

PART	ICULARS OF THE BIDDER
NAME OF THE BIDDING OR TENDERING COMPANY	
POSTAL ADDRESS	
	POSTAL CODE
STREET ADDRESS (PHYICAL ADDRESS)	
	POSTAL CODE
E-MAIL ADDRESS	
TELEPHONE NUMBER (TELKOM LINE)	
CIDB CRS NUMBER	
CELLPHONE NUMBER	
ALTERNATE CELLPHONE NO.	
CENTRAL SUPPLIER DATABASE NUMBER OF THE BIDDING COMPANY	

THE TENDER Part T1: Tendering procedures

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Employer

Witness 1



Contractor

Witness 1



DOCUMENT COMPLETION INSTRUCTION AND RETURNABLE DOCUMENTS SCHEDULE

CENTRAL SUPPLIER DATABASE REGISTRATION (CSD)

 Bidders must be registered on CSD and provide their registration number on the tender/ quotation document

COMPLETION OF THE DOCUMENT

<u>PLEASE READ AND FOLLOW INSTRUCTIONS BELOW ON HOW TO COMPLETE DIFFERENT</u> FORMS IN THE DOCUMENT AND FILL THEM AS INSTRUCTED

✓ The tender documents must be completed in full i.e. Compulsory Questionnaire, MBD 1, Pricing Schedule, MBD 4, MBD 5, MBD 6.1, MBD 7.2, MBD 8, MBD 9, Section 38 and the Form of Offer, including all witness signatures on all the above stated forms.

✓ NB! FAILURE TO ADHERE TO THE BELOW MENTIONED POINTS WILL INVALIDATE THE TENDER AND RESULT IN DISQUALIFICATION

- COMPULSORY QUESTIONAIRE must be fully completed and signed In a case of Joint Venture separate COMPULSORY QUESTIONAIRE forms must be completed and submitted.
- MBD 1 must be fully completed and signed
- PRICING SCHEDULE must be fully completed and signed
- MBD 4 -only tick the appropriate answer. Please be informed that whether you scratch out, tick or circle, your answer will be where the pen ink is reflecting.
 In a case of Joint Venture or multi- directors, full details of all Directors must be provided on the table on MBD 4.
- MBD 5 -only tick the appropriate answer. Please be informed that whether you scratch out, tick or circle, your answer will be where the pen ink is reflecting.
- In a case of Joint Venture separate MBD 5 forms must be completed and submitted. (complete if applicable)
- **MBD 6.1** must be fully completed.
- MBD 7.2 must be fully completed.
- **MBD 8** only tick the appropriate answer box, whether you scratch out, tick or circle, your answer will be where the pen ink is reflecting
- MBD 9 must be fully completed and signed
- SECTION 38 only tick the appropriate answer box, whether you scratch out, tick or circle, your answer will be where the pen ink is reflecting. Must be fully completed and signed, including signatures of witnesses.

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- Note that should you answer "NO" to any of the declaration questions on section 38 form, then supporting documents MUST be attached
- **SIGNATORY AUTHORISATION** complete and sign the form
- The document must not be dismantled; page numbers must be sequential

THE FOLLOWING MANDATORY DOCUMENTS MUST BE SUBMITTED TOGETHER WITH THE BID DOCUMENT

- ✓ Deposit slip with tender reference number as stipulated in the tender document.
- ✓ Full CSD report
- Bidders must submit both a hard copy document and an electronic tender document in the form of a clearly marked USB. (Bidders will be disqualified for not submitting a USB with scanned bid documentation

• FOR ALL DOCUMENTS THAT WILL NEED CERTIFICATION (AND AFFIDAVITS WHERE APPLICABLE) BIDDERS ARE REQUESTED NOT TO SUBMIT COPIES OF CERTIFIED COPIES.

MUNICIPAL RATES AND TAXES STATEMENTS OF THE DIRECTORS

- Current municipal rates and taxes statement (from previous billable month) for each directors' address must be attached; or
- ✓ Valid lease agreement of the director/s with all critical contractual obligations or,
- An original letter from tribal authority not older than three (3) months if the director/s are residing in a tribal land, or
- ✓ If the rates and taxes account is not in the names of the director/s the attached municipal rates and taxes statement must be submitted together with an original affidavit from the property owner whose names are appearing on the municipal rates and taxes statement to confirm that the director resides in their property.

MUNICIPAL RATES AND TAXES STATEMENTS OF THE COMPANY

- Current municipal rates and taxes statement (from previous billable month) for the company's' address must be attached; or
- ✓ Valid lease agreement of the company (showing all critical contractual obligations, or
- An original letter from a tribal authority not older than three (3) months if the company is operating from a tribal, or
- ✓ If the rates and taxes account is not in the names of the company, the attached municipal rates taxes statement must be submitted together with an original affidavit from the property owner whose names

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are reflecting on the municipal rates and taxes statement to confirm that the company operates from their property.

<u>NB!!</u>

- ✓ FOR PROCUREMENT EXPECTED TO BE LESS THAN 10 MILLION, AWARDS WILL NOT BE MADE TO BIDDERS OWING MUNICIPAL RATES AND TAXES FOR OVER 90 DAYS AT THE TIME OF TENDER CLOSURE
- ✓ FOR PROCUREMENT EXPECTED TO BE MORE THAN 10 MILLION, AWARDS WILL NOT BE MADE TO BIDDERS OWING MUNICIPAL RATES AND TAXES FOR OVER 30 DAYS AT THE TIME OF TENDER CLOSURE
- ✓ Required CIDB Grading Certificate where applicable
- ✓ Signatory resolution Please attach a copy of Signatory resolution where instructed
- ✓ If the submission is from a Joint Venture, then a JV agreement must be attached

VERIFICATION OF DOCUMENTS AND INFORMATION.

- Tax compliance status will be verified using CSD number. (For a bidder to be considered for final award, their status must reflect "tax compliance" before final award is made)
- ✓ CIDB Grading will be verified
- ✓ Sworn Affidavits will be accepted only if its originals submitted.

INSTRUCTION ON THE SUBMISSION OF TENDER DOCUMENTS

- ✓ A tender document must be in a sealed document that has on the outside the bid number and bid description. Both the bid number and the bid description must be on the envelope for the document to be acceptable.
- ✓ If the bid number and description are not clearly marked on the envelope, the bid will be received
- ✓ The tender document must be in the tender box before the specified closing time and date.
- ✓ Bidders who arrive when the tender box is open are late.
- ✓ Failure to comply with the above will lead to the bid not being opened.

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- 1. Bid documents available at a non-refundable amount of R 3 000-00 per bid document are available on the etender website and must be downloaded.
- 2. A compulsory briefing session will be held as follows: 26 April 2023 from 11H00 @, Rustenburg Local Municipality. Cnr Beyers Naude and Nelson Mandela Drive
- Sealed bid documents marked: "RLM/DTIS/0103/2022/23 Appointment of a contractor for the Ramochana sewer upgrade and house connection must be placed in the bid box in the foyer of the Municipal offices, Missionary Mpheni House, Beyers Naude Drive, Rustenburg not later than 04 May 2023 @ 11h00, where after the bids will be opened in public at the Municipal offices.
- 4. The bid will be evaluated as follows: Administrative evaluation (document completion and attachment of mandatory documents), Functionality (minimum qualifying score 70 out of 100), CIDB grading 7CE or higher and 80/20 Preference Point system (price = 80 & Specific goal = 20)
- 5. Please note that no bid documents given to couriers will not be signed for by Rustenburg Local Municipality.
- 6. The Council will not be responsible for bids not received or received late by mail. Bids will remain valid for 90 days (Ninety).
- 7. All bids will be adjudicated based on the prescribed criterion as stipulated in the document.
- 8. An updated record of payment of rates, taxes and services to the relevant Municipality must be attached. Failure to do so will invalidate the bid submitted.
- 9. No bids will be considered from any person(s) in the service of the state (as defined in Regulation 1 of Local Government: Municipal Supply Chain Management Regulations).
- 10. Objections or complaints must be submitted in writing to the Municipal Manager at the address stated, and must contain the following:
 - (a) reasons and/or grounds for the objection or complaint.
 - (b) the way in which the objector or complainant's rights have been affected; and
 - (c) the remedy sought by the objector or complainant.
- 11. Any objection or complaint must reach the Municipal Manager with a 14-day period after award has been made. Late objections or complaints will not be entertained.
- 12. All bids must be submitted on the official forms provided and a successful bidder will be required to fill and sign a written Contract Form (MBD 7).

RUSTENBURG LOCAL MUNICIPALITY, P.O. BOX 16, MISSIONARY MPHENI HOUSE

THE TENDER Part T1: Tendering procedures

Employer	



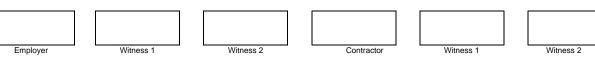








THE TENDER Part T1: Tendering procedures





RUSTENBURG LOCAL MUNICIPALITY

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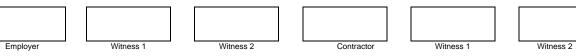
Contractor

Witness 1



- T1.1 **Tender Notice and Invitation to Tender**
- T1.2 **Tender Data**

THE TENDER Part T1: Tendering procedures





MBD 1

T1.1 Tender Notice and Invitation to Tenders

NB! THE BID DOCUMENTS SHOULD BE RETURNED PACKAGED IN THE MANNER IN WHICH THEY APPEAR IN THE TABLE OF CONTENTS FOR EASE OF REFERENCE.

PART A INVITATION TO BID							
YOU ARE HEREBY	YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE RUSTENBURG LOCAL MUNICIPALITY						
BID NUMBER:	RLM/DTIS/0103/2022/23	CLOSIN DATE:		04 May 2023		CLOSING TIME:	11H00
DESCRIPTION	APPOINTMENT OF A CO	NTRACTOR FO				AND HOUSE CON	NECTION
THE SUCCESSFUL	BIDDER WILL BE REQUIR	ED TO FILL IN A	AND SIGN A	WRITTEN CO	NTRACT FORM	I (MBD7).	
	OCUMENTS MAY BE DEP					· · · · ·	
RUSTENBURG LOO	CAL MUNICIPALITY						
MISSIONARY MPH	ENI HOUSE						
CNR BEYERS NAU	DE AND NELSON MANDE	LA DRIVE, RUS	TENBURG				
CIDB GRADING – 7	CE OR HIGHER						
SUPPLIER INFORM	IATION	T					
NAME OF BIDDER							
POSTAL ADDRESS	6						
STREET ADDRESS							
TELEPHONE NUME	TELEPHONE NUMBER CODE NUMBER						
CELLPHONE NUME	CELLPHONE NUMBER						
FACSIMILE NUMBER CODE NUMBER							
E-MAIL ADDRESS							
VAT REGISTRATION NUMBER							
TAX COMPLIANCE	STATUS	TCS PIN:			OR	CSD No:	

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Tender Notice and Invitation to Tenders

Employer

Witness 1



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Contractor

Witness 1

Witness 2

T1.1



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]
TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID	PRICE	R
SIGNATURE OF BIDDER CAPACITY UNDER WHICH THIS BID IS		DATE		
SIGNED				
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:			TECHNICAL INFORMATION MAY BE DIRECTED	
DEPARTMENT	SCM		TECHNICAL DEPARTMENT	
CONTACT PERSON	MS B MANGANYE		Ms U Magodla	
TELEPHONE NUMBER	014 590 3633		014 590 3390	
E-MAIL ADDRESS	bmanganye@rustenburg.gov.za		<u>Munenceba@rustenburg,gov,za</u>	

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Employer

Witness 1

Witness 2

Contractor

Witness 1



PART B TERMS AND CONDITIONS FOR BIDDING

1.	BID SUBMISSION:			
	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, COMPLETED WITH	A BLACK PEN		
1.3.	THIS BID IS SUBJECT TO THE RLM SUPPLY CHAIN MANAGEMENT POLICY, PREFEREN ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL O APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.			
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 NUMBE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.	ER (PIN) ISSUED BY SARS TO ENABLE THE		
2.3	APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROU			
2.4	FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.			
2.5	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.			
2.6	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.			
2.7	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.			
3.	QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS			
3.1.	IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	YES NO		
3.2.	DOES THE ENTITY HAVE A BRANCH IN THE RSA?	YES NO		
3.3.	DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	YES NO		
3.4.	DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	YES NO		
3.5.	IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	YES NO		
if th Pin (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 ABOVE.			
	NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE. SIGNATURE OF BIDDER:			

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

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T1.1 Tender Notice and Invitation to Tenders

Employer

Witness 1



Contractor

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BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement. (See www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annexure to this Tender Data.

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

Clause number	Tender Data		
F.1.1	The employer The employer is The Rustenburg Local Municipality.		
F.1.3.2	Replace the contents of the clause with the following:		
	The Standard Conditions of Tender, the Tender Data, List of Returnable which are required for the tender evaluation purposes, shall form part of to tender.		
F.2.1 Eligibility Only those tenderers who are registered with the CIDB or are capable of being so prior to the evalual submissions, in a contractor grading designation equal to or higher than a contractor grading design determined in accordance with the sum tendered for a CE class of construction work, are eligible to tenders.			
	Joint ventures are eligible to submit tenders provided that:		
	 Every member of the joint venture is registered with the CIDB. The lead partner has a contractor grading designation in the 7CE of grading designation calculated in accordance with the Construction equal to or higher than a contractor grading designation determined for a 7CE or higher class of construction work. 	n Industry Development Regulations is	
	Tenderers faced with the above scenario and who fail to meet the cor considered for the tender.	nbined designation grading will not be	
F.2.1.	Eligibility Only those tenderers who have in their employ management and supervisithe scope of work for labour intensive competencies for supervisory and intenders.		
F.2.2	Accept that the Employer will not compensate the tenderer for any costs office of the employer.	incurred in attending interviews in the	
THE TENDER Part T1: Tendering p	12 procedures	T1.2 Tender Data	

Employer Witness 1 Witness 2 Contractor Witness 1 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause Tender Data

F.2.7 Clarification Meeting

There will not be any briefing session. Should there be any addendum it will be published on either/or of the following websites E-Tender, CIBD and Municipal website.

F.2.10.5 Pricing and tender offer

Add the following to the clause:

A digital copy of the Bill of Quantities can be obtained from Ms U Magodla (Email: munenceba@rustenburg.gov.za upon sufficient notice.

F.2.11 Alterations to documents

Add the following to the clause:

To correct errors made, draw a line through the incorrect entry and write the correct entry above in black ink and place the full signatures of the authorised signatories next to the correct entry.

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Contractor





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause Tender Data

F.2.12 Alternative tender offers

If a tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer.

Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.

Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements.

The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.

Failure to properly comply with this clause, thereby preventing the Employer and/or the Engineer to properly assess the full implications of the alternative tender, is likely to disqualify the alternative offered from further consideration.

No submission by the Contractor after award for additional payment or time for completion of Works relating to the alternative offer will be considered, the tendered rates submitted shall be considered to reflect the full and final cost implications of the alternative offer.

F.2.13 Submitting a tender offer

Add the following to the clause:

No claim will be entertained for faults in the tender price resulting from any discrepancies, omissions or indistinct figures.

F.2.13.2 Replace the contents of the clause with the following:

Return all volumes of the tender document to the Employer after completion of the relevant sections of each volume in their entirety by writing in black ink.

All volumes are to be left intact in its original format and no pages shall be removed or re-arranged.

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Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause number	Tender Data						
F.2.13.3	Parts of each tender offer communicated on paper shall be submitted as an original.						
F.2.13.4	Add the following to the clause:						
	Only authorised signatories may sign the original tender offer where required in terms of 2.13.3.						
F.2.13.5 F2.15.1	The employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:						
	Location of tender box: Foyer of Missionary Mpheni House, c/o Beyers Naude and Nelson Mandela Drive, Rustenburg.						
	Physical address: Missionary Mpheni House, c/o Beyers Naude and Nelson Mandela Drive, Rustenburg.						
	Identification details: BID NO: RLM/DTIS/0102/2022/23- APPOINTMENT OF A CONTRACTOR FOR TLHABANE (emergency) OUTFALL SEWER, and the closing date and time of the tender. Postal address: P O Box 550, Rustenburg, 0300						
	The name and address of the tenderer shall be entered on the back of the envelope.						
F.2.13.9	Add the following to the clause: Accept that all conditions, which are printed or written upon any stationary used by the Tenderer for the purpose of or in connection with the submission of a tender offer for this Contract, which are in conflict with the conditions laid down in this document shall be waived, renounced and abandoned.						
F.2.14	Information and data to be completed in all respects						
	Add the following to the clause:						
	The Tenderer is required to enter information in the following sections of the document:						
	Section T2.2Returnable Schedules SectionSection C1.1Form of Offer and Acceptance SectionSection C1.2Contract Data (Part 2) SectionSection C2.2Bill of Quantities						
	The above sections shall be signed by the Tenderer (and witnesses where required). Individual pages should only be initialled by the successful Tenderer and by the witnesses after acceptance by the Employer of the Tender Offer.						

The Tenderer shall complete and sign the Form of Offer prior to the submission of a Tender Offer.

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Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause Tender Data

The Schedule of Deviations (if applicable) shall be signed by the successful Tenderer after acceptance by the Employer of the Tender Offer.

Accept that the Employer shall in the evaluation of tender offers take due account of the Tenderer's past performance in the execution of similar engineering works of comparable magnitude, and the degree to which he possesses the necessary technical, financial and other resources to enable him to complete the Works successfully within the contract period. Satisfy the Employer and the Engineer as to his ability to perform and complete the Works timeously, safely and with satisfactory quality, and furnish details in section T2.2.2 of contracts of a similar nature and magnitude which they have successfully executed in the past. Accept that the Employer is restricted in accordance with clause 4.(4) of the Construction Regulations 2003, to only appoint a contractor whom he is satisfied has the necessary competencies and resources to carry out the work safely. Accept that submitting inferior and inadequate information relating to health and safety shall be regarded as justifiable and compelling reasons not to accept the Tender Offer of the Tenderer scoring the highest number of tender evaluation points.

F.2.15.1 Closing Time

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

F.2.15.2 Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.

F.2.16.1 Tender offer validity

The tender offer validity period is 90 days.

F.2.16.1 Add the following to the clause:

If the tender validity expires on a Saturday, Sunday or public holiday, the tender shall remain valid and open for acceptance until the closure of business on the following working day.

F.2.18 Provide other material

The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.

Add the following to the clause:

Accept that if requested, the Tenderer shall within 14 days of the date upon which he is requested to do so, submit a full report from his banker as to his financial standing. The Employer may, in its discretion, and subject to the provisions of Section 4(1)(d) of the State Tender Board Act 86 of 1968, condone any failure to comply with the foregoing condition.

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Employer	

Witness 1







BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause Tender Data

F.2.20. Accept that the Employer, reserves the right to approach the Tenderer's banker or guarantor(s) as indicated in the tender document, or the bankers of each of the individual members of any joint venture that is constituted for purposes of ascertaining the financial strength of the Tenderer or of the individual member of such venture; and affirmation of the letter of intent referred to below.

The tenderer is required to submit with his tender a letter of intent from an approved financial institution undertaking to provide the Construction Guarantee in the format included in Part C1.3 of this procurement document; and such guarantee with be put in place upon appointment.

F.2.22 Return of other tender documents

Return all retained tender documents prior to the closing time for the submission of Tender Offers.

F.2.23 Certificates

The tenderer is required to submit with his tender:

- 1. a Certificate of Contractor Registration issued by the Construction Industry Development Board
- 2. a copy of the CSD summary report
- 3. Copies of legal registration documents of the company/close corporation/partnership including certified copies of identity documents of directors.
- 4. Bank Rating Letter
- 5. Documents and Schedules listed in Part T2.

Where a tenderer satisfies CIDB contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.

F.3.4 **Opening of tender submissions**

Tenders will be opened immediately after the closing time for tender

F.3.5 **Two-envelope system**

A two-envelope procedure will not be followed.

F.3.11 Evaluation of Tenders

The procedure for the evaluation of responsive tenders is Method 2 (Functionality, 80/20 Preferential Point System).

POINTS AWARDED FOR FUNCTIONALITY

The tenderer will be required to achieve a minimum score of **70 points** in the technical evaluation to be considered further in the valuation process.

FUNCTIONALITY

For a bidder to qualify it is a requirement to score a minimum of 70 out of a maximum of 100 points for functionality.

Value: 0 = unmeasurable; Values: 1 = Poor; 3 = Good; 5 = Excellent

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Part T1: Tendering procedures

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T1.2 Tender Data

Employer

Witness 1	





Witness 1



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

ITEM	CRITERIA	WEIGHT	VALUE	SCORE
1	Company Experience – (Attach appointment letters with corresponding completion certificates on Client's letter head. Should the bidder be appointed through subcontracting, the main contractor's appointment, completion certificate and appointment letter of the sub-contracting and completion certificate should be attached). Completed Sanitation Projects in the past six years (2015-2021)	50		
	R1m – R9 million (value = 01)			
	R10m – R19 million (value = 03)			
	R20 million and above (value = 05)			
2	Bank Rating (Attach confirmation letter from the bank)	10		
	0 – R 1.33 million = (value = 01)			
	R1.33 – R 3.9 million = (value = 03)			
	R4 million and above = (value = 05)			
3	Key Personnel Experience - Contracts Manager (Detailed CV with Relevant experience on Sanitation Projects with traceable references with a minimum qualification of BTech/Degree in Civil Engineering which is SAQA accredited	15		
	1 - 5 years (value = 01)			
	6 – 10 years (value = 03)			
	11 years and above (value = 05)			

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Employer

Witness 1

Witness 2



Contractor

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Witness 1



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TOTAL		100	
	Any NQF level less than 5 of no attachment – Value: 0		
6	NQF Level 5 Accreditation (Manage Labour – Intensive Construction Projects) Any of the above-mentioned personnel Contracts Manager and Site Agent) – Value 5	5	
	11years and above (value = 05)		
	6 – 10 years (value = 03)		
	1 - 5 years (value = 01)		
5	Key Personnel Experience - Safety Officer [Experience as a Safety Officer in Sanitation projects. With a minimum Qualification N.Dip or Certified Safety officer] Minimum National Diploma or Certified Safety officer or SAMTRAC which is SAQA accredited	10	
	11 years and above (value = 05)		
	6 – 10 years (value = 03)		
	1 - 5 years (value = 01)		
4	accredited		
	Key Personnel Experience - Site Agent (Detailed CV with Relevant experience on Sanitation Projects with traceable references) Minimum National Diploma qualification in Civil Engineering] which is SAQA	10	

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THE 80/20 PREFERENCE POINT SYSTEMS

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

80/20

$$Ps = 80 \left(1 - \frac{Pt - P\min}{P\min} \right)$$

Where

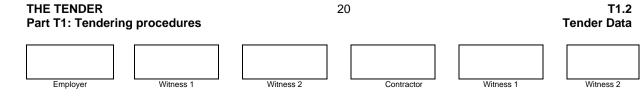
Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

The following specific goals will be utilized for awarding of tenders. They can be applicable individually or wholly in awarding of points. The points will be allocated on merit per tender in line with the specification.

Ownership	Points	Means of Verification
Rustenburg Jurisdiction	4	Proof of address as envisaged on the list of
Rural /Township Businesses	4	mandatory documents and a full Central Supplier
Black People	2	 Database full report will be used for verification and allocation of points.
Persons with Disability	2	
Youth	4	
Women	2	
SMME's	2	





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Annex: Standard Conditions of Tender

(As contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement (as amended in Board Notice 86 of 2010 (May 2010))

F.1 General

F.1.1 Actions

F.1.1.1 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, comply with all legal obligations and not engage in anticompetitive practices.

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

- Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.
 - 2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

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

F.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

F.1.3 Interpretation

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

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

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

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

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

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

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

- comparative offer means the tenderer's financial offer after all tendered parameters that will affect the value of the financial b) offer have been taken into consideration in order to enable comparisons to be made between offers on a comparative basis
- c) corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and
- d) fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels
- organization means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public e) body
- f) 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.1.4 Communication and employer's agent

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

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

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

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers reissue 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.1.6 **Procurement procedures**

F.1.6.1 General

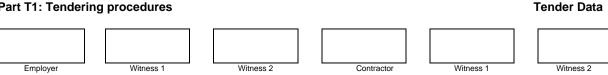
Unless otherwise stated in the tender data, a contract will, subject to F.3.13, be concluded with the tenderer who in terms of F.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing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

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F.1.6.2 Competitive negotiation procedure

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

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

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

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

F.1.6.3 Proposal procedure using the two-stage system

F.1.6.3.1 Option 1

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

F.1.6.3.2 Option 2

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

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

F.2 Tenderer's obligations

F.2.1 Eligibility

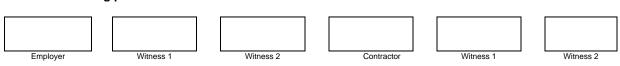
F.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

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

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F.2.2 Cost of tendering

Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

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

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

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

F2.10.2 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.

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F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

F.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted 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 one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in no erasable ink.

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

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state 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 will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

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F.2.13.9 Accept that tender offers submitted by facsimile or email will be rejected by the employer, unless stated otherwise in the tender data.

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

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

F.2.15 Closing time

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

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

F.2.16 Tender offer validity

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

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

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

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

F.2.17 Clarification of tender offer after submission

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

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

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing 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.

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

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements.
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the functionality process.

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

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

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

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

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

F.3.5 Two-envelope system

F.3.5.1 Where stated in the tender data that a two envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

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

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

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

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

F.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or gualification. A material deviation or gualification 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) significantly 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.

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Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the nonconforming 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: i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or ii) the summation of the prices.

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

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

- a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of guantities 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

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

F.3.11.2 Method 1: Financial offer

In the case of a financial offer:

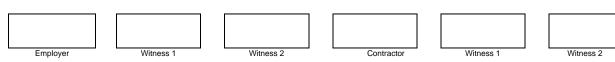
- a) Rank tender offers from the most favourable to the least favourable comparative offer.
- b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

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F.3.11.4 Method 3: Financial offer and quality

In the case of a financial offer and quality:

- a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
- b) Calculate the total number of tender evaluation points (TEV) in accordance with the following formula: TEV = NFO + NQ
- where: *NFO* is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7. *NQ* is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.
- c) Rank tender offers from the highest number of tender evaluation points to the lowest
- d) 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.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.5 Method 4: Financial offer, quality and preferences

In the case of a financial offer, quality and preferences:

- a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
- b) Calculate the total number of tender evaluation points (TEV) in accordance with the following formula, unless otherwise stated in the Tender Data:

TEV =NFO + NP + NQ

- where: *NFO* is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7; *NP* is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8. *NQ* is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.
- c) Rank tender offers from the highest number of tender evaluation points to the lowest.
- d) Recommend the 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.

THE TENDER Part T1: Tendering procedures			30		T1.2 Tender Data
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.6 Decimal places

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

F.3.11.7 Scoring Financial Offers

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

NFO =W1xA

where:

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

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

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

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

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

F.3.11.8 Scoring preferences

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

F.3.11.9 Scoring quality

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data. Calculate the total number of tender evaluation points for quality using the following formula:

 $NQ = W2 \times SO/MS$

where:

SO is the score for quality allocated to the submission under consideration.

MS is the maximum possible score for quality in respect of a submission; and

W2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data

THE TENDER Part T1: Tendering procedures			31			T1.2 Tender Data			
Employer	Witness 1		Witness 2		Contractor		Witness 1		Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

F.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

F.3.13 Acceptance of tender offer

Accept the tender offer, if in the opinion of the employer, it does not present any unacceptable commercial risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
- c) has the legal capacity to enter into the contract,
- d) is not insolvent, in receivership, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
- e) complies with the legal requirements, if any, stated in the tender data, and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

F.3.14 Prepare contract documents

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

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

F.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

F.3.15 Complete adjudicator's contract

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

F.3.16 Notice to unsuccessful tenderers

F.3.16.1 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period.

F.3.16.2 After the successful tenderer has been notified of the employer's acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

F.3.17 Provide copies of the contracts

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

F.3.18 Provide written reasons for actions taken

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

THE TENDER Part T1: Tendering procedures

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T1.2 Tender Data

	_				_		
Employer		Witness 1	Witness 2	Contractor		Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

THE TENDER Part T1: Tendering procedures

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T1.2 Tender Data

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

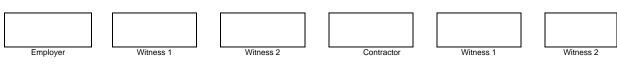


BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

THE TENDER PART T2: RETURNABLE DOCUMENTS

- T2.1 List of Returnable Documents
- T2.2 Returnable Documents

THE TENDER Part T2: Returnable Documents





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

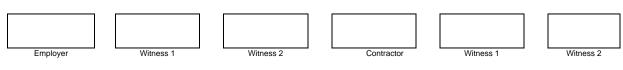
T2.1 List of returnable documents

- 1. Tenderers will be required to submit the following with within seven days of receipt of the Employer's written request for same:
 - (a) Certified copy of a Workmen's Compensation Certificate, Act 4 of 2002,
 - (b) Certified copy of Unemployment Insurance Certificate, Act 4 of 2002,
 - (c) Curriculum vitae of the person who prepares the Contractor's Health and Safety Plan, and
 - (d) Curriculum vitae of the Health and Safety Officer the successful tenderer intends appointing in accordance with the Occupational Health and Safety Act (Act 85 of 1993).
 - Curriculum Vitae of all supervisory staff. (e)
 - (f) Insurance
 - Guarantee (g)
- 2. The returnable schedules included in Section T2.2 will be used to evaluate tenders received. These schedules will also form part of the Contract.

THE TENDER Part T2: Returnable Documents

List of Returnable Documents

T2.1





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.1: Record of Addenda to tender documents

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:					
	Date	Title or Details			
1.					
2.					
3.					
4.					
5.					
6.					

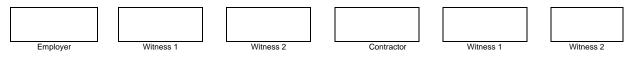
Attach additional pages if more space is required.

Signed	Date	
Name	Position	
Tenderer		

THE TENDER Part T2: Returnable Documents

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T2.1 List of Returnable Documents





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.2: Compulsory Enterprise Questionnaire

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.					
Section 1: Name of enterprise:	Section 1: Name of enterprise:				
Section 2: VAT registration number, if	any:				
Section 3: CIDB registration number, it	any:				
Section 4: Particulars of sole proprieto	rs and partners in partnerships				
Name*	Identity number*	rsonal income tax nu	mber*		
* Complete only if sole proprietor or partnership	and attach separate page if more than 3 partners				
Section 5: Particulars of companies an	d close corporations				
Company registration number					
Tax reference number					
Indicate by marking the relevant boxes w	Section 6: Record of service of the state Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:				
 a member of any municipal council a member of any provincial legislature a member of the National Assembly or the a member of the National Assembly or the a member of the board of directors of any municipal entity a member of any municipality or municipal entity a member of any municipal council a member of the board of directors of any municipal entity a n employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) a member of an accounting authority of any national or provincial public entity a memployee of Parliament or a provincial legislature 					
If any of the above boxes are marked, disclose the following:					
Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or state and position held		atus of service ppropriate column) t Within last 12 months		
THE TENDER Part T2: Returnable Documents	37	List of Retu	T2.1 Irnable Documents		

Emplo	oyer

Witness	1

Witness 2	



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

*insert separate page if nec	essary				
Section 7: Record of	spouses, children	and parents in the servi	ce of the state		
	eholder or stakehold		hild or parent of a sole proprie corporation is currently or has		
 □ a member of any p □ a member of the N National Council of Pro □ a member of the municipal entity 	□ an official of any municipality or municipal				
Name of spouse, chil	d or parent	Name of institution, pu o state and position h	ıblic office, board or organ eld	Status of se	rvice riate column)
					Within last 12
					months
*:					
*insert separate page if nec	essary				
The undersigned, who w	arrants that he/she	is duly authorised to do s	o on behalf of the enterprise:		
			the South African Revenue Se	ervices that my /	our tax matters are in
/	her the name of the	e enterprise or the name of	of any partner, manager, directo	or or other perso	n, who wholly or partly
			rs on the Register of Tender I		
Prevention and Corr	bating of Corrupt A	ctivities Act of 2004;	-		
			wholly or partly exercises, or ma	ay exercise, cont	rol over the enterprise
		peen convicted of fraud or		aitting toget M	and have an
iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other THE TENDER 38 T2.1					
THE TENDER38T2.1Part T2: Returnable DocumentsList of Returnable Documents					
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

relationship wit	h any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a
conflict of intere	est;
iv) confirms that the	e contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.
Signed	Date
olghou	
Name	Position

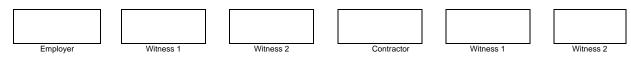
Enterprise

, name

THE TENDER Part T2: Returnable Documents

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T2.1 List of Returnable Documents





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.3: Certificate of Authority for Joint Ventures

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise 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.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		
		Signature
		Name
		Designation
		Signature
		Name
		Designation
		Signature
		Name
		Designation
		Signature
		Name
		Designation

THE TENDER Part T2: Returnable Documents

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T2.1 List of Returnable Documents

Employer	

Witness 2	

 Contractor	



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.4: Schedule of Proposed Subcontractors

We notify you that it is our intention to employ the following Subcontractors for work in this contract.

