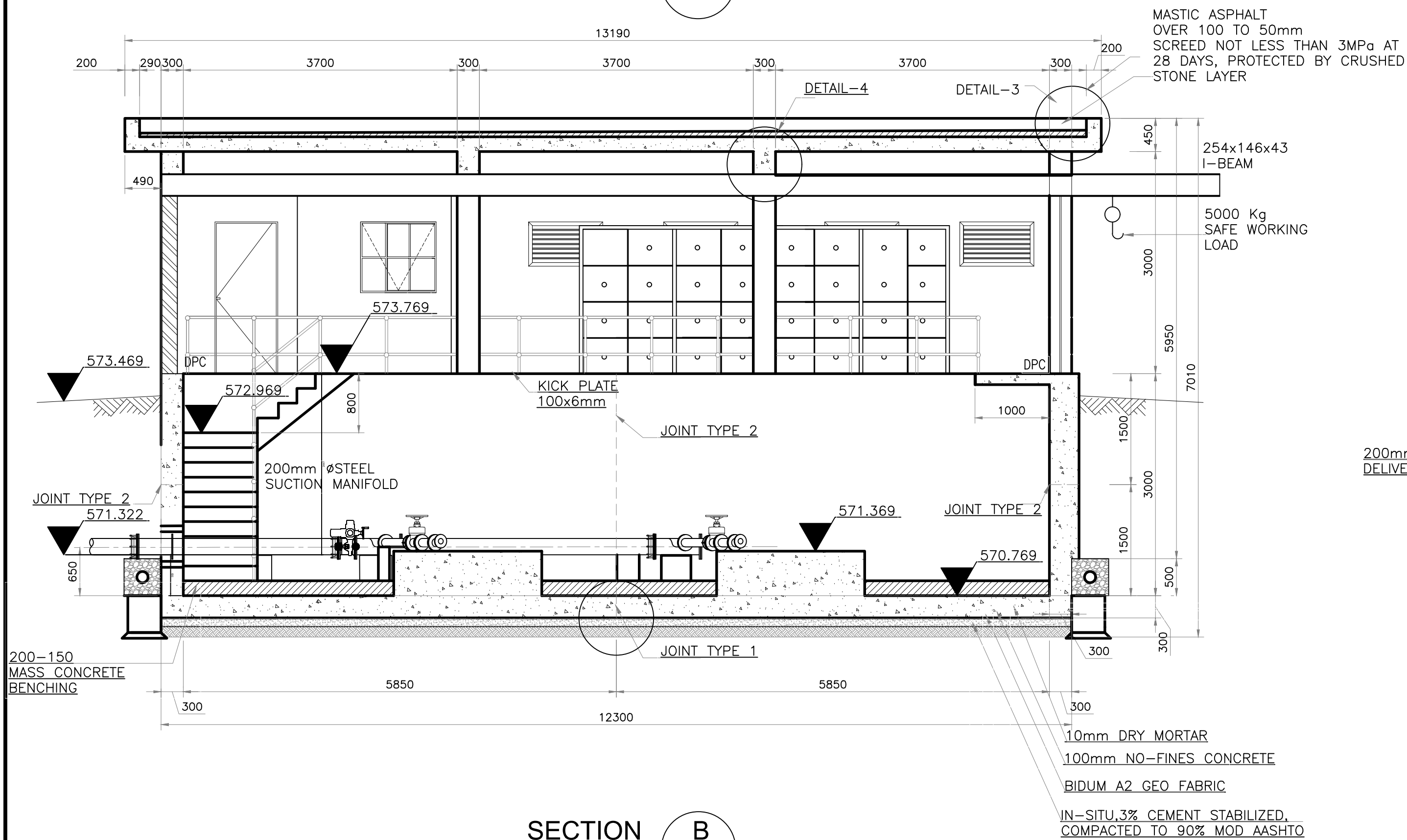
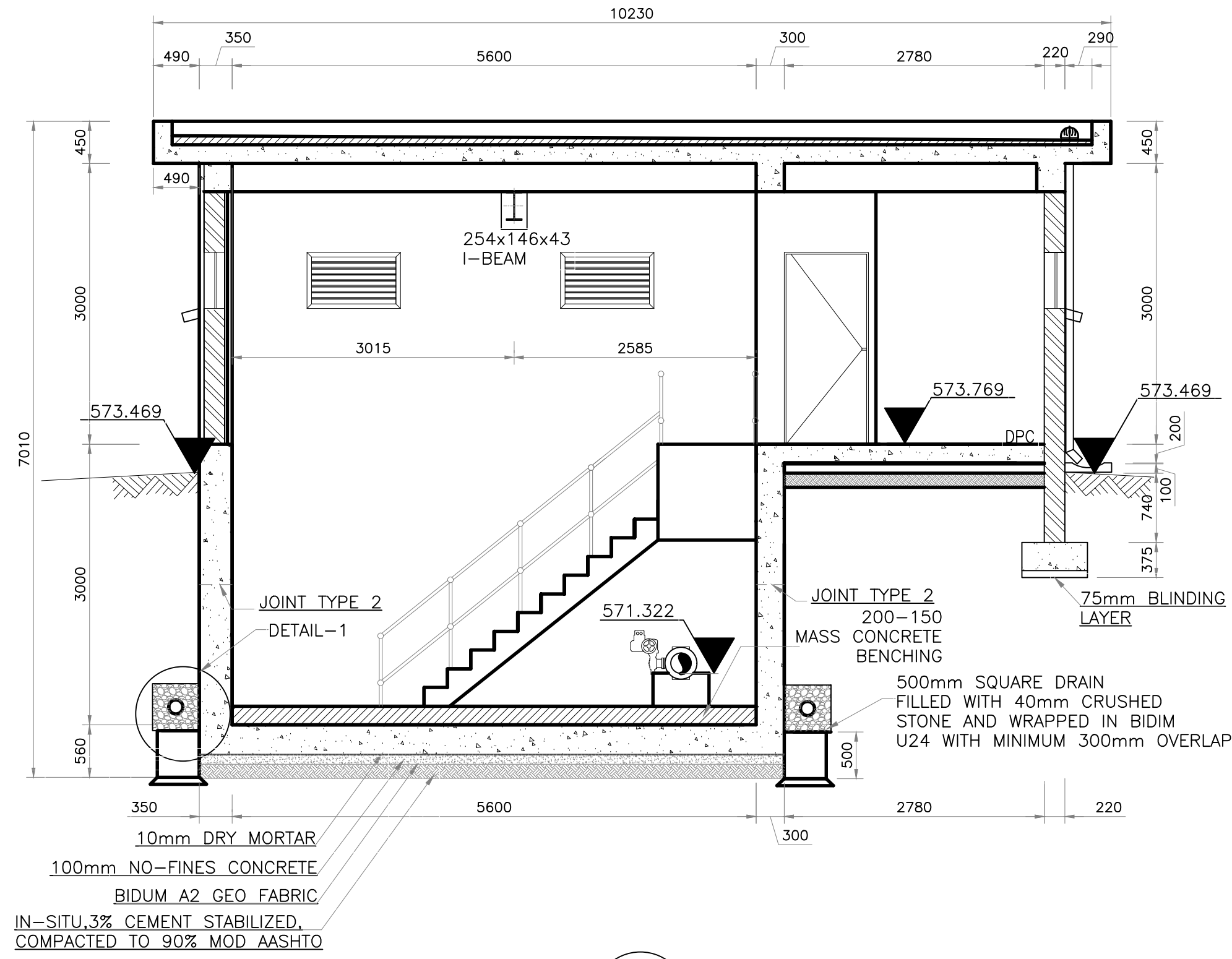
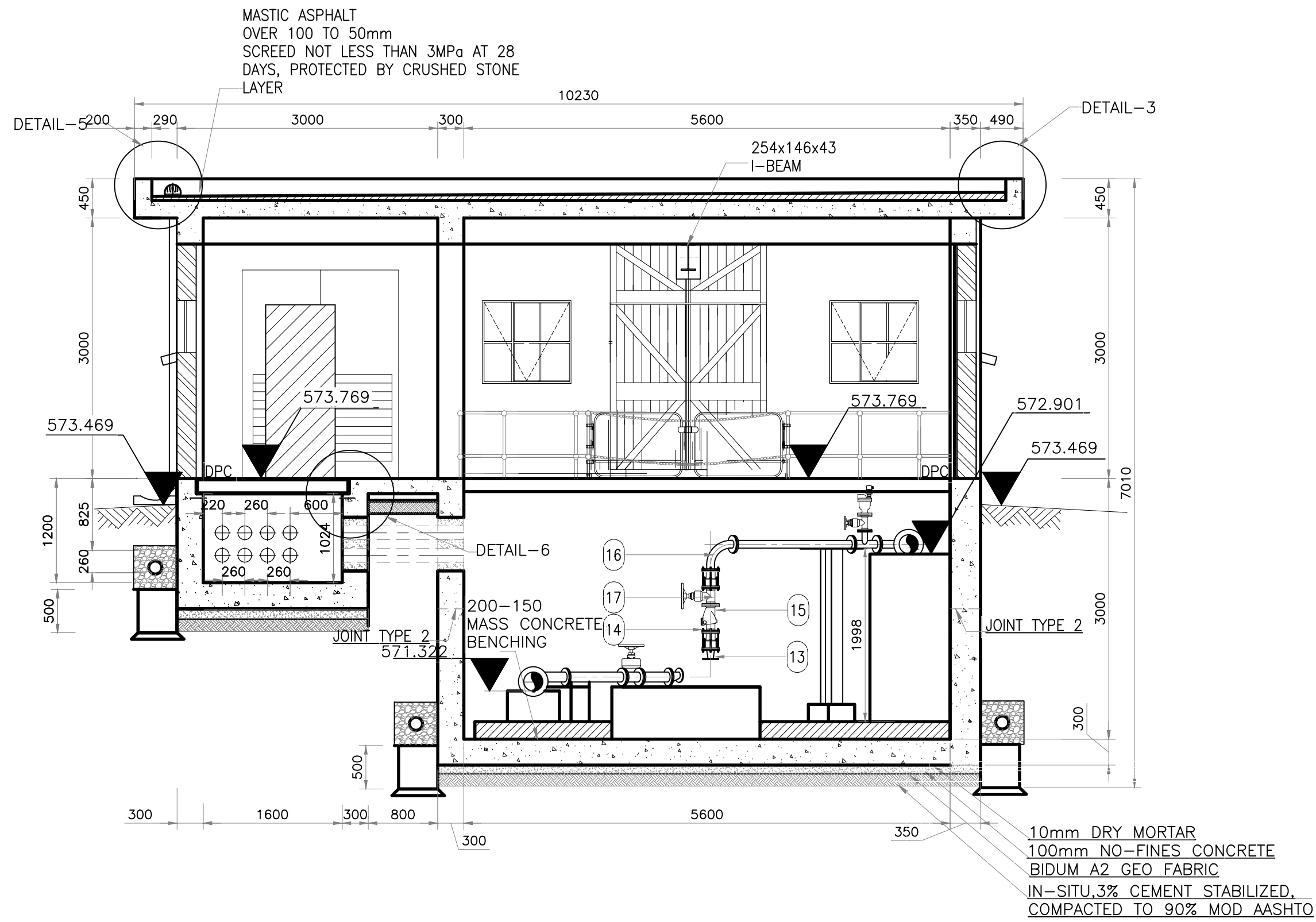