If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

We confirm that all subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

	Name and address of proposed Subcontractor	Nature and extent of work	Previous experience with Subcontractor.
1.			
2.			
3.			
4.			
5.			

Signed			Date		
Name			Position		
Tenderer					
THE TENDER Part T2: Return	able Documents		41	List of Return	T2.1 able Documents
Employer	Witness 1	Witness 2	Contrac	ctor Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.5: Schedule of Plant and Equipment

The following are lists of major items of relevant equipment that I/we presently own or lease and will have available for this contract or will acquire or hire for this contract if my/our tender is accepted.					
(a) Details of major equipment that is owned by and immediately available for this contract.					
Quantity	Description, size, capacity, etc.				
Attach additional pages if n	nore space is required.				
(b) Details of major equipme	(b) Details of major equipment that will be hired or acquired for this contract if my/our tender is acceptable.				
Quantity	Description, size, capacity, etc.				
Attach additional pages if more space	e is required.				
Signed	Date				
Name	Position				
Tenderer					

THE TENDER Part T2: Returnable Documents

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T2.1 List of Returnable Documents

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.6: Schedule of the Tenderer's Experience The following is a statement of similar work successfully executed / in progress by myself/ourselves in the last 5 years:					
Employer, contact person and telephone number.	Description of contract	Value of work inclusive of VAT (Rand)	Date completed		

Signed			Date		
Name			Position		
Tenderer					
THE TENDER Part T2: Returna	able Documents		43	List of Returnab	T2.1 le Documents
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.7: Financial References

(a) <u>FINANCIAL STATEMENTS</u>

I/We agree, if required, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report for consideration by the Employer.

(b) DETAILS OF COMPANY'S BANK

I/We hereby authorise the Employer/Engineer to approach all or any of the following banks for a reference:

DESCRIPTION OF BANK DETAIL	BANK DETAIL APPLICABLE TO COMPANY HEAD OFFICE	BANK DETAIL APPLICABLE TO THE SITE OF THE WORKS
Name of bank		
Branch name		
Branch code		
Street address		
Postal address		
Name of manager		
Telephone number	()	()
Fax number	()	()
Account number		

THE TENDER Part T2: Returnable Documents

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T2.1 List of Returnable Documents

Employer	

Witness	1

Witness	2

Contractor		

Witness 1

а <u>с</u>



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Signed	Date	
Name	Position	
Tenderer		

THE TENDER Part T2: Returnable Documents

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T2.1 List of Returnable Documents

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.8: Proposed amendments and qualifications

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

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

Page	Clause or item	Proposal
Signed		Date
Name		Position
Tenderer		
THE TENDER Part T2: Returnab	le Documents	46 T2.1 List of Returnable Documents
Employer	Witness 1	Witness 2 Contractor Witness 1 Witness 2

T2.2.9: Supervisory and Safety Personnel

PREVIOUS EXPERIENCE ON WORKS OF A SIMILAR NATURE DURING THE LAST FIVE YEARS

Name	% Time on Site	Position (Current)	Service (Years)	Name of Project And year executed	Value of Works	Position Occupied
Contracts Manager						
Contractor's Site Agent	100%					
Contractor's Foremen						
Construction Health and Safety Officer	100%					
Contractors Surveyor						

Tenderers shall indicate the percentage of working time these persons will be engaged on site. Tenderers are required to provide copies of curriculum vitas of all supervisory and safety personnel.



T2.2 Returnable Schedules

T2.2.10: Labour Utilisation

Labour Categories - Definitions

NOTE: These definitions serve as a guideline to complete the following table and will in no respect alter the Project Specifications or Standardised Specifications

1. General Foreman / Foreman

An employee who gives out work to and directly co-ordinates and supervises employees. His duties encompass any one or more of the following activities:

- a) Supervision.
- b) Maintaining discipline.
- c) Ensuring safety on the workplace.
- d) Being responsible to the Contractor for efficiency and production for his portion of the works; and
- e) Performing skilled work, whether in an instructional capacity or otherwise.

2. Charge hand

An employee engaged in any one or more of the following activities:

- a) Being primarily employed in a supervisory capacity, but who may also be doing the work of an artisan.
- b) Giving out work to other employees under his control and supervision.
- c) Ensuring safety on the workplace.
- d) Maintaining discipline; and
- e) Being directly responsible to a general foreman or foreman or the Contractor or the Contractor's representative for efficiency and production for his portion of the works.

3. Artisan

An employee who has successfully completed all prescribed courses at a practical institutional training center for a particular trade and who has successfully completed the on-site period of training as prescribed and who has successfully passed the prescribed trade tests.

4. Team Leader

An employee engaged in any one or more of the following activities:

- a) Being employed in a supervisory capacity, but who may also be doing the work of a skilled person.
- b) Giving out work to other employees under his control and supervision.
- c) Maintaining discipline.
- d) Being directly responsible to a Charge hand or a foreman or a general foreman or the employer's authorised representative for efficiency and production for his portion of the works.

5. Skilled Employee

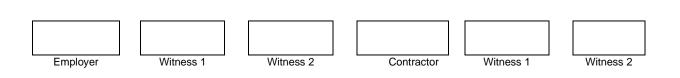
An employee engaged in an ancillary trade or an assistant artisan.

6. Semi-Skilled Employee

An employee with any specified skills, an apprentice or a trainee-artisan.

7. Unskilled Employee

An employee engaged on any task or operation not specified above.



8. Imported Employee Personnel permanently employed by Contractor.

Local Employee 9.

Temporary workforce employed through Labour Desk.

MAN DAYS

Categories	a) No. of Man Day	/S	
	b) Imported	c) Local	d) HDI (Y/N)
1. Contracts Manager			
2. Site Agent			
3. Foreman/Supervisors (specify type)			
3.1			
3.2			
3.3			
4. Safety Inspectors (specify type)			
4.1			
4.2			
5. Charge hands			
6. Artisans			

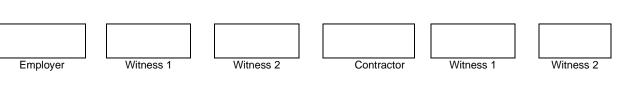


Witness 1



Categories	a) No. of Man Days		
	b) Imported	c) Local	d) HDI (Y/N)
7. Operators/Drivers			
8. Clerks/ Storeman			
9. Team Leader			
10. Skilled Labour			
11. Semi-skilled Labour			
12. Unskilled Labour			

Signed	Date	
Name	Position	
Tenderer		



T2.2.11: Occupational Health and Safety Act: Statement by Tendering Entity

l,	duly authorised
to represent	(company name)
	hereby confirm that I accept full
	ponsibility for compliance by myself and all persons who perform work for me with the provisions of the Occupational Act, No. 85 of 1993 (as amended) and all regulations promulgated from time to time, whilst performing work on
	mployees who perform work on the site shall be properly trained to do this in a manner which is safe and without risk ty to themselves and others in the vicinity and undertake to have our activities adequately supervised in the interest ty.
Signed	Date
Name	Position
Tenderer	

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

T2.2.12: Site Inspection Certificate

As required by Clause 2.7 of the Tender Data, I/we certify that I/we have visited the site of the Works and attended the site visit and clarification meeting on the date certified below.

I/we further certify that I am / we are satisfied with the description of the Work and the explanations given by the Engineer at the site visit and clarification meeting.

Signature of Tenderer		Date		
Site Visit				
This will certify that				
representing				
attended a Site Inspection for this	Contract on		20	
	(signed)			
For the Engineer	(signed)			
	52			
]	
Employer Witness	s 1 Witness 2	Contractor	Witness 1	Witness 2
	, i Withoo 2	Contractor		With 1035 Z

T2.2.13: Authority of Signatory

With reference to Clause 2.13.4 of the Tender Data, I/we herewith certify that this tender is submitted by: (Mark applicable block	:k)
a company, and attach hereto a certified copy of the required resolution of the Board of Directors	
a partnership, and attach hereto a certified copy of the required resolution by all partners	_
a close corporation, and attach hereto a certified copy of the required resolution of the Board of Officials	
a one-man business, and attach hereto certified proof that I am the sole owner of the business submitting this tender	
a joint venture, and attach hereto	
 an notarially certified copy of the original document under which the joint venture was constituted; and certified authorisation by the participating members of the undersigned to submit tenders and conclude contracts on behalf of the joint venture 	

Signed	Date	
Name	Position	
Tenderer		

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.14: General Conditions of Contract

(NOT TO BE ALTERED)

PROCUREMENT: GENERAL CONDITIONS OF CONTRACT Dated July 2010 as set out by the National Treasury: Republic of South Africa

TABLE OF CLAUSES

- 1. Definitions
- 2. Application
- 3. General
- 4. Standards
- 5. Use of contract documents and information inspection
- 6. Patent Rights
- 7. Performance security
- 8. Inspections, tests and analyses
- 9. Packing
- 10. Delivery and documents
- 11. Insurance
- 12. Transportation
- 13. Incidental Services
- 14. Spare parts
- 15. Warranty
- 16. Payment
- 17. Prices
- 18. Variation orders
- 19. Assignment
- 20. Subcontracts
- 21. Delays in the supplier's performance
- 22. Penalties
- 23. Termination for default
- 24. Anti-dumping and countervailing duties and rights
- 25. Force Majeure
- 26. Termination for insolvency
- 27. Settlement of Disputes
- 28. Limitation of Liability
- 29. Governing language
- 30. Applicable law
- 31. Notices
- 32. Taxes and duties
- 33. Transfer of contracts
- 34. Amendments of contracts
- 35. Prohibition of restrictive practices

Employer	Witness 1	Witness 2	Contractor	1	Witness 1	1	Witness 2

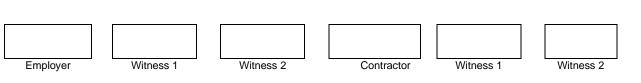


BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

General Conditions of Contract

1. Definitions

- 1. The following terms shall be interpreted as indicated:
- 1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.
- 1.2 "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.
- 1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
- 1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.
- 1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
- 1.6 "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.
- 1.7 "Day" means calendar day.
- 1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.
- 1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.
- 1.10 "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 goods are so delivered and a valid receipt is obtained.
- 1.11 "Dumping" occurs when a private enterprise abroad market 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.
- 1.12" 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.
- 1.13 "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)





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designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

- 1.14 "GCC" means the General Conditions of Contract.
- 1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 "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 goods covered by the bid will be manufactured.
- 1.17 "Local content" means that portion of the bidding price, which is not included in the imported content provided that local manufacture does take place.
- 1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 "Project site," where applicable, means the place indicated in bidding documents.
- 1.21 "Purchaser" means the organization purchasing the goods.
- 1.22 "Republic" means the Republic of South Africa.
- 1.23 "SCC" means the Special Conditions of Contract.
- 1.24 "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.
- 1.25 "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.
- 1.26 "Tort" means in breach of contract.
- 1.27 "Turnkey" means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract.
- 1.28 "Written" or "in writing" means hand-written in ink or any form of electronic or mechanical writing.

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Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

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2. Application

- 2.1. These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services (excluding professional services related to the building and construction industry), 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 goods, 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 nonrefundable fee for documents may be charged.
- 3.2. Invitations to bid are usually published in locally distributed news media and on the municipality/municipal entity website.

4. Standards

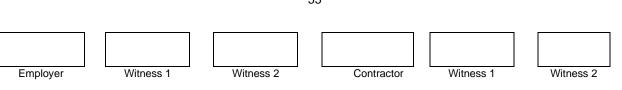
4.1. The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

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.
- 6.2. When a supplier developed documentation / projects for the municipality / municipal entity, the intellectual, copy and patent rights or ownership of such documents or projects will vest in the municipality / municipal entity.





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7. 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.

8. Inspections, tests and analyses

- 6.1. All pre-bidding testing will be for the account of the bidder.
- 6.2. If it is a bid condition that goods to be produced or services to be rendered should at any stage be subject to inspections, tests and analyses, the bidder or contractor's premises shall be open, at all reasonable hours, for inspection by a representative of the purchaser or organization acting on behalf of the purchaser.
- 6.3. 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.
- 6.4. If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the goods to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.
- 6.5. Where the goods or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such goods or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.
- 6.6. Goods 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.
- 6.7. Any contract goods 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 goods 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 goods, which do comply with the requirements of the contract. Failing such removal the rejected goods shall be returned at the suppliers cost and risk.

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



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Should the supplier fail to provide the substitute goods forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected goods, purchase such goods as may be necessary at the expense of the supplier.

6.8. 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 22 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 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, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

10.1. Delivery of the goods and arrangements for shipping and clearance obligations shall be made by the supplier in accordance with the terms specified in the contract.

11. Insurance

11.1. The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified.

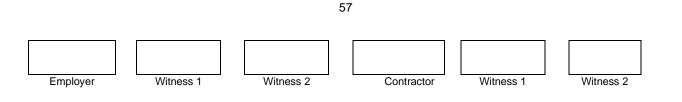
12. Transportation

12.1. Should a price other than an all-inclusive delivered price be required, this shall be specified.

13. Incidental Services

- 13.1. The supplier may be required to provide any or all of the following services, including additional services, if any:
 - (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.





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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, 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.
- 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 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, 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.

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Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



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16. Payment

- 16.1. The method and conditions of payment to be made to the supplier under this contract shall be specified.
- 16.2. The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfillment 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.

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 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

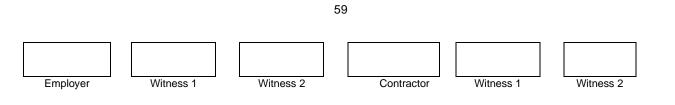
19.1. The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1. The supplier shall notify the purchaser in writing of all subcontracts awarded under these contracts 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 delivery and/or 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.





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- 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, it's 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. 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 goods are required, or the supplier's services are not readily available.
- 21.4. 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 22.2 without the application of penalties.
- 21.5. Upon any delay beyond the delivery period in the case of a goods contract, the purchaser shall, without cancelling the contract, be entitled to purchase goods 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

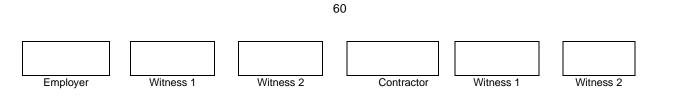
23.1. The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

(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.





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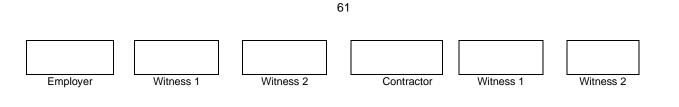
- 23.3. Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.
- 23.4. If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the supplier as having no objection and proceed with the restriction.
- 23.5. Any restriction imposed on any person by the purchaser will, at the discretion of the purchaser, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the purchaser actively associated.
- 23.6. If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:
 - (i) the name and address of the supplier and / or person restricted by the purchaser.
 - (ii) the date of commencement of the restriction
 - (iii) the period of restriction; and
 - (iv) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7. If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website

24. Antidumping and countervailing duties and rights

24.1. When, after the date of bid, provisional payments are required, or anti-dumping 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 supplier to the purchaser or the purchaser may deduct such amounts from moneys (if any) which may otherwise be due to the supplier in regard to goods 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.





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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.

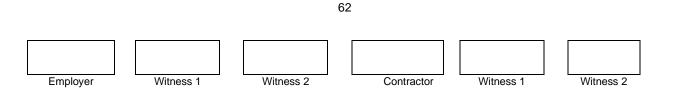
26. Termination for insolvency

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. 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 for goods delivered and / or services rendered according to the prescripts of the contract.





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28. Limitation of Liability

28.1 Except in cases of criminal negligence or willful 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 does 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.

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 SARS must have certified that the tax matters of the preferred bidder are in order.
- 32.4. No contract shall be concluded with any bidder whose municipal rates and taxes and municipal services charges are in arrears.

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

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Employer	Witness 1	Witness 2		Contractor	Witness 1	Witness 2	



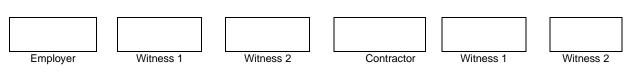
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34. Amendment of contracts

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. 35.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of restrictive practices 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 0f 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.



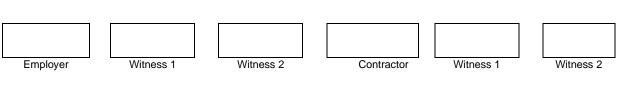


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SPECIAL CONDITIONS OF CONTRACT

Termination by Employer and Appointment of a completion Service Provider (Contractor)

In an event where the successful Service Provider (Contractor) has failed to execute the contract as per the conditions of the contract, thus resulting in termination of the contract as per *Clauses 9.2.1.1, 9.2.1.2, 9.2.1.3 (1)(2)(3)(4)(5)(6)(7)(8)*, of the General Conditions of Contract 2015, Third Edition. Then, the Employer (Rustenburg Local Municipality) reserves the right to appoint the second highest scoring bidder in the same tender for completion of the contract. Any incurred losses and damages will be claimed against the terminated Service Provider(Contractor).





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T2.2.16:

MBD 4: DECLARATION OF INTEREST

No bid will be accepted from persons in the service of the state.

Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.

In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Full Name of bidder or his or her representative:

3.2 Identity Number:

3.3 Position occupied in the Company (director, trustee, hareholder²):

3.4 Company Registration Number:

3.5 Tax Reference Number:

3.6 VAT Registration Number:

3.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

3.8 Are you presently in the service of the state? [TICK APPLICABLE BOX] UYES / NO

3.8.1 If yes, furnish particulars.

.....

¹MSCM Regulations: "in the service of the state" means to be –

(a) a member of –

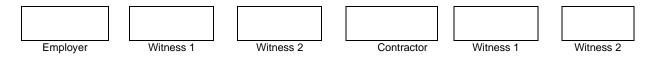
(i) any municipal council.

(ii) any provincial legislature; or

(iii) the national Assembly or the national Council of provinces.

(b) a member of the board of directors of any municipal entity;
(c) an official of any municipality or municipal entity.
(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999).

(e) a member of the accounting authority of any national or provincial public entity; or





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

(f) an	employee of Parliament or a provincial legislature.				
	eholder" means a person who owns shares in the comp gement of the company or business and exercises cont		olved in the		
3.9 for the	Have you been in the service of the state past twelve months?	[TICK APPLICA	BLE BOX]	🗌 YES / 🗌 NO	
3.9.1 l	f yes, furnish particulars				
3.10	Do you have any relationship (family, friend, other) wi service of the state and who may be involved with	th persons in the			
	aluation and or adjudication of this bid? If yes, furnish particulars	[TICK APPLICABLE BOX]		ES / 🛄 NO	
3.11 of the evalu	Are you, aware of any relationship (family, friend, of state whomay be involved with the ation and or adjudication of this bid?	ther) between any other [TICK APPLICABLE BOX]			;e
3.12 or sta	If yes, furnish particulars Are any of the company's directors, trustees, managers keholders in service of the state? If yes, furnish particulars	principle shareholders [TICK APPLICABLE BOX]] NO	
truste in serv	Are any spouse, child or parent of the company's direct es, managers, principle shareholders or stakeholders vice of the state? If yes, furnish particulars	Cors [TICK APPLICABLE BOX]	□ YE	ES / 🗌 NO	
intere	Do you or any of the directors, trustees, managers, prin st in any other related companies or business whether t they are bidding for this contract. 6	[TICK APPLICABLE BOX]			ıy

Employer

Witness 1

Witness 2

Contractor

Witness 1

Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

3.14.1 If yes, furnish particulars.....

4. Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	Personal Reference Tax Number	State Employee Number

 Signature
 Date

 Capacity
 Name of Bidder

 68
 68

 Employer
 Witness 1
 Witness 2
 Contractor
 Witness 1
 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.17:

MBD	5
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DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire:

1	Are you by law required to prepare annual financial statements for auditing?
1.1	[<i>TICK APPLICABLE BOX</i>] TYES / NO If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.
2	Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days? [TICK APPLICABLE BOX] *YES / NO
2.1 2.2	If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days. If yes, provide particulars.
3	Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?
3.1	[<i>TICK APPLICABLE BOX</i>]
E	Employer Witness 1 Witness 2 Contractor Witness 1 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

4.	Will any portion of goods or services be source municipality / municipal entity is expected to be t					
4.1	If yes, furnish particulars	[TICK APPLICABLE BOX] 🗌 *YES / NC)			
		CERTIFICATION				
I, THE L	JNDERSIGNED (FULL NAME)					
	Y THAT THE INFORMATION FURNISHED ON TH ND CORRECT.	HIS DECLARATION FORM IS				
	PT THAT, IN ADDITION TO CANCELLATION OF A TAKEN AGAINST ME SHOULD THIS DECLARA					
	/s and Surname of Bidder	Signature				
	ion in the Firm/Company	Date				

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

T2.2.18:

MBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

- 1.1 The following preference point systems are applicable to invitations to tender:
 - the 80/20 system for requirements with a Rand value of up to 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).

1.2 To be completed by the organ of state

The applicable preference point system for this tender is the 80/20 preference point system.

- 1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for: (a) Price; and
 - (b) Specific Goals.

1.4 To be completed by the organ of state:

			71		
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

- 1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

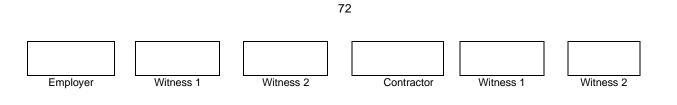
2. DEFINITIONS

(a)

"tender" means a

written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

- (b) "price" means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) "rand value" means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) "tender for income-generating contracts" means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) "the Act" means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

		80/20	or	90	D/10
Ps = Where	80 ($\left(1-\frac{Pt-P\min}{P\min}\right)$	or	Ps = 90(1	$-\frac{Pt-P\min}{P\min}$
Ps	=	Points scored for price	of tender under	consideration	
Pt	=	Price of tender under c	onsideration		
Pmin	=	Price of lowest accepta	ble tender		

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

80/20 or 90/10

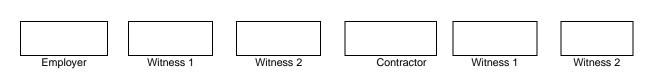
$$Ps = 80\left(1 + \frac{Pt - Pmax}{Pmax}\right)$$
 or $Ps = 90\left(1 + \frac{Pt - Pmax}{Pmax}\right)$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
 - (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

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4.



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed. (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Ownership	Points	Points	Points claimed	Points claimed
Rustenburg Jurisdiction	2	4		
Rural /Township Businesses	2	4		
Black People	1	2		
Persons with Disability	1	2		
Youth	2	4		
Women	1	2		
SMME's	1	2		
Total	10	20		

Proof of address as envisaged on the list of mandatory documents and a full Central Supplier Database full report will be used for verification and allocation of points.

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

- 4.4. Company registration number:
- 4.5. TYPE OF COMPANY/ FIRM **[TICK APPLICABLE BOX]**
 - Partnership/Joint Venture / Consortium
 - □ One-person business/sole propriety

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

- Close corporation
- Public Company
- Personal Liability Company
- (Pty) Limited
- □ Non-Profit Company
- State Owned Company
- 4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I 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 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
 - iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have
 - (a) disqualify the person from the tendering 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 tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted 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, if deemed necessary.

	SIGNATURE(S) OF TENDERER(S)					
	SURNAME AND NAME: DATE:					
	ADDRESS:					
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2	



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

CONTRACT FORM - RENDERING OF SERVICES

MDB 7.2

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

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

The following documents shall be deemed to form and be read and construed as part of this agreement: Bidding documents, Invitation to bid; Tax compliance status (CSD report); Pricing schedule(s); Filled in task directive/proposal; Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022; Declaration of interest; Declaration of bidder's past SCM practices; Certificate of Independent Bid Determination; Special Conditions of Contract; General Conditions of Contract; and Other (specify)

				_		
Employer	Witness 1	Witness 2	Contractor	•	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

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

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

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

NAME (PRINT)	
CAPACITY	
SIGNATURE	
NAME OF FIRM	
DATE	

WITNESSES
1
2
DATE:

 Employer
 Witness 1
 Witness 2
 Contractor
 Witness 1
 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

MBD 7.2

CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

An official order indicating service delivery instructions is forthcoming.

I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

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

		WI	TNESSES
SIGNED AT	ON	1	
NAME (PRINT)		2	
SIGNATURE		DA	.те:

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2
Employei	Withess I	Withess 2	Contractor	Withess I	Witness 2

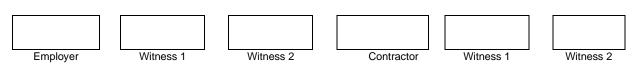


BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

MBD 8: DECLARATION OF ABUSE OF SUPPLY CHAIN MANAGEMENT SYSTEM

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Standard Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by institutions in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be disregarded if that bidder, or any of its directors have
 - a. abused the institution's supply chain management system.
 - b. committed fraud or any other improper conduct in relation to such system; or
 - c. failed to perform on any previous contract.
- 4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?	Yes	No
	Companies or persons who are listed on this Database were informed in writing of this restriction by the		
	Accounting Officer/Authority of the institution that imposed the restriction after the audi alteram partem		
	rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website		
	(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.		
4.1.1	If so, furnish particulars:	<u> </u>	
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes	No
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes	No
4.3.1	If so, furnish particulars:		-1
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes	No
4.4.1	If so, furnish particulars:		



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

CERTIFICATION

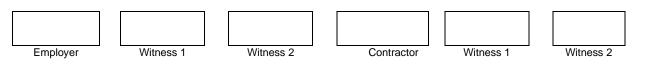
I, THE UNDERSIGNED (FULL NAME)CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT. I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

Name/s and surname of Bidder

Signature

Position In the Firm/Company

Date





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

MBD 9

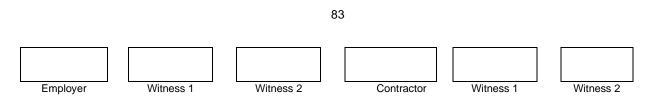
CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe* se prohibition meaning that it cannot be justified under any grounds.
- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
 - 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
 - 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete

I, the undersigned, in submitting the accompanying bid:





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND **HOUSE CONNECTION**

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: ______ that:

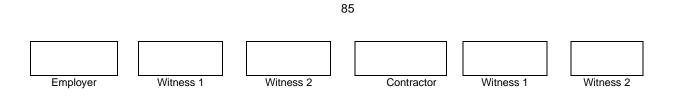
(Name of Bidder)

					_	
Employer	Witness 1	Witness 2	Contractor	Witness 1		Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

- 1. I have read and I understand the contents of this Certificate;
- I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
- 3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
- 4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
- 5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
- 6. 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 consortium³ will not be construed as collusive bidding.
- 7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
- 8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

- 9. 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.
- 10. 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.

³ 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.

Signature

Position

Date Name of Bidder

 Employer
 Witness 1
 Witness 2
 Contractor
 Witness 1
 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND **HOUSE CONNECTION**

T2.2.22:

SECTION 38: DECLARATION FORM

Having examined the BID and the general conditions thereto, I/we hereby certify that the bid price in the bid schedules and the preference points claimed are correct.

I/We furthermore certify that I/we/the Company comply/complies with the issues around Section 38 of the Supply Chain Management Policy inter alia:

IF ALL IS IN PLACE IN RESPECT OF THE CONTRACTUAL ISSUES LISTED IN THE TABLE BELOW; THE ANSWER SHOULD BE YES. ATTACH SUPPORTING INFORMATION IF ANY OF THE ANSWERS IS NO.

Note that the Municipality's Procurement Section will verify the statements.

I/we certify the following:

No.	CONTRACTUAL ISSUES	YES	NO
1.	In terms of Section 38 (1) (c) that the Bidder or any of the Directors is not listed as a		
	person prohibited from doing business with the Public Sector		
2.	In terms of Section 38 (1)(d) (i) that the Bidder or any of the Directors does not owe rates		
	and taxes or Municipal service charges to any Municipality that is in any arrears for more		
	than three (3) months. Copies of the latest Municipal service charges statement of the		
	Bidder and the Directors must be attached to the tender/bid document		
3.	In terms of Section 38 (1) (d) (ii) that the Bidder or any of the Directors has not failed to		
	perform satisfactorily on a previous/previous contract/s with the Municipality or any organ		
	of state		
4.	In terms of Section 38 (i) (9) that the Bidder or any of the Directors has not been		
	convicted for fraud or corruption during the past five (5) years		
5.	In terms of Section 38 (i) (9) (iv) that the Bidder or any of the Directors has not been listed		
	in the Register Of Tender Defaulters in terms of Section 29 of the Prevention and		
	Combating of Corrupt Activities Act, (Act No. 12 of 2004)		

SIGNATURE OF BIDDER			DATE	
FULL NAME AND SURNAME OF BID				
COMPANY NAME:				
PHYSICAL ADDRESS:				
TELEPHONE NUMBER:				
EMAIL ADDRESS:				
WITNESS 1:	WITNESS 2:			
	8	37		
Employer Witness 1	Witness 2	Contractor	Witness 1	Witness 2

Employer

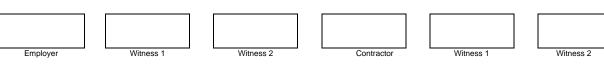


BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

THE CONTRACT PART C1 : AGREEMENTS AND CONTRACT DATA

- C1.1 Form of Offer and Acceptance
- C1.2 Contract Data
- C1.3 Pro Forma Guarantee

THE CONTRACT Part C1: Agreement and Contract Data





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

C1.1 Form of Offer and Acceptance

Offer

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

APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

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:

..... (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					Da	te			
Name									
Capacity									
for the tende	erer								
(Name and address of									
organization)									
Name and signature of witness									
Acceptanc	e								
THE CONTR Part C1: Ag		t and Contrac	t Data		89		Form of Offe	er and	C1.1 Acceptance
Employer		Witness 1		Vitness 2		Contractor	Witness 1		Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

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: Agreements and contract data, (which includes this agreement)
- Part C2: Pricing data
- Part C3: Scope of work.
- Part C4: Site information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

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 (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 fulfill 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	Rustenburg Local Municipal Missionary Mpheni House c/o Beyers Naude & Nelson Rustenburg				
Name and signature			Date		
THE CONTRA	ACT eement and Contract Dat	a	90	Form of Offer and	C1.1 d Acceptance
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

of witness

Schedule of Deviations

Notes :

- 1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender;
- 2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid become the subject of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here;
- 3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here:
- 4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

Part C1: Agreement and Contract Data	Form of Offer and Acceptance
THE CONTRACT 91	C1.1
Details	
4 Subject	
Details	
3 Subject	
Details	
2 Subject	
1 Subject	

Witness 2

Witness 1

Employer

Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

	• • •	 • •	• •	·	 • •	• •	·	• •	• •	•	• •	•		• •	• •	• •	•	• •	•		• •	• •		•	•••	• •	•	• •	 •	• •	• •	•	• •	•	 •	 • •	•••	• •		•
		 			 					•		•		•			•			• •	•			•		• •	•		 •		•	•		•	 •	 				•
5 Subject		 		•	 									•			•				•						•				•					 				
5 Subject Details		 			 	•••							•			•				•		•			•				 									•		
		 			 • •			• •	• •	•		•		• •	• •		•		•		• •	• •	• •	•			•		 •		• •	•		•		 • •	•••			•
	• • •	 • •		•	 	• •	•	• •	• •	•	• •	•		• •	• •	• •	•	• •	•	• •	• •	• •	• •	•		• •	•	• •	 •		• •	•	• •	•	 •	 • •			•••	•
		 			 				• •			•		•			• •				• •			•			•				• •	•				 • •				•

By the duly authorised 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.

for the	tenderer
---------	----------

Signature			Date	
Name				
Capacity				
(Name and address of				
organization)				
Name and signature				
of witness				
for the Empl	oyer			
Signature		Date .		
Name				
Capacity				
THE CONTR	ocal Municipality RACT reement and Contract Data	92		C1.1 Form of Offer and Acceptance
Employer	Witness 1	Witness 2	Contractor	Witness 1 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Missionary Mpheni House c/o Beyers Naude & Nelson Mandela Drive Rustenburg

Name andsignature of witness

Date.....

THE CONTRACT Part C1: Agreement and Contract Data

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C1.1 Form of Offer and Acceptance

Employer	-	Witness 1	Witness 2	-	Contractor	-	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

C1.2 Contract Data

GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works (2015) 3rd Edition, published by the South African Institution of Civil Engineering, is applicable to this Contract.

The General Conditions of Contract are not bound into this document but are available at the Contractor's expense. Each party to the contract shall purchase its own copy of the GC 2015, available from South African Institution of Civil Engineering Private Bag X200 Halfway House, 1685 South Africa Tel: 27(0) 11 805 5947 /48 /53

Each item of data below is cross-referenced to the clause in the conditions of contract to which it applies.

In terms of clause 1.1.1.8 of the General Conditions of Contract for Construction Works (2015) 3rd Edition, published by the South African Institution of Civil Engineering), the following Contact Data apply to this Contract.

The Contract Data consists of two parts. Part 1 contains information provided by the Employer, while Part 2 contains information to be provided by the Contractor.

Part 1: Data Provided by the Employer

Clause	Contract Data
1.1.1.5	Replace the contents of Clause 1.1.1.5 with the following:
	The "Commencement Date" means the date on which the contactor receives a written instruction from the Employer to commence with the Works. The instruction to commence with the works will not be issued later than 28 days from the date that the Agreement made in terms of the Form of Offer and Acceptance comes into effect.
1.1.1.13	The Defects Liability Period for the Works shall be 365 days.
1.1.1.14	Add the following to the end of this definition:
	This clause shall apply <i>mutatis mutandis</i> to any portion or phase of the Works that may be described in the Scope of Works or in the Contract Data, or agreed subsequently between the Contractor and the Employer, and committed to writing.
	The time for achieving practical completion 8 Months.
1.1.1.15	The Employer is Rustenburg Local Municipality.
1.1.1.16	The Engineer means any Director, Associate or Professional Engineer appointed generally or specifically by the management of the Employer to fulfil the functions of the Engineer in terms of the Conditions of Contract.

THE CONTRACT Part C1: Agreement and Contract Data

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C1.2 Contact Data

Employer

Witness	1





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause	Contract Data
1.1.1.26	The pricing strategy is Re-measurement Contract.
1.2.1	Add the following to the clause:
	1.2.1.3 Sent by facsimile, electronic or any like communication irrespective of it being during office hours or otherwise.
	1.2.1.4 Posted to the Contractor's address and delivered by the postal authorities.
	1.2.1.5 Delivered by a courier service and signed for by the recipient or his representative.
1.2.1.2	The address of the Employer is:
	Rustenburg Local Municipality C/o Beyers Naudé & Nelson Mandela Drive
	P O Box 550 Rustenburg 0300
	Tel: +27 (14) 590 3098 Fax: +27 (14) 590 3879
1.3.6	Add the following new Clause:
	The copyright in all documents, drawings and records (prepared by the Engineer) related in any manner to the Works shall vest in the Employer or the Engineer or both (according to the dictates of the Contract that has been entered into by the Engineer and the Employer for the Works), and the Contractor shall not furnish any information in connection with the Works to any person or organisation without the prior approval of the Employer to this effect.
3.1.3	The Engineer is, in terms of his appointment by the Employer for the design and administration of the Works included in the Contract, required to obtain the specific approval of the Employer for the execution of the following duties:
	3.1.3.1 The issuing of an order to suspend the progress of the Works, the extra cost resulting from which order is to be borne by the Employer in terms of Clause 5.11 or the effect of which is liable to give rise to a claim by the Contractor for an extension of time under Clause 5.12 of these conditions.
	3.1.3.2 The issuing of an instruction or order to vary the nature or quantity of the Works in terms of Clause 6.3, the estimated effect of which will be to increase the Contract Price by an amount exceeding R50 000, the evaluation of all variation orders in terms of Clause 6.4 and the adjustment of the sum(s) tendered for General Items in terms of Clause 6.11.
	3.1.3.3 The approval of any claim submitted by the Contractor in terms of Clause 10.1.
4.1.2	Add the following to the clause:
	The Contractor shall provide the following to the Engineer for retention by the Employer or his assignee in

THE CONTRACT

Part C1: Agreement and Contract Data

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C1.2 Contact Data

Em	ployer	

Co	nti	ra	ct



BID NO: RLM/DTIS/0103/2022/23. **APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE** AND HOUSE CONNECTION

Clause	Contract Data	
	respect of all works designed by the Contractor:	
	4.1.2.1 a Certificate of Stability of the Works signed by a registered Profession that all such works have been designed in accordance with the appropriate	
	4.1.2.2 proof of registration and of adequate and current professional indemnity the designer(s).	insurance cover held by
	4.1.2.3 design calculations should the Engineer request a copy thereof.	
	4.1.2.4 engineering drawings and workshop details (both signed by the relevan in order to allow the Engineer to compare the design with the specifi record any comments he may have with respect thereto.	
	4.1.2.5 "As-Built" drawings in DXF electronic format after completion of the Worl	ks.
	The Contractor shall be responsible for the design of the Temporary Works.	
4.3.3	Add the following new clause:	
	The Contractor shall comply with the Occupational Health and Safety Specification prep terms of the Construction Regulations, 2003 promulgated in terms of Section 43 of the of Safety Act (Act No. 85 of 1993).	
	Without limiting the Contractor's obligations in terms of the Contract, the C commencement of the Works or any part thereof, be in the possession of an approved here.	
	The Contractor shall submit an approved Health and Safety Plan to the Engineer withi that the Agreement made in terms of the Form of Offer and Acceptance comes into effe	
4.3.4	Add the following new clause:	
	Contractor's liability as mandatory	
	Notwithstanding any actions which the Employer may take, the Contractor accept compliance with the relevant duties, obligations, prohibitions, arrangements and proce Occupational Health and Safety Act, 1993 (Act 85 of 1993), and all its regulations, in Regulations, 2003, for which he is liable as mandatory. By entering into this Contract the parties have agreed in writing to the above provisions in terms of Section 37 (2) of the section 20	cedures imposed by the cluding the Construction , it shall be deemed that
4.3.5	Add the following new clause:	
	Contractor to notify Employer	
	The Employer retains an interest in all inquiries conducted under this Contract in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and its Regulation involving the Contractor and/or Sub-Contractor and/or their employees. The Cor Employer in writing of all investigations, complaints or criminal charges which may performed under this Contract in terms of the Occupational Health and Safety Act, 19 Regulations.	ns following any incident ntractor shall notify the arise pursuant to work
4.3.6	Add the following new clause:	
E CONTRACT	ent and Contract Data	C1.2 Contact Date

Employer

Witness 1	

Witness 2

(Contractor

Witness 1



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause	Contract Data
	Contractor's Designer
	The Contractor and his designer shall accept full responsibility and liability to comply with the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and the Construction Regulations, 2003 for the design of the Temporary Works and those part of the Permanent Works which the Contractor is responsible to design in terms of the Contract.
4.3.7	Add the following new clause:
	The Ministerial Determination 4, Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice No 949 of 22 October 2010, as appended to these Contract Data as Annexure A, shall apply to works described in the Scope of Work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.
4.10.3	Add the following new clause:
	The Contractor shall use local labour in accordance with the requirements contained within the Scope of Work.
5.3.1	Add the following:
	The documentation required before commencement with Works Execution are:
	 Health and Safety Plan (Refer to Clause 4.3) Initial Programme (Refer to Clause 5.6) A detailed cash flow forecast (Refer to Clause 5.6.2.6) Security (Refer to Clause 6.2) Insurance (Refer to Clause 8.6)
5.3.2	Add the following:
	The time to submit the documentation required (Refer to Clause 5.3.1) before commencement with Works execution is 14 days.
5.4.2	The access and possession of Site shall not be exclusive to the Contractor but as set out in the Scope or Works and/or Site information.
5.6.1	Add the following to the clause:
	In this regard the Contractor shall have regard for the phases and sub-phases (if applicable) for the Development, which shall also be the order in which the Permanent Works shall be constructed, unless otherwise agreed between the parties and committed to writing. If phased construction is applicable, the phases and sub-phases will be described in the Specifications and/or will be indicated on the Phasing Plan which forms part of the Drawings.
5.7.1	Delete the last paragraph of the clause and replace with the following:
	No such instruction by the Engineer to expedite progress shall be the subject of additional compensation to the Contractor unless the instruction explicitly states that the Contractor is entitled to additional compensation, and cites the amount of such compensation or the basis upon which it is to be determined.
HE CONTRACT Part C1: Agreeme	97 C1.2 nt and Contract Data Contact Data

Witness 1

Employer

Witness 2

Witness 1

Contractor



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause	Contract Data				
5.8.1	The non-w	vorking days	are Sundays.		
	Special non-working days shall be all South African Statutory holidays and the official building holidays (which commences on 16 December and ends on 10 January).				
5.12.3	Delete the	contents of t	the clause and insert the following:		
	5.12.5, the regard to	If an extension of time is granted, other than an extension resulting from abnormal rainfall in terms of Clause 5.12.5, the Contractor shall be paid such additional time-related General Items as are appropriate having regard to any other compensation which may already have been granted in respect of the circumstances concerned.			
5.12.5	Add the fo	llowing new o	clause:		
	Extensior	n of time due	e to Abnormal Rainfall		
			ompletion of the Contract shall be allowed in the event of cordance with the following formula:		
	V	=	(N _w - N _n) + (R _w - R _n)/20		
	Where:				
	V	=	Extension of time in calendar days for the calendar month under consideration		
	Nw	=	Actual number of days during the calendar month under consideration on which a rainfall of 10mm and more is recorded		
	Rw	=	Actual total rainfall in mm recorded during the calendar month under consideration		
	Nn	=	Average number of days, derived from rainfall records, on which		
			a rainfall of 10mm and more was recorded during the relevant		
	Rn	=	calendar month as per the data tabulated hereinafter Average total rainfall in mm for the relevant calendar month,		
	T AT		derived from rainfall records, as tabulated hereinafter		
	rata value the corres be grante	es shall be us sponding valu d shall be th	f time due to abnormal rainfall has to be calculated for portion of a calendar month, pro ed. Should V be negative for any particular month, and should its absolute value exceed ue of N_n , then V shall be taken as being equal to minus N_n . The total extension of time to e algebraic sum of all the monthly extensions, provided that if this total is negative then n shall not be reduced due to subnormal rainfall.		
	the neces	ssary equipm	period of construction shall be taken on Site. The Contractor shall provide and install all ent for accurately measuring the rainfall. The Contractor shall also provide, erect and nce plus gate, padlock and keys at each measuring station, all at his own cost. The		
THE CONTRACT Part C1: Agreeme	ent and Co	ntract Dat	98 C1.2 a Contact Data		

Employer Witness 1 Witness 2 Contractor Witness 1 Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause	Contract Data				
	Engineer or his Representative shall take and record the daily rainfall readings. The Contractor shall permitted to attend these readings, in the company of the Engineer's Representative. Access to the measuri gauge(s) shall at all times be under the Engineer's control.				
		The rainfall records applicable to this Contract are those recorded at Weather Station Rustenbur 0511/5234. The following values of N_n and R_n shall apply:			on Rustenburg ARG
		Month	R _n (mm)	Nn (days)	
		January	130,1	4	
		February	94,2	3	
		March	75,1	2	
		April	60,3	2	
		Мау	9,8	0	
		June	5,9	0	
		July	1,6	0	
		August	7,2	0	
		September	18,8	0	
		October	57,5	2	
		November	89,4	3	
		December	105,8	3	
		TOTAL	655,7	19	
5.13.	extension of	ent to the total for time-related f time for completion granted in contents of the clause and inser If the Contractor fails by the thereof that is identified in Clause 5.14.2 to receive a shall be liable to the Empl which shall elapse between Works and the actual Date	terms of this clause. t the following: Due Completion Date the Scope of Works Certificate of Practical (oyer for the sum(s) st the Due Completion D	to complete the Works, of to the extent which ent Completion for the Works ated below as (a) pena ate for the Works or the	or any specific portion titles him in terms o s, then the Contracto Ity(ies) for every day specific portion of the
	The penalty for delay shall be: R3000-00 per calendar day.				
	5.13.2	If before the issue of a Cer specific portion thereof that been:			
	5.13.2.1	certified as complete in tern	ns of a Certificate of Pra	actical Completion; or	
	5.13.2.2	occupied or used by the employed by the Contractor		employees or other co	ontractors (not being
		then the appropriate penal	y for delay referred to	in Clause 5.1.3.1 above	e shall be reduced by
HE CONTRACT			99		C1.

THE CONTRACT Part C1: Agreement and Contract Data

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C1.2 Contact Data

Employer	



Contractor



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause	Contract Data		
		the amount which is determined by the Engineer to be appropriate under the circumstances.	
	5.13.3	The imposition of penalties in terms of Clause 5.13.1 shall not relieve the Contractor from his obligation to complete the Works, nor from any of his obligations and liabilities under the Contract.	
	5.13.4	All penalties for which the Contractor becomes liable in terms of Clause 5.13.1 shall be accumulative. The Employer may, without prejudice to any other method of recovery, deduct the amounts of all such penalties from any monies in his possession that are or may become due to the Contractor.	
	5.13.5	The imposition of any penalties in terms of Clause 5.13.1 shall not limit the right of the Engineer of the Employer to act in terms of Clause 9.2.	
5.13.4	Add the follow	ing new Clause:	
	Works which a	tor shall, without the prior written permission of the Engineer, in respect of any portions of the are prescribed in the Scope of Work to be executed using labour intensive construction methods, ne maximum size and capacity of mechanical plant and equipment is restricted in terms of the	
		execute such portions of the Works, or any parts thereof, utilising labour intensive construction ods strictly in accordance with the provisions of the Contract; or	
		e in the execution of such portions of the Works, or any parts thereof, mechanical plant or ment which is in conflict with the terms of the Contract; or	
		in the execution of such portions of the Work, workers drawn from sources other than those ed in terms of the Contract.	
		actor shall be liable to the Employer for the percentage stated below of the value of the Works so onflict with the provisions of the relevant Scope of Work, as a penalty for non-compliance.	
	The penalty fo	r non-compliance is: 15% of the value of Works specified.	
		n of penalties in terms of this clause shall not relieve the Contractor from his obligation to Norks, nor from any of his obligations and liabilities under the Contract.	
5.16.3	The Latent de	fect period is 10 years after the issue of the Final Approval Certificate in terms of Clause 15.6.1	
6.1.1	Add the follow	ing to the clause:	
	with the provis Scope of Wo	vorks identified in the Scope of Work as being labour-intensive shall only be made in accordance sions of the Contract if the works are constructed strictly in accordance with the provisions of the rk. Any non-payment for such works shall not relieve the Contractor in any way from his ner in contract or in delict.	

THE CONTRACT Part C1: Agreement and Contract Data

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C1.2 Contact Data

Employer

Witness	1



Contractor	





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Clause	Contract Data
6.2.1	Add the following to this Clause:
	The amount of the Surety will be 10% of the Contract Price (including Value Added Tax) at the time that the Agreement comes into effect. The guarantee shall remain valid until the issue of the Certificate or Certificates of Completion in respect of the whole of the Permanent Works. The Pro Forma Form of Guarantee bound into the General Conditions of Contract is replaced by the Form of Guarantee (Deed of Surety ship) which is included in Part C1.3 of this document. This approval or otherwise shall be based upon legal opinion to be provided by the Engineer.
	This approval of otherwise shall be based upon legal opinion to be provided by the Engineer.
6.8.2	The application of a Contract Price Adjustment factor will not apply to this Contract. "Refer to Contract Price Adjustment Schedule for details".
6.8.3	Price Adjustments for variations in the cost of special materials will be allowed. "The Contractor will be required to provide full details in Part 2 of the Contract Data".
6.8.4	In line 8 delete the words "between the Employer and the Contractor".
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%.
6.10.3	The percentage retention is 10%. The Limit of Retention Money is 5% of the Contract Price at the time of the Agreement made in terms of the Form of Offer and Acceptance coming into effect.
6.10.4	In line 4 delete the word "said" and insert the word "correct".
6.10.9	Replace the first sentence of the clause with the following:
	Within 14 days after the date of final approval as stated in the Final Approval Certificate, the Contractor shall deliver to the Engineer a final statement claiming final statement of all moneys due to him for additional work ordered by the Engineer after the Certificate of Completion date (save in respect of matters in dispute, in terms of Clause 58, and not yet resolved) plus the remainder of retention monies (subject to Clause 49.5.1) retained by the Employer.
6.11.1.3	Delete "15 %" and replace it with "25%".
8.6.1.3	The limit of indemnity for liability insurance is R5 000 000 per event, the number of events being unlimited.
10.5.3	The number of Adjudication Board Members to be appointed is 1 (One).

THE CONTRACT Part C1: Agreement and Contract Data

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C1.2 Contact Data

Employer



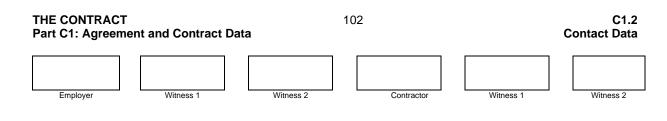
Contractor





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

CONTRACT PRICE ADJUSTMENT SCHEDULE				
Clause	Contract Data			
1.1	The application of a Contract Price Adjustment factor will not apply to this Contract. The price adjustment formula provided in the General Conditions of Contract will apply, together with the following coefficients and the definition of the relevant indices indicated below;			
	X=0,10 a=0.15 b=0.20 c=0.55 d=0.1			
1.2	Replace the definitions of the relevant indices with the following: "L" is the "Labour Index" and shall be the "Consumer Price Index" as published in the Consumer Price Index Statistical Release P0141 (Table A – Consumer Price Index and percentage change according to Rustenburg of Statistics South Africa.			
	"P" is the "Plant Index" and shall be the "Civil Engineering Plant" index as published in the Production Price Index Statistical Release P0142.1 (Table 12 – Price Index for selected materials) of Statistics South Africa.			
	"M" is the "Materials Index" and shall be the "Civil Engineering" index as published in the Production Price Index Statistical Release P0142.1 (Table 11 – Production Price for materials used in certain industries) of Statistics South Africa.			
	"F" is the "Fuel Index" and shall be the "Diesel fuel – Coast and Witwatersrand" index as published in the Production Price Index Statistical Release P0142.1 (Table 12 - Production Price Index for selected materials) of Statistics South Africa.			
1.3	The base month shall be the month prior to the closing date of this tender.			





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Part 2: Data provided by the Contractor

Clause	Contract Data				
1.1.1.9	The name of the Contractor is:				
1.2.1.2	The address of the Contractor is:				
6.2.1	The security to be provided by the Contr	actor shall be one of the following:			
	Тур	be of Security		Contractor's choice. Indicate "Yes" or "No"	
	Cash deposit of 10% of the Contract Sum (Incl. VAT).				
	Performance guarantee of10 % of the Contract Sum (Incl. VAT).				
	Retention of 10% of the value of the Works (Incl. VAT).				
	Cash deposit of 5% of the Contract Sum (Incl. VAT) plus retention of 5% of the value of the Works (Incl. VAT).				
	Performance guarantee of 5% of the Contract Sum (Incl. VAT) plus retention of 5% of the value of the Works (Incl. VAT).				
6.8.3	The variation in cost of special materials is:				
	Special Material	Method		Price for Base Month	

END OF SECTION

THE CONTRACT Part C1: Agreement and Contract Data

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C1.2 Contact Data

Employer



Contractor	



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

C1.3. Pro forma Performance guarantee

Contract No RLM/ DTIS/0103/2022/23

For use with the General Conditions of Contract for Construction Works, Third Edition, 2015.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:	
Physical address:	
"Employer" means:	
"Contractor" means:	
"Engineer" means:	
"Works" means:	
"Site" means:	
"Contract" means:	The agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.
"Contract Sum" means:	The accepted amount inclusive of tax of R
Amount in Words "Guaranteed Sum" means: Amount in Words	The maximum aggregate amount of
"Expiry Date" means:	

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

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

THE CONTRACT Part C1: Agreement and Contract Data

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C1.3 Contact Data

		_				
Employer	Witness 1		Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

- 3. The Guarantor hereby acknowledges that:
- 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
- 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
- 4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
- 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum Certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
- 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
- 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
- 5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the Full outstanding balance upon receipts of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
- 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the performance Guarantee is called up in terms of 5; and
- 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in term 1.
- 7. Where the Guarantor has made payment in term 5, the Employer shall upon the date of issue of the final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Employer.
- 9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
- 10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 11. The Guarantor chooses the physical address as stated above for the services of all notices for all purposes in connection herewith.
- 12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor after it has expired.

THE CONTRACT Part C1: Agreement and Contract Data

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C1.3 Contact Data

E	mpla	over

Witness 1	







BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

- 13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's court.

Signed at
Date
Guarantor's signatory (1)
Capacity
Guarantor's signatory (2)
Capacity
Witness signatory (1)
Witness signatory (2)



106

Employer

Witnoss	1

	Witnooo	2

Contractor	

Witness 1



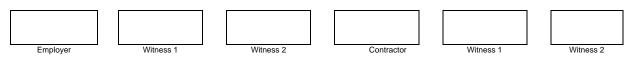
BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND **HOUSE CONNECTION**

CONTRACT PART C2: PRICING DATA

- Pricing Instructions Bill of Quantities C2.1
- C2.2

THE CONTRACT Part C3: Scope of Work

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BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

C2.1 Pricing Instructions

PRICING INSTRUCTIONS

- 1 The General Conditions of Contract, the Contract Data, the Specifications (including the Project Specifications) and the Drawings shall be read in conjunction with the Bill of Quantities.
- 2 The Bill comprises items covering the Contractor's profit and costs of general liabilities and of the construction of Temporary and Permanent Works.

Although the Bidder is at liberty to insert a rate of his own choosing for each item in the Bill, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates the Contractor inserted in the Bill.

Clause 8 of each Standardized Specification, and the measurement and payment clause of each Particular Specification, read together with the relevant clauses of the Project Specifications, all set out which ancillary or associated activities are included in the rates for the specified operations.

- 3 Descriptions in the Bill of Quantities are abbreviated and may differ from those in the Standardized and Project Specifications. No consideration will be given to any claim by the Contractor submitted on such a basis. The Bill has been drawn up generally in accordance with the latest issue of Civil Engineering Quantities ^[1]. Should any requirement of the measurement and payment clause of the appropriate Standardized or Project Specification(s) be contrary to the terms of the Bill or, when relevant, to the Civil Engineering Quantities, the requirement of the appropriate Standardized, Project, or Particular Specification as the case may be, shall prevail.
- 4 Unless stated to the contrary, items are measured net in accordance with the Drawings without any allowance having been made for waste.
- 5 The amounts and rates to be inserted in the Bill of Quantities shall be the full inclusive amounts to the Employer for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Bid is based.
- 6 The quantities set out in the schedule of quantities are only approximate quantities. The quantities of work finally accepted and certified for payment, and <u>not</u> the quantities given in the schedule of quantities, will be used to determine payments to the contractor.
- 7 An amount or rate shall be entered against each item in the Bill of Quantities, whether or not quantities are

[1]	The standard system of m	easurement of civil engineering quantities published by the South African Institu	ution of Civil Engineers.
THE	CONTRACT	108	
Part (C3: Scope of Work		

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Bill.

The Bidder shall also fill in a rate against the items where the words "rate only" appear in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the bidded rates shall apply should work under these items actually be required.

Should the Bidder group a number of items together and bid one sum for such group of items, the single bidded sum shall apply to that group of items and not to each individual item, or should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.

The bidded rates, prices and sums shall, subject only to the provisions of the Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.

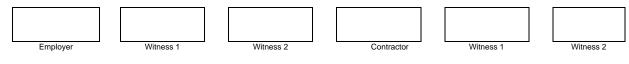
8 The quantities of work as measured and accepted and certified for payment in accordance with the Conditions of Contract, and <u>not</u> the quantities stated in the Bill of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by differences between the quantities in the Bill of Quantities and the quantities certified for payment.

Ordering of materials are not to be based on the Bill of Quantities, but only on information issued for construction purposes.

- 9 For the purposes of this 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 Standardized, Project or Particular Specifications
 - Quantity : The number of units of work for each item
 - Rate : The payment per unit of work at which the Bidder bids to do the work
 - Amount : The quantity of an item multiplied by the bidded rate of the (same) item
 - Sum : An amount bidded 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
- 10 The units of measurement indicated in the Bill of Quantities are metric units. The following abbreviations may appear in the Bill of Quantities:
 - mm = millimetre m = metre

THE	CONTRACT	
Part	C3: Scope of	Work

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BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

km	=	kilometre
km-pass	=	kilometre-pass
m²	=	square metre
m²-pass	=	square metre-pass
ha	=	hectare
m³	=	cubic metre
m³-km	=	cubic metre-kilometre
kW	=	kilowatt
kN	=	kilonewton
kg	=	kilogram
t	=	ton (1 000 kg)
%	=	per cent
MN	=	meganewton
MN-m	=	meganewton-metre
PC Sum	=	Prime Cost Sum
Prov Sum	=	Provisional Sum

- 11. Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the Standardised Specifications.
- 12. All prices and rates entered in the Bill of Quantities must be **excluding Value Added Tax (VAT)**. VAT will be added last on the summary page of the Bill of Quantities.

THE CONTRACT Part C3: Scope of Work

Witness 1

Employer

Contractor

Witness 1

Witness 2

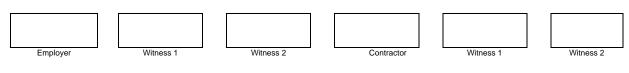
Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

BILL OF QUANTITIES

THE CONTRACT Part C3: Scope of Work 111



SECTION	001
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01.01 01.02 02 03 04 04.01	GENERAL REQUIREMENTS AND CHARGES Preliminary and general charges Fixed Charges Time-related Charges Locating existing services Excavate by hand to expose existing services, and backfill Compliance with the Occupational Health and Safety Act and applicable regulations Provision of a Health and Safety plan	L Sum L Sum L Sum m ³	1 1 1 40			
01.01 01.02 02 03 04 04.01	Fixed Charges Time-related Charges Locating existing services Excavate by hand to expose existing services, and backfill Compliance with the Occupational Health and Safety Act and applicable regulations	L Sum L Sum	1			
01.02 02 03 04 04.01	Time-related Charges Locating existing services Excavate by hand to expose existing services, and backfill Compliance with the Occupational Health and Safety Act and applicable regulations	L Sum L Sum	1			
02 03 04 04.01	Locating existing services Excavate by hand to expose existing services, and backfill Compliance with the Occupational Health and Safety Act and applicable regulations	L Sum	1			
03 04 04.01	Excavate by hand to expose existing services, and backfill Compliance with the Occupational Health and Safety Act and applicable regulations					
04 04.01	and backfill Compliance with the Occupational Health and Safety Act and applicable regulations	m³	40			
04.01	Safety Act and applicable regulations					
	Provision of a Health and Safety plan					
04.02		L Sum	1			
	Provision of Health and Safety file	L Sum	1			
04.03	Provision of construction supervisors	L Sum	1			
	Provision of a safety officer (state full-time or part- time)	L Sum	1			
04.05	Health and Safety training	L Sum	1			
	Provision of personal protective clothing and equipment	L Sum	1			
.04.07	Provision of safety fences, signs and barricades	L Sum	1			
04.08	Other obligations	L Sum	1			
05	Community liaison officer	L Sum	1	30 000	.00	30 000.00
.06	Relocation of Services (fences)	PC Sum	1	R 250	000.00	250 000.00
	ENGINEERS ACCOMMODATION					
01	Services	L Sum	1			
.02	Treatment and maintenance of areas surrounding offices and laboratories	L Sum	1.0			
03	Office and laboratory accommodation	L Sum	1.0			
04	Provision of survey equipment	L Sum	1.0			
	04.04 04.05 04.06 04.07 04.08 05 06 01 02 03 04	D4.04Provision of a safety officer (state full-time or part-time)D4.05Health and Safety trainingD4.06Provision of personal protective clothing and equipmentD4.07Provision of safety fences, signs and barricadesD4.08Other obligationsD5Community liaison officerD6ENGINEERS ACCOMMODATIOND1ServicesD2Treatment and maintenance of areas surrounding offices and laboratoriesD3Office and laboratory accommodation	D4.04Provision of a safety officer (state full-time or part- time)L SumD4.05Health and Safety trainingL SumD4.06Provision of personal protective clothing and equipmentL SumD4.06Provision of safety fences, signs and barricadesL SumD4.07Provision of safety fences, signs and barricadesL SumD4.08Other obligationsL SumD4.08Other obligationsL SumD5Community liaison officer Relocation of Services (fences)PC SumD6ENGINEERS ACCOMMODATIONL SumD1ServicesL SumD2Treatment and maintenance of areas surrounding offices and laboratoriesL SumD4Provision of survey equipmentL Sum	D4.04Provision of a safety officer (state full-time or part- time)L Sum1D4.05Health and Safety trainingL Sum1D4.06Provision of personal protective clothing and equipmentL Sum1D4.06Provision of safety fences, signs and barricadesL Sum1D4.07Provision of safety fences, signs and barricadesL Sum1D4.08Other obligationsL Sum1D4.08Other obligationsL Sum1D5Community liaison officer Relocation of Services (fences)L Sum1D6ENGINEERS ACCOMMODATIONL Sum1D1ServicesL Sum1.0D2Treatment and maintenance of areas surrounding offices and laboratoriesL Sum1.0D3Office and laboratory accommodationL Sum1.0D4Provision of survey equipmentL Sum1.0	04.04Provision of a safety officer (state full-time or part- time)L Sum104.05Health and Safety trainingL Sum104.06Provision of personal protective clothing and equipmentL Sum104.07Provision of safety fences, signs and barricadesL Sum104.08Other obligationsL Sum104.08Other obligationsL Sum105Community liaison officerL Sum106Relocation of Services (fences)PC Sum101ServicesL Sum102Treatment and maintenance of areas surrounding offices and laboratoriesL Sum1.003Office and laboratoriesL Sum1.004Provision of survey equipmentL Sum1.0	A4.04Provision of a safety officer (state full-time or part- time)L Sum104.05Health and Safety trainingL Sum104.06Provision of personal protective clothing and equipmentL Sum104.07Provision of safety fences, signs and barricadesL Sum104.08Other obligationsL Sum104.08Other obligationsL Sum104.08Other obligationsL Sum105Community liaison officerL Sum106ENGINEERS ACCOMMODATIONPC Sum101ServicesI Sum1.002Treatment and maintenance of areas surrounding offices and laboratoriesL Sum1.003Office and laboratory accommodationL Sum1.004Provision of survey equipmentL Sum1.0