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CHECKED:	DATE:	DESIGN: CLEMENCE MURINGA	DRAWN: ITUMELENG POOE
ENGINEER:	DATE:	N/A	DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S ENG No: C1201-1611	FILE No: C1201-1611	DATE: 06/04/2021	

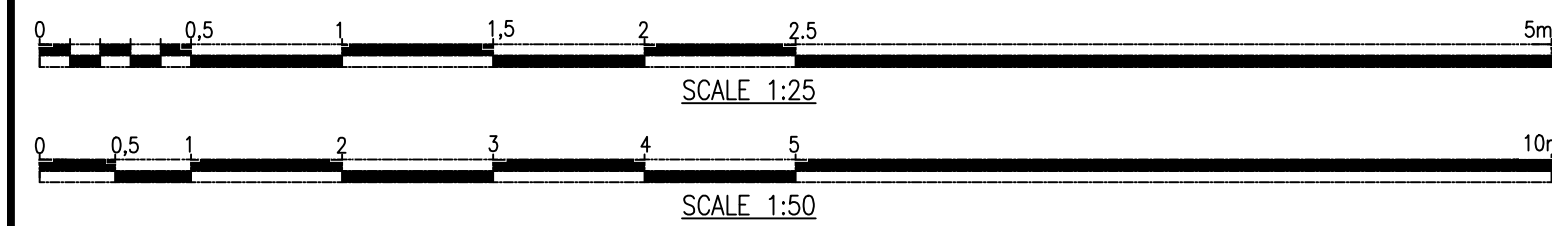
REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	06/04/21	ISSUED FOR CONSTRUCTION	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLWaP PHASE 1:			
BABANANA PIPELINE PROJECT-RS 135			
WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION MOOKGO 6 PUMP STATION LAYOUT PLAN (LOWER LEVEL)			
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.	
CALCULATION FILE:		KEYCODES:	- - - - - OTHER
		SHEET	2 OF 7
		REG. No.	C1201-1611
		REV.	01



- GENERAL NOTES:**
UNLESS OTHERWISE NOTED, ALL CONCRETE WORK TO CONFORM TO THE FOLLOWING:
- STANDARD SPECIFICATIONS:
 - SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
 - TOLERANCES:
 - SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE STATED)
 - CONCRETE GRADE:
 - CUBE STRENGTH IN MPa AT 28 DAYS
 - MASS CONCRETE:
 - BLINDING/SCREED: 10 MPa/41mm
 - FOUNDATIONS: 15 MPa/19mm
 - ALL OTHER STRUCTURES: 25 MPa/19mm
 - CONCRETE FINISH: 25 MPa/19mm
 - FORMWORK:
 - FORMWORK:
 - "ROUGH" - WHERE FACE IS NOT EXPOSED
 - "SMOOTH" - WHERE FACE IS EXPOSED.
 - SMOOTH OFF-SHUTTER TO ALL EXPOSED SURFACES.
 - CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
 - FLOAT:
 - SMOOTH WOOD TO ALL EXPOSED SURFACES.
 - GROUT GRADE:
 - CEMENTITIOUS, NON-SHRINK, SABS APPROVED, MINIMUM STRENGTH 40 MPa
 - 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS
 - 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200 TO BE PROVIDED UNDER ALL GROUND SLABS.
 - ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
 - ANY OVER-BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEERS INSTRUCTIONS.
 - FOUNDING MATERIAL SPECIFICATION & DESIGN BEARING PRESSURE
 - AN ALLOWABLE BEARING PRESSURE OF 250 KPa HAS BEEN USED IN THE DESIGN OF ALL FOUNDATIONS.
 - ENGINEERING BACKFILL TO BE CONSTRUCTED WITH SELECTED MATERIAL COMPACTED TO 98 % MOD AASHTO. IN 150 LAYERS WITH OPTIMUM MOISTURE
 - ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
 - THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
 - GENERAL INSTRUCTIONS:
 - DO NOT SCALE, IF IN DOUBT ASK.
 - ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE
 - AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - SI UNITS:
 - DIMENSIONS IN MILLIMETRES.
 - CO-ORDINATES AND LEVELS IN METRES.
 - ALL CO-ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
 - ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L. (ABOVE MEAN SEA LEVEL).



TANGO'S CONSULTANTS <i>A division of Tango's Group (PTY) Limited</i>		122 DIEMEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DATE:	DESIGN: CLEMENCE MURINGA	DRAWN: ITUMELENG POOE
ENGINEER:	DATE:	N/A	DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S ENG No:	FILE No:	C1201-1612	DATE: 06/04/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	06/04/21	ISSUED FOR CONSTRUCTION	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP PHASE 1: BABANANA PIPELINE PROJECT-RS 135 WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION MOOKGO 6 PUMP STATION SECTIONS			
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.	
CALCULATION FILE:		KEYCODES:	- - - - - OTHER
SHEET	3 OF 7	REG. No.	C1201-1612
REV.			01

1 of 1	FLOW METER CHAMBER	C1201-1344
1 of 7	REINFORCEMENT DETAILS AND SCHEDULES	C1201-1617 to 1623
3 of 3	DRAWING LIST	C1201-902
SHEET	DESCRIPTION	OTHER No.
LIST OF DRAWINGS		

PIPES AND SPECIALS: CONNECTION AT BOOSTER PUMP									
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
1	1	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PUDDLE FLANGE AS SHOWN PN 16		3.1	3.2	3.3
2	3	200ø			FLANGE ADAPTOR PN 16				
3	1	200ø			FLANGED BUTTERFLY VALVE. RIGHT HAND ACTUATOR, LEFT HAND PROJECTION ON FLOW DIRECTION PN 16				
4	2	200ø TO 100ø	STEEL GRADE X42 CLASS MEDIUM	4.5	60° LATERAL FLANGED PN 16		3.1	3.2	3.3
5	2	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,OTHER PLAIN FOR CUTTING TO SUITE ON SITE PN 16		3.1	3.2	3.3
6	2	100ø	CLASS MEDIUM	3.9	STRAIGHT PIPE ONE END FLANGED AND THE OTHER PLAIN CUT TO SUIT ON SITE, PN 16		3.1	3.2	3.3
7	2	100			FLANGE ADAPTOR PN 16				
8	2	100			RESILIENT SEAL GATE VALVE PN 16				
9	2	100ø	CLASS MEDIUM	3.9	STRAIGHT PIPE ONE END FLANGED,OTHER PLAIN FOR CUTTING TO SUITE ON SITE PN 16		3.1	3.2	3.3
10	2	100ø TO 65ø	CLASS MEDIUM	3.9	ECCENTRIC REDUCER, FLANGED, PN 16		3.1	3.2	3.3
11	2				ELECTRIC PUMP DRIVE MOTOR				
12	2				WKLn 125 PUMP				
13	2	60ø TO 80ø	CLASS MEDIUM	3.5	CONCENTRIC REDUCER, FLANGED. PN 40		3.1	3.2	3.3
14	4	80ø			DISMANTLING JOINT COUPLING. PN 40				
15	2	80ø			NON RETURN VALVE, FLANGED. PN 40				
16	2	80ø	CLASS HEAVY	4.3	90° SHORT RADIUS ELBOW, FLANGED. PN 40		3.1	3.2	3.3
17	2	80ø		4.3	WEDGE GATE VALVE, FLANGED. PN 40				
18	1	80ø	CLASS HEAVY	4.3	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PN 40		3.1	3.2	3.3
19	2	200ø TO 80ø	CLASS HEAVY	4.5	REDUCING TEE, FLANGED. PN40		3.1	3.2	3.3

PIPES AND SPECIALS: CONNECTION AT BOOSTER PUMP									
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
20	2	80ø	CLASS HEAVY	4.3	MEDIUM RADIUS 60° BEND FLANGED. PN 40		3.1	3.2	3.3
21	2	80ø TO 200ø	STEEL GRADE X42	4.5	CONCENTRIC REDUCER, FLANGED. PN 40		3.1	3.2	3.3
22	2	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE ONE END FLANGED,THE OTHER PLAIN TO WELD TO LOOSE FLANGE ON SITE PN40		3.1	3.2	3.3
23	1	200ø			ANCHORED FLANGE ADAPTOR PN40				
24	1	200ø TO 80ø	STEEL GRADE X42 CLASS HEAVY	4.5	60° UNEQUAL LATERAL FLANGED PN 40		3.1	3.2	3.3
25	1	80ø	CLASS HEAVY	4.5	STRAIGHT PIPE BOTH ENDS FLANGED, PN40		3.1	3.2	3.3
26	1	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED, PN40		3.1	3.2	3.3
27	2	200ø	STEEL GRADE X42	4.5	MEDIUM RADIUS 45° BEND BOTH ENDS FLANGED. PN 40		3.1	3.2	3.3
28	1	200ø	STEEL GRADE X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED PUDDLE FLANGE AS SHOWN PN40		3.1	3.2	3.3
29	1	200ø			FLANGED ADAPTOR PN40				
30	1	200ø		4.5	BLANK FLANGE PN40				

NOTES:

1. FLANGES:

1.1. ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3 TABLE 2 500/3 WORKING PRESSURE (NP) : 1 600 kpa. FLANGES TO BE DRILLED OFF-CENTRE AND TO BE FLAT JOINT FACES MACHINED N1:

1.2. PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.

1.3. ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 'I' AS DRILLED FLANGES. FLAT FACED.

2. FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:

2.1. FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.

2.2. FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.

3. CORROSION PROTECTION:

3.1. LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900 CLAUSES 7 AND 8.

3.2. COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.

3.3. FLANGE FACES: TWO PACK EPOXY 0.060 – 0.090 mm.

3.4. COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING)

3.5. 3CR12 COMPONENT:PICKLE AND PASSIVATE AFTER MANUFACTURE

3.6. CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, SECTION C1.

4. CONCRETE AND MISCELLANEOUS:

4.1. ALL CONCRETE EDGES TO BE 25mm CHAMFERED.

4.2. CONCRETE VOLUME: CLASS 25/19 = 7.2 m³ CLASS 15/19 = 1.1m³

4.3 ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)

4.4 BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.

5. GENERAL:

5.1. REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DETAIL"Y" AND DWS 9 900. DRG 164 823/12

5.2 PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL"Y"

5.3. CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.

5.4. PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.

5.5 ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.

5.6 CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.

5.7 PROVIDE LIFTING LUGS WHERE REQUIRED

5.8 OPERATING INSTRUCTIONS(LETTERING 20mm HIGH)AND VALVE NUMBERS(DETAILS"A"AND"B")BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.

5.9 PIPE ITEMS SPECIFIED FOR CUTTING TO BE MANUFACTURED WITH 40% EXTRA LENGTH

1 of 7	REINFORCEMENT DETAILS AND SCHEDULES		C1201-1617 to 1623
3 of 3	DRAWING LIST		C1201-902
SHEET	DESCRIPTION	OTHER No.	REG. No
LIST OF DRAWINGS			



TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIEMEER STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED: DATE: DESIGN: CLEMENCE MURINGA

CHECKED: DATE: DRAWN: ITUMELENG POOE

ENGINEER: DATE: EXTERNAL APPROVAL: N/A DATE:

CHIEF ENGINEER / APP (Pr. Eng): N/A DATE: DIRECTOR (Pr. Eng): DATE:

TANGO'S DWG No: C1201-1616

FILE No: C1201-1616

DATE: 06/04/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	06/04/21	ISSUED FOR CONSTRUCTION	



LEPELE NORTHERN WATER
Water in our community

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800



DEPARTMENT OF WATER AND SANITATION
Department of Water and Sanitation
REPUBLIC OF SOUTH AFRICA

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP PHASE 1:

BABANANA PIPELINE PROJECT-RS 135

WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION
MOOKGO 6 PUMP STATION
PIPE LIST SCHEDULE

PROVINCE: LIMPOPO

DISTRICT: MOPANI

KEYCODES: - - - - - OTHER

LOCALITY No: BB01-AT

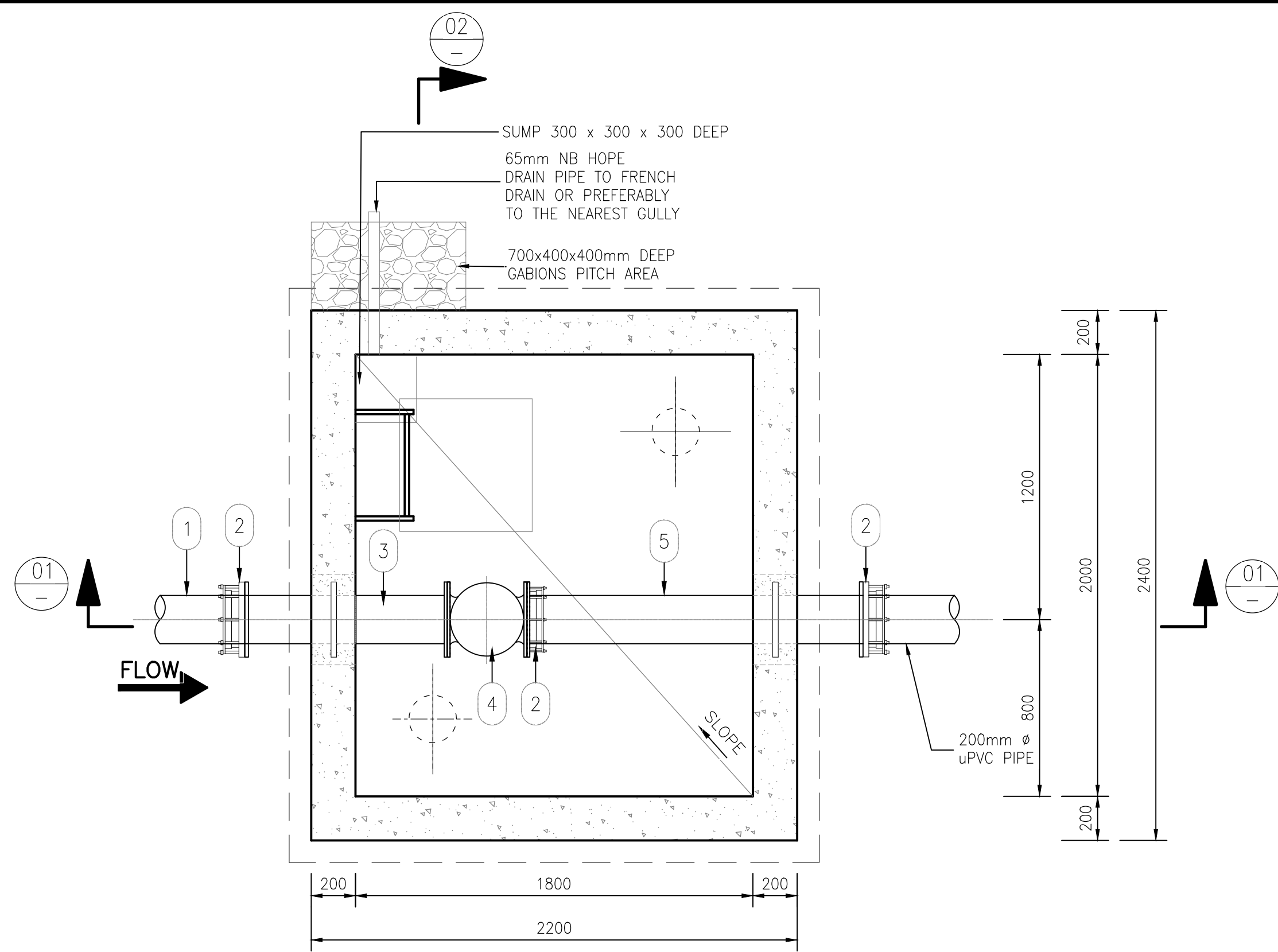
TENDER/ CONTRACT No:

SHEET 7 of 7

REG. No. C1201-1616

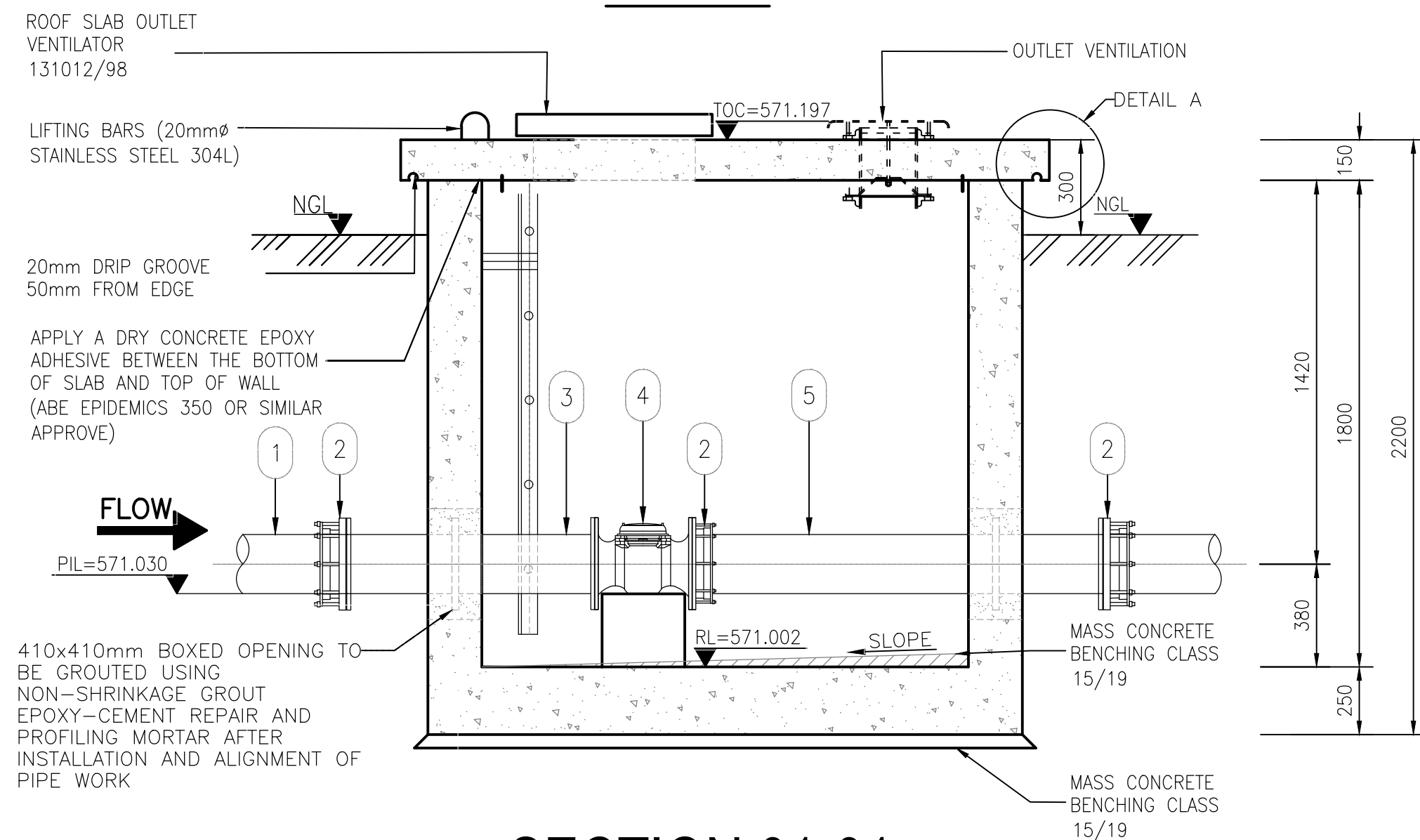
REV. 01

CALCULATION FILE:



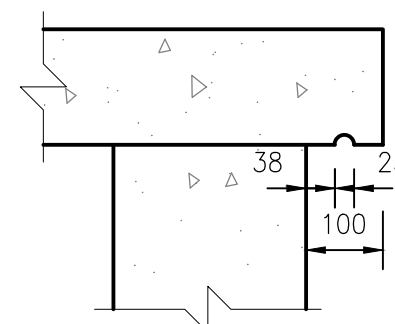
PLAN

SCALE 1:20



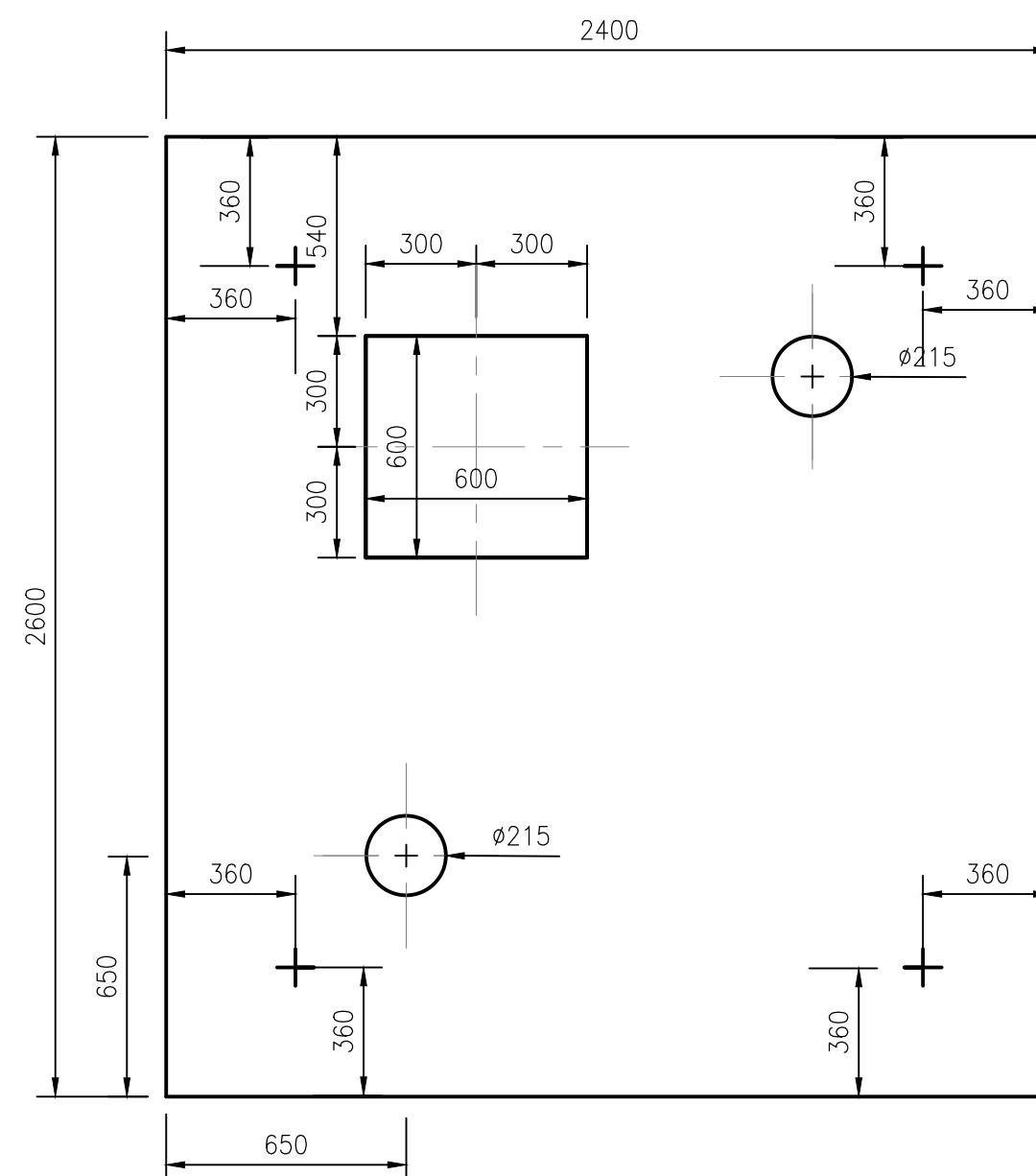
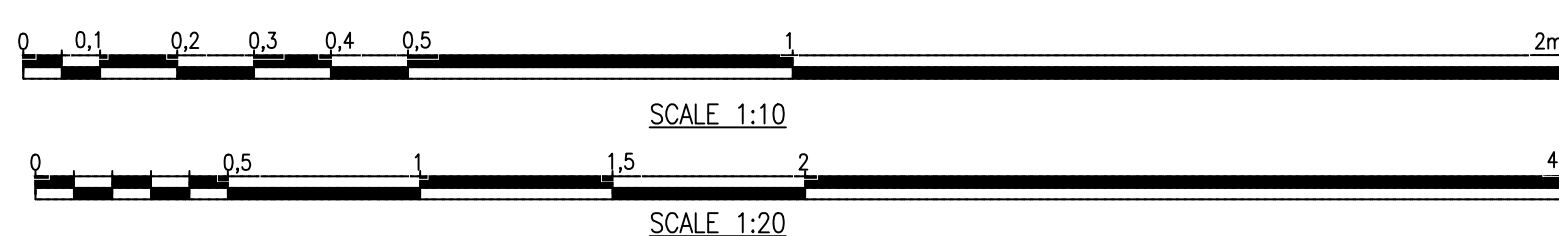
SECTION 01-01

SCALE 1:20



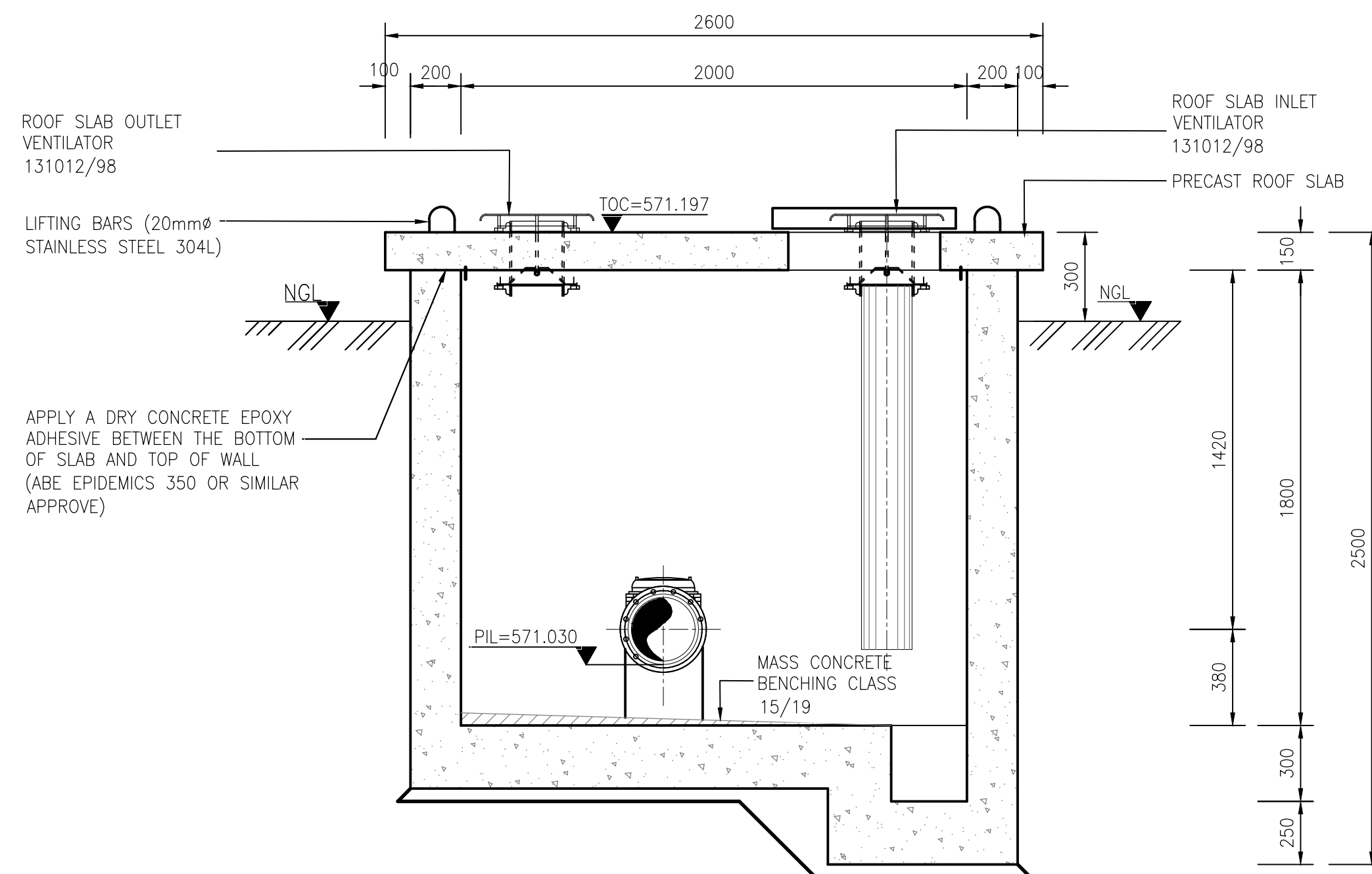
DRIP GROOVE DETAIL B

SCALE 1:10



ROOF PLAN

SCALE 1:20



SECTION 02-02

SCALE 1:20

NOTES:

CONCRETE & MISCELLANEOUS

1. ALL EXPOSED CONCRETE EDGES TO BE 25 mm CHAMFERED.
2. ALL EXPOSED METALWORK TO BE 3CR12 AND LEFT UNPAINTED.
3. BACKFILL BELOW CHAMBER TO BE COMPACTED IN 200 mm LAYERS TO BE 95% MOD AASHTO.