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	001	GENERAL REQUIREMENTS AND CHARGES				
1.1	001.01	SCHEDULED TIME-RELATED ITEMS				
1.1.1	001.01.01	Contractual Requirements.	Month	8		
1.1.2	101.01.02	Operate and maintain facilities on the Site for duration of Construction:	Month	8		
1.2.1	001.02	Facilities for the Employer's Agent:				
1.2.2	001.03	Engineers Office	Month	8		
1.3	001.04	Provision of name board	Month	8		
1.3.1	001.04.01	Provision of cellular phone	Month	8		
1.3.2	001.04.02	Provision of survey equipment	Month	8		
1.3.2	001.04.03	Facilities for Contractor:				
1.3.2	001.04.04	Offices and storage sheds	Month	8		
1.3.2	001.04.05	Ablution and latrine facilities	Month	8		
1.3.2 1.3.2	001.04.06 001.04.07	Tools and equipment Water supplies, electric power and communications	Month Month	8 8		
1.3.3	001.04.08	Dealing with water (Sub-clause 5.5)	Month	8		
1.3.3	001.04.08	Access (Sub-clause 5.8)	Month	8		
1.3.4	001.05	Supervision for the Duration of Construction	Month	8		
1.4	002	Company and Head Office Overhead Costs for Duration of Contract	Month	8		
1.4 1.4.1	002 002.01	Other Time-related Obligations	Month	8		
1.4.1 1.4.2	002.01 002.02	OHS Act Obligations				
1.5	002.03	i) General Safety obligations	Month	8		
	002.03	ii) Health and Safety plan/file	Month	8		
1.5.1	002.04	(iii) Safety Officer	Month	8		
		EMP Obligations	Month	8		
		EMP Obligations	Month	8		

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	101	SITE CLEARING AND GRUBBING				
1.1	101.01	Clearing and grubbing				
1.1.1	101.01.01	Areas	ha	2		
1.1.2	101.01.02	For 2m wide strips	m	1 068		
1.2	LI101.02	Cutting and removing large trees with a girth:				
1.2.1	101.02.01	Exceeding 1m and up to and including 2m	No	5		
1.2.2	101.02.02	Exceeding 2m and up to and including 3m	No	5		
1.3	LI101.03	Grubbing and the removal of the stumps and roots of large trees with a girth:				
1.3.1	101.03.01	Exceeding 1m and up to and including 2m	No	5		
1.3.2	101.03.02	Exceeding 2m and up to and including 3m	No	5		
1.4	101.04	Reclearing areas (only on the written instructions of the Engineer)				
1.4.1	101.04.01	For 2m wide strips	m	534		
1.4.2	101.04.02	Areas	ha	1.0		
1.5	101.05	Removal and Disposal of specific elements				
1.5.1	101.05.02	Reinforced concrete element				
1.5.1.1	101.04.02.01	Existing stormwater culvert	m³	20		
TOTAL CA	I ARRIED FORWA	L RD TO SUMMARY				

						SECTION 102
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2	102	ACCOMMODATION OF TRAFFIC				
2.1	102.01	Accommodation of traffic and maintenance of bypasses	m	1 068		
2.3	102.14	Temporary traffic-control facilities				
2.3.1	102.14.01	Flagmen	month	54		
2.3.2	102.14.02	Portable STOP and GO-Ry signs	No	5		
2.3.3	102.14.04	Road signs, TR-series, 1200mm in diameter or 900mm x 675mm if rectangular	No	15		
2.3.4	102.14.07	Danger plates and delineators	No	30		
2.3.5	102.14.08	Movable barricades (chevron and ROAD CLOSED types)	No	10		
2.3.6	102.14.09	Traffic cones	No	70		
TOTAL C	ARRIED FORWA	ARD TO SUMMARY			I	

			· · · · · · · · · · · · · · · · · · ·			SECTION 103
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3	103	OVERHAUL				
3.1	B103.01	Overhaul on material hauled outside the 2km free-haul boundaries	m³km	26 442		
TOTAL C	ARRIED FORWA	ARD TO SUMMARY				

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4	106	SERVICE DUCTS				
4.1	106.01	Bedding and backfilling up to 300 mm above pipes				
4.1.1	106.01.01	Using selected excavated material	m³	26		
4.1.2	106.01.02	Using imported selected material	m³	42		
4.1.3	106.01.03	Using 6.7mm crushed stone	m³	3		
4.2	106.03	Soilcrete	m³	8		
4.3	106.04	Service duct pipes				
4.3.1	106.04.01	Ordinary pipes:				
4.3.1.1	106.04.01.01	110 mm dia. Duroduct with draw wire or similar approved	m	130		
4.3.1.3	106.04.01.03	110 mm dia. Telkom ducts with draw wire	m	100		
4.4	106.06	Extra over items 106.01 for material obtained from sources provided by the Contractor	m³	26		

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5	202	TRENCHING				
5.1	202.01	Trench excavations				
5.1	202.01					
5.1.1	202.01.01	Up to 1,0 m wide for service ducts, sewer and water reticulation				
5.1.1.1	202.01.01.01	Up to 1,0m deep	m³	878		
5.1.1.2	202.01.01.02	Over 1,0m and up to 1,5m deep	m³	435		
5.1.1.3	202.01.01.03	Over 1,5m to 2,0m deep	m³	435		
5.1.1.4	202.01.01.04	Over 2,0m to 2,5m deep	m³	435		
5.1.1.5	202.01.01.05	Over 2,5m to 3,0m deep	m³	435		
5.1.1.6	202.01.01.06	Over 3,0m to 3,5m deep	m³	394		
5.1.1.7	202.01.01.07	Over 3,5m to 4,0m deep	m³	315		
5.1.1.8	202.01.01.08	Over 4m to 4.5m deep	m³	210.1		
5.1.1.9	202.01.01.09	Over 4.5m to 5.0m deep	m³	189.2		
5.1.1.20	202.01.01.10	Over 5.0m to 5.5	m³	157.3		
5.1.1.21	202.01.01.11	Over 5.5m to 6.0mdeep	m³	68.2		
5.1.1.22	202.01.01.12	Over 6.0m to 7.0m deep	m³	3.3		
5.2	202.02	Extra over items 202.01, 202.03, 202.09 for excavating in -				
5.2.1	202.02.02	Hard material	m³	329		
5.3	202.03	Excavations outside the normal trench profile	m³	5 280		
5.4	202.06	The backfilling of trenches (excluding backfill around the pipe barrel) with material obtained from excavations	m³	5 129		
5.5	202.07	Extra over items 202.06 and 202.13 for using backfill material obtained -				
5.5.1	202.07.01	From borrow areas	m³	1 026		
5.5.2	202.07.02	From Commercial sources	m³	4 924		
5.6	202.08	Backfilling additional excavations in trench floor, using -				
5.6.1	202.08.01	Class 1:3:6/19 concrete	m³	40		

						SECTION 202
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	FORWARD				-	
5.7	202.09	Subsurface drains in trench bottoms	m	1 000		
5.8	202.10	Removal of spoil material -				
5.8.1	202.10.01	To positions indicated on the Drawing or by the Engineer	m³	153		
5.9	202.11	Timbering and shoring left in excavation	m²	5 954		
5.10	202.12	Extra over item 202.06 for additional compaction of backfill to 93% of modified AASHTO density in road reserves	m³	513		
5.11	202.13	Backfilling trenches with soilcrete	m³	255		
TOTAL CA	RRIED FORWA	RD TO SUMMARY				

						SECTION 203
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6	203	MASS EARTHWORKS				
6.1	203.01	Excavation and borrow to fill				
6.1.1	B203.01.01	Compaction to 93% of modified AASHTO density	m³	200		
6.2	203.02	Extra over item 203.01 for excavating in				
5.2.1	203.02.02	Hard material	m³	200		
6.3	203.03	Excavate and spoil of -				
			2	000		
6.3.1	203.03.01	Soft material	m³	200		
			2	000		
6.3.2	203.03.03	Hard material	m³	200		
6.4	203.04	Removal of oversize material	m³	10		
6.5	203.05	Variations in compactive effort (applicable to				
		subitem 203.01.03 and item 203.07)				
6.5.1	203.05.01	Vibratory rollers	m ² Pass	300		
			1111 035			
6.6	203.07	Three-pass roller compaction				
6.6.1	203.07.01	Vibratory roller	m ²	300		
6.7	B203.08	Preparation and compaction of construction	m³	45		
		bed material to 93% of modified AASHTO density				
6.8	203.10	In situ treatment of the construction bed				
6.8.1	203.10.01	In situ treatment by ripping	m³	45		
6.9	203.11	Finishing off slopes				
0.0	200.11					
6.9.1	203.11.01	Excavation slopes	m²	200		
6.9.2	203.11.02	Fill slopes	m²	300		
5.0.2				000		
6.10	203.14	Extra over item 203.01 for borrow material from	m³	40		
		sources to be supplied by the Contrator				
6.11	203.15	Extra over items 203.03 and 203.04 for	m³	300		
		disposing of spoil material to sites to be provided by the Contrator				
TOTAL		ARD TO SUMMARY				
I UTAL U						

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	SECTION 3
7	302	SEWERS CONSTRUCTION				
7.1	LI302.01	Supplying, laying and jointing of sewer pipes irrespective of depth or width of trench:				
7.1.1	302.01.01	For 60 dia uPVC class 400 pipe	m	5		
7.1.2	302.01.02	For 110 dia uPVC class 400 pipe	m	25		
7.1.3	302.01.03	For 160 dia uPVC class 400 pipe	m	100		
7.1.4	302.01.04	For 200 dia uPVC class 400 pipe	m	52		
7.1.5	302.01.05	For 250 dia uPVC class 400 pipe	m	362		
		For 315 dia uPVC class 400 pipe	m	656		
7.2	302.02	Construction of pipe beddings				
7.2.1	302.02.01	Class B bedding				
7.2.1.1	302.02.01.01	110mm dia	m	25		
7.2.1.2	302.02.01.02	160mm dia	m	52		
7.2.1.3	302.02.01.03	For 200 dia uPVC class 400 pipe	m	362		
7.2.1.4	302.02.01.04	For 250 dia uPVC class 400 pipe	m	656		
7.2.1.5	302.02.01.05	For 315 dia uPVC class 400 pipe	m	656		
7.3	302.07	Construction of cleaning eyes				
7.3.1	302.07.01	Up to but not esceeding 1.5m depth	No	5		
7.3.2	302.07.02	Exceeding 1.5 but not exceeding 2.0m	No	5		
7.3.3	302.07.03	Exceeding 2.0 but not exceeding 2.5m	No	5		
7.3.4	302.07.04	Exceeding 3 but not exceeding 3.5m	No	5		
7.4	302.09	Construction of manholes, up to 1,0m deep				
7.4.1	302.09.01	For sewers 300 mm in diameter and smaller				
7.4.1.1	302.09.01.01	Using 1000mm precast concrete rings	No	32		
7.5	302.10	Extra over item 302.09 for the construction of manholes in excess of 1,0m deep				
7.5.1	302.10.01	For sewers up to 350mm in diameter and smaller				
7.5.1.1	302.10.01.01	Using 1000mm precast concrete rings	m	130		
	302.10.01.02	Manholes Lids - 2A	No	32		
7.6	302.14	Supplying and placing selected backfill material around and up to 300 mm above pipe barrels using				
7.6.1	302.14.01	Excavated material	m³	160		
7.6.2	302.14.02	Imported material	m³	80		
7.7	302.15	Extra over subitem 302.14.01 for screening material	m³	160		

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	SECTION 30 AMOUNT
BROUGH	T FORWARD					
7.7	302.15	Extra over subitem 302.14.01 for screening material	m³	240		
7.8	302.16	Connection to existing manholes				
7.8.1	302.16.01	For 110 dia uPVC class 400 pipe	no	1		
7.8.2	302.16.02	For 160 dia uPVC class 400 pipe	no	1		
	302.16.04	For 200 dia uPVC class 400 pipe	no	2		
	302.16.06	For 250 dia uPVC class 400 pipe	no	3		
	302.16.08	For 315 dia uPVC class 400 pipe	no	5		
7.9	302.17	Construction of anchor blocks on steep grades	m³	200		
7.10	302.20	Preliminary work prior to the construction of a manhole on an existing pipeline				
6.10.1	302.20.01	160mm dia uPVC pipe	No	10		
7.11	302.21	Extra over subitem 302.14.02 for using material obtained from commercial sources	m³	0		
7.12	302.22	House conncetions				
7.12	302.2201	Single house connections- complete as per drawing	No	100		
	302.2202	Double house connection -complete as per drawing	No	100		
	302.2203 302.2204	Cut-off exsiting house connection (up160mm diameter pipe) and prepare for connection to new house connection Exposing of existing house connection	No m³	340 3200		
7.13	002.2204	Reducers		5200		
7.15			No	72		
		110mm to 160mm 160mm to 200 mm	No	72		
		200mm to 250 mm	No No	72		
		250 mm to 315 mm	No	40		
7.13		45 ⁰ Plain Bends	NO	40		
		For 110 dia uPVC class 400 pipe	No	72		
		For 160 dia uPVC class 400 pipe	No	72		
		For 200 dia uPVC class 400 pipe	No	70		
		For 250 dia uPVC class 400 pipe	No	40		
		For 315 dia uPVC class 400 pipe	No	40		
		87,5 ⁰ Degree				
		For 110 dia uPVC class 400 pipe	No	72		
		For 160 dia uPVC class 400 pipe	No	72		
		For 200 dia uPVC class 400 pipe	No	70		
		For 250 dia uPVC class 400 pipe	No	40		
		For 315 dia uPVC class 400 pipe	No	40		

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Section C2.2: Schedule of Quantities

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	SECTION 3
	FORWARD					
		45 ⁰ Plain Junction				
		For 110 dia uPVC class 400 pipe	No	72		
		For 160 dia uPVC class 400 pipe	No	72		
		For 200 dia uPVC class 400 pipe	No	70		
		For 250 dia uPVC class 400 pipe	No	40		
		For 315 dia uPVC class 400 pipe	No	40		
		End Caps				
		For 110 dia uPVC class 400 pipe	No	100		
		For 160 dia uPVC class 400 pipe	No	0		Rate Only
		For 200 dia uPVC class 400 pipe	No	0		Rate Only
		For 250 dia uPVC class 400 pipe	No	0		Rate Only
		For 315 dia uPVC class 400 pipe	No	0		Rate Only
		45 ⁰ Rodding Eye				
		For 110 dia uPVC class 400 pipe	No	0		Rate Only
		For 160 dia uPVC class 400 pipe	No	0		Rate Only
		Solvent Socket				
		For 110 dia uPVC class 400 pipe	No	100		
		45 ⁰ Plain Reducing Junction				
		160mm to 110mm	No	10		
		200mm to 160mm	No	15		
		200mm to 110 mm	No	15		
		Gulley Head and Grate				
		Gulley Head and Grate -150mm x 110 mm	No	100		
		45 ^⁰ Access Juction Left/Right				
		For 110 dia uPVC class 400 pipe	No	10		
		For 160 dia uPVC class 400 pipe	No	10		
		For 200 dia uPVC class 400 pipe	No	10		
		For 250 dia uPVC class 400 pipe	No	10		
		For 315 dia uPVC class 400 pipe	No	10		

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Section C2.2: Schedule of Quantities

SECTION 3	303
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BROUGHT	FORWARD				
		Adaptors Female			
_		110mm	No	100	
		160mm	No	100	
		200mm	No	100	
		Single Socked			
		45 ^⁰ Acess Reducing Junction Right/left			
		160mm x 110 mm	No	100	
		200mm to 160 mm	No	100	
		Gulley "P" Trap			
				100	
		110mm x 110mm	No	100	
		Single Socket			
		110	NI-	100	
		110mm	No	100	
		160mm	No	100	
		Double Socket			
		110mm	No	100	
		160mm	No	100	
				100	
		200mm			
		Kimberly Socket			
		100mm	No	100	
		160mm	No	100	
		200mm	No	100	
		Bend Long Radius			
		450			
		110mm	No	100	
		160	No	100	
		200	No	100	
		90			
		110mm	No	100	
		160	No	100	
		200	No	100	

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8	303	SEWERS TESTING				
8.1	303.01	Testing of manholes	No	70		
8.2	303.02	Ain to atime of a surger				
0.2	303.02	Air testing of sewers				
8.2.1	303.02.01	110mm dia	m	25		
8.2.2	303.02.02	160mm dia	m	100		
8.2.3	303.02.03	For 200 dia uPVC class 400 pipe	m	362		
0.2.0	000.02.00			002		
8.2.4	303.02.04	For 250 dia uPVC class 400 pipe	m	656		
8.2.5	303.02.05	For 315 dia uPVC class 400 pipe	m	656		
8.2.1	303.03. 303.03.01	water testing of sewers		100		
0.2.1	303.03.01		m	100		
8.2.2	303.03.02	160mm dia	m	100		
8.2.3	303.03.03	For 200 dia uPVC class 400 pipe	m	100		
0.0.4				000		
8.2.4	303.03.04	For 250 dia uPVC class 400 pipe	m	360		
8.2.5	303.03.04	For 315 dia uPVC class 400 pipe	m	500		
		ARD TO SUMMARY				

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9	402	WATER RETICULATION AND WATER MAINS CONSTRUCTION				
9.1	LI402.01	Supplying, laying and jointing of water pipes irrespective of depth				
9.1.1	402.01.01	Supraflo uPVC class 12 pipes (or similar) on a bedding for flexible pipes				
9.1.1.1	402.01.01.01	63mm dia	m	300		
9.1.1.2	402.01.01.01	110mm dia	m	100		
9.2	L1402.02	Extra over item 402.01 for providing and installing fittings, valves and specials:				
9.2.1	402.02.01	Class 16 uPVC Bends				
9.2.1.1	402.02.01.01	For 11.25 Degree				
9.2.1.1.1	402.02.01.01	.01) 110mm dia.	No	100		
9.2.1.2	402.02.01.02	For 45 Degree				
9.2.1.2.1	402.02.01.02	.01) 110mm dia.	No	400		
9.2.1.3	402.02.01.03	For 90 Degree				
9.2.1.3.1	402.02.01.03	.01) 63mm dia.	No	50		
9.2.1.3.2	402.02.01.03	.04) 110mm dia.	No	40		
9.2.2	402.02.02	Cast iron fittings Grade 14 according to SABS 546, bitumen dipped, socket ending for uPVC piping according to SABS 966 with rubber rings for 1600 kPa working pressure.				
9.2.2.1	402.02.02.01	Reducing T-Pieces for:				
9.2.2.1.1	402.02.02.01	.01) 110 mm x 63mm dia.	No	20		
9.2.2.2	402.02.02.02	Equal T-Pieces for:				
9.2.2.2.1	402.02.02.02	.01) 110 x 110 Tee	No	30		
9.2.2.2.2	402.02.02.02	.02) 63 x 63 Tee	No	40		
9.2.3	402.02.03	Class 16 flanged gate valves with caps (flanged, flanges drilled to table 16), anti-clockwise closing non-rising spindle type for the following sizes:				
9.2.3.1	402.02.03.01	63mm dia	No	35		
9.2.3.2	402.02.03.02	110mm dia	No	35		
9.2.4	402.02.04	End Caps				
9.2.4.1	402.02.04.01	63mm dia.	No	75		

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ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
BROUGH	T FORWARD					
9.3	402.04	Providing thrust blocks using class 15/19	m³	60		
9.4	402.05	Supplying and placing unscreened selected backfill material under, alongside and up to 200mm above pipe barrels using:				
9.4.1	402.05.01	Excavated material	m³	164		
9.4.2	402.05.03	Imported material from sources provided by the Contractor	m³	67		
9.5	402.06	Extra over item 402.05 for screening excavated material for selected backfill	m³	164		
9.6	402.07	Valve chambers complete as detailed in CoT standard details drawings for -				
9.6.1	402.07.01	Flanged gate valves not exceeding 200mm dia:				
9.6.1.1	402.07.01.01	63mm dia	No	35		
9.6.1.2	402.07.01.02	110mm dia	No	35		
9.7	402.10	Sterilizing of pipelines				
9.7.1	402.10.01	63mm dia	m	300		
9.7.2	402.10.02	110mm dia	m	100		
TOTAL CA	ARRIED FORWA	RD TO SUMMARY				

						SECTION 403
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10	403	WATER RETICULATION AND WATER MAINS TESTING				
10.1	403.01	Hydraulic field-testing of pipelines				
10.1.1	403.01.01	63mm dia	m	300		
10.1.2	403.01.02	110mm dia	m	100		
10.1.2	100.01.02			100		
TOTAL C	ARRIED FORWA	RD TO SUMMARY				-

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Section C2.2: Schedule of Quantities

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11	502	PREFABRICATED CULVERTS AND STORMWATER DRAINAGE				
11.1	502.01	Backfilling with selected excavated material compacted to				
11.1.2	502.01.02	93% of modified AASHTO density	m³	0		Rate Only
11.2	502.02	Supplying and laying of concrete pipe culverts (type interlocking)				
11.2.1	502.02.01	On class B bedding - Class 100 D				
11.2.1.1	502.02.01.01	450mm dia	m	0		Rate Only
11.2.1.2	502.02.01.02	600mm dia	m	0		Rate Only
11.2.1.3	502.02.01.03	750mm dia	m	0		Rate Only
11.2.2	502.02.02	On class B bedding - Class 75 D				
11.2.2.1	502.02.02.01	450mm dia	m	0		Rate Only
11.2.2.1	502.02.02.02	600mm dia	m	0		Rate Only
11.2.2.1	502.02.02.03	750mm dia	m	0		Rate Only
11.2.3	502.02.03	On class B bedding - Class 50 D				
11.2.3.1	502.02.03.01	450mm dia	m	0		Rate Only
11.2.4	B502.02.04	Supplying and laying of Upvc pipe Class 400				
11.2.4.1	502.02.04.01	300 dia pipe	m	0		Rate Only
11.3	502.10	Cast in situ concrete				
11.3.1	502.10.03	In inlet and outlet structures, catchpits, manholes and junction boxes excluding formwork, but including class U2 surface finish				
11.3.1.1	502.10.03.01	25 MPa/19mm	m³	0		Rate Only
11.3.2	502.10.04	Formwork for concrete under item 502.10.03 above				
11.3.2.1	502.10.04.01	Class F2 surface finished	m²	0		Rate Only
11.4	502.14	Reinforcement				
11.4.1	502.14.01	Mild steel				
11.4.1.1	502.14.01.02	Bars with an 10mm dia	t	0.0		Rate Only
11.4.2	502.14.02	High yield-stress steel				
11.4.2.1	502.14.02.01	Bars with an 12mm dia	t	0		Rate Only

						SECTION 502
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
BROUGH	FORWARD	•				-
11.5	502.16	Manholes, catchpits, precast inlet and outlet				
11.5.1	502.16.03	Precast inlet and outlet structures				
11.5.1.1	502.16.03.01	Field inlet	No	0		Rate Only
11.5.1.2	502.16.03.02	Grid inlet	No	0		Rate Only
11.5.1.3	502.16.05	Junction boxes	No	0		Rate Only
11.6	502.21	Soilcrete	m³	0		Rate Only
11.7	502.22	Extra over items 502.01 and 502.21 for using backfill material obtained				
11.7.1	502.22.01	from borrow areas provided by Employer	m³	0		Rate Only
11.7.2	502.22.02	from sources provided by Contractor	m³	0		Rate Only
TOTAL CA	RRIED FORWA	ARD TO SUMMARY				-

AMOUNT	RATE	QTY	UNIT	DESCRIPTION	PAYMENT	ITEM
				KERBING AND CHANNELING	503	12
				Concrete kerbing class 20/19	503.01	12.1
		80	m	Fig 8c Precast concrete kerbing	503.01.01	12.1.1
Rate Only		0	m	Fig 8c Precast concrete kerbing	503.01.02	12.1.1
				Transition form slope kerbing to edge beam	503.03	12.2
		120	m	Cast insitu transition section class 20/19 concrete	503.03.01	12.2.1
		250	m	Breaking fo Existing kerb	503.03.03	

						SECTION 504
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13	504	OPEN DRAINS				
13.1	504.04	Concrete Half-round Channel				
13.1.1	504.04.01	Class 20/19, 300mm wide concrete half-round channel as per drawings	m	10		
TOTAL C	ARRIED FORWA	ARD TO SUMMARY				-

						SECTION 505
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
14	505	EROSION PROTECTION				
14.1	505.01	Foundation trench excavation and backfilling				
14.1.1	B505.01.02	In in-situ material	m³	100		
14.2	505.09	Concrete pitching				
14.2.1	B505.09.04	225mm Thick L11 Rockface concrete retaining	m ²	20		
		block				
		LARD TO SUMMARY	I		I	

						SECTION 601
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
15	601	GRAVEL PAVEMENT LAYERS				
15.1	601.01	Preparation and compaction of in situ subgrade material to -				
15.1.1	601.01.02	93% of modified AASHTO density	m³	300		
15.2	601.02	Gravel layers constructed from material obtained from borrow pits				
15.2.1	601.02.02	Subbase				
15.2.1.1	601.02.02.01	Subgrade - G7	m³	300		
15.2.1.1	601.02.02.01	Selected - G6	m³	300		
15.2.1.1	601.02.02.01	G5 material compacted to 95% of modified AASHTO density	m³	300		
15.2.2	601.02.03	Base				
15.2.2.1	601.02.02.01	C4 material compacted to 98% of modified AASHTO density	m³	300		
15.2.2.1	601.02.02.01	C3 material compacted to 98% of modified AASHTO density	m³	300		
TOTAL C	ARRIED FORWA	ARD TO SUMMARY				

604			QTY	RATE	AMOUNT
	STABILIZATION				
604.01	Chemical stabilization of base layer extra over unstabilized compacted layers	m³	600		
601.02	Chemical stabilazing agent				
604.02.01	Cement	t	4		
605	PRIME COAT				
605.01	RTH 3/12P or RTL 3/12P tar prime (application rate 0.8l/m ²)	litre	24		
605.02	Aggregate for blinding	m²	30		
606	ASPHALT SURFACING				
606.01	Continuously graded, Medium grade, 40mm thick (60/70 penetration grade bitumen)	m²	1 000.00		
606.05	Tack coat of 30% stable grade emulsion (application rate 0.55l/m²)	litre	24.00		
606.09	100 mm cores in asphalt paving	No	2		
	504.02.01 505 505.01 505.02 506 506.01 506.05 506.09	304.02.01 Cement 305 PRIME COAT 305.01 RTH 3/12P or RTL 3/12P tar prime (application rate 0.8l/m²) 305.02 Aggregate for blinding 306.01 Continuously graded, Medium grade, 40mm thick (60/70 penetration grade bitumen) 306.05 Tack coat of 30% stable grade emulsion (application rate 0.55l/m²)	304.02.01 Cement t 305 PRIME COAT it 305.01 RTH 3/12P or RTL 3/12P tar prime (application rate 0.8l/m²) litre 305.02 Aggregate for blinding m² 306 ASPHALT SURFACING m² 306.01 Continuously graded, Medium grade, 40mm thick (60/70 penetration grade bitumen) m² 306.05 Tack coat of 30% stable grade emulsion (application rate 0.55l/m²) litre 306.09 100 mm cores in asphalt paving No	S04.02.01Cementt4S05PRIME COATS05.01RTH 3/12P or RTL 3/12P tar prime (application rate 0.8l/m²)litreS05.02Aggregate for blindingm²S06.03ASPHALT SURFACINGS06.04Continuously graded, Medium grade, 40mm thick (60/70 penetration grade bitumen)m²1 000.00S06.05Tack coat of 30% stable grade emulsion (application rate 0.55l/m²)litre24.00S06.09100 mm cores in asphalt pavingNo	304.02.01 Cement t 4 305 PRIME COAT 1 4 305.01 RTH 3/12P or RTL 3/12P tar prime (application rate 0.8l/m²) litre 24 305.02 Aggregate for blinding m² 30 306.03 Continuously graded, Medium grade, 40mm thick (60/70 penetration grade bitumen) m² 1 000.00 306.05 Tack coat of 30% stable grade emulsion (application rate 0.55l/m²) litre 24.00 306.09 100 mm cores in asphalt paving No 2 306.09 100 mm cores in asphalt paving No 2

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ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
17	609	SEGMENTED PAVING				
17.1	609.01	Construction of segmental block paving made from -				
17.1.1	609.01.01	80mm thick 25MPa grey type UTG25-A(A)	m ²	200		
		interlocking concrete paving blocks laid in herringbone bond				
17.1.1	609.01.01	60mm thick 25MPa grey type UTG25-A(A) interlocking concrete paving blocks laid in herringbone bond	m²	200		
47.0			2	000		
17.2	609.06	60mm thick 25MPa paver blocks of different colours laid in herringbone bond	m²	200		
			0	4 000		
17,3	609.07	Remove, stack/store for reuse and reinstatement of diffent types of paving	m²	1 000		
17 4	609.07	Dejentement of in eity concrete neuling	m3	100		
17,4	609.07	Reisntament of in-situ concrete paving	113	100		
17,5	609.07	Breaking of concrete	m3	100		
TOTAL C		ARD TO SUMMARY				

						SECTION 612
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
18	612	TRAFFIC SIGNS				
18.1	612.01	Sign boards with painted background, sysmbols, lettering and borders in engineering- grade retro-reflective material with signbords constructed from -				
18.1.1	612.01.03	Sheet steel (Chromadek) with an -				
18.1.1.1	612.01.01.01	Area not exceeding 2m ²	m²	2		
18.2	612.02	Extra over item 612.01 for -				
18.2.1	612.02.01	Background of retro-reflective material of -				
18.2.1.1	612.02.01.01	Engineering grade	m²	2		
18.2.2	612.02.02	Lettering, symbols and borders of retro-reflective material of -				
18.2.2.1	612.02.02.02	Super-engineering grade	m²	2		
18.3	612.03	Sign supports				
18.3.1	612.03.02	Steel tubing	t	3.0		
18.4	612.04	Extra over items 612.03.02 for providing				
18.4.1	612.04.01	Unpainted galvanised steel members	t	2.0		
18.4.2	612.04.02	Unpainted galvanised steel members	t	2.0		
18.5	612.05	Excavation and backfilling for sign supports	m³	1.0		
TOTAL C	ARRIED FORWA	ARD TO SUMMARY				.

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
19	613	TRAFFIC MARKINGS				
19.1	613.01	Road-marking paint				
19.1.1	613.01.01	White lines				
19.1.1.1	613.01.01.1	100mm width broken white lines	km	2.0		
19.1.1.1	613.01.01.2	100mm width unbroken white lines	km	2.0		
19.1.2	613.01.03	White lettering and symbols	m ²	30		
19.1.3	613.01.04	Yellow lettering and symbols	m²	30		
19.1.4	613.01.05	Traffic-island (Yellow)	m ²	40		
19.2	613.04	Variation in the rate of application				
19.2.1	613.04.01	White paint	litre	40		
19.2.2	613.04.02	Yellow paint	litre	40		
19.3	613.06	Setting out and the pre-marking of lines (excluding traffic-island markings, lettering and symbols)	km	4.0		

						SECTION 903
ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
20	903	TESTING				
20.1	903.06	Other special tests requested by the Engineer				
20.1.1	903.06.01	Cost of testing	PC sum	1	250 000.00	250 000.00
20.1.2	903.06.02	Charge on prime cost sum	%	250 000		
TOTAL C	ARRIED FORWA	RD TO SUMMARY				

	SUMMARY OF SECTIONS	
SECTION	DESCRIPTION	AMOUNT
001	GENERAL REQUIREMENTS AND CHARGES	
101	SITE CLEARING AND GRUBBING	
101		
102	ACCOMMODATION OF TRAFFIC	
102		
103	OVERHAUL	
106	SERVICE DUCTS	
202	TRENCHING	
202		
203	MASS EARTHWORKS	
200		
302	SEWERS CONSTRUCTION	
002		
303	SEWERS TESTING	
000		
402	WATER RETICULATION AND WATER MAINS	
402	CONSTRUCTION	
403	WATER RETICULATION AND WATER MAINS	
	TESTING	
502	PREFABRICATED CULVERTS AND STORMWATER SEWERS	
503	KERBING AND CHANNELING	
504	OPEN DRAINS	
505	EROSION PROTECTION	
601	GRAVEL PAVEMENT LAYERS	
604	STABILIZATION	
609	SEGMENTED PAVING	
612	TRAFFIC SIGNS	
613	TRAFFIC MARKINGS	
903	QUALITY CONTROL TESTING	
	Sub-total	
<u>1</u>	10 % CONTINGENCIES	
	Sub-total	
2	15 % VAT	
TOTAL CONS	TRUCTION COST	

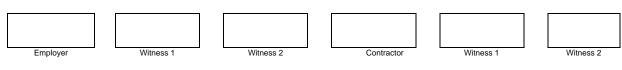


BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

CONTRACT PART C3: SCOPE OF WORKS

C3: Scope of Work

THE CONTRACT Part C3: Scope of Work 112





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

C3: Scope of Work

1. DESCRIPTION OF THE WORKS

1.1 Employer's objectives

Rustenburg Local Municipality has an objective to ensure a sustainable sewer system to the communities through reliable infrastructure.

1.2 Overview of the works

The project will implement the following:

- Construction of 315, 250, 200 and 160mm diameter of 1000km of uPVC sewer pipeline
- Construction of new house connection.
- Supply and construction of concrete Manholes of type Rocla with type 2A or 4A Lockable polymer manhole.
- Pipe bedding will be Class B using material from either excavations or commercial sources as appropriate.

1.3 Extent of the works

The main items of work to be undertaken in terms of the contract involve but not limited the following:

- Contractor's establishment on site
- Compliance with EMP requirements
- Compliance with OHS act requirements.
- Provisions of temporary workforce (ABE)
- Training of temporary workforce
- Housing, offices and laboratories for the engineer's personnel
- Construction of sewer pipeline
- Construction of sewer manholes
- Lowering and/or moving of services
- Soil protection (Timbering and Shoring)

1.4 Location of the works

The project is in Ramochana. Refer to locality and site plan herewith.

THE CONTRACT Part C3: Scope of Work

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Employer	





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

2 Drawings

2.1 Employer's Design

The permanent works included in this contract has been designed by the Employer. The detail of the works is indicated on the drawings and in the specifications. The Tenderer may submit alternative offers for designs prepared by him subject to the conditions specified in the Contract Data.

2.2 Drawings

Drawings are bound into this document.

The Contractor shall be entitled to receive free of charge, two full size A1 and one A3 copies of each such drawings and to receive, at the cost of reproduction, such additional copies as he shall reasonably require.

One copy of all drawings shall be kept on the Site and be available for perusal by the Engineer or any person authorised by him.

The Contractor shall, in accordance with the Engineer's instructions, maintain a register on the Site of all drawings and revisions thereof in the chronological order in which they are delivered to him.

3. Procurement

3.1 Preferential procurement procedures

The works shall be executed in accordance with the conditions pertaining to preferences granted in accordance with the preferencing schedule.

3.2 Labour and Personnel

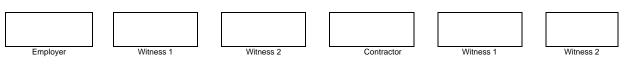
3.2.1 Contractors Personnel

The Contractor shall limit the utilisation of his permanently employed personnel to that of key personnel only on the Works, as defined below, and shall execute and complete the Works utilising a temporary workforce employed directly by the Contractor and/or by his sub-contractors, using the assistance of the Labour Desk(s), from the various communities that are established in proximity to the Works or which will be consumers from the Scheme.

Without derogating from the Contractor's obligations to complete the Works within the specified time for completion, the numbers in each category of the Contractor's key personnel, as stated by the Contractor in the Returnable Schedules, will be strictly controlled during the contract period and any increase in numbers will be subject to the prior approval of the Employer.

Key personnel means all contracts managers, site agents, site clerks, materials and survey technicians, quantity surveyors, trainers, supervisors, foremen, skilled plant operators, brick layers, welders, shutter hands and the like, and all other personnel in the permanent employ of the Contractor or his sub-contractors who possess special skills, and/or who play key roles within the Contractor's or his subcontractor's operations.

THE CONTRACT Part C3: Scope of Work





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor, and where he deems the circumstances so warrant, authorise in writing that the Contractor may utilise in the execution of the Works, workers not being his key personnel but who are in his permanent employ. Without limiting the generality of application of this sub-clause, circumstances which may be considered by the Engineer to warrant authorization of the use of the Contractor's permanent employees other than key personnel, include:

- a) The unavailability from local sources of sufficient numbers of temporary workers and/or sub-contractors to execute the Works provided always that the Contractor has satisfied the Engineer that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient temporary workers and sub-contractors from local sources.
- b) The unavailability within the temporary worker pool and/or from subcontractor sources available to the Contractor in terms of the Contract, of sufficient skills necessary to execute the Works or specific portions thereof, in situations where the completion period allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of suitable training as contemplated in the Contract;
- c) Any other circumstances which the Engineer may deem as constituting a warrant.

3.2.2 Temporary Workforce

The Contractor shall employ labour from the local communities through the Labour Desk(s). Accordingly, the workforce that is employed on Site shall consist of local residents, except for approved key staff in the permanent employ of the Contractor, to the maximum extent that is compatible with the requirements of clause C3.2.1.

The Labour Desk(s) shall assist in identifying available local labour and, where available, semi-skilled labour as well as local subcontractors. The Labour Desks shall also assist and advise regarding conditions of employment, disputes and disciplinary procedures. The function of the Labour Desk(s) shall however in no way diminish the responsibilities of the Contractor or sub-contractor.

The Contractor and its sub-contractor shall adhere to the statutory minimum wage rates, they are however at liberty to negotiate additional incentive payments based on performance.

A contract of employment or subcontract should be signed between the Contractor and each of his employees or sub-contractors, as the case may be. Likewise contracts of employment must be entered into between each such sub-contractor, and each of the specific subcontractor's employees. Employment and subcontract agreements shall make clear reference to at least the following conditions:

- The minimum agreed wage rate per hour in respect of labourers;
- The agreed pay rate per unit of production where applicable;
- UIF and WCA payments;
- Minimum working hours per day;
- Start and end times of a daily shift;
- Lunch break times:
- Company Policy regarding :
 - Rain time
 - Sickness and absenteeism Disciplinary matters
 - Grievances

THE CONTRACT Part C3: Scope of Work

				_		
Employer	Witness 1	Witness 2	Contractor		Witness 1	Witness 2
Employer	With 633 1	VIII 1833 Z	Contractor		With 633 1	VIII1033 Z



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

- Method and frequency of payment;
- Work clothes and safety equipment to be issued.
- 3.2.3 Local Content and Labour-Intensive Construction

The promotion of the use of local content is required in the execution of this project. This will be achieved by the use of local labour and local sub-contractors in the construction of works equivalent to twenty-five percent (30%) of the total cost of works are to be constructed. The following limits apply:

- Construction by subcontractors may constitute a maximum of 25% of the total local content works.
- Construction using labour intensive construction methods and employing locally (within Marikana and its surrounds) labour must make up 75% the total local content works.

Labour Intensive Construction shall mean the economically efficient employment of as great a portion of labour as is technically feasible to produce a standard of construction as demanded by the Specifications with completion by the Due Completion Date, thus the effective substitution of labour for equipment.

Appropriate portions of the Works included in the Contract shall be executed using labour intensive construction methods. These portions of the Works shall be constructed and supplemented only to the extent necessary and unavoidable by the Contractors key personnel, unless otherwise instructed by the Engineer.

The portions of the Works to be executed using labour intensive construction methods are:

- clearing and grubbing of the Site;
- Laying of interlocked block paving for road surfacing and sidewalk / channel.
- Installation of road signs
- exposing existing services;
- dismantling and re-erection of fences; and
- cleaning and tidying up of the Site.

In respect of those portions of works which are not listed above, the construction methods adopted and plant utilised shall be at the discretion of the Contractor, provided always that the construction methods adopted and plant utilised by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

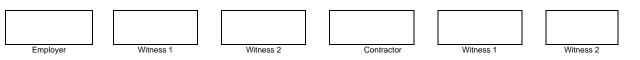
3.2.4 Subcontracting

3.2.4.1 The Contractor shall sub-let to sub-contractors appropriate portions of the works. A sub-contract agreement shall be signed between the contractor and each of its sub-contractors.

3.2.4.2 The Contractor shall be responsible for all work carried out by sub-contractors on his behalf. The Engineer will not liaise directly with any such sub-contractor, nor will be become involved in any problems and/or disputes related to payments, programming, workmanship, etc, unless provided for in the Conditions of Contract. Such problems and/or disputes shall remain the sole concern of the Contractor and his sub-contractors.

3.2.4.3 The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor, and where he deems the circumstances so warrant, and provided always that the Contractor has complied fully and in all respects with the provisions of the Contract pertaining to subletting to local sub-contractors or has utilised his best endeavours to comply therewith,

THE CONTRACT Part C3: Scope of Work





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

authorise in writing that the Contractor may employ local residents with the sole intent of executing on-the-job training of such local residents to suitable levels of skill.

Without limiting the generality of application of this clause, circumstances which may be considered by the Engineer to warrant such authorization include:

- a) non-receipt of valid or acceptable tenders/quotations from local sub-contractors;
- b) serious default or failure of appointed local sub-contractors;

The Engineer shall not grant such authority in cases where it may reasonably be concluded on the available evidence that the invitation of further tenders/quotations in accordance with the terms of the Contract is likely to result in the successful completion of the portions of the Works concerned by sub-contractors.

Should the Contractor, after suitable due endeavour, be unable to identify sub-contractors for portions of the Works as specified, then the Contractor shall be permitted to undertake the Works in question with his own workforce as provided for above. The Engineer shall monitor progress achieved with subcontractor training, and successful completion of this training shall be subject to his approval or instruction. The Contractor shall tender rates for the training of sub-contractors and labour.

3.2.4.4 The Contractor shall approach the Labour Desk that is established for purposes of the Contract for assistance and advice regarding conditions of employment, minimum wages, disputes and disciplinary procedures in respect of local sub-contractors.

3.2.5 Sub-contractor

To qualify as a sub-contractor the following requirements shall be applicable:

- Registration with the CIDB in the min class of CE registration applicable for a particular amount of work
- Submit an original valid Tax Clearance Certificate (in terms of the Preferential Procurement Regulations, 2011 published in Government Gazette No. 34350 dated 8 June 2011),
- Submit a valid VAT Registration Certificate (if VAT number is not included in tax clearance certificate),
- Submit a valid Workmen's Compensation Certificate, Act 4 of 2002,
- Submit a valid Unemployment Insurance Certificate, Act 4 of 2002,
- Submit a Certificate of Incorporation (if a Company),
- Submit a Founding Statement (if a Closed Corporation),
- Submit a Partnership Agreement (if a Partnership),
- Submit an Identity Document (if a One-man concern),
- Submit a Joint Venture Agreement (if a Joint Venture),
- Submit monthly proof of SARS PAYE in respect of all labourers
- Submit a Curriculum vitae of the person who prepares the Health and Safety Plan,
- Curriculum vitae of the Health and Safety Officer to be appointing in accordance with the Occupational Health and Safety Act (Act 85 of 1993).
- Provide all work clothes, safety equipment and tools required for the execution of the Works
- The minimum amount of liability insurance cover required will be R 1 000 00.00 per event, the number of events being unlimited.
- Payment of all amounts due to the local sub-contractor by the Contractor shall be subject to a the same retention conditions as applicable the Contractor.
- The sub-contractor shall deliver to the Contractor a performance guarantee of an insurance company

THE	CONTRACT	
Part	C3: Scope of Work	

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

or a bank to be jointly and severally bound with the sub-contractor for an amount equal to the same guarantee conditions as applicable to the Contractor

- Submit payments certificates to the Contractor at a frequency of once a month with payment made by the Contractor within seven days after the Employer paid the Contractor.
- The Contractor and its sub-contractor shall enter into a SAFCEC (or similar) sub-contract agreement.

4 Standard Specifications

The Standard specifications on which this contract is based are the standardized specifications for Civil Engineering Construction (SABS 1200) of the South African Bureau of Standard (SABS).

The following SABS 1200 Standard Specifications for Civil Engineering Construction shall form part of this contract and are available at the expense of the Contractor from the SA Bureau of Standards, Private Bag X191 Pretoria, 0001:

AA	General (Small Works	General (Small Works)				
AB	Engineer's Office					
С	Site Clearance	ite Clearance				
DB	Earthworks (Pipe tren	ches)				
LB	Bedding (Pipes)					
LC	Cable ducts					
LD	Sewers					
LF	Erf connection (water))				
М	Road (general)	Road (general)				
ME	Subbase	Subbase				
MF	Base					
MFL	Base (light pavement	structures)				
MJ	Segmented paving					
MK	Kerbing and channelli	ing				
MM	Ancillary roadworks					
LG	Horizontal pipe Drilling	g				
Other Standa	rd Specifications					
SABS 016	52 C	Code of Practice for Structural Steelwork. The Machinery and Occupational Safety				
	A	ct (Act No. 6 of 1983) as amended				
SANS 10396: 2003:		Implementing Preferential Construction Procurement Policies using Targeted				

Procurement Procedures

THE CONTRACT Part C3: Scope of Work

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Employer	-	Witness 1	-	Witness 2	Contractor	-	Witness 1	-	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

 SANS 1914-1 to 6 (2002):
 Targeted Construction Procurement

 SANS 1921 – 1 (2004):
 Construction and Management Requirements for Works

 Construction
 Part 1: General Engineering and Construction Works

and where accommodation of traffic is involved:

SANS 1921-2 (2004): Construction and Management Requirements for Works Contracts Part 2: Accommodation of Traffic on Public Roads Occupied by the Contractor.

4.1 General Project Specifications

In the event of any discrepancy between the Project Specifications and SANS 1200 Standardized Specifications, the Schedule of Quantities or the Drawings, the Project Specifications shall take precedence. Where discrepancies arise with regard to the units of the payment items only, the units stated in the Schedule of Quantities shall prevail.

- PS 1 CONSTRUCTION PROGRAMME
- PS 2 SITE FACILITIES AVAILABLE
- PS 3 SITE FACILITIES REQUIRED
- PS 4 FEATURES REQUIRING SPECIAL ATTENTION
- PS 5 INFORMATION SUPPLIED BY EMPLOYER
- PS 6 EXTENSION OF TIME ARISING FROM ABNORMAL RAINFALL
- PS 7 CERTIFICATES OF PAYMENT
- PS 8 CONSTRUCTION IN LIMITED AREAS
- PS 9 NON-WORKING DAYS
- PS 10 SPOIL MATERIAL
- PS 11 DRAWINGS
- PS 12 LENGTH OF TRENCHES
- PS 13 SAMPLES
- PS 14 MANUFACTURER'S INSTRUCTIONS
- PS 15 MATERIALS AND PLANT
- PS 16 NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS
- PS 17 SETTING OUT OF WORK
- PS 18 WORKMANSHIP AND QUALITY CONTROL
- PS 19 TRANSPORT OF MATERIAL
- PS 20 LIAISON WITH LOCAL AUTHORITIES
- PS 21 LOCAL LABOUR AND LOCAL SUB-CONTRACTORS
- PS 22 TRAINING SCHEMES

THE CONTRACT Part C3: Scope of Work

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Employer



Contractor

Witness 2

Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

PS 23 PRESCRIPTIONS IN RESPECT OF EXISTING SERVICES

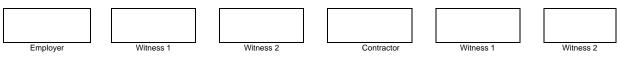
4.2 Variations and Additional Clauses to the Standard and Particular Specifications

The following variations and additions to the Standard and Particular Specifications will be applicable to this Contract.

The various documents listed in Section 4.1 shall be treated as mutually explanatory. However, should any requirements of Section 4.1 conflict with any requirement in the Standardized Specifications or with any requirement of the Particular Specifications, then the requirements of Section 4.2 shall prevail.

The Contractor shall make suitable arrangements for process control prior to commencement with the Works. Should he intend using site personnel for this purpose he shall ensure that suitably trained and competent personnel take charge of the necessary test work, and that the necessary equipment is at their disposal prior to commencement of the Works. Failure to comply with these requirements shall be just cause for the Engineer to order suspension of the Works without additional remuneration in terms of Clause 5.11 of the Conditions of Contract (2010), or for him to recommend termination to the Employer in terms of Clause 9.2 thereof.

THE CONTRACT Part C3: Scope of Work





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

PORTION 2: VARIATIONS AND ADDITIONAL CLAUSES

The following variations and additions to the SANS 1200 Standardized Specifications referred to in the last clause of Portion A apply to this Contract. The prefix PS indicates an amendment to SANS 1200. The letters and numbers following these prefixes respectively indicate the relevant Standardized Specification and clause numbers in SANS 1200.

- PSA <u>GENERAL</u>
- PSA 2 INTERPRETATIONS
- PSA 2.3 DEFINITIONS
- (a) General

ADD THE FOLLOWING DEFINITIONS:

"<u>General conditions</u>: The General Conditions of Contract specified for use with this Contract and the special conditions of Contract as applicable.

<u>Specified:</u> As specified in the standardized specifications, the Drawings or the Project Specifications. Specifications shall have the corresponding meaning."

c) <u>Measurement and payment</u>

REPLACE THE DEFINITIONS FOR "fixed charge", "time-related charge" AND "value-related charge" WITH THE FOLLOWING:

"Fixed charge: A charge that is not subject to adjustment on account of variation in the value of the Contract amount or the Contract Time of Completion.

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

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

PSA 3 MATERIALS

PSA 3.1 QUALITY

ADD THE FOLLOWING:

"All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified in accordance with SANS Specifications shall bear the SANS mark, whether so specified or not."

ADD THE FOLLOWING SUB-CLAUSE: THE CONTRACT Part C3: Scope of Work

Employer	Witness 1	Witness 2	Contractor	_	Witness 1	-	Witness 2



BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

"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 4 PLANT

PSA 4.1 SILENCING OF PLANT

REPLACE THE CONTENTS OF SUBCLAUSE 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 5 CONSTRUCTION

PSA 5.1 SURVEY

PSA 5.1.2 Preservation and replacement of survey beacons and pegs subject to the Land Survey Act

DELETE THE WORDS "in the vicinity of boundaries" IN THE SECOND SENTENCE OF SUBCLAUSE 5.1.2 AND REPLACE THE WORDS "under the direction of" IN THE SAME SENTENCE WITH "in consultation and liaison with."

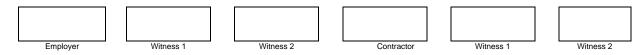
ADD THE FOLLOWING AFTER THE SECOND SENTENCE OF SUBCLAUSE 5.1.2:

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

REPLACE THE THIRD SENTENCE OF SUBCLAUSE 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 122

THE CONTRACT Part C3: Scope of Work





BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

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 provisions 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."

PSDB 3.7 Selection

REPLACE THE WORDS "If he so wishes" IN THE FIRST LINE OF THE SECOND PARAGRAPH WITH THE WORDS "at his own cost."

ADD THE FOLLOWING NEW SUB CLAUSES:

PSDB3.8 Classification for Hand Excavations

Classification of material for various types of hand excavation will be based on the results of a dynamic cone penetrometer. The category of material shall be determined by testing the material at regular intervals and at various depths along the center line of the trench. A minimum of 5 tests shall be done at each location and the average number of blows of the tests shall be used to determine the category of material.

The interval between test locations shall be determined by the variation of material type but shall not exceed 50m. The depth of testing shall be determined by the variation of material type and can increase or decrease in hardness with increasing depth of excavation. Table PSDB 3.8 indicates the categories:

TABLE PSDB 3.8: Classification for Hand Excavation

Category of Material	Consistency		DCP Blows to Penetrate 100	mm
	Granular	Cohesive	Granular	Cohesive
Soft Soft excavation shall be excavation in material that can be efficiently removed from the trench using a pick and shovel but not requiring prior breaking using mechanical equipment	Up to medium dense	Firm to stiff	0-6	1-5

THE CONTRACT Part C3: Scope of Work

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



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such as pavement breakers				
Intermediate Intermediate excavation shall be excavation in material that require loosening with a hand spike (gwala) before being removed from the trench	Dense	Stiff to very stiff	7-15	6-8
Hard Hard excavation shall be excavation in material that requires prior breaking using mechanical equipment, such as pavement breakers with clay spades, before being removed from the trench.	Very dense		16-50	-15
Rock Rock excavation shall be excavation in material other than described above which by nature of the material requires prior breaking using mechanical equipment, such as pavement breakers with moil points, before being removed from the trench	-	-	>50	>15

PSDB 5 CONSTRUCTION

PSDB 5.1 PRECAUTIONS

PSDB 5.1.2 Stormwater, Seepage and Dewatering of Excavation

PSDB 5.1.2.3 Sloping ground

ADD THE FOLLOWING SENTENCE AT THE END OF THE PARAGRAPH: "All trench excavations on sloping embankments shall be backfilled in accordance with 5.6.2 over the full extent of the actual trench excavation and to the original embankment ground level."

PSDB 5.1.3 Accommodation of traffic and access to properties

REPLACE THE SEMICOLON AND THE WORD "and" AT THE END OF THE SUBCLAUSE 5.1.3 (a) WITH A FULL STOP

THE CONTRACT Part C3: Scope of Work

Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



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AND REPLACE ITEM (b) WITH THE FOLLOWING:

"(b) Where necessary to achieve compliance by the Contractor with his obligations to provide and maintain pedestrian and vehicular access to properties affected by the works, the contractor shall construct and maintain to the satisfaction of the Engineer, such temporary access roads around, and/or steel or timber bridges over excavations in roads, pavements, entrances, or accesses to properties.

The Contractor shall make available on site at all times a sufficient number of steel plates at least 2.0m x 2.0m x 8mm thick to be laid across open trenches to provide access to private properties. The cost of providing, placing and removing the steel plates shall be included in the rates for trench excavation.

On completion of the work, the Contractor shall dismantle and remove all such temporary constructions and reinstate these areas to their former condition.

Except only where the Engineer has included in the Schedule of Quantities, particular payment items specifically therefore, the Contractor will not be paid directly for the construction and maintenance of temporary access roads and/or the provision and maintenance of bridges as aforementioned, and the costs thereof shall be deemed included in the Contractor's tendered rates for excavation."

ADD THE FOLLOWING NEW SUBCLAUSE TO SUBCLAUSE 5.1:

"PSDB 5.1.5 Removal of existing pipelines

Where existing pipes have to be removed, they shall be carefully opened up by machine excavation to 300 mm above the pipes after which the whole pipe shall be fully exposed by means of hand excavation. The excavation width shall comply with subclause 8.2.3.

The pipes shall be removed from the trench in a manner approved by the Engineer, and brought to the surface for inspection by the Engineer.

Pipes that are declared suitable for reuse and pipes declared unfit for reuse shall be dealt with in an applicable manner described in the specifications, or on the Drawings or on the Engineer's instructions, as relevant."

PSDB 5.2 MINIMUM BASE WIDTHS

ADD THE FOLLOWING SUB PARAGRAPH TO:

c) Should the excavated trench width exceed the specified width of 400mm above the barrel of the pipe by a value greater than 400mm, remedial measures shall be as directed and shall be provided at the Contractor's cost unless it can be shown that such excess width is due to factors beyond the Contractor's control.

Trench widths should be as near vertical as possible in order to minimize the quantity of selected fill material to be provided."

PSDB 5.4 EXCAVATION

ADD THE FOLLOWING SUB CLAUSES:



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- "a) The cost of trimming excavations by hand or machine shall not be paid for separately but shall be included in the rates tendered for excavation.
- b) All excavated material shall be kept within defined limits and shall, wherever possible, be deposited alongside the trench. The material shall be deposited so as to leave a clear strip of at least one metre between the edge of the trench and the excavated material and shall not cause undue inconvenience to traffic and property owners. The material shall be placed and kept well clear of all manhole covers, culvert in- and outlets, fire hydrants, benchmarks, stand pegs, fences, etc.
- c) To prevent vertical trench walls from collapsing, excavated material shall, wherever possible, not be stacked on the side of any underlying strata sloping down towards the trench and in this regard attention is specifically drawn to the shales sloping south to north in the Pretoria area.
- d) Excavations more than 1,5 m deep shall be adequately shored or braced to support the overhanging material and other loads which may occur. If the Contractor is of the opinion that shoring or bracing for an excavation of depth of more than 1,5 m is not necessary, he shall notify the Engineer accordingly in writing, including a report from a professional engineer or a professional technologist competent in excavations. The report shall include the relevant laboratory tests.
- e) The Contractor shall provide all the open and close timbering, strutting and shoring required for the safety of the excavations and structures adjacent to the trenches, and shall be solely and wholly responsible for ensuring the adequacy of these measures for this purpose.

Without in any way affecting or detracting from the Contractor's responsibility, the Engineer shall have the right to instruct the Contractor to provide additional or improved timbering, shoring or strutting where he considers this to be necessary. The Contractor shall have no claim for additional payment on this account.

The shoring method adopted shall be compatible with the soil type and the excavating, backfilling and pipe-laying methods adopted and shall not place any undue restrictions on the laying of the pipes. Timbering and shoring shall be left in position until the Engineer has authorized their removal.

- f) Shoring and bracing may not be necessary where the Contractor elects to slope the sides of the excavation to at least the maximum angle of repose measured relative to the horizontal plane, as determined by laboratory tests. Sloping of the sides could be combined with steps. The Contractor will submit the proposed excavation profile to the Engineer for approval.
- g) The cost for shoring, bracing and sloping of the sides will be included in the rates tendered for excavation. The cost for the services of a professional engineer or a professional technologist, including the relevant laboratory costs, shall be included in the tendered rates.
- h) The Safety officer, or another competent person appointed by the Contractor in writing, shall inspect every excavation, including bracing and shoring:
- (i) daily, prior to each shift.
- (ii) after every blasting operation;
- (iii) after an unexpected fall of ground;
- (iv) after substantial damage to supports; and

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Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2



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(v) after rain,

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, the Employer, Employer's agent, contractor or employee upon request;

- Each excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby i) the safety of persons may be endangered, shall be
- (i) adequately protected by a barrier or fence of at least one meter in height and as close to the excavation as is practicable; and
- (ii) provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor."

PSDB 5.4.2 Hand Excavatability

PSDB 5.4.3 Excavation of Asphalt Surfaces

The existing asphalt road surfacing shall be saw-cut prior to excavation commencing for the full width of the trench as specified on the construction drawings so as to ensure a neat finish to the reinstated surfacing.

PSDB 5.6 BACKFILLING

PSDB 5.6.3 Disposal of Soft Excavation Material

DELETE THE EXISTING CLAUSE AND REPLACE WITH:

"The Contractor shall locate and negotiate for tipping sites for the disposal of surplus material and bear all costs in connection therewith. Arrangements for the consent of the owner of a property to deposit spoil and or temporary spoil thereon shall be confirmed in writing. Such arrangements shall be approved before being implemented. All spoil sites shall be neatly finished off and compacted to 90% of MOD.AASHTO density."

ADD THE FOLLOWING NEW SUB CLAUSE:

PSDB 5.6.6 Completion of Backfilling

Backfilling should not lag more than 50m behind the laying operation.

PSDB 5.7 COMPACTION

ADD THE FOLLOWING:

"Where pipelines cross existing gravel roads, backfilling shall be carried out as specified in Subclause 5.7.2 and payment therefore will be made under sub item 8.3.3.3."

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PSDB 5.9 REINSTATEMENT OF SURFACES

ADD THE FOLLOWING TO THIS SUB CLAUSE:

PSDB 5.9.2 Private Property and Commonage

The ground and paved surface of servitudes, parks, driveways, roadways and sidewalks shall be reinstated to at least the standard and conditions as existed previously.

Grass sods shall be cut out from the grassed areas to be excavated and shall be set aside, preserved and kept damp until used for reinstatement. All other material to be used for reinstatement shall be suitably stored for such purpose.

The rate for reinstatement of block paved surfacing shall include all costs for the supplying and laying of the surfacing. The rate shall also cover for taking brick paving out carefully, stockpiling and replacement with new if bricks are broken or damaged. The rate must furthermore provide for all plant, labour and material costs associated with the work.

The rate for reinstatement of asphalt or concrete paved surfacing shall include all costs for the saw cutting, supplying and laying of the surfacing. The rate shall also cover for removal and spoiling of the material. The rate must furthermore provide for all plant, labour and material costs associated with the work.

The width of any trench through an area paved with bricks or precast concrete units shall be the minimum practicable width that, in the opinion of the Engineer, can be removed without cutting bricks or precast units.

SABS 1200 LB: BEDDING (PIPES)

PS LB 1 SCOPE

PS LB 1.1 SCOPE

Add the following to LB 1.1:

This specification also covers the bedding required for sleeve pipes.

PS LB 3 MATERIALS

PS LB 3.1 SELECTED GRANULAR MATERIAL

Substitute LB 3.1 with the following:

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100 % passing a 13, 2 mm sieve and not more than 5 % passing a 0,075 mm sieve.

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Only if approved by the Engineer may sand from the trench excavations be used as selected material

PS LB 3.2 SELECTED FILL MATERIAL

Substitute LB 3.2 with the following:

The requirements of PS LB 3.1 shall apply *mutatis mutandis*.

PS LB 3.3 BEDDING

Add the following to LB 3.3:

All pipes shall be classified as flexible pipes and shall have a bedding of selected granular material and selected fill material.

PS LB 3.4 SELECTION

PS LB 3.4.1 Suitable Material from Trench Excavation Available

Replace the first sentence of LB 3.4.1 with the following:

Notwithstanding the requirements DB 3.7 and LB 3.4.1 relating selected excavation methods, the Contractor must follow selected excavation methods and provide or use plant that will prevent material that is suitable and necessary for bedding being contaminated.

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PS LB 5 CONSTRUCTION

- PS LB 5.1 GENERAL
- PS LB 5.1.4 Compacting

Substitute "90 % of Mod. AASHTO" in LB 5.1.4 with "93 % of Mod. AASHTO.

If sand is used the compaction grade must be 100% Mod. AASHTO

PS6 SITE FACILITIES AVAILABLE

PS6.1 <u>Contractor's Camp</u>

A site will be made available for the Contractor's camp or depot, to be located adjacent to the works. The Contractor shall be entirely responsible for ensuring that his establishment meets the requirements of any Municipal regulations or by-laws, which may be applicable and shall include therefore in his tendered rates.

The Contractor shall also be responsible for ensuring that unauthorised persons do not have access to the site or any construction material stockpiles.

PS6.2 Source of Water Supply

Water is available on the site. The Contractor shall make all arrangements with the Local Authority for a water connection and include for the payment of water used for construction purposes in his tendered rates.

PS6.3 Source of Power Supply

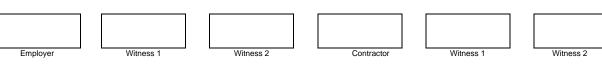
The Contractor will however be entirely responsible for arranging a power connection and for payment for all electric power required for construction purposes if electric power is available on site. The costs of electric power are to be included in the Contractor's tendered rates.

PS6.4 Housing

The Contractor shall be permitted to house Key Personnel only within his camp site(s). At the commencement of the Contract, the Contractor shall inform the Engineer of his intentions regarding the housing of Key personnel on Site and he shall thereafter ensure that all such accommodation is kept neat and tidy, hygienic and properly controlled at all times. Should at any stage of the Contract the Employer and/or the Engineer be of the opinion that the housing of Key Personnel within the camp site(s) of the Contractor is causing disturbance or inconvenience to the landowner or to nearby residents, then the authority granted by this clause for the Contractor to house Key personnel on Site may be withdrawn, either partially or entirely.

The Contractor shall at all times confirm with all requirements contained in law or bylaws, as well any other requirements set by the controlling local authority.

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PS6.5 Ablution Facilities

Ablution facilities will not necessarily be available at the camp or depot site and the Contractor shall make his own arrangements in this regard.

PS7 <u>SITE FACILITIES REQUIRED</u>

PS7.1 For the Contractor

Whatever may be required for the satisfactory execution of the Contract.

PS7.2 For the Engineer

Refer to the BoQ items and SABS 1200 AB.

PS7.3 Sanitary Facilities

Water borne sewerage is not available on site. Chemical or flush toilets with on-site disposals shall be provided and maintained for the use of the Contractor's personnel, the Engineer and representatives of the Employer at all camp sites that the Contractor may establish for construction of the Works. In addition, the Contractor shall at all times during construction of the works provide adequate sanitary facilities.

PS8 FEATURES REQUIRING SPECIAL ATTENTION

PS8.1 Existing services

The site of the Works is traversed by various existing services including water, sewers, and electricity cables, the exact position of which are generally unknown. Where positions of services are known these will be shown on layout plans or information in this regard will be made available by the engineer prior to construction commencing in an area. The contractor will be required to so schedule and programme his work that when works are disrupted due to the influence of unexpected services encountered, construction can continue in other portions to allow the situation to be remedied by re-routing of new or existing services.