NOTES:

1. FLANGES:
 - 1.1. ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - 1.2. PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - 1.3. ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 'I' AS DRILLED FLANGES. FLAT FACED.
2. FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL
 - 2.1. FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - 2.2. FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
3. CORROSION PROTECTION:
 - 3.1. LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - 3.2. COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - 3.3. FLANGE FACES: TWO PACK EPOXY 0.060 – 0.090 mm.
 - 3.4. COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3.5. 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE.
 - 3.6. CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - 3.7. ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DMS 9900.
4. CONCRETE AND MISCELLANEOUS:
 - 4.1. ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - 4.2. CONCRETE VOLUME: CLASS 25/19 = 12.2m³ CLASS 15/19 = 0.5m³
 - 4.3. ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - 4.4. BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
5. GENERAL:
 - 5.1. REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DMS 9 900.
 - 5.2. PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - 5.3. CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - 5.4. PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - 5.5. ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - 5.6. CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - 5.7. PROVIDE LIFTING LUGS WHERE REQUIRED
 - 5.8. OPERATING INSTRUCTIONS(LETTERING 20mm HIGH)AND VALVE NUMBERS(DETAILS "A"AND "B")BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - 5.9. WHERE H>1m PROVIDE OUTSIDE LADDERS.LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS.

PIPES AND SPECIALS: CONNECTION CHAMBER FOR 200mmØ PIPE						CORROSION PROTECTION		
ITEM	NO.	DIA(mm)	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	LINING	COATING
1	1	200	STEEL X42	4.5	+/-3m STRAIGHT PIPE PLAIN FOR CUT TO SUIT ON SITE		3.1	3.2
2	3	200	STEEL		FLANGE ADAPTOR. PN40			3.3
3	1	200	STEEL X42	4.5	STRAIGHT PIPE ONE END FLANGED FOR CUTTING ON SITE TO SUIT RESTRAINING FLANGE AS INDICATED		3.1	3.2
4	1	200			MECHANICAL TURBINE FLOW METER PN 4000 kpa			
5	1	200	STEEL X42	4.5	STRAIGHT PIPE BOTH END FLANGED RESTRAINING FLANGE AS INDICATED		3.1	3.2

1 of 3	DRAWING LIST		C1201-900 to 902
SHEET	DESCRIPTION	OTHER No.	REG. No.
LIST OF DRAWINGS			

GLeWaP PHASE 1:

BABANANA PIPELINE PROJECT-RS 135

WORK PACKAGE 10: XIHOKO BOOSTER PUMP STATION MOOKGO 6 FLOW METER CHAMBER CONCRETE DETAILS AND PIPE SPECIALS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.	C1201-1630	REV.	01	
CALCULATION FILE:										

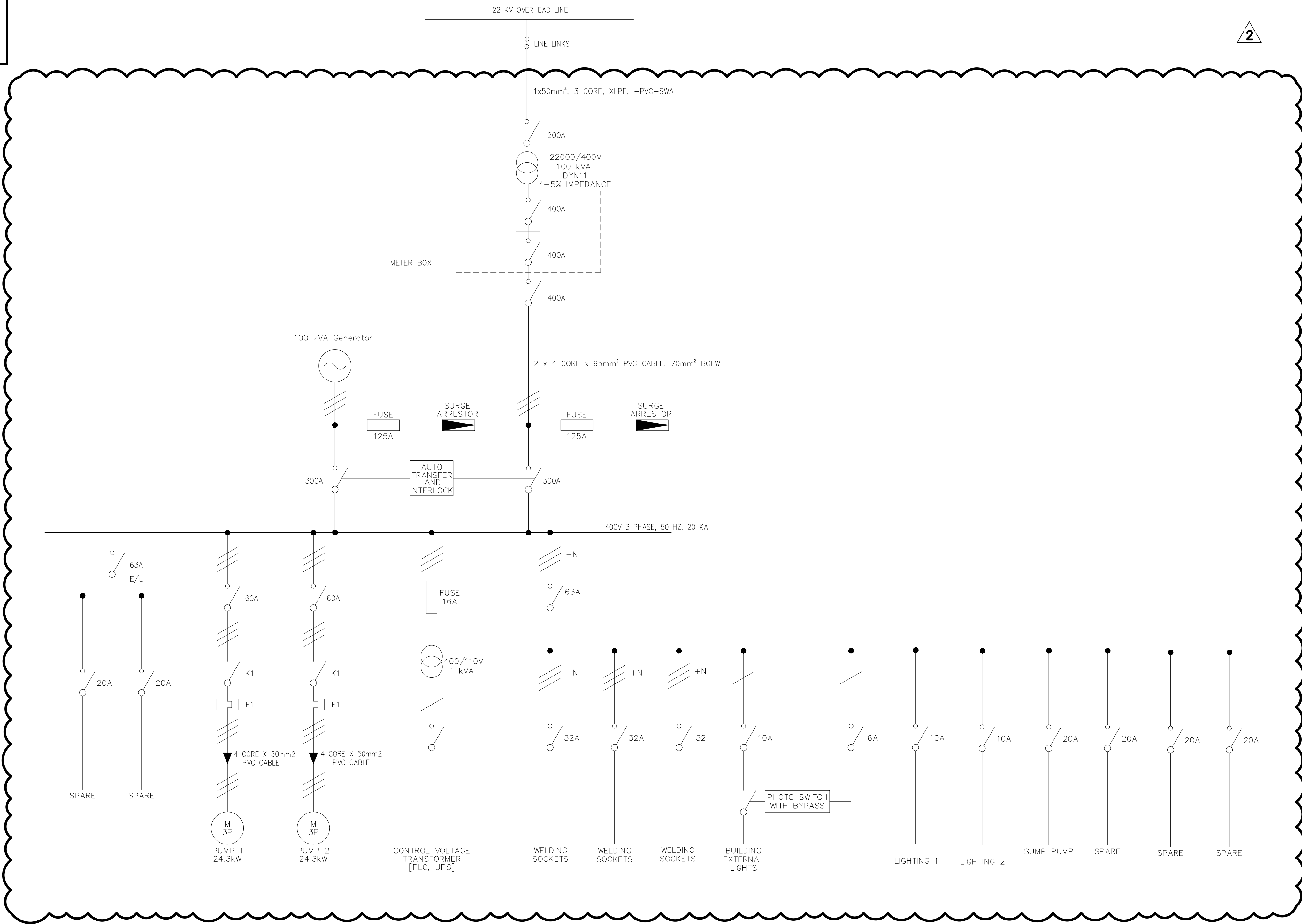
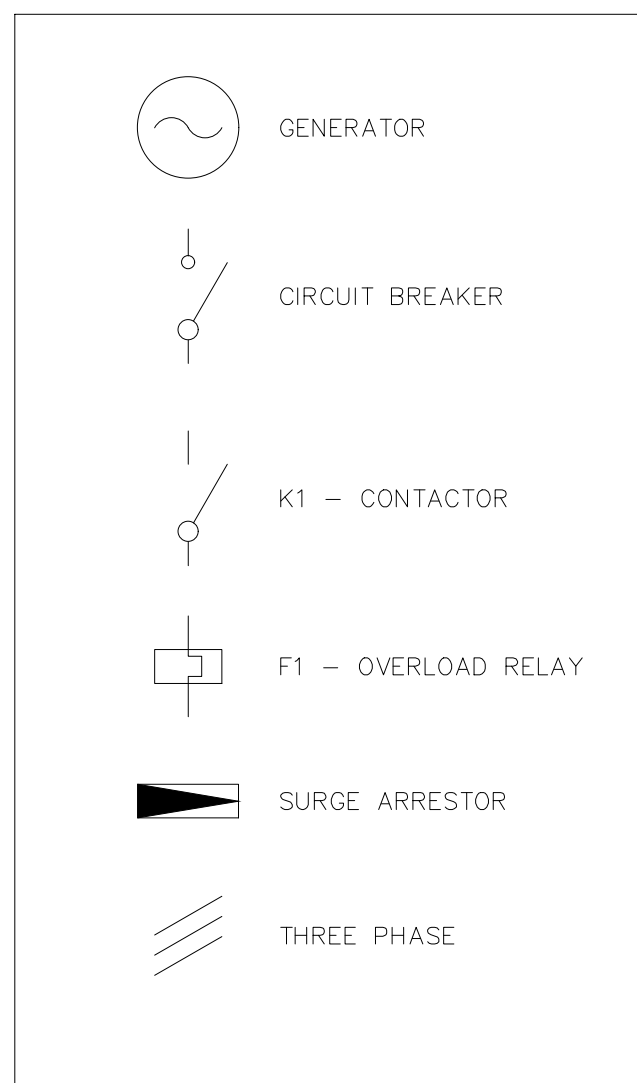
TANGO'S CONSULTANTS		122 DIEMEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DATE:	DESIGN: M.T DRAWN: G.M	
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWO No:	FILE No:	C1201-1610	
	DATE:	21/10/2021	

MOD No	DATE	DESCRIPTION	FOR
01	21/10/21	ISSUED FOR CONSTRUCTION	

LEPELLE NORTHERN WATER		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

NOTES:

THE CONTRACTOR SHALL, PRIOR TO ANY PROCUREMENT AND INSTALLATION OF ELECTRICAL EQUIPMENT, VERIFY THE POINT OF CONNECTION TO THE MUNICIPALITY/UTILITY, I.E. 22KV OHL, OR ANOTHER MV CONNECTION POINT. 2. THE GENERATOR HAS BEEN SIZED TO ACCOMMODATE ALL LOADS IN THE PUMP STATION.

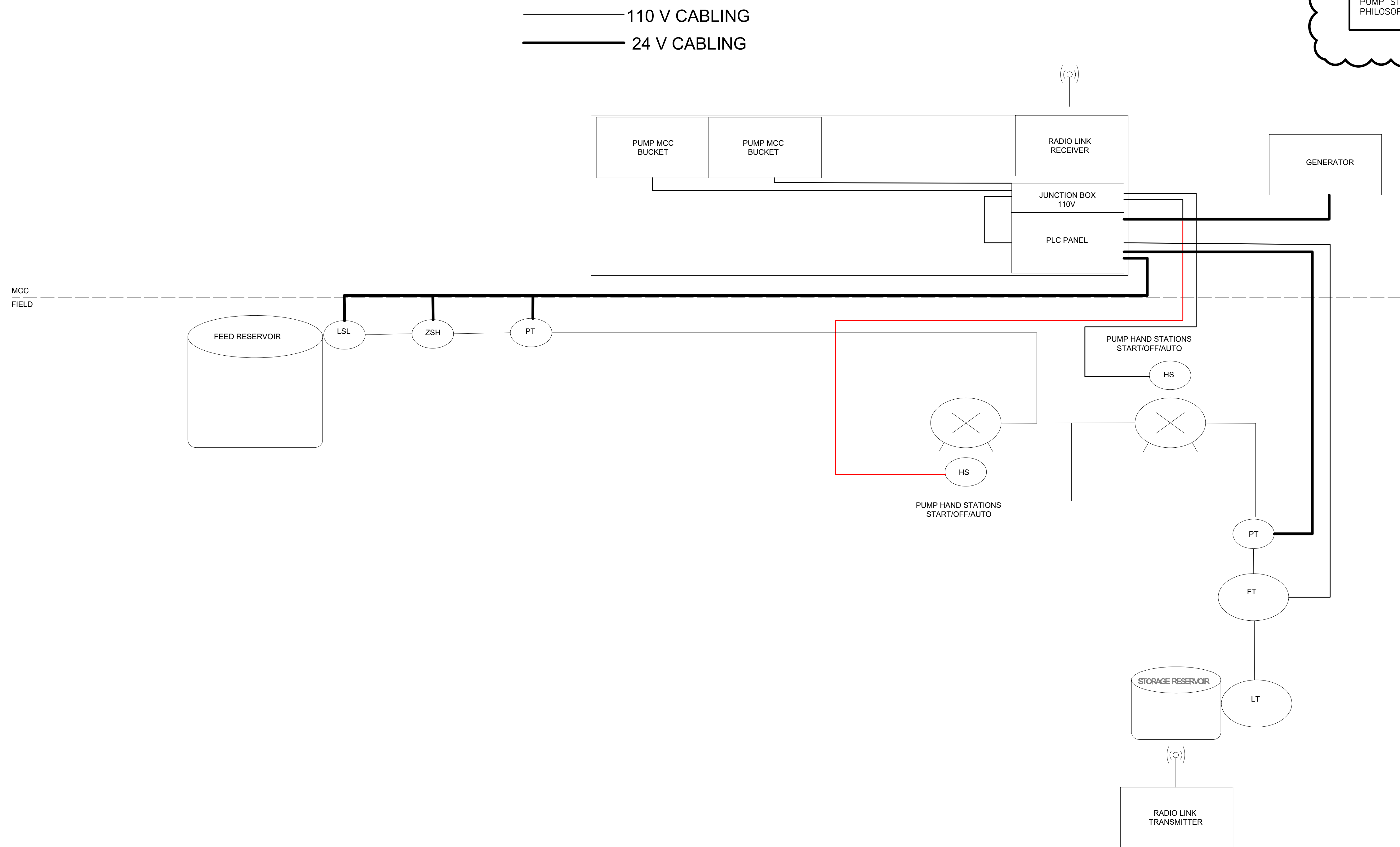


 TANGO'S CONSULTANTS A division of Tango's Group (Pty) Limited		122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900
DESIGN: P.M CHECKED: DATE: DRAWN: A.P		
ENGINEER: DATE: EXTERNAL APPROVAL: DATE:		N/A
N/A CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:		
TANGO'S DWG No:	FILE No:	DATE: 18/03/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	18/03/21	ISSUED FOR CONSTRUCTION	
02	10/11/22	DRAWING AMENDMENTS	

 LEPELLE NORTHERN WATER Water is our passion		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800
 water & sanitation Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200

GLeWaP-PHASE 1:									
BABANANA PIPELINE PROJECT RS 135									
WORK PACKAGE 11: MOOKGO 6 BOOSTER PUMP STATIONS ELECTRICAL SINGLE LINE DAIGRAM									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:		TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1				REV.
CALCULATION FILE:					C1201-1683				01

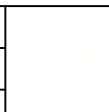


**TANGO'S CONSULTANTS**
A division of Tango's Group (Pty) Limited

122 DIE MEER STREET
BENDOR, POLOKWANE
0700
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED:	DATE:	DESIGN: P.M	DRAWN: A.P
ENGINEER:	DATE:	N/A	
N/A		EXTERNAL APPROVAL:	DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No:	DATE: 18/03/2021	

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	18/03/21	ISSUED FOR CONSTRUCTION	
02	10/11/22	DRAWING AMENDMENTS	

**LEPELE NORTHERN WATER**
Water & Sanitation

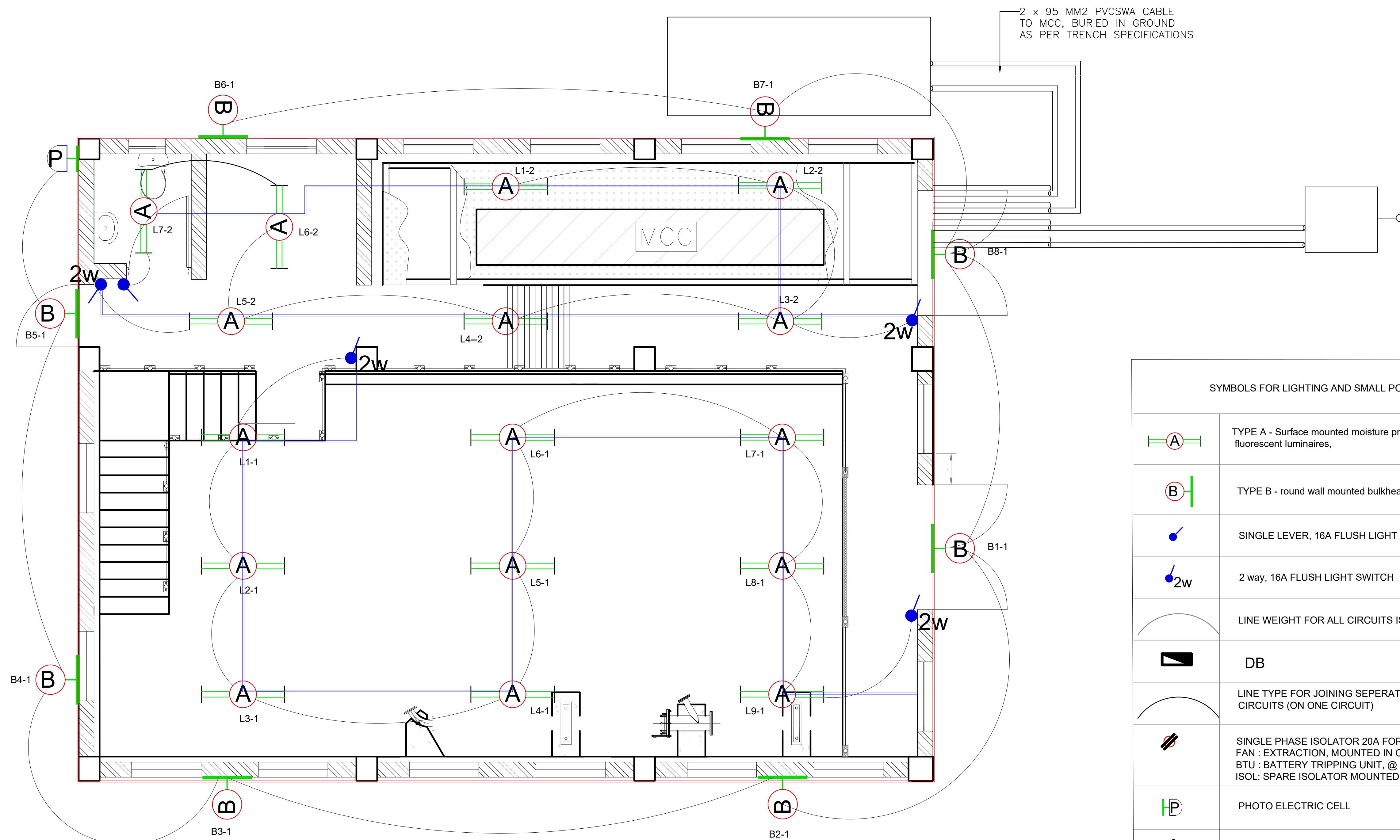
01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