PS8.2 Other Contractors

The Contractor must prepare himself to work with other Contractors in the same project location and/or on the same site simultaneously. The Contractor must make adequate provision for himself in the rates tendered to protect and clearly mark "his" works, to accommodate other Contractors and to liaise constantly and adequately with the other persons active in the same area.

It might happen that up to five different contractors will be active on site, that routine maintenance are carried out on the existing work by another party and that the Client or his agent is active onsite with the day to day running of the works.

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PS8.3 Preservation of trees

Special care shall be taken that only designated trees are removed and that no damage is caused to other trees during construction.

PS8.4 <u>Safeguarding reference beacons</u>

The Contractor shall take special care to safeguard any permanent survey beacons such as erf corner pegs, reference beacons and level beacons. Should such pegs or beacons be disturbed, the Contractor shall have them replaced by a registered Land Surveyor at his own cost. The Surveyor shall submit the necessary documentation regarding the replacement of pegs and beacons to the Engineer for approval.

The Contractor's attention is drawn to Article 35(1) of the Land Surveying Act No. 9 of 1927, (as amended) in this regard.

PS8.5 DISPOSAL OF MATERIAL

All surplus or unsuitable materials arising from any excavations, rocks, trees, debris and other unsightly material shall be disposed of at an approved municipal landfill site or approved borrow pit.

The Contractor shall be responsible to make his own arrangements for a suitable spoil site.

PSA 8 : MEASUREMENT AND PAYMETS

PSA 8.4 SCHEDULE TIME – RELATED ITEMS

ADD THE FOLLOWING NEW SUBCLAUSE TO CLAUSE 8.4

PSA 8.4.6 Additional Obligations

PSA 8.4.6 OHS Obligation

The rate shall cover the full compensation and all-time related costs for the duration of the contract, for the compliance with the Occupational Health and safety Act, Construction regulation and all the requirements stipulated in the Employer's Health and safety specifications, and the rate shall cover full compensation and all costs payable monthly, to provide a full time qualified and suitable experienced Safety officer for the duration of the contract.

PSA.8.4.7 Environmental Management

The rate shall cover the full compensation and all fixed cost for the compliance with the requirement of the Employers Environmental Management Plan and shall cover full compensation and all cost payable monthly, to provide a full time qualified and suitable experienced Environmental officer for the duration of the contract.

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Unit: Month

Unit: Month



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PSA 8.4.9 Dealing with sewer and sewer effluent for full duration of contract

Unit: Prov Sum

The sum shall be paid in agreement with the engineer for works undertaken to deal with sewer and sewer effluent during the construction process.

PSA 8.7 DAYWORKS

ADD THE FOLLOWING CLAUSES

<u>Scope</u>

This section covers the method of measurement and payment for work carried out on a day work basis

General Requirements

Work will be classified as day work only if the Engineer considers no other rate in the Bill of Quantities appropriate for payment purposes.

An instruction regarding all work to be carried out under day work in terms of Clause 37(2) of the General Conditions of Contract will be issued at the discretion of the Engineer. Some or all of the items priced under day work in the Bill of Quantities may possibly not be required for this Contract.

Before ordering any material, the Contractor shall submit quotations to the Engineer for his approval and shall submit such receipts or vouchers to the Engineer as may be necessary for proving the amount claimed.

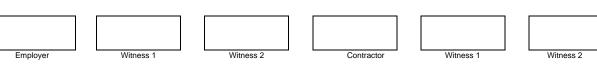
Measurement and Payment - Day Works

The day work rates submitted for vehicles and construction equipment, in the Bill of Quantities shall be a hire charge for the use of the vehicle and driver or constructional plant/equipment and operator (excluding VAT) and shall apply only to vehicles and construction equipment approved in writing by the Engineer. The rate shall include for maintenance, fuels and oils and other operating costs, establishment, insurance, and other contingency costs relating to the running of the vehicle, plant or equipment.

Where there is ambiguity between the power developed at the flywheel and mass of a machine, the power shall govern the measurement category.

The Contractor and the Engineer will agree on the method of recording the working hours prior to the commencement of the work. Any long period of idling at any one time which in the opinion of the Engineer or his representative is beyond that required for normal operating conditions will not be paid for as working time. Non-working hours for any reason shall not be measured for payment.

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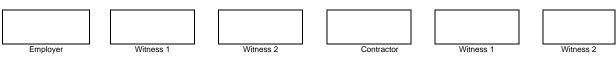




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The ten percent allowed for overheads etc. as per Clause 37.2.2.3 of the General Conditions of Contract shall include full compensation for all administrative costs, supervision, overheads, liabilities and obligations related to the running of the vehicles, constructional plant and equipment. The tendered percentage shall also include for profit and shall be subject to the Contract Price Adjustment factor laid down in the Contract Data.

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GENERIC LABOUR-INTENSIVE SPECIFICATION

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

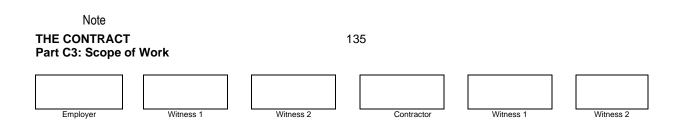
Precedence

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 Contract, the requirements of this specification shall prevail.

Hand excavateable material

Hand excavateable material is material:

- a) granular materials:
 - i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dens, or dense; or
 - 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:
 - whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
 - 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;





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- 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 107.	. 1: Consistend	y of materials w	/hen profiled
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GRANULAR MATERIA	ALS	COHESIVE MATER	IALS
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 30-40mm; 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 up to 10mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation	Stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers
Very dense	High resistance to repeated blows of a geological pick	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point

Trench excavation

All hand excavateable material in trenches having a depth of less than 1.0 m shall be excavated by hand. The contractor however has the option of using machine excavation in line with his program of works

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

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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 93% Proctor density.
- b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand. The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilized for haulage.

Spreading

All material shall be spread by hand.

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Witness 1



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Small areas may be compacted by hand provided that the specified compaction is achieved.

Grassing

All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must 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.

Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry unit and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that eight workers can conveniently and simultaneously acquire a proper hand hold on them."

C3.5 MANAGEMENT

C3.5.1 Management of the Works

C3.5.1.1 Applicable Specifications

SABS 1200 Standard Specifications for Civil Engineering Construction shall form part of this contract including relevant SANS specifications indicated in this document.

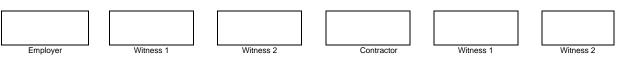
In addition, reference will be made to Series COLTO Standard specification for Roads and Bridge Works for State Road Authorities, including the variations and additions thereto included in section C3.4.2 of this document shall be applicable to this contract.

C3.5.1.3 Construction Programme

The Contractor shall supply within the period stated in the Contract Data a suitable and realistic construction programme that is based on the construction drawings issued by the Engineer, for consideration by the Engineer. This programme shall show the proposed scheduling and methods of execution of the Works, as well as the resources that will be allocated to each item or phase of the Works. Quantities proposed for execution during each month must be shown. In addition, the anticipated cash flow for the Contract, based upon these quantities, shall be shown following the prescribed format.

The Contractor will be expected to progress with the Works in accordance with the approved programme and shall not deviate from the order of execution shown in the programme without the prior approval of the Engineer or his

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Representative. Should such approval be given an adjusted programme shall be produced within seven (7) days and submitted to the Engineer for evaluation.

Progress in advance of the programme on certain portions or phases of the Works shall not be considered adequate reason for poor progress on another portion or phase.

C3.5.1.4 Drawings, Operation and Maintenance Manuals

All information in the possession of the Contractor that is required by the Engineer's Representative in order to complete the As-Built drawings and to prepare a completion report for the Employer must be submitted to the Engineer's Representative before a Certificate of Practical Completion will be issued for the Works. Similarly, the Contractor will be required to submit full details of all pipes, valves, meters and specials in a suitable loose bound format, including any special operational and maintenance procedures related thereto, for incorporation in the overall operation and maintenance manual for the Scheme prior to the issue of a Certificate of Completion for the Works.

Only figured dimensions on the Drawings may be used in the interpretation thereof, and the Drawings shall not be scaled unless the Contractor is so instructed by the Engineer in writing. The Engineer will upon written request provide any dimensions that may have been omitted from the drawings.

C3.5.1.5 Site Administration

An index to the Engineer's standard site administration forms as well as examples of some of the administration forms is appended as in Part C4.6. Acceptance control, record keeping, and payment certificates shall be done in accordance with the Engineer's standard system except if the Engineer approves that the Contractor's standard system may be used.

C3.5.1.6 Daily Site Diary

The daily site diary in accordance with the pro forma appended in Annexure A shall be kept up to date by the Contractor's Representative and will be signed on a daily basis by the Engineer's Representative.

C3.5.1.7 Information in Respect of Plant

Information relating to plant on Site shall be recorded in the daily site diary. In addition, the Contractor shall deliver to the Engineer, on a monthly basis, a detailed summary of construction plant kept on the Site, full particulars given for each day of the month. Distinction shall be made between plant in working order and plant out-of-order. Such inventory shall be submitted by the first day of the month following the month to be reported.

C3.5.1.8 Information in Respect of Employees

Information relating to labour and management on Site shall be recorded in the daily site diary in addition, the Contractor shall deliver to the Engineer, on a monthly basis, a detailed summary of supervisory staff, labour employed (own and local labour) by category, and sub-contractors (both local and imported) for each day of the month. Such return shall be submitted by the first day of the month following the month to be reported.

C3.5.1.9	Rainfall Records
THE CONT	RACT
Part C3: Sc	ope of Work

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BID NO: RLM/DTIS/0103/2022/23. APPOINTMENT OF A CONTRACTOR FOR RAMOCHANA SEWER UPGRADE AND HOUSE CONNECTION

Rainfall records for the period of construction shall be taken on Site and recorded in the daily site diary. The Contractor shall provide and install all the necessary equipment for accurately measuring the rainfall. The Contractor shall also provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost. The Engineer or his Representative shall take and record the daily rainfall readings. The Contractor shall be permitted to attend these readings, in the company of the Engineer's Representative. Access to the measuring gauge(s) shall at all times be under the Engineer's control.

C3.5.1.10 Site Instructions

Site instructions by the Engineer, addressed to the Contractor at his office on the Site, will be numbered consecutively and will be deemed to have been received by the Contractor's representative unless a break in the sequence of numbers is brought to the notice of the Engineer in writing immediately.

C3.5.1.11 Site Meetings

The Contractor and his authorised representative shall attend all meetings held on the Site with the Employer and the professional team at dates and times to be determined by the Engineer. Such meetings will be held to evaluate the progress of the Contract, and to discuss matters pertaining to the Contract which any of the parties represented may wish to raise. It is not the intention to discuss day-to-day technical matters at such meetings.

C3.5.1.12 Payment Certificates

Monthly Progress Payment Certificates shall be submitted to the Engineer's representative on Site not later than the 20th of each month (or as agreed between the Contractor and the Engineer).

All quality calculations and certificates submitted by the Contractor for checking shall be in accordance with the standard forms that are appended as annexure to the Scope of Works.

C3.5.1.13 Environmental Management Plan

The Contractor shall comply with all the conditions of the Record of Decision and the Environmental Management Plan appended in this document (if any).

C3.5.1.14 Community Liaison and Community Relations

In all dealings with communities through which the Works are to be executed, and in all dealings with workers employed from within such communities, the Contractor shall take due cognizance of the character, culture and circumstances of the specific community, and shall at all times use his best endeavours to avoid the development of disputes and rather to foster a spirit of co-operation and harmony towards the project.

The Contractor shall at all times, keep the Engineer fully informed regarding all matters affecting or negotiated between the Contractor and the community, and he shall attend all liaison meetings as may be arranged by the Engineer and/or the Employer. All matters concerning the community shall be discussed and where possible, resolved at such meetings.

Where any resolution during such negotiations or at such meetings shall be contrary to the terms and provisions of the Contract, the Contractor shall not give effect thereto without a prior written instruction from the Engineer. Where the Contractor is of the opinion that any instruction of the Engineer issued in terms of this clause will result in the incurring of **THE CONTRACT** 140

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additional costs which were not provided for in his tendered rates and prices and/or that a delay in the progress of the Works will result, he shall be entitled to submit a claim in terms of Clause 48 of the Contract Data, provided always that the period of twenty-eight (28) days referred to in Clause 48 shall be reduced to three (3) normal working days in respect of all claims submitted in terms of this clause.

C3.5.1.15 Workmanship and Quality Control

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and of the Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced engineers, foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the quality of the Works at all stages of the Contract.

The cost of the Contractor's supervision and process control, including all testing carried out by the Contractor, will be deemed to be included in the rates tendered for the various items of work. The Contractor's attention is drawn to the provisions of the various Standardised Specifications regarding the minimum frequency of process control testing that is to be executed. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control of the quality of the Works at all times.

Upon completion and submission of each portion of the Works to the Engineer for examination, the Contractor shall furnish the Engineer with the results of relevant tests, measurements and levels, thereby indicating compliance with the Specifications. The Engineer will not examine or inspect any portion of work submitted for approval unless the request for inspection and approval is accompanied by relevant tests, measurements and levels indicating compliance.

C3.5.1.16 Features Requiring Special Attention

C3.5.1.16.1 Built-up Areas

The Contractor's attention is drawn to the fact that the Works will be constructed inside built-up areas. The Contractor shall exercise all necessary precautions and take all necessary steps to ensure the safety and convenience of the public. In addition, the Contractor shall provide access for traffic over and through the works, and for residents to their places of abode, all as described in the Scope of Work. Allowance must be made by the Contractor in his programming for delays resulting from the aforesaid.

The Contractor shall give residents a minimum of 72 hours written notice of his intent to close access to residential stands. The Contractor shall acquire written confirmation from all owners that they are aware of any intended closures of access. No traffic access to a residential stand shall be closed for longer than 48 hours.

C3.5.1.16.3 Care of the Site

At all times during construction of the Works and upon completion thereof, the Site of the Works shall be kept and left in a clean and orderly condition. The Contractor shall store all materials and equipment for which he is responsible in an orderly manner, and shall keep the Site free from debris and obstructions.

C3.5.1.16.4 Control of Water THE CONTRACT Part C3: Scope of Work			141						
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The Contractor shall at all times and in all respects be responsible for the handling of storm water from higher-laying areas above the Works, and for the handling of any sub-surface water that may affect the Works.

C3.5.1.16.5 Survey and Setting Out

The Engineer has established survey beacons on site from which the Contractor can set out the Works. The position and co-ordinates of the permanent survey beacons have been shown on the drawings. The Contractor shall be responsible for the protection of all these survey beacons and reference points from handing over of the beacons to the Contractor to completion of the Works. Property beacons and trigonometrically survey beacons that are disturbed or destroyed during the course of the contract shall be replaced at the Contractor's cost by a registered land surveyor who shall verify such replacement The Contractor's attention is drawn to the requirements of SABS 1200 A (General), Clause 5.1, in this respect.

The Contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works from the beacons established above and for the provision of all necessary instruments, appliances and labour in connection therewith. Such setting out shall be executed by a registered surveyor. No separate payment shall be made in respect of setting out, such work being deemed as included in the rates tendered for construction of the Works.

The checking of any setting-out or of any line or level by the Engineer shall not relieve the Contractor of his responsibility for the correctness thereof.

If at any time during the progress of the Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do so by the Engineer, shall at his own expense rectify such error to the satisfaction of the Engineer, but if such error is based on incorrect data supplied in writing by the Engineer shall, in respect of cost of such rectification, be entitled to make a claim in accordance with Clause 48 of the Contract Data.

C3.5.1.17 Notices, Signs, Barricades and Advertisements

Notices, signs and barricades (required in terms of Clause 34 of the Conditions of Contract) as well as advertisements may only be erected where approved by the Engineer. The Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Engineer shall have the right to have any sign, notice or advertisement moved to another location, or to have it removed from the Site of the Works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

C3.5.1.18 Unauthorized persons

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

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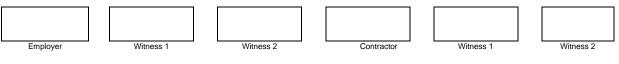


CONTRACT PART C4: SITE INFORMATION

C4.1: Location of the Works

- C4.2: OHS Specifications
- C4.3: Site Administration Forms

THE CONTRACT Part C4: Site Information





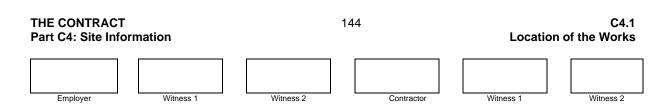
C4.1 Location of the Works

The project site is located in the Rustenburg Local Municipality.

AREA	LATITUDE	LONGITUDE		
RAMOCHANA	25° 38'34.28"S	27° 16' 32.96''E		

Figure 0-1 Location of Project Site







C4.2 OHS Specifications

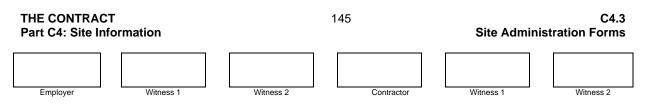


OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

Compiled for

RUSTENBURG LOCAL MUNICIPALITY

For



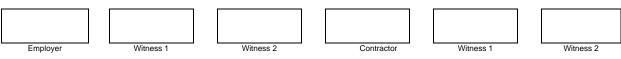


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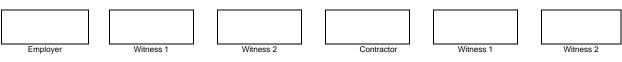
Witness 2



Annex: Standard Conditions of Tender Error! Bookmark not defined.

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Occupational health and safety specification for Meriting roads & stormwater ward 18 phase 4

1 Scope

This health and safety specification in respect of an engineering and construction works contract:

- a) provides the overarching framework within which the Principal Contractor is required to demonstrate compliance with certain requirements for occupation health and safety established by the Occupational Health and Safety Act of1993(Act No.85 of 1993) and its regulations, Construction Regulations 2014, Electrical installation regulations as well as applicable Municipality By laws.
- b) establishes the manner in which the Principal Contractor is to manage the risk of health and safety incidents in the execution of the contract; and
- c) establishes the manner in which the Principal contractor will interact with the Clients Agent.
- Note: 1) This specification establishes specific requirements to enable the Client and the Principal contractor to satisfy the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the Construction Regulations2014 as well as applicable Municipal By laws.
 - 2) The Construction Regulations, 2014, require the Client or its appointed Agent to stop any Contractor from executing construction work which is not in accordance with the Contractor's health and safety plan for the site or which poses to be a threat to the health and safety of persons.
 - 3) This specification establishes health and safety requirements Site specific requirements for health and safety as stated in the scope of work associated with a contract.

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2 Definitions

Act: The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

Competent person: any person having the knowledge, training and experience specific to the work or task being performed

Employer's Health and Safety Agent: the person appointed as agent by the Employer in terms of Regulation 4(5) of the Construction regulations and named in the contract data as the being the employer's agent responsible for health and safety matters

ergonomics: the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimize human well-being and overall system performance

hazard: a source of or exposure to danger

hazard identification: the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed

health and safety plan: a documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified.

healthy: free from illness or injury attributable to occupational causes

incident: an event or occurrence occurring at work or arising out of or in connection with the activities of persons at work, or in connection with the use of plant or machinery, in which, or in consequence of which:

- any person dies, becomes unconscious, suffers the loss of a limb or part of a limb or is otherwise injured or becomes ill to such a degree that he is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or to continue with the activity for which he was employed or is usually employed;
- b) a major incident occurred; or
- c) the health or safety of any person was endangered and where:
 - i) a dangerous substance was spilled;
 - ii) the uncontrolled release of any substance under pressure took place;
 - iii) machinery or any part thereof fractured or failed resulting in flying, falling or uncontrolled moving objects; or machinery ran out of control

inspector: a person designated as such under section 28 the Act

major incident: an occurrence of catastrophic proportions, resulting from the use of plant or machinery, or from activities at a workplace

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reasonably practicable: practicable having regard to:

- a) the severity and scope of the hazard or risk concerned;
- b) the state of knowledge reasonably available concerning that hazard or risk and of any means of removing or mitigating that hazard or risk;
- c) the availability and suitability of means to remove or mitigate that hazard or risk; and
- d) the cost of removing or mitigating that hazard or risk in relation to the benefits deriving there from;

registered person: a person registered in terms of the Electrical Installation Regulations

risk: the probability that injury or damage will occur

safe: free from any hazard

scaffold: any temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both

3 Structure

- any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- b) any formwork, false work, scaffold or other structure designed or used to provide support
- c) or means of access during construction work; or
- d) any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two metres or more

substance: any solid, liquid, vapour, gas or aerosol, or combination thereof

suitable: capable of fulfilling or having fulfilled the intended function or fit for its intended purpose

workplace: any premises or place where a person performs work in the course of his employment

4 Interpretation

The Act and its associated regulations shall have precedence in the interpretation of any ambiguity or inconsistency between it and this specification.

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Compliance with the requirements of this specification does not necessarily result in compliance with the provisions of the Act.

5 Requirements

General requirement

The Principal Contractor shall:

- a) create and maintain a safe and healthy work environment,
- b) execute the works in a manner that complies with all the requirements of the Act and all its associated regulations, Applicable Municipal By Laws and in so doing, minimize the risk of incidents occurring; and
- c) respond to the notices issued by the Client's Health and Safety Agent as follows:
 - 1) Improvement Notice: improve health and safety performance over time so that repeat notices are not issued;
 - 2) Contravention Notice: rectify contravention as soon as possible;
 - 3) Prohibition Notice: terminate affected activities with immediate effect and only recommence activities when it is safe to do so.

Administration

Notification of intention to commence construction work

The Principal Contractor shall notify the Provincial Director of Labour in writing using a form Annexure 2 of the Construction Regulations issued in terms of the Act before construction work commences and retain a copy of such notification in the health and safety file where such work:

- a) involves the demolition of a structure exceeding a height of 3m;
- b) involves the use of explosives to perform construction work;
- c) involves the dismantling of fixed plant at a height greater than3m;
- d) exceeds 30 days or will involve more than 300 person days of construction work; and includes:
 - i) excavation work deeper than 1m
 - ii) working at a height greater than 3 m above ground or a landing.

The Principal Contractor shall ensure that no work commences on an electrical installation which requires a new supply or an increase in electricity supply before the person who supplies or contracts or agrees to supply electricity to that electrical installation has been notified of such work.

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The Principal Contractor shall ensure that no asbestos work is carried out before the Provincial Director of the Department of Labour has been notified in writing.

Copy of the Act

The Principal Contractor shall ensure that a copy of the Act and relevant regulations is available on site for inspection by any person engaged in any activity on the site.

Good standing with the compensation fund or a licensed compensation insurer

The Principal Contractor shall before commencing with any works on the site provide the Client's Health and Safety Agent with proof of good standing with the compensation fund or with a licensed compensation insurer.

Emergency procedures

The Principal Contractor shall submit for acceptance to the Client's Health and Safety Agent an emergency procedure which include but not limited to fire, spills, accidents to employees, exposure to hazardous substances, which:

- a) identifies the key personnel who are to be notified of any emergency.
- b) sets out details including contact particulars of available emergency services; and
- c) the actions or steps which are to be taken during an emergency.

The Principal Contractor shall within 24 hours of an emergency taking place notify the Client's Health and Safety Agent in writing of the emergency and briefly outline what happened and how it was dealt with.

Health and safety file

The Principal Contractor shall maintain on site a health and safety file which contains copies of the following, as relevant:

a) documents required prior to commencing with physical construction activities

- 1) the Principal Contractor's health and safety policy, signed by the chief executive officer, which outlines the Contractor's objectives and how they will be achieved and implemented by the Contractor;
- 2) the notification made to the Provincial Director of Labour, and if relevant, the notification of the person who supplies or contracts or agrees to supply electricity to that electrical installation;
- the letters of appointment, as relevant, of the construction Manager for the site in respect of construction works covered by the Construction Regulations and the registered person responsible for the electrical installation covered by the Electrical Installations Regulations;
- a copy of the certificate of registration of the registered person responsible for the electrical installation covered by the Electrical Installation Regulations;

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- 5) the approval of the design of the part of an electrical installation which has a voltage in excess of 1 kV by a person deemed competent in terms of the Electrical Installations Regulations;
- 6) proof of registration of the electrical contractor who undertakes the electrical installation in terms of the Electrical Installation Regulations;
- 7) the preliminary hazard identification undertaken by a competent person;
- 8) the organ gram which outlines the roles and responsibilities of the construction supervisor's assistants and safety officers; and
- 9) the Principal contractor's health and safety plan;
- 10) the emergency procedures;
- 11) the procedure for the replacement of lost, stolen, worn or damage personal protective clothing and
- 12) proof that the Principal contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;

b) documents required after construction activities have commenced

- 1) the letters of appointments, if relevant, of:
 - i) persons who are required to assist the construction Manager;
 - ii) safety officers;
 - iii) health and safety representatives;
 - iv) replacement construction supervisor, and
 - v) assistants of construction supervisor.
- any revisions to the organ gram which outlines the roles and responsibilities of the construction Manager's assistants and safety officers;
- each and every subcontract agreement;
- 4) proof that every subcontractor is registered and in good standing with the compensation fund or with a licensed compensation insurer;
- 5) proof of all subcontractor's induction training whenever it is conducted;
- 6) copies of the minutes of the Principal Contractor's subcontractors health and safety meetings;
- 7) copies of each of the Principal Contractor's subcontractors' health and safety policy, signed by the chief executive officer, which outlines the subcontractor's objectives and how they will be achieved and implemented by the subcontractor;

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- 8) the health and safety plans of all the Principal Contractor's subcontractors who are required to provide such plans;
- 9) a comprehensive and updated list of all the subcontractors employed on site by the Principal contractor, indicating the type of work being performed by such sub-contractors;
- 10) the outcomes of the monthly audits for compliance with the approved health and safety plan of each and every sub-contractor working on the site;
- 11) any report made to an inspector by the health and safety committee;
- 12) the minutes of all health and safety meetings and any recommendations made to the Principal Contractor by the health and safety committee;
- 13) the findings of all audit reports made regarding the implementation of the Principal Contractor's or a subcontractor's health and safety plan;
- 14) the inputs of the safety officer, if any, into the health and safety plan;
- 15) details of induction training conducted whenever it is conducted including the list of attendees;
- 16) proof of the following where suspended platforms are used:
 - i) a certificate of system design issued by a professional engineer, professional certificated engineer or a professional engineering technologist;
 - ii) proof of competency of erectors;
 - iii) proof of compliance of operational design calculations with requirements of the system design certificate;
 - iv) proof of performance test results;
 - v) sketches indicating the completed system with the operational loading capacity of the platform;
 - vi) procedures for and records of inspections having been carried out;
 - vii) procedures for and records of maintenance work having been carried out;
 - viii) proof that the prescribed documentation has been forwarded to the provincial director;
- letters of appointments for competent persons to supervise the activities which law requires to be so supervised;
- 18) a copy of risk assessments made by competent persons
- records of the register of inspections made by a competent person immediately before and during the placement of concrete or any other load on formwork;
- 20) the names of the first aiders on site and copies of the first aid certificates of competency;
- 21) the names of the persons who are in possession of valid certificate of competency in first aid and copies of such certificates;

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- 22) details of all incidents together with the Contractor's report on such incident; and
- 23) the record of inspections carried out by the designers of structures to ensure compliance with designs.

The health and safety file shall be made available for inspection by any inspector, subcontractor, the Project Manager, the Client's Health and Safety Agent or employee of the Contractor upon the request of such persons.

The Principal Contractor shall hand over the health and safety file to the Client's Health and Safety Agent upon completion of the contract and if relevant, a certificate of compliance accompanied by a test report for the electrical installation in accordance with the provisions of the Electrical Installation Regulations.

Health and safety committee

The Principal Contractor shall convene health and safety meetings whenever more than two health and safety representatives have been appointed for the site. These meetings shall be attended by all health and safety representatives and persons nominated by the Principal Contractor. Such meetings shall be convened at least once every month to:

- a) make recommendations to the Principal Contractor regarding any matter affecting the health or safety of persons on the site; and
- b) discuss any incident on the site in which or in consequence of which any person was injured, became ill or died.

The Principal Contractor shall consult with the health and safety committee on the development, monitoring and review of the risk assessment.

The Principal Contractor shall ensure that minutes of the health and safety committee meetings are kept.

Inspections, formal enquires and incidents

The Principal Contractor shall inform the relevant safety representative:

- a) beforehand of inspections, investigations or formal inquiries of which he has been notified by an inspector; and
- b) as soon as reasonably practicable of the occurrence of an incident on the site.

The Principal Contractor shall record all incidents and notify the Client's Health and Safety Agent of any incident, except in the case of a traffic accident on a public road, as soon as possible after it has occurred and report such incidence to an inspector.

The Principal Contractor shall investigate all incidents and issue the Client's Health and Safety Agent with copies of such investigations.

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Personal protective equipment and clothing

The Principal Contractor shall ensure that:

- a) all workers are issued with the necessary personal protective clothing;
- b) all workers are identifiable at all times by having the company for which they work for printed on the back or front of their overalls; and
- c) clear procedures are in place for the replacement of lost, stolen, worn or damage personal protective clothing.

Appointments

Health and safety representatives

The Principal Contractor shall appoint in writing one health and safety representative for every 50 employees working on the site, whenever there are more than 20 employees on the site, to:

- a) review the effectiveness of health and safety measures;
- b) identify potential hazards and potential major incidents;
- c) in collaboration with his employer, examine the causes of incidents;
- d) investigate complaints by any employee of the Principal Contractor relating to that employee's health or safety on the site;
- e) make representations to the Principal Contractor on matters arising from a), b), c) or d) or on general matters affecting the health or safety of the employees at the workplace;
- g) inspect the site with a view to, the health and safety of employees, at regular intervals;
- h) participate in consultations with inspectors at the workplace and accompany inspectors on inspections of the workplace; and
- i) participate in any internal health or safety audit.

The Principal Contractor shall provide the health and safety representatives with the necessary assistance, facilities and training to carry out the functions established in4.3.1

c) as soon as reasonably practicable of the occurrence of an incident on the site.

The Principal Contractor shall record all incidents and notify the Client's Health and Safety Agent of any incident, except in the case of a traffic accident on a public road, as soon as possible after it has occurred and report such incidence to an inspector.

The Principal Contractor shall investigate all incidents and issue the Client's Health and Safety Agent with
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copies.

Personal protective equipment and clothing

The Principal Contractor shall ensure that:

- d) all workers are issued with the necessary personal protective clothing;
- e) all workers are identifiable at all times by having the company for which they work for printed on the back or front of their overalls; and
- f) clear procedures are in place for the replacement of lost, stolen, worn or damage personal protective clothing.

Appointments

Health and safety representatives

The Principal Contractor shall appoint in writing one health and safety representative for every 50 employees working on the site, whenever there are more than 20 employees on the site, to:

- f) review the effectiveness of health and safety measures;
- g) identify potential hazards and potential major incidents;
- h) in collaboration with his employer, examine the causes of incidents;
- i) investigate complaints by any employee of the Principal Contractor relating to that employee's health or safety on the site;
- j) make representations to the Principal Contractor on matters arising from a), b), c) or d) or on general matters affecting the health or safety of the employees at the workplace;
- j) inspect the site with a view to, the health and safety of employees, at regular intervals;
- k) participate in consultations with inspectors at the workplace and accompany inspectors on inspections of the workplace; and
- I) participate in any internal health or safety audit.

The Principal Contractor shall provide the health and safety representatives with the necessary assistance, facilities and training to carry out the functions established in4.3

Appointment of construction Manager and supervisor as well as safety officer

The Principal Contractor shall, prior to commencing the work, appoint a full-time competent employee in writing as the construction Manager for the site, with the duty of supervising the performance of the work falling within the scope of the

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contract and may appoint one or more competent employees to assist the appointed construction Manager.

The Principal Contractor may, having considered the size of the project, the degree of dangers likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time or part-time construction safety officer registered with a professional body in accordance with construction Regulations 2014 in writing, who has in the Principal Contractor's opinion the necessary competencies and resources, to assist the Principal Contractor in the control of all safety related aspects on the site.