**water & sanitation**
Department: Water and Sanitation
REPUBLIC OF SOUTH AFRICA

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:
BABANANA PIPELINE PROJECT RS 135
WORK PACKAGE 11: MOOKGO 6 BOOSTER PUMP STATIONS
INSTRUMENTAL CABLING

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	TENDER/ CONTRACT No:		SHEET		REV. No.		C1201-1689		01	
CALCULATION FILE:		8/1/3/50		1 OF 1						



SYMBOLS FOR LIGHTING AND SMALL POWER	
	TYPE A - Surface mounted moisture proof (IP65) 2x54 W T5 fluorescent luminaires,
	TYPE B - round wall mounted bulkhead 2x18W CFL
	SINGLE LEVER, 16A FLUSH LIGHT SWITCH
	2 way, 16A FLUSH LIGHT SWITCH
	LINE WEIGHT FOR ALL CIRCUITS IS .30mm
	DB
	LINE TYPE FOR JOINING SEPERATE SWITCHED CIRCUITS (ON ONE CIRCUIT)
	SINGLE PHASE ISOLATOR 20A FOR : FAN : EXTRACTION, MOUNTED IN CEILING 2000mm AFFL BTU : BATTERY TRIPPING UNIT, @ 2000mm AFFL, ISOL: SPARE ISOLATOR MOUNTED @2000 AFFL
	PHOTO ELECTRIC CELL
	3 PHASE ISOLATOR
	DOUBLE 16A 3 PIN SSO, FLUSH MOUNTED INTO WALL - NORMAL POWER
	32mm CONDUITING WITHIN BRICK WALL
	32mm PVC TRUNKING SURFACE MOUNTED

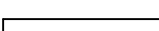
		122 DIE MEER STREET BENDOR, POLOKWANE, 0700 Tel. No 015-298 8828 Fax No. 015-295 3900	
DESIGN: P.M.		DATE: 18/03/2021	
CHECKED: A.P.		DATE: 18/03/2021	
ENGINEER: N/A		DATE: 18/03/2021	
CHIEF ENGINEER / APP (Pr. Eng): N/A		DATE: 18/03/2021	
TANGO'S ENG No:		DATE: 18/03/2021	

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	10/11/22	ISSUED FOR CONSTRUCTION	

		LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
		DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLEWaP-PHASE 1:									
BABANANA PIPELINE PROJECT RS 135									
WORK PACKAGE 11: MOOKGO 6 BOOSTER PUMP STATIONS TRUNKING AND SLEEVING LAYOUT									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:		TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1				REV.
CALCULATION FILE:					C1201-1690				01



 TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited	122, DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION		LEPELLE NORTHERN WATER		GLWaP—PHASE 1:													
	MOD No	DATE	DESCRIPTION	FOR		 LEPELLE NORTHERN WATER Water in Your Community	01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800		BABANANA PIPELINE PROJECT RS 135											
	01	11/11/22	ISSUED FOR CONSTRUCTION						WORK PACKAGE 11: MAWA 8 BOOSTER PUMP STATIONS SLEEPING AND TRUNKING LAYOUT											
	CHECKED:	DATE:	DESIGN: B.K DRAWN: A.P			 water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA	49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200		PROVINCE: LIMPOPO		DISTRICT: MOPANI		KEYCODES:		— — — — — OTHER		SHEET 1 OF 1	REG. No.	C1201-1691	REV. 01
	ENGINEER:	DATE:	N/A EXTERNAL APPROVAL:	DATE:					LOCALITY No:		TENDER/ CONTRACT No. 8/1/3/50									
N/A		CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:		TANGO'S DWG No:		FILE No:											
		DATE:	11/11/2022						CALCULATION FILE:											

Compliance with requirements of B.U.I.L.D Programme in procurement

June 2022

Presentation overview

- Scope of cidb mandate
- Framework for the development of tender and contract documents
- Compliance requirements

Scope of the cidb mandate

Scope of the cidb mandate

Section 16 (3) of the CIDB Act mandates the Minister to prescribe the manner in which public sector construction contracts may be invited, awarded and managed within the framework of the register and within the framework of the policy on procurement.

CID Regulations 24 states that:

...Every client or employer who is inviting calls for expression of interest or soliciting competitive tenders in the construction industry **must** publish that invitation to tender on the Board's website and that solicitation **must** be in accordance with –

(c) the Standard for Uniformity in Engineering and Construction Works Contracts....

Framework for the development of tender and contract documents - CSDG & Indirect Targeting standard

Standard headings and sequencing of documents when soliciting tenders

Contents	
Number	Heading
The Tender	
Part T1: Tendering Procedures	
T1.1.	Tender Notice and Invitation to Tender
T1.2.	Tender Data
Part T2: Returnable documents	
T2.1	List of Returnable Documents
T2.2	Returnable Schedules
The Contract	
Part C1: Agreement and Contract Data	
C1.1	Form of Offer and Acceptance
C1.2	Contract Data
Part C2: Pricing data	
C2.1	Pricing Assumptions
C2.2.	Activity Schedule or Bills of Quantities

Standard headings and sequencing of documents when soliciting tenders continue

Part C3: Scope of Work	
C3	Scope of Work
Part C4: Site information	
C4	Site Information

Objectives of procurement documents

Procurement documents should in general:

- require tenderers to **submit particulars** sufficient for the employer to **evaluate their tenders** and to assess their status, capabilities and capacities to perform the contract
- set out in a **clear and unambiguous** manner **criteria** by which tenders **are to be evaluated**
- define the **risks, liabilities and contractual obligations** of the parties to the contract
- define the **nature, quality and quantity** of construction works to be provided in the performance of the contract

Documents that relate to the tender

Part T1: Tendering procedures

T1.1 Tender Notice and Invitation to Tender *(Annex A - SFU)*

The following wording must be included in the Notice and Invitation to Tender in **all cidb classes** of construction works exceeding R60 million. (CSDG)

It is estimated that tenderers must have a cidb contractor grading designation of or or higher...

Documents that relate to the tender

T1.1 Tender Notice and Invitation to Tender

The following wording must be included in the Notice and Invitation to Tender in cidb grade 7 to 9 General Building (GB) and Civil Engineering (CE) contracts. *(Indirect Targeting)*

It is estimated that tenderers must have a cidb contractor grading designation of or or higher...

Documents relating to the tender – continue

T1.2 Tender Data

States what the applicable conditions of tender are and where they may be found.

The CIDB Standard for Uniformity in Engineering and Construction Works Contracts requires that the following clauses be inserted in the Tender Data:

Clause number

C.2.1 Only those tenderers who are registered with the cidb or are capable of being so prior to the evaluation of submissions, 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 Or*. class of construction work, are eligible to have their tenders evaluated.

The employer shall include the following clause in the conditions of contract:

The contractor shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the Standard for Developing Skills through Infrastructure Contracts (published in GN 43495 of 3 July 2020).

The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the cidb Standard for Indirect Targeting for Enterprise Development through Construction works Contracts Gazette Notice No.36190 of 25 February 2013

Documents relating to the tender – continue

Part T2: Returnable documents

T2.1 List of Returnable Documents

Ensures that everything the employer requires a tenderer to submit with his/her tender is included in, or returned with, his/her tender submission.

Note: *In the case of the Standard there are no returnable documents notwithstanding the Employer shall provide the proforma documents that shall be completed by the contractors after award of the contract within the stipulated period. (Form A1 List of Recognised Skills Development Agencies, Form A2 Baseline Training Plan, Form A3 Project Interim Report, Form A4 Supervisor Agreement, Form A5 Project Completion Report)*

Note: *In the case of Indirect Targeting Standard there are no returnable documents notwithstanding the Employer shall provide the proforma documents that shall be completed by the contractors after award of the contract within the stipulated period. (i.e., Project Interim Report, Project Completion Report and Declaration) The proforma documents are provided in the tender data for information purposes only.*

Documents that relate to the contract

Part C1: Agreement and Contract Data

C1.1 Offer and Acceptance

Formalises the legal process of offer and acceptance

Note: *Tenderer signs offer and employer signs acceptance to form the contract*

C1.2 Contract data

States the applicable conditions of contract and associated contract specific data that collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the contract

It will be a condition of contract that:

The contractor shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the cidb Standard for Developing Skills through Infrastructure Contracts, published in Gazette Notice No.43495 of 3 July 2020.

The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the cidb Standard for Indirect Targeting for Enterprise Development through Construction works Contracts Gazette Notice No.36190 of 25 February 2013

Documents that relate to the contract– continue

Part C2: Pricing data

C2.1 Pricing assumptions

The employer shall include the following statement in the pricing assumptions:

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

Note: *The Employer shall state the percentage (%) factor in the Final Tender Summary section dependent on the Class of Construction Works.*

The Employer shall determine the amount to be paid for the Contract Participation Goal (CPG) on the contract and this amount shall be stated under the section Enterprise Development as a Provisional Sum in the Preliminaries and Generals (P&Gs).

Documents that relate to the contract– continue

The contractor’s attention is brought to the following:

The Employer shall include a line item under the Skills Development in the Final Tender Summary section described as “Minimum Contract Skills Development Goal (CSDG)” as illustrated in table below:

To prevent a tender being non-responsive, the Employer shall bring to the Contractor’s attention the required CSDG percentage (%) as prescribed in the final tender summary section. The percentage (%) factor multiplied by the sub-total of the tender amount will determine the minimum CSDG that needs to be achieved on the contract.