The Principal Contractor shall compile and maintain an organ gram which outlines the roles and responsibilities of the construction Manager's assistants and safety officers.

Competent persons

The Principal Contractor shall appoint in writing competent persons to supervise or inspect, as relevant, any of the following:

- a) . formwork and support work operations;
- b) excavation work;
- c) demolition work;
- d) scaffolding work operations;
- e) suspended platform work operations;
- f) material hoists;
- g) operation of batch plants;
- h) explosive power tools;
- i) vehicles and mobile equipment;
- j) fire equipment; and
- g) the stacking and storage of articles on the site.

The Contractor shall appoint in writing competent persons to:

- a) induct employees in health and safety; and
- b) prepare a fall protection plan.

Client's health and safety agent

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The Client's Health and Safety Agent shall:

- a) audit the Principal Contractor's compliance with the requirements of this specification prior to the commencement of any physical construction activities on the site;
- b) accept or reject all safety plans, giving reasons for rejecting such plans;
- c) monitor the effective implementation of all safety plans;
- d) conduct periodic and random audits on the health and safety file to establish compliance with the requirements of this specification;
- e) visit the site at regular intervals to conduct site inspections, and based upon such visits issue, wherever necessary, Improvement Notices, Contravention Notices and Prohibition Notices, to the Contractor or any of the Contractor's subcontractors with a copy to the Project Manager and, where relevant, to the Contractor.

The Principal Contractor shall invite the Client's Health and Safety Agent to audit compliance with the requirements of this specification before commencing with any physical construction activity on the site.

Creating and maintaining a safe and healthy work environment

General

The Principal Contractor shall with respect to the site and the construction works that are contemplated:

- a) cause a preliminary hazard identification to be performed by a competent person before commencing any physical construction activity;
- b) evaluate the risks associated with such work constituting a hazard to the health and safety of such employees and the steps that need to be taken to comply with the Act; and
- c) as far as is reasonably practicable, prevent the exposure of such employees to the hazards concerned or, where prevention is not reasonably practicable, minimize such exposure.

The Principal Contractor shall ensure that:

- all reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;
- b) no structure or part of a structure is loaded in a manner which would render it unsafe; and

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- c) account of information, if any, provided by the designer of the structure is taken into account in the risk assessment;
- **Note:** The information provided by the designer should outline known or anticipated dangers or hazards relating to the works and make available all information required for the safe execution of the work. It should provide as relevant, geotechnical information (or make reference to reports provided in the site information), the loading the structure is designed to withstand, the methods and sequence of construction.

The Principal Contractor shall carry out regular inspections and audits to ensure that the works are being performed in accordance with the requirements of this specification.

Risk assessment

The Principal Contractor shall before the commencement of any work on site and during construction work, cause a risk assessment to be performed by a competent person appointed in writing. Such an assessment shall as a minimum:

- a) identify the risks and hazards to which persons may be exposed to;
- b) analyse and evaluate the identified risks and hazards;
- c) document a plan of safe work procedures, including the use of any personal protective equipment or clothing and the undertaking of periodic "toolbox talks" or inductions before undertaking hazardous work, to mitigate, reduce or control the risks and hazards that have been identified;
- d) provide a monitoring plan; and
- e) provide a review plan.
- Note: A risk assessment is an important step in protecting workers as well as complying with the law. It helps to focus on the risks that really matter in a particular workplace – the ones with the potential to cause real harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures. The following four steps are recommended:
 - 1) Identify the hazards by looking at what could reasonably be expected to cause harm, ask employees or their representatives what they think, obtain advice from trade associations or publications on health and safety, check manufacturer's instructions or data sheets for chemicals and equipment as they can be very helpful in spelling out the hazards and putting them in their true perspective, review accident and ill-health records, think about long-term hazards to health (e.g. high levels of noise or exposure to harmful substances) as well as safety hazards etc.
 - 2) **Identify who may be harmed and how** by identifying how groups of people might be harmed i.e. what type of injury or ill health might occur.
 - 3) Evaluate the risks and decide on precautions by doing everything 'reasonably practicable' to protect people from harm i.e. by looking at how things are done, what controls are in place and how the work is organised and comparing this against good practice to see if more can be done to bring practices up to standard. Consider if the hazard can be got rid of all together, and if not how can the risks be controlled

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so that harm is unlikely, e.g. try a less risky option (e.g. switch to using a less hazardous chemical); prevent access to the hazard (e.g.by guarding); organise work to reduce exposure to the hazard (e.g. put barriers between pedestrians and traffic); issue personal protective equipment (e.g. clothing, footwear, goggles etc); and provide welfare facilities (eg first aid and washing facilities for removal of contamination).

4) **Record the findings** by writing down the findings of the risk assessment.

The Principal Contractor shall ensure that as far as is reasonably practicable, ergonomic related hazards are analysed, evaluated and addressed in the risk assessment.

Notwithstanding the provisions of the fall protection plan, the Principal Contractor shall ensure that:

- a) all unprotected openings in floors, edges, slabs, hatchways and stairways are adequately guarded, fenced or barricaded or that similar means are used to safeguard any person from falling through such openings;
- b) no person works in an elevated position, unless such work is performed safely as if working from a scaffold or ladder;
- c) notices are conspicuously placed at all openings where the possibility exists that a person might fall through such openings;
- d) fall prevention and fall arrest equipments:
 - i) suitable and of sufficient strength for the purpose or purposes for which it is being used having regard to the work being carried out and the load, including any person, it is intended to bear; and
 - ii) securely attached to a structure or plant and the structure or plant and the means of attachment thereto is suitable and of sufficient strength and stability for the purpose of safely supporting the equipment and any person who is liable to fall;
- e) fall arrest equipment is only used where it is not reasonably practicable to use fall prevention equipment; and
- f) suitable and sufficient steps are taken to ensure, as far as is reasonably practicable, that in the event of a fall by any person, the fall arrest equipment or the surrounding environment does not cause injury to the person.

Where roof work is being performed on a construction site, the Contractor shall ensure that it is indicated in the fall protection plan that:

- a) the roof work has been properly planned;
- b) the roof erectors are competent to carry out the work;
- c) no employees are permitted to work on roofs during inclement weather conditions or if weather conditions are a hazard to the health and safety of the employees; prominent warning notices are to be placed where all covers

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to openings are not of

- d) sufficient strength to withstand any imposed loads and where fragile material exists;
- e) the areas mentioned in paragraph (d) are to be barricaded off to prevent persons from entering;
- suitable and sufficient platforms, coverings or other similar means of support have been provided to be used in such a way that the weight of any person passing across or working on or from fragile material is supported; and
- g) there is suitable and sufficient guard-rails or barriers and toe-boards or other similar means of protection to prevent, so far as is reasonably practicable, the fall of any person, material or equipment.

Health and safety plans

The Principal Contractor shall prior to commencing the works to which this specification applies, submit to the Client's Health and Safety Agent for approval a suitable and sufficiently documented health and safety plan, based on this specification and the risk assessment that is conducted.

The health and safety plan shall as a minimum provide:

a) the information contained in Table 1 in respect of each of the hazards associated with work falling within the scope of the contract (see Figure 1);and

Table 1: Example of the format of a health and safety plan

What are the hazards relating to work tasks?	Who might be harmed and how?	What are the safe work procedures for the site?	What further action is necessary (monitoring and review)?	Action by whom	Action by when

b) an outline of the manner in which the Principal contractor intends complying with the requirements of this specification.

The Principal contractor shall discuss the submitted health and safety plan with the Clients' Health and Safety Agent, modify such plan in the light of the discussions and resubmit the modified plan for approval.

The Principal contractor shall apply the approved health and safety plan from the date of its commencement and for the duration of the works to which this specification applies.

The Principal contractor shall conduct periodic audits for compliance with the approved health and safety plan at intervals agreed upon with the Employer's Health and Safety Agent, but at least once every month.

The Principal contractor shall update the health and safety plan whenever changes to the works are brought about

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Fall protection plan

The Principal contractor shall require a competent person to prepare a fall protection plan in compliance with the requirements of the Construction Regulations.

The Principal contractor shall ensure that the construction supervisor is in possession of the most recently updated version of the fall protection plan.

Responsibilities towards employees and visitors

The Principal Contractor shall as far as is reasonably practicable, cause every employee to be made conversant with the hazards to his health and safety attached to any work which he has to perform, any article or substance which he has to produce, process, use, handle, store or transport and any plant or machinery which he is required or permitted to use, as well as with the precautionary measures which should be taken and observed with respect to those hazards or safe work procedures.

The Principal contractor shall ensure that all employees under his or her control are:

- a) informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment; and
- b) issued with proof of health and safety induction training issued by a competent person and carry proof of such induction when working onsite.

The Principal contractor shall cause a record of training to be kept which indicates the names, identity numbers and job description of all those who attended such training.

The Principal contractor shall not allow or permit any employee to enter the site, unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

The Principal contractor shall ensure that each visitor to a construction site, save where such visitor only visits the site office and is not in direct contact with the construction work activities:

a) undergoes health and safety instruction pertaining to the hazards prevalent on the site; and

Witness 2

- b) is provided with the necessary personal protective equipment.
- d)

Employer

The Principal contractor shall provide suitable on-site signage to alert workers and visitors to health and safety requirements. Such signage shall include but not be limited to:

a) unauthorized entrance prohibited;

Witness 1

- b) signage to indicate what personal protective equipment is to be worn; and
- c) activity related signs.

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Contractor

Witness 1

Witness 2



The Principal contractor shall not permit any person who is or who appears to be under the influence of intoxicating liquor or drugs, to enter or remain at workplace. **Subcontractors**

The Principal contractor may only subcontract work in terms of a written subcontract and shall only appoint a subcontractor should he be reasonably satisfied that such a subcontractor has the necessary competencies and resources to safely perform the work falling within the scope of the contract. Such a subcontract shall require that the subcontractor to:

- a) co-operate with the Principal contractor as far as is necessary to enable both the Principal contractor and subcontractor to comply with the provisions of the Act; and
- b) as far as is reasonably practicable, promptly provide the Principal contractor with any information which might affect the health and safety of any person at work carrying out work or any person who might be affected by the work of such a person at work or which might justify a review of the health and safety plan.

The Principal contractor shall provide any sub-contractor who is submitting a tender or appointed to perform a subcontract falling within the scope of the contract, with the relevant sections of this specification and any work specific information which might be pertinent to the sub-contract.

The Principal contractor shall take reasonable steps as are necessary to ensure:

a) co-operation between all sub-contractors to enable each of those sub-contractors to comply with the requirements of the Act and associated regulations; and that each sub-contractor's health and safety plan is implemented

The Principal contractor shall conduct periodic audits for compliance with the approved health and safety plan of each and every sub-contractor working on the site at intervals agreed upon with such subcontractors, but at least once per month.

The Principal contractor shall stop any subcontractor from executing construction work which is not in accordance with the Contractor's or subcontractor's health and safety plan for the site or which poses a threat to the health and safety of persons.

The Principal contractor shall ensure that where changes to the works occur, sufficient health and safety information and appropriate resources are made available to subcontractor to execute the work safely.

The Principal contractor shall ensure that:

- a) every subcontractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing onsite;
- b) potential subcontractors submitting tenders have made provision for the cost of health and safety measures during the construction process; and

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c) every subcontractor has in place a documented health and safety plan prior to commencing any work on site which falls within the scope of the contract.

The Principal contractor shall receive, discuss and approve health and safety plans submitted by subcontractors.

The Principal contractor shall ensure that all subcontractors are informed regarding any hazard as stipulated in the risk assessment before any work commences, and thereafter at such times as may be determined in the risk assessment.

The Principal contractor shall reasonably satisfy himself that all employees of subcontractors are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment. The Principal contractor shall satisfy himself that ensure that all subcontractor employees deployed in the site are:

- a) informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences, and thereafter at such times as may be determined in the risk assessment; and
- b) issued with proof of health and safety induction training issued by a competent person and carry proof such induction when working onsite.

First aid, emergency equipment and procedures

The Principal contractor shall where more than five employees are employed at a workplace, provide a first aid box or boxes at or near the workplace which shall be available and accessible for the treatment of injured persons at that workplace. Such first aid boxes shall contain suitable first aid equipment.

The Principal contractor shall ensure that where there are more than 10 employees employed on the site that for every group of up to 50 employees at that workplace, at least one person readily available during normal working hours, who is in possession of a valid certificate of competency in first aid.

Facilities for workers

The Principal Contractor shall provide and keep clean and fit for use at or within reasonable access of the site:

- a) at least one shower facility for every 15workers;
- b) at least one sanitary facility for every 30workers;
- c) changing facilities for each sex;and
- d) Sheltered eating areas.

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The Principal 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.

Signed this day of 20 at	
(Full name)	
On behalf of(Principal contractor/Agent) Contractor Responsible Manager (responsible for signing Client's 'contract on behalf of the Principal of Witnesses 1. 2.	contractor)
Signed this	
at (<i>Place</i>)	
(Full name) On Behalf of Client/Agent. (Contracts and/or Project Manager)	
Witnesses 1 2	
	C4.3 tration Forms
Employer Witness 1 Witness 2 Contractor Witness 1	Witness 2



ANNEXURE A

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 Regulation 3 of the Construction Regulations, 2003

NOTIFICATION OF CONSTRUCTION WORK

- 1.(a) Name and postal address of principal contractor:
 - (b) Name and tel. no of principal contractor's contact person:
- 2. Principal contractor's compensation registration number:
- 3.(a) Name and postal address of client:
 - (b) Name and tel no of client's contact person or agent:
- 4.(a) Name and postal address of designer(s) for the project:
 - (b) Name and tel. no of designer(s) contact person:

5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 6.(1).

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- 6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 6.(2).
- 7. Exact physical address of the construction site or site office:
- 8. Nature of the construction work:
- 9. Expected commencement date:
- 10. Expected completion date: _____
- 11. Estimated maximum number of persons on the construction site.
- 12. Planned number of contractors on the construction site accountable to principal contractor:
- 13. Name(s) of contractors already chosen.

Principal Contrac	tor			Date	
Client				Date	
		E FORWARDED TO <u>NT</u> OF WORK ON S		HE DEPARTMENT C	F LABOUR
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 <u>ALL PRINCIPAL CONTRACTORS</u> THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

GOVERNMENT NOTICE

DEPARTMENT OF LABOUR

No. R.

.....2003

Occupational Health and Safety Act, 1993

Incorporation of Safety Standards in the Construction Regulations, 2003

Under section 44 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), I, Thembelani Waltermade Nxesi, Minister of Labour, after consultation with the Advisory Council for Occupational Health and Safety, hereby incorporate in the Construction Regulations, 2003 the health and safety standards specified in the Schedule.

M M S Mdladlana Minister of Labour.

SCHEDULE

1. Regulation 14(1)

The South African Bureau of Standards' Code of Practice SABS 085, as amended, entitled

"The Design, Erection, Use and Inspection of Access Scaffolding".

2. Regulation 15(2)(a)

The South African Bureau of Standards' Standard Specification SABS EN 1808, as amended, entitled" Safety Requirements on Suspended Access Equipment – Design calculations, stability criteria, construction-tests".

The South African Bureau of Standards' Standard Front-end Specification SABS 1903, as amended, entitled "Safety Requirements on Suspended Access Equipment – Design calculations, stability criteria, construction-tests".





Department of Labour

GUIDE TO THE GENERAL ADMINISTRATIVE REGULATIONS, 2003

Chief Directorate

of

Occupational Health and Safety

1. INTRODUCTION

- 2. As the name of the regulation indicates, the General Administrative Regulations determines the administrative procedure of the Occupational Health and Safety Act. This procedure was not placed in the Act itself owing to the fact that changes can be made to a Regulation with greater ease than that of a Section in the Act. A change to a Section of the Act needs to be passed by parliament whereas the Minister of the relevant Department can approve a change in a Regulation.
- 3. The General Administrative Regulations, as is the case with all other regulations, is an extension of the Act and should therefore be seen as a complete unit.

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- 3.1 Terms, which were previously defined in the Act, are not redefined in the Regulations. If a specific definition does not appear in the Regulations, then it should be available in Section 1 of the Act.
 - 4. DEFINITIONS
 - 5. All new phrases as well as words (expressions and words which differ from the standard dictionary definitions) that are used in this regulation, which have not been defined in the Act, will be defined in this regulation. Where the Act or regulation refers to "mean" the definition in the Act or regulation must be considered and where there's reference made to "It Includes" definition from the Act and regulation including the oxford dictionary must be considered
 - 6. ACCESS TO PREMISES
 - 7. It is prohibited for an employer to refuse an inspector entry to perform his or her function because an inspector is entitled by the law to enter employer's workplace.
 - 8. Employers should always ensure that inspectors are accompanied by a person who has knowledge and experience of the activities and safety requirements of the workplace.
 - 9. EXEMPTIONS
 - 10. Any exemption, which has been granted to any person, shall be signed by the Chief Inspector of the Department of Labour. An person who wishes to apply for an exemption should forward his/her application to the office of the Chief Inspector in Pretoria. The application for exemption should indicate proof that the health and safety of persons who are likely to be affected by the exemption will not bee prejudiced in consequences of it. Health and safety representatives and committees must be consulted during the whole process and given time to comment.
 - 11. COPY OF THE ACT
 - 11.1 Employees together with employers have certain duties and rights, which have been assigned to them in terms of the Act. In order to comply with the provisions of the Act and regulations, each employee must have access to a copy of the Act. This regulation requires that—
 - 11.1.1 Each employer with 5 or more employees shall have a copy of at least one Act, which will be made readily available for perusal by the employee. Owing in the fact that a workplace can be made up of a very large area, and that the legislator did not intend to be unreasonable, various concessions are made. For example, a meter-reader in the town of Brits' workplace is the Municipal area of Brits. In such a case it is expected that a copy of the Act be made available at the point where the employee reports for duty in the morning, or any other suitable position as agreed upon with the employer.

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- 11.1.2 Each employer with less than 5 employees, shall, if requested provide a copy of the Act for perusal by the employees. This includes farm workers and domestic servants.
- 11.1.3 The copy of the Act may be an electronic reproduction or from a library. The Act and Regulations are amended from time to time, and it is therefore important to remember that one must obtain a copy of the latest amendments to keep up to date with the current legislation.
- 12. HEALTH AND SAFETY COMMITTEES
- 12.1 Health and Safety committees are made up of all the Health and Safety Representatives together with an equal amount of employer appointee representatives to represent the employer (there can be more than one committee to avoid a large congregation of representatives). If more than two committees are established, each health and safety representative must be member of at least one of the committees. These committees are the point around which self-regulation revolves.
- 12.2 Employer should provide necessary equipment, facilities and stationery required by the committee in order them to perform their functions.
- 12.3 It is important to keep the records of the meeting as they can be used as evidence for action taken to eliminate hazards and vice versa
- 13. NEGOTIATIONS AND CONSULTATIONS BEFORE DESIGNATION OF HEALTH AND SAFETY REPRESENTATIVES
- 13.1 The regulation prescribes the items which must be agreed upon during negotiations between the employer and employees representatives. If a dispute arises between the employees and employers or his authorised representative, the matter should be referred for arbitration. Both parties shall submit a statement within a prescribed period to both the arbitrator and the other party concerned.
- 13.2 The statement is to contain the following information:
- 13.2.1 The proposal for the arrangements and procedures for the nomination of the Health and Safety Representatives.
- 13.2.2 The decision which is sought.
- 13.3 The arbitrator should then:
- 13.3.1 Determine when and where the arbitration procedure shall be held. The arbitration may be held in the absence of the party who failed to submit a statement to the arbitrator and other party;

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- 13.3.1.1 Determine whether a pre-hearing conference shall be held;
- 13.3.1.2 Determine which arbitration procedures shall be followed;
- 13.3.1.3 Determine the procedures for the admission of evidence;
- 13.3.1.4 Determine the admissibility of hearsay evidence; and
- 13.3.1.5 Determine other relevant procedural matters.
- 13.3.2 In terms of Section 17(2) of the Act both parties are to come to a decision within 14 days as to who the arbitrator shall be. If no decision can be made, the president of the Labour Court is to be notified in writing. The president of the Labour Court in consultation with the Chief Inspector shall appoint an arbitrator, whose decision shall be final. This arbitrator will be entitled to receive remuneration as is payable to an additional member of the Labour Court.
- 14. DESIGNATION OF HEALTH AND SAFETY REPRESENTATIVES
- 14.1 The employer must designate Health and Safety Representatives as follows:
- 14.1.1 Shops and offices one for up to 100 employees; and
- 14.1.2 Workplaces other than shops and offices one for up to 50 employees.
- 14.2 The employer shall ensure that employees designated as health and safety representatives meet the following requirements:
- 14.2.1 Employed in a full-time capacity in the specific workplace or section thereof;
- 14.2.2 Acquainted with conditions and activities at that workplace or section thereof, and
- 14.2.3 Taking into account the nature of hazards associated with the activities of the workplace or section thereof, the employer shall provide as far as is reasonable practicable health and safety training to the health and safety representatives on how to identify health and safety risks and how to conduct inspections of the workplace or section thereof.
- 15. REPORTING OF INCIDENTS AND OCCUPATIONAL DISEASES
- 15.1 Section 24 of the Act refers to certain incidents occurring at the workplace, or in connection with the use of machinery whereby a person dies or is injured to be extent where he is likely to die or could have resulted in a major incident. Such incidents should be reported to the Provincial Director on a WCL 1 or WCL 2 form within seven days.

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- 15.2 Certain other types of incidents must be reported to the Provincial Director telephonically, facsimile or similar means of communication and these types of incidents are as follows—
- 15.2.1 Where a person, as a result of the incident;
- 15.2.2 Dies;
- 15.2.3 Becomes unconscious;
- 15.2.4 Suffers the loss of a limb or part thereof;
- 15.2.5 Is injured to the extent that he is likely to die;
- 15.2.6 Is injured to the extent that he is likely to be permanently disabled;
- 15.2.7 Is injured to the extent that he is likely to be off for a period of 14 days or more;
- 15.2.8 Cannot perform his normal duties (those duties for which he was employed).
- 15.3 An incident of major consequence arising out of the use of industrial equipment or machinery or industrial practices at a workplace.
- 15.4 The health and safety of any person is endangered and where –
- 15.4.1 A dangerous substance was spilled.
- 15.4.2 The uncontrolled release of any substance under pressure (pressure greater than 1 atmosphere) took place.
- 15.4.3 Machinery or any part thereof fractured or failed, resulting in flying, falling or uncontrolled moving objects; or
- 15.4.4 Machines, which ran out of control
- 15.5 These incidents should also be recorded and investigated in accordance to Regulation 8 of the General Administrative Regulations.
- 15.6 If an injured person is to die as a result of an incident, which has already been reported in terms of the above, the employer or user should report such death to the Provincial Director.
- 15.7 Any registered medical practitioner should, in terms of Section 25 of the Act, report all (to the employer and Chief Inspector) cases of occupational diseases or any other disease, which he believes arose out of a person's employment, which he/she has treated. This must be done within 14 days in the form of a WCL 22 form.
- 15.8 Any other person may <u>in writing</u>, give notice of any disease suspected to be an occupational disease, to the employer and chief inspector.

16. RECORDING AND INVESTIGATION OF INCIDENTS

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- 16.1 The employer or user of machinery should keep record and investigate all incidents referred to in terms of Section 24 of the Act together with any other incident, which resulted in the person concerned having had to receive medical treatment other than first aid.
- 16.2 These incidents must be recorded in the form of Annexure 1 of these regulations and be kept for a period of at least 3 years. This record shall be kept on the premises and available for perusal by an inspector.
- 16.3 The employer, a designated person, a health and safety representative or a member of the health and safety committee must investigate the above-mentioned incidents. This investigation should take place within 7 days from the date of incident and completed as soon as is reasonably practicable or within the contracted period of contract workers.
- 16.4 The employer should record the result of the investigation in the Annexure 1. The purpose of the investigation is to establish the cause of the incident together with the safety measures that can be implemented to prevent the re-occurrence of such incidents in the future.
- 16.5 The health and safety committee shall examine this record at their next meeting.
- 17. WITNESS AT AN INQUIRY
- 17.1 The chief inspector can, in terms of Section 32, direct an inspector to hold a formal inquiry as a result of an incident reported in terms of Section 24 (refer to Regulation 6). In such an instance, the inspector shall inform the employer or user of machinery of his intentions, and request the following from him/her:
- 17.1.1 That all persons witness to the incident; and
- 17.1.2 That any other person as required by the inspector be notified in connection with the time, date and venue of the formal inquiry.
- 17.2 The employer or user of machinery is to establish which persons are likely not to attend the inquiry and shall advise the inspector of the names and addresses of such persons to allow the inspector to subpoena such persons.
- 18. RETURNS
- 18.1 An employer or user shall furnish the inspector with such information as requested for the purpose of the Administration of the Act.

C4.3 Site Administration Forms

THE CONTRACT Part C4: Site Information			176	Site Adminis	C4.3 Site Administration Forms		
Employer	Witness 1	Witness 2	Contractor	Witness 1	Witness 2		



All site administration documents will be handed over at the site handover meeting.

THE CONTRACT Part C4: Site Information 177

C4.3 Site Administration Forms

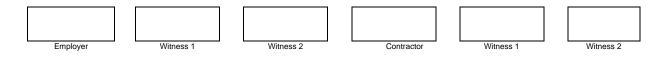
		3				
Employer	Witness 1		Witness 2	Contractor	Witness 1	Witness 2