Table 1 Final Tender Summary – Contract Skills Development Goal example

Item	Description	Percentage (%) Factor	Sub-total of Tender Amount	Amount (Rands)
16	Skills Development			
16.1	Minimum Contract Skills Development Goal (CSDG) sum = CE (0.25%) x Subtotal of the tender amount	0.25%	R60 000 000	R150 000

Example (BoQ)

Table 2: Final Tender Summary – Example CE Class of Works

Item	Description	Unit	Rate	Quantity	Amount
	P&Gs				R10 000 000
	Concrete				R10 000 000
	Mechanical				R10 000 000
	Electrical				R10 000 000
	Landscaping				R5 000 000
	Civils				R15 000 000
	Sub-total				R60 000 000
	CSDG (0.25% factor)				R150 000
	VAT (15%)				R9 022 500
	Total Tender amount				R69 172 500

Documents that relate to the contract *continue*

Part C2: Pricing data

C2.1 Pricing assumptions (Indirect Targeting)

The rates illustrated in table 3 are the recommended rates to guide the Employer to determine the amount for Enterprise Development per targeted enterprise. The Employer may adjust these rates which may be affected by factors such as location of the project. The Employer must include this amount as a Provisional Sum in the Preliminary and General (P&G) section as illustrated.

Note: This item should not be a determinate in the competitiveness of the bid.

Documents that relate to the contract

Preliminary and General (Extract Indicating Provisional Sum from P&Gs)

Table 3: Breakdown of the items to be included in the tender data

Item	Description	Unit	Quantity	Rate	Amount (R)
15	Health and Safety				
16	Enterprise Development				
16.1	Enterprise Development of Targeted Enterprise or JV partners				
16.1.1	Needs Analysis and Enterprise Development Plan per Targeted Enterprise	No.	1	5000	5000
16.1.2	Monitoring and Interim reporting per targeted enterprise	Per Quarter	4	20000	80000
16.1.3	Project Completion report per Targeted Enterprise	No.	1	5000	5000
	Provisional Sum				90 000

Documents that relate to the contract (Indirect Targeting)

Item 16.1.1 refers to the Needs Analysis the contractor shall perform on the targeted enterprise and / or JV partner to identify the developmental goals at a rate of R5000.00 (five thousand rands) per targeted enterprise.

Item 16.1.2 refers to the Monitoring and Interim reporting to be performed by the contractor as per the Standard at a rate of R20 000.00 (twenty thousand rands) per quarter.

Item 16.1.3 refers to the Completion report, the contractor shall submit the Completion report to the Employer's representative as per the Standard at a rate of R5000.00 (five thousand rands) per targeted enterprise.

Documents that relate to the contract– cont...

Part C4: Site information

PROCUREMENT (Indirect Targeting)

The Employer shall stipulate in the tender data that the contractor shall provide a minimum Contract Participation Goal (CPG) of 5% of the total project value and develop targeted enterprises in two agreed developmental areas.

The contractor shall appoint an Enterprise Development Co-ordinator who shall:

- develop a project specific Enterprise Development plan to improve the targeted enterprise's performance in the identified developmental areas and shall allocate resources to monitor progress in relation to improved performance; and
- submit to the employer's representative a monthly enterprise development report (Performa – ED105P) which documents all mentoring activities that have taken place during that month and the progress made in improving the targeted enterprise's performance in the agreed developmental areas, countersigned by the targeted enterprise.

Documents that relate to the contract– cont...

PROCUREMENT continue

Competence Criteria for an Enterprise Development Co-ordinator

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

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

Documents that relate to the contract

PRO-FORMA DOCUMENTS

Form A1 List of Recognised Skills Development Agencies

CIDB RECOGNISED SKILLS DEVELOPMENT AGENCIES								
No	Name Of SDA	SDA Recognition Number	Status	Recognition End Date	Province	Contact Person	Contact Number	Email Address
01	CIDB SDA	SDA/ZA/16/00001	Active	30/06/2020	National	Pranveer Harriparsadh	012 482 7230	pranveerh@cidb.org.za
02								
03								
04								
05								
06								
07								
08								
09								
10								
11								

Documents that relate to the contract

PRO-FORMA DOCUMENTS

Form A2 Baseline Training Plan

Contractor Details						
Contractor Name:	123Building and construction					
CRS Number:	0000000					
Estimated start date	1 March 2019					
Estimated Completion date	1 Oct 2020					
Size of Organisation	Small (1-49 employees)		Medium (50-149 employees)		Large (≥150 employees)	
				✓		

Contact Details	
Name of Contact Person	Mr John Smith
Designation of Contact Person	Construction Manager
Contact Details	Cell Number: XXX XXXX XXX
	Landline Number: XXX XXXX XXX
	Email address: Smith@123building.co.za

Documents that relate to the contract

PRO-FORMA DOCUMENTS

Form A3 Project Interim Report

[illegible]

Documents that relate to the contracts

PRO-FORMA DOCUMENTS

Form A4 Mentorship/Supervisor Details

Form A4: cidb PROJECT ASSESSMENT SCHEME: STANDARD FOR DEVELOPING SKILLS SUPERVISOR/MENTOR DETAILS	
SECTION A: Personal details	
Surname	
Name	
ID Number	
e-mail	
Mobile	0 - -
Office Telephone	0 - -
SECTION B: Professional profile	
Designated Trade	
Registration Number	
Professional registration	
Professional council	
Category	
Registration number	
SECTION C: General comments	

Documents that relate to the contract

PRO-FORMA DOCUMENTS

Form A5 Project Completion Report

Form AS: cidb PROJECT ASSESSMENT SCHEME: STANDARD FOR DEVELOPING SKILLS PROJECT COMPLETION REPORT

Compliance Obligations

❑ Request for Proposal / Invitation to Tender

❖ Bid Specifications must be developed -

- ✓ in line with the Standard for Uniformity in Construction procurement (**Reg. 24(c)**)
- ✓ prescribing required contractor grading designation as determined (**Reg. 11(1)**);
- ✓ only cidb registered contractors proposals may be evaluated (**Sec. 18(1)** with **Reg. 25(1)**).
- ✓ setting out class of construction works best describing the works contract (**Reg. 25(3)(a)**); and
- ✓ incorporate BUILD Standards requirements depending on project value, duration and classes of construction works (**Sec. 23(3)** with **Regs. 22A and 22B**)

❑ Tender Advertisement

- ❖ Tender invitations exceeding R30 000 **must** be published on cidb website (**Reg. 24**)

❑ Tender Evaluation

- ❖ Unregistered contractor capable of being registered prior evaluation **may** be evaluated, contractor **must** be so capable within 21 working days after closing date (**Reg. 25(1A)**)

Compliance Obligations (Cont.)

❑ Tender Awards

❖ Register of Project

- ✓ **Within 21 working days of contractor appointment** - register a project +R200 000 for public sector or +R10 million for private sector and PFMA Schedule 2 entities. **Sec. 22(3)** read with **Reg. 18(1A)** and (1)

❖ B.U.I.L.D Programme

- ✓ **On Date of Award** - 0.2% BUILD Assessment fee payable (depending on project value, duration and classes of construction works) – (**Sec. 23(3)**).

❑ Project Status Report (Reg. 21(1))

❖ Report on the status of the registered project, **within one calendar month of the date-**

- ✓ when a practical completion certificate is issued (**Reg 21(1)(a)**);
- ✓ contract is renewed (**Reg 21(1)(b)**);
- ✓ contract is cancelled or terminated (**Reg 21(1)(c)**); and
- ✓ settling all amounts owing to the contractor (final completion certificate is issued) (**Reg 21(1)(d)**).

Compliance Obligations (Cont.)

❑ Project Status Report - Reg. 21 (Cont.)

- ❖ Notify CIDB of any **arbitration** or **litigation** initiated on registered project. (**Reg. 21(2)**)
- ❖ Notify CIDB of **the nature of financial or management support provided to the contractor**, where an emerging contractor with a grading designation lower than that required for the contract is appointed. (**Reg. 21(3)**)
- ❖ CIDB to report to Auditor General client failure to register a project. (**Reg. 21(4)**)

❑ Reporting on B.U.I.L.D Standards Compliance (Regs. 22A and 22B)

- ❖ Within a **calendar month** of the practical completion of the project and on payment of fees, **notify CIDB of the project compliance with BUILD Standards**; and
- ❖ Submission of the following to CIDB-
 - ✓ affidavit **pertaining to enterprise development** (Indirect Targeting Standard); and
 - ✓ other forms relating to the **achievement of contract skills development** (Skills Development Standard).

Compliance Monitoring

- ❑ **Compliance Monitoring** - Continuous process to detect non-complying tenders using below means:
 - ❖ Newspaper tender advertisements (Daily);
 - ❖ Employer websites tender advertisements (Daily);
 - ❖ Stakeholder alerts (ad hoc);
 - ❖ Access to National Treasury e-tender;
 - ❖ Download tender data on employer websites to verifying-
 - ✓ if tender data was developed in line with Standard for Uniformity in Construction Procurement;
 - ✓ if tender was published/advertised on cidb website;
 - ✓ If invitation was made only to cidb registered contractors or not;
 - ✓ whether correct class of construction works was prescribed or not;
 - ✓ If B.U.I.L.D Standards were incorporated for grading designations 7 and above contracts.
 - ❖ Employer websites awarded tender;
 - ❖ Construction sites identification
- ❑ Where non-compliance/contravention is detected, contravention notice is issued to –
 - ❖ Accounting officer of an organ of state; or
 - ❖ CEO in case of a private sector

Non-Compliance Referrals

❑ Non-Compliance Referrals

❖ Breach of Code of Conduct (Reg. 27A)

- ✓ any unethical conduct between parties engaged in procurement process, which is contrary to the ethical principles set therein;
- ✓ employer and contractor's failure to comply with B.U.I.L.D Standard requirements where the project value exceeds R20 million, 6 months project duration and on CE and GB classes of construction works.

❖ Offences (Reg. 30) – detection of any person or organ of state's conduct relating to:

- ✓ supplying of false and misleading information to cidb (**Reg. 30(a)**);
- ✓ failure to register a project (**Reg. 30(b)**);
- ✓ awarding construction works contract contrary to the regulations (**Reg. 30(c)**); or
- ✓ fails to comply with the regulations (**Reg. 30(c)**).

❖ To be investigated by an investigating officer for formal inquiry and prosecution to determine the person's culpability and sanction thereof (**Regs. 28 and 29**) .

THANK YOU

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