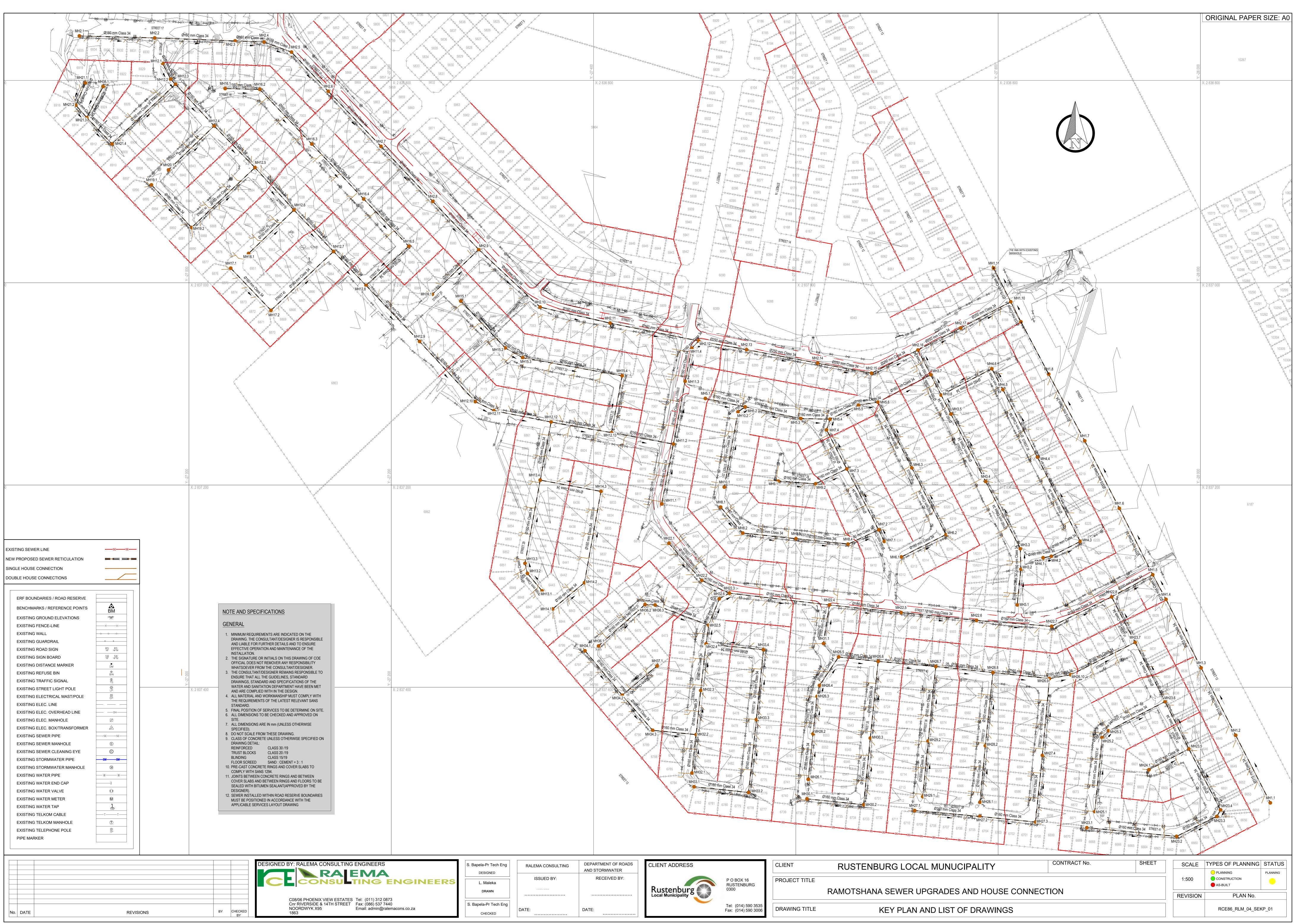


TENDER DRAWINGS

TENDER DRAWINGS

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STRUCTURE LIST-Ramotshana Sewer Network								
STRUCTURE NAME	Y	Х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIAL		
MH1.1	-28 069.101	2 837 514.247	1112.227	1109.136 3.091	P1.1-INV OUT 1109.136	Ирус		
MH1.2	-28 034.888	2 837 447.505	1111.902	1108.734 3.169	P1.1-INV IN 1108.734 P1.2-INV OUT 1108.734	Uрис Uрис		
MH1.3	-28 000.675	2 837 380.763	1111.835	1108.331 3.504	P1.2-INV IN 1108.331 P1.3-INV OUT 1108.331	Upvc Upvc		
MH1.4	-27 965.979	2 837 313.079	1111.695	1107.923	P1.3-INV IN 1107.923	Upvc		
MH1.5	-27 952.841	2 837 288.735	1111.619	3.772	P1.4-INV OUT 1107.923 P22.8-INV IN 1107.759 P1.4-INV IN 1107.774	Upvc Upvc Upvc		
MH1.6	-27 919.839	2 837 223.070	1111.396	3.860	P1.5-INV OUT 1107.774 P1.5-INV IN 1107.380	Upvc Upvc		
MH1.7	-27 885.626	2 837 156.328	1111.156	4.016	P1.6-INV OUT 1107.380 P1.6-INV IN 1106.978	Upvc Upvc		
MH1.8	-27 849.970	2 837 090.326	1110.654	4.178 1106.575	P1.7-INV OUT 1106.978 P1.7-INV IN 1106.575 P1.8-INV OUT 1106.575	Upvc Upvc Upvc		
MH1.9	-27 822.551	2 837 038.664	1110.538	4.078 1105.148 5.391	P1.8-INV OUT 1105.160 P1.9-INV OUT 1105.148	Upvc Upvc Upvc		
MH1.10	-27 812,463	2 837 018.815	1110.389	1104.325	P2.17-INV IN 1104.334 P1.9-INV IN 1104.343	Upvc Upvc		
				6.064	P1.10-INV OUT 1104.343	Upvc		
MH1.11	-27 795.602	2 836 985.638	1110.603	7.623	P1.10-INV IN 1102.980			
MH2.1	-26 891.631	2 836 756.006	1112.213	2.714	P2.1-INV OUT 1109.499 P2.1-INV IN 1109.135	Uрус Uрус		
MH2.2	-26 966.070	2 836 757.973	1112.743	3.608	P2.2-INV OUT 1109.135 P2.2-INV IN 1108.745	Upvc Upvc		
MH2.3	-27 045.617	2 836 760.889	1112.162	3.417	P2.3-INV OUT 1108.745	Upvc Upvc		
MH2.4	-27 074.197	2 836 762.009	1112.142	3.538	P2.4-INV IN 1108.604	Upvc Upvc		
MH2.5	-27 101.362	2 836 771.986	1111.883	3.420	P2.5-INV OUT 1108.463	Upvc Upvc		
MH2.6	-27 137.718	2 836 810.749	1111.823	1108.205 3.618	P2.5-INV IN 1108.205 P2.6-INV OUT 1108.205	Upvc		
MH2.7	-27 189.853	2 836 865.162	1111.534	1107.834 3.700	P2.6-INV IN 1107.834 P2.7-INV OUT 1107.834	Upvc Upvc		
MH2.8	-27 241.058	2 836 919.593	1111.367	1107.467 3.900	P2.7-INV IN 1107.467 P2.8-INV OUT 1107.467	Upvc Upvc		
MH2.9	-27 286.466	2 836 967.114	1111.584	1107.146 4.438	P39.1-INV IN 1107.147 P2.8-INV IN 1107.146 P2.9-INV OUT 1107.146	Upvc Upvc Upvc		
MH2.10	-27 347.162	2 837 024.108	1111.201	1106.780 4.421	P2.9-INV IN 1106.780 P2.10-INV OUT 1106.780	Uрvс Upvc		
MH2.11	-27 416.286	2 837 039.975	1111.272	1106.391 4.882	P2.10-INV IN 1106.391 P2.11-INV OUT 1106.391	Uрис Uрис		
MH2.12	-27 503.945	2 837 057.541	1110.983	1105.953 5.030	P2.11-INV IN 1105.953 P11.4-INV IN 1105.953 P2.12-INV OUT 1105.953	Uрvс Upvc Upvc		
MH2.13	-27 551.272	2 837 066.203	1111.045	1105.717 5.328	P2.12-INV IN 1105.717 P2.13-INV OUT 1105.717	Upvc Upvc		
MH2.14	-27 621.539	2 837 079.470	1110.963	1105.367 5.596	P2.13-INV IN 1105.367 P2.14-INV OUT 1105.367	Ирус Ирус		
MH2.15	-27 674.760	2 837 089.438	1110.936	1105.102 5.834	P2.14-INV IN 1105.102 P2.15-INV OUT 1105.102	Uрvс Upvc		
MH2.16	-27 720.702	2 837 066.529	1110.471	1104.850 5.622	P2.15-INV IN 1104.850 P3.7-INV IN 1104.850 P2.16-INV OUT 1104.850	Uрvс Upvc Upvc		
MH2.17	-27 762.939	2 837 044.766	1110.383	1104.617 5.766	P2.16-INV IN 1104.617 P2.17-INV OUT 1104.617	Upvc Upvc		
MH3.1	-27 818.880	2 837 318.568	1111.901	1109.065	P3.1-INV OUT 1109.065	Upvc		
MH3.2	-27 822.457	2 837 283.256	1111.743	1108.685 3.058	P3.1-INV IN 1108.685 P3.2-INV OUT 1108.685	Upvc Upvc		
MH3.3	-27 821.913	2 837 263.010	1111.669	1108.468 3.201	P3.2-INV IN 1108.468 P3.3-INV OUT 1108.468	Upvc Upvc		
MH3.4	-27 787.673	2 837 196.539	1111.335	1107.667 3.668	P3.3-INV IN 1107.667 P3.4-INV OUT 1107.667	Upvc Upvc		
MH3.5	-27 753.328	2 837 129.865	1111.054	1106.864 4.191	P3.4-INV IN 1106.864 P3.5-INV OUT 1106.864	Upvc Upvc		
MH3.6	-27 743.674	2 837 111.123	1111.006	1106.638 4.368	P3.5-INV IN 1106.638 P4.6-INV IN 1106.640	Upvc Upvc		
MU 10 7	07 700 000	0.007.000.000	4440.000	1106.392	P3.6-INV OUT 1106.638	Upvc Upvc Upvc		
MH3.7	-27 733.306	2 837 090.996	1110.900	4.508	P3.6-INV IN 1106.394 P3.7-INV OUT 1106.394	Upvc		
MH4.1	-27 844.468	2 837 271.881	1111.669	1.919	P4.1-INV OUT 1109.749 P4.1-INV IN 1109.662	Uрус Uрус		
MH4.2	-27 852.545	2 837 270.538	1111.664	1109.302	P4.2-INV IN 1109.662	Upvc Upvc		
MH4.3	-27 881.163	2 837 255.828	1111.486	2.172	P4.3-INV OUT 1109.314	Upvc		
MH4.4	-27 838.761	2 837 172.421	1111.096	1108.307 2.789	P4.3-INV IN 1108.307 P4.4-INV OUT 1108.307	Upvc Upvc		
MH4.5	-27 804.675	2 837 105.659	1110.831	1107.499 3.332	P4.4-INV IN 1107.499 P4.5-INV OUT 1107.499	Upvc Upvc		
MH4.6	-27 793.769	2 837 085.059	1110.700	1107.248 3.452	P4.5-INV IN 1107.248 P4.6-INV OUT 1107.248	Uрvс Upvc		
MH5.1	-27 510.547	2 837 114.427	1111.292	1109.174 2.119	P5.1-INV OUT 1109.174	Upvc		
MH5.2	-27 549.864	2 837 122.757	1111.348	1108.698 2.650	P10.2-INV IN 1108.699 P5.1-INV IN 1108.698 P5.2-INV OUT 1108.698	Upvc Upvc Upvc		
MH5.3	-27 604.923	2 837 134.320	1111.298	1108.031 3.267	P5.2-INV IN 1108.031 P5.3-INV OUT 1108.031	Uрvс Upvc		
MH5.4	-27 633.742	2 837 134.951	1111.363	1107.690 3.673	P5.3-INV IN 1107.690 P7.4-INV IN 1107.690 P5.4-INV OUT 1107.690	Ирус Ирус Ирус		
MH5.5	-27 661.898	2 837 121.157	1111.133	1107.319 3.814	P5.4-INV IN 1107.319 P5.5-INV OUT 1107.319	Upvc Upvc		
MH5.6	-27 681.155	2 837 118.075	1111.448	1107.087 4.360	P5.5-INV IN 1107.087 P6.3-INV IN 1107.087	Upvc Upvc		
MH6.1	-27 704.240	2 837 271.102	1111.713	1109.737	P5.6-INV OUT 1107.087 P6.1-INV OUT 1109.737	Uрvс Upvc		
MH6.2	-27 748.422	2 837 249.030	1111.713	1.976 1109.144 2.569	P6.1-INV IN 1109.144	Upvc Upvc		
				2.569	P6.2-INV OUT 1109.144	opro		

					DESIGNED BY: RALEMA CONSU
lo.	DATE	REVISIONS	BY	CHECKED	C08/06 PHOENIX VIEW E Cnr RIVERSIDE & 14TH S NOORDWYK X95 1863

STRUCTURE NAME	Y	Х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIA
MH7.1	-27 687.429	2 837 255.741	1111.748	1109.266	P7.1-INV OUT 1109.266	Ирус
MH7.2	-27 681,865	2 837 244,314	1111.715	1109.108	P8.4-INV IN 1109.113 P7.1-INV IN 1109.113	Uрус Uрус
IVII 17 .2	-27 001.000	2 007 244.014		2.607	P7.2-INV IN 1109.113	Upvc Upvc
MH7.3	-27 650.340	2 837 184.093	1111.442	1108.433 3.009	P7.2-INV IN 1108.433 P7.3-INV OUT 1108.433	Upvc Upvc
MH7.4	-27 630.340	2 837 145.474	1111.362	1107.911 3.450	P7.3-INV IN 1107.911 P7.4-INV OUT 1107.911	Uрvс Upvc
MH8.1	-27 525.684	2 837 221.883	1111.598	1110.029 1.569	P8.1-INV OUT 1110.029	Upvc
MH8.2	-27 547.469	2 837 247.497	1111.684	1109.804 1.880	P8.1-INV IN 1109.804 P8.2-INV OUT 1109.804	Uрvс Upvc
MH8.3	-27 600.082	2 837 253.063	1111.805	1109.539 2.266	P8.2-INV IN 1109.539 P8.3-INV OUT 1109.539	Ирус Ирус
MH8.4	-27 651.518	2 837 258.510	1111.662	1109.281 2.381	P8.3-INV IN 1109.281 P8.4-INV OUT 1109.281	Uрvс Upvc
MH9.1	-27 582.720	2 837 196.195	1111.501	1109.326 2.175	P9.1-INV OUT 1109.326	Upvc
MH9.2	-27 619.435	2 837 198.831	1111.677	1108.843 2.834	P9.1-INV IN 1108.847 P9.2-INV OUT 1108.847	Uрvс Upvc
MH10.1	-27 529.242	2 837 202.059	1111.525	1109.962 1.563	P10.1-INV OUT 1109.962	Upvc
MH10.2	-27 542.768	2 837 127.748	1111.381	1108.829 2.552	P10.1-INV IN 1108.829 P10.2-INV OUT 1108.829	Uрvс Upvc
MH11.1	-27 467.383	2 837 218.652	1111.556	1109.639 1.917	P11.1-INV OUT 1109.639	Upvc
MH11.2	-27 478.891	2 837 159.546	1111.254	1108.435 2.819	P12.13-INV IN 1108.435 P11.1-INV IN 1108.435 P11.2-INV OUT 1108.435	Uрvс Upvc Upvc
MH11.3	-27 490.536	2 837 097.444	1111.160	1107.487 3.673	P11.2-INV IN 1107.487 P11.3-INV OUT 1107.487	Uрус Uрус
MH11.4	-27 497.116	2 837 064.846	1110.922	1106.822 4.100	P11.3-INV IN 1106.822 P11.4-INV OUT 1106.822	Upvc Upvc
MH12.1	-26 974.000	2 836 783.138	1112.867	1111.488	P12.1-INV OUT 1111.488	Upvc
MH12.2	-26 981.866	2 836 798.631	1112.844	1111.407 1.437	P12.1-INV IN 1111.407 P12.2-INV OUT 1111.407	Uрус Uрус
MH12.3	-26 986.576	2 836 803.757	1112.937	1111.375	P12.2-INV IN 1111.375 P21.4-INV IN 1111.378	Upvc Upvc
				1.562	P12.3-INV OUT 1111.375 P12.3-INV IN 1111.114	Upvc Upvc
MH12.4	-27 024.866	2 836 844.923	1112.914	1111.114 1.800	P20.1-INV IN 1111.114 P12.4-INV OUT 1111.114	Upvc Upvc
MH12.5	-27 065.209	2 836 886.138	1112.639	1110.846 1.794	P19.2-INV IN 1110.847 P12.4-INV IN 1110.846 P12.5-INV OUT 1110.846	Uрvс Uрvс Uрvс
MH12.6	-27 103.766	2 836 928.112	1112.635	1110.581	P18.1-INV IN 1110.582 P12.5-INV IN 1110.581	Upvc Upvc
				2.054	P12.6-INV OUT 1110.581	Upvc
MH12.7	-27 142.925	2 836 969.090	1112.296	1110.318 1.979	P12.6-INV IN 1110.318 P12.7-INV OUT 1110.318	Upvc Upvc
MH12.8	-27 175.013	2 837 002.630	1111.959	1110.102 1.858	P12.7-INV IN 1110.102 P16.5-INV IN 1110.103 P12.8-INV OUT 1110.102	Upvc Upvc Upvc
MH12.9	-27 227.925	2 837 058.069	1111.793	1109.746 2.047	P12.8-INV IN 1109.746 P12.9-INV OUT 1109.746	Upvc Upvc
MH12.10	-27 283.092	2 837 117.551	1111.824	1109.369 2.455	P12.9-INV IN 1109.369 P12.10-INV OUT 1109.369	Uрvс Upvc
MH12.11	-27 301.404	2 837 126.522	1111.884	1109.275 2.609	P12.10-INV IN 1109.275 P12.11-INV OUT 1109.275	Uрvс Upvc
MH12.12	-27 358.008	2 837 137.708	1111.706	1109.008	P12.11-INV IN 1109.008 P13.4-INV IN 1109.008	Ирус Ирус
				2.698	P12.12-INV OUT 1109.008 P15.4-INV IN 1108.729	Uрvс Upvc
MH12.13	-27 417.769	2 837 148.220	1111.629	1108.725 2.904	P12.12-INV IN 1108.725 P12.13-INV OUT 1108.725	Uрус Uрус
MH13.1	-27 349.115	2 837 304.724	1112.279	1110.466 1.813	P13.1-INV OUT 1110.466	Upvc
MH13.2	-27 334.637	2 837 287.449	1112.226	1110.286 1.940	P13.1-INV IN 1110.286 P13.2-INV OUT 1110.286	Uрvс Upvc
MH13.3	-27 332.229	2 837 277.479	1112.188	1110.204 1.985	P13.2-INV IN 1110.204 P13.3-INV OUT 1110.204	Uрvс Upvc
MH13.4	-27 347.258	2 837 195.150	1111.733	1109.534 2.199	P14.3-INV IN 1109.534 P13.3-INV IN 1109.534 P13.4-INV OUT 1109.534	Upvc Upvc Upvc
MH14.1	-27 359.585	2 837 322.508	1112.339	1110.775 1.564	P14.1-INV OUT 1110.775	Upvc
MH14.2	-27 390.981	2 837 296.571	1112.197	1110.514 1.683	P14.1-INV IN 1110.514 P14.2-INV OUT 1110.514	Ирус Ирус
MH14.3	-27 407.304	2 837 206.301	1111.831	1109.928 1.903	P14.2-INV IN 1109.928 P14.3-INV OUT 1109.928	Uрус Uрус
MH15.1	-27 268.709	2 837 018.211	1111.568	1110.201 1.367	P15.1-INV OUT 1110.201	Орус
MH15.2	-27 312.682	2 837 064.451	1111.308	1109.811 1.497	P15.1-INV IN 1109.811 P15.2-INV OUT 1109.811	Uрvс Upvc
MH15.3	-27 329.899	2 837 074.127	1111.368	1109.688 1.680	P15.2-INV IN 1109.688 P15.3-INV OUT 1109.688	Ирус Ирус
MH15.4	-27 428.196	2 837 092.025	1111.666	1109.078 2.589	P15.3-INV IN 1109.078 P15.4-INV OUT 1109.078	Uрvс Upvc
MH16.1	-27 035.768	2 836 808.011	1112.545	1111.092 1.453	P16.1-INV OUT 1111.092	Upvc
MH16.2	-27 069.972	2 836 808.839	1112.428	1110.982 1.447	P16.1-INV IN 1110.982 P16.2-INV OUT 1110.982	Ирус Ирус
MH16.3	-27 121.426	2 836 862.865	1112.187	1110.741 1.446	P16.2-INV IN 1110.741 P16.3-INV OUT 1110.741	Ирус Ирус
MH16.4	-27 172.718	2 836 917.190	1111.779	1110.499 1.280	P16.3-INV IN 1110.499 P16.4-INV OUT 1110.499	Uрус Uрус
MH16.5	-27 217.334	2 836 963.963	1111.894	1110.291 1.603	P16.4-INV IN 1110.291 P16.5-INV OUT 1110.291	Upvc Upvc
MH17.1	-27 041.305	2 836 985.688	1112.773	1110.990 1.783	P17.1-INV OUT 1110.990	Upvc
MH17.2	-27 081.086	2 837 027.289	1112.518	1110.702 1.816	P17.1-INV IN 1110.702 P17.2-INV OUT 1110.702	Uрvс Upvc
MH18.1	-27 058.940	2 836 971.094	1112.654	1111.203 1.451	P18.1-INV OUT 1111.203	Upvc
MH19.1	-26 962.871	2 836 903.271	1113.155	1111.856 1.299	P19.1-INV OUT 1111.856	Upvc
MH19.2	-27 002.626	2 836 945.394	1113.218	1111.450 1.768	P19.1-INV IN 1111.450 P19.2-INV OUT 1111.450	Uрус Uрус

STRUCTURE LIST-Ramotshana Sewer Network							
STRUCTURE NAME	Y	х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIAL	
MH20.1	-26 979.757	2 836 888.475	1112.948	1111.679 1.269	P20.1-INV OUT 1111.679	Ирус	
MH21.1	-26 897.571	2 836 802.513	1113.087	1112.070 1.017	P21.1-INV OUT 1112.070	Ирус	
MH21.2	-26 888.152	2 836 824.459	1113.141	1111.975 1.166	P21.1-INV IN 1111.975 P21.2-INV OUT 1111.975	Ирус Ирус	
MH21.3	-26 898.989	2 836 836.780	1113.254	1111.909 1.345	P38.1-INV IN 1111.911 P21.2-INV IN 1111.909	Ирус Ирус	
MH21.4	-26 923.893	2 836 862.712	1113.261	1111.765	P21.3-INV OUT 1111.909 P21.3-INV IN 1111.765	Uрус Uрус	
MH22.1	-27 474.487	2 837 257.642	1111.843	1.495 1110.236	P21.4-INV OUT 1111.765 P22.1-INV OUT 1110.236	Uрус Uрус	
MH22.2	-27 506.997	2 837 294.319	1111.874	1.607	P22.1-INV IN 1110.000	Upvc	
				1.874	P22.2-INV OUT 1110.000 P22.2-INV IN 1109.857	Uрус Uрус	
MH22.3	-27 534.221	2 837 306.986	1112.069	2.213	P32.6-INV IN 1109.857 P22.3-INV OUT 1109.857	Uрус Uрус	
MH22.4	-27 633.151	2 837 318.601	1112.155	1109.378 2.777	P31.1-INV IN 1109.384 P22.3-INV IN 1109.378 P22.4-INV OUT 1109.378	Ирус Ирус Ирус	
MH22.5	-27 704.013	2 837 326.187	1112.084	1109.036 3.048	P22.4-INV IN 1109.036 P22.5-INV OUT 1109.036	Ирус Ирус	
MH22.6	-27 778.635	2 837 333.842	1112.068	1108.675 3.393	P22.5-INV IN 1108.675 P22.6-INV OUT 1108.675	Ирус Ирус	
MH22.7	-27 852.880	2 837 339.734	1111.999	1108.318 3.682	P22.6-INV IN 1108.318 P22.7-INV OUT 1108.318	Ирус Ирус	
MH22.8	-27 912.200	2 837 310.654	1111.691	1107.981 3.709	P22.7-INV IN 1108.000 P23.7-INV IN 1108.000 P22.8-INV OUT 1107.981	Ирус Ирус Ирус	
MH23.1	-27 887.701	2 837 538.838	1112.441	1110.491 1.951	P23.1-INV OUT 1110.491	Ирус	
MH23.2	-27 976.410	2 837 547.399	1112.270	1109.902 2.368	P23.1-INV IN 1109.902 P23.2-INV OUT 1109.902	Ирус Ирус	
MH23.3	-28 016.160	2 837 527.733	1112.463	1109.610 2.853	P23.2-INV IN 1109.610 P23.3-INV OUT 1109.610	Upvc Upvc	
MH23.4	-28 019.824	2 837 521.232	1112.247	1109.561 2.687	P23.3-INV IN 1109.561 P23.4-INV OUT 1109.561	Uрус Uрус	
MH23.5	-27 988.545	2 837 460.905	1112.090	1109.112	P24.1-INV IN 1109.113 P23.4-INV IN 1109.112	Uрус Uрус	
				2.977	P23.5-INV OUT 1109.112 P25.3-INV IN 1108.768	Uрvс Upvc	
MH23.6	-27 964.994	2 837 414.178	1112.044	3.278	P23.5-INV IN 1108.766 P23.6-INV OUT 1108.766	Uрус Uрус	
MH23.7	-27 935.430	2 837 355.604	1111.884	1108.334 3.550	P26.10-INV IN 1108.336 P23.6-INV IN 1108.334 P23.7-INV OUT 1108.334	Ирус Ирус Ирус	
MH24.1	-27 949.155	2 837 481.503	1112.205	1110.002 2.203	P24.1-INV OUT 1110.002	Ирус	
MH25.1	-27 895.585	2 837 522.920	1112.268	1110.516 1.753	P25.1-INV OUT 1110.516	Ирус	
MH25.2	-27 902.762	2 837 449.759	1112.122	1109.634 2.489	P25.1-INV IN 1109.634 P25.2-INV OUT 1109.634	Ирус Ирус	
MH25.3	-27 909.085	2 837 443.011	1112.106	1109.523 2.583	P25.2-INV IN 1109.523 P25.3-INV OUT 1109.523	Ирус Ирус	
MH26.1	-27 612.212	2 837 490.991	1112.615	1111.102 1.513	P26.1-INV OUT 1111.102	Ирус	
MH26.2	-27 616.942	2 837 446.093	1112.505	1110.811 1.693	P26.1-INV IN 1110.811 P26.2-INV OUT 1110.811	Ирус Ирус	
MH26.3	-27 621.045	2 837 408.956	1112.477	1110.571 1.906	P26.2-INV IN 1110.571 P26.3-INV OUT 1110.571	Ирус Ирус	
MH26.4	-27 623.372	2 837 398.131	1112.386	1110.499 1.887	P26.3-INV IN 1110.499 P26.4-INV OUT 1110.499	Uрус Uрус	
MH26.5	-27 642.268	2 837 370.037	1112.289	1110.281 2.008	P26.4-INV IN 1110.281 P26.5-INV OUT 1110.281	Uрус Uрус	
MH26.6	-27 681.348	2 837 374.441	1112.476	1110.028 2.449	P30.3-INV IN 1110.030 P26.5-INV IN 1110.028 P26.6-INV OUT 1110.028	Ирус Ирус Ирус	
MH26.7	-27 738.352	2 837 379.446	1112.339	1109.659 2.680	P26.6-INV IN 1109.659 P29.2-INV IN 1109.663 P26.7-INV OUT 1109.659	Ирус Ирус Ирус	
MH26.8	-27 794.850	2 837 385.435	1112.331	1109.291 3.040	P26.7-INV IN 1109.291 P28.2-INV IN 1109.295	Upvc Upvc	
				1108.931	P26.8-INV OUT 1109.291 P26.8-INV IN 1108.931	Upvc Upvc	
MH26.9	-27 850.702	2 837 391.405	1112.213	3.282	P27.4-INV IN 1108.932 P26.9-INV OUT 1108.931	Upvc Upvc	
MH26.10	-27 871.867	2 837 387.656	1112.202	1108.791 3.411 1111.048	P26.9-INV IN 1108.791 P26.10-INV OUT 1108.791	Ирис Ирис	
MH27.1	-27 717.410	2 837 521.860	1112.684	1111.048 1.636 1110.528	P27.1-INV OUT 1111.048 P27.1-INV IN 1110.528	Uрvс Upvc	
MH27.2	-27 781.758	2 837 527.730	1112.654	2.126	P27.2-INV IN 1110.528 P27.2-INV OUT 1110.528 P27.2-INV IN 1110.081	Орус Upус Upус	
MH27.3	-27 836.924	2 837 533.221	1112.600	2.518	P27.3-INV IN 1110.081 P27.3-INV OUT 1110.081 P27.3-INV IN 1109.548	Орус Upус Upус	
MH27.4	-27 843.752	2 837 467.326	1112.426	2.878	P27.4-INV OUT 1109.548	Ирус	
MH28.1	-27 782.059	2 837 513.633	1112.469	2.051	P28.1-INV OUT 1110.418 P28.1-INV IN 1109.913	Uрvс Upvc	
MH28.2 MH29.1	-27 787.316 -27 725.447	2 837 457.797 2 837 508.114	1112.365	2.452 1110.790	P28.2-INV OUT 1109.913 P29.1-INV OUT 1110.790	Upvc Upvc	
МН29.1	-27 725.447	2 837 506.114	1112.465	1.695 1110.292	P29.1-INV IN 1110.292	Ирус	
мн29.2	-27 611.032	2 837 510.296	1112.724	2.148	P29.2-INV OUT 1110.292 P30.1-INV OUT 1111.222	Uрvс Upvc	
MH30.2	-27 667.050	2 837 516.156	1112.619	1.501 1110.884 1.734	P30.1-INV OUT 1110.884 P30.2-INV OUT 1110.884	Upvc Upvc	
MH30.3	-27 673.576	2 837 450.256	1112.450	1.734 1110.487 1.963	P30.2-INV OUT 1110.884 P30.2-INV IN 1110.487 P30.3-INV OUT 1110.487	Орус Uрус Uрус	
MH31.1	-27 627.388	2 837 356.737	1112.226	1.963 1109.769 2.456	P30.3-INV OUT 1110.487	Орус	
MH32.1	-27 497.322	2 837 484.800	1112.604	1111.325 1.279	P32.1-INV OUT 1111.325	Ирус	
MH32.2	-27 501.423	2 837 446.788	1112.720	1111.026 1.694	P34.3-INV IN 1111.026 P32.1-INV IN 1111.026	Ирус Ирус	
MH32.3	-27 505.954	2 837 403.155	1112.495	1110.680	P32.2-INV OUT 1111.026 P32.2-INV IN 1110.680	Upvc Upvc	
				1.815	P32.3-INV OUT 1110.680 P33.4-INV IN 1110.317 P32.3-INV IN 1110.316	Upvc Upvc	
MH32.4	-27 511.239	2 837 357.032	1112.281	1.966	P32.3-INV IN 1110.316 P32.4-INV OUT 1110.316	Ирус Ирус	

CONSULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING
RA EMA NSULTING ENGINEERS	L. Maleka	ISSUED BY:
	DRAWN	
X VIEW ESTATES Tel: (011) 312 0873 & 14TH STREET Fax: (086) 537 7440 95 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng	DATE:
	CHECKED	

ING	DEPARTMENT OF ROADS	CLIENT A
	AND STORMWATER	
	RECEIVED BY:	
	DATE:	



STRUCTURE LIST-Ramotshana Sewer Network										
STRUCTURE NAME	Y	Х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIA				
MH32.5	-27 513.773	2 837 338.592	1112.189	1110.169 2.020	P36.3-INV IN 1110.170 P32.4-INV IN 1110.169 P32.5-INV OUT 1110.169	Ирус Ирус Ирус				
MH32.6	-27 524.267	2 837 312.516	1112.124	1109.949 2.175	P32.5-INV IN 1109.949 P32.6-INV OUT 1109.949	Uрvс Uрvс				
MH33.1	-27 499.388	2 837 498.374	1112.656	1111.492 1.164	P33.1-INV OUT 1111.492	Upvc				
MH33.2	-27 553.188	2 837 504.026	1112.782	1111.241 1.541	P33.1-INV IN 1111.241 P33.2-INV OUT 1111.241	Ирус Ирус				
MH33.3	-27 560.960	2 837 431.928	1112.493	1110.904 1.589	P33.2-INV IN 1110.904 P33.3-INV OUT 1110.904	Ирус Ирус				
MH33.4	-27 567.968	2 837 362.953	1112.367	1110.583 1.784	P33.3-INV IN 1110.583 P33.4-INV OUT 1110.583	Uрvс Upvc				
MH34.1	-27 391.531	2 837 363.898	1112.410	1111.554 0.856	P34.1-INV OUT 1111.554	Ирус				
MH34.2	-27 428.269	2 837 407.875	1112.604	1111.382 1.222	P37.1-INV IN 1111.384 P34.1-INV IN 1111.382 P34.2-INV OUT 1111.382	Uрvс Uрvс Uрvс				
MH34.3	-27 458.411	2 837 442.502	1112.725	1111.221 1.504	P34.2-INV IN 1111.221 P34.3-INV OUT 1111.221	Ирус Ирус				
MH36.1	-27 404.906	2 837 359.151	1112.293	1110.939 1.354	P36.1-INV OUT 1110.939	Upvc				
MH36.2	-27 450.876	2 837 318.189	1112.192	1110.570 1.622	P36.1-INV IN 1110.570 P36.2-INV OUT 1110.570	Ирус Ирус				
MH36.3	-27 460.833	2 837 318.611	1112.147	1110.510 1.638	P36.2-INV IN 1110.510 P36.3-INV OUT 1110.510	Ирус Ирус				
MH37.1	-27 462.804	2 837 378.861	1112.343	1111.542 0.801	P37.1-INV OUT 1111.542	Upvc				
MH38.1	-26 915.150	2 836 806.032	1113.049	1112.050 0.999	P38.1-INV OUT 1112.050	Upvc				
MH39.1	-27 240.562	2 837 011.424	1111.475	1109.061 2.414	P39.1-INV OUT 1109.061	Upvc				

P O BOX 16 RUSTENBURG 0300 Tel: (014) 590 3535 Fax: (014) 590 3006

CLIENT PROJECT TITLE

RUSTENBURG LOCAL MUNUCIPALITY

DRAWING TITLE

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTI

MANHOLES SETTING OUT DATA

ORIGINAL PAPER SIZE: A0

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
		1:500	 PLANNING CONSTRUCTION AS-BUILT 	
ION		REVISION	PLAN No.	
			RCE86_RLM_04_SE	KP_02

PIPE STA P1.1 P1.2 P1.2 P1.3 P1.3 P1.4 P1.5 P1.6 P1.6 P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.5 P2.6 P2.7 P2.8 P2.9 P2.9	ART INVERT LEVEL 1109.136 1108.734 1108.734 1107.923 1107.923 1107.774 1107.380 1106.978 1106.575 1105.148 1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	END INVERT LEVEL 1108.734 1108.331 1107.923 1107.923 1107.774 1107.380 1106.978 1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463 1108.205	3D LENGTH TO 74.003 74.003 74.003 75.061 26.665 72.494 74.003 74.020 57.512 21.290 36.452 73.467 78.602 27.604 27.940	SLOPE 0.536% 0.537% 0.537% 0.537% 0.537% 0.537% 0.536% 2.420% 3.614% 3.663% 0.490% 0.490% 0.491%	DIAMETER AND CLASS 315 mm Class 34 315 mm Class 34
P1.2 P1.3 P1.4 P1.5 P1.6 P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1108.734 1108.331 1107.923 1107.774 1107.380 1106.978 1106.575 1105.148 1109.499 1109.135 1108.745 1108.604 1108.205	1108.331 1107.923 1107.774 1107.380 1106.978 1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	74.003 75.061 26.665 72.494 74.003 74.020 57.512 21.290 36.452 73.467 78.602 27.604	0.537% 0.536% 0.537% 0.537% 0.537% 0.536% 2.420% 3.614% 3.663% 0.490%	315 mm Class 34
P1.3 P1.4 P1.5 P1.6 P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1108.331 1107.923 1107.774 1107.380 1106.978 1106.575 1105.148 1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	1107.923 1107.774 1107.380 1106.978 1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	75.061 26.665 72.494 74.003 74.020 57.512 21.290 36.452 73.467 78.602 27.604	0.536% 0.537% 0.537% 0.537% 0.536% 2.420% 3.614% 3.663% 0.490%	315 mm Class 34 316 mm Class 34 160 mm Class 34
P1.4 P1.5 P1.6 P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1107.923 1107.774 1107.380 1106.978 1106.575 1105.148 1109.499 1109.135 1108.745 1108.604 1108.205	1107.774 1107.380 1106.978 1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	26.665 72.494 74.003 74.020 57.512 21.290 36.452 73.467 78.602 27.604	0.537% 0.537% 0.537% 0.536% 2.420% 3.614% 3.663% 0.490% 0.490%	315 mm Class 34 316 mm Class 34 315 mm Class 34 315 mm Class 34 316 mm Class 34 316 mm Class 34 160 mm Class 34
P1.5 P1.6 P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1107.774 1107.380 1106.978 1106.575 1105.148 1104.343 1109.499 1108.745 1108.604 1108.205	1107.380 1106.978 1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	72.494 74.003 74.020 57.512 21.290 36.452 73.467 78.602 27.604	0.537% 0.537% 0.536% 2.420% 3.614% 3.663% 0.490% 0.490%	315 mm Class 34 316 mm Class 34 315 mm Class 34 315 mm Class 34 316 mm Class 34 160 mm Class 34 160 mm Class 34
P1.6 P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1107.380 1106.978 1106.575 1105.148 1104.343 1109.499 1109.135 1108.745 1108.604 1108.205	1106.978 1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	74.003 74.020 57.512 21.290 36.452 73.467 78.602 27.604	0.537% 0.536% 2.420% 3.614% 3.663% 0.490% 0.490%	315 mm Class 34 315 mm Class 34 160 mm Class 34 160 mm Class 34
P1.7 P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1106.978 1106.575 1105.148 1104.343 1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	1106.575 1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	74.020 57.512 21.290 36.452 73.467 78.602 27.604	0.536% 2.420% 3.614% 3.663% 0.490% 0.490%	315 mm Class 34 315 mm Class 34 315 mm Class 34 315 mm Class 34 160 mm Class 34 160 mm Class 34
P1.8 P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1106.575 1105.148 1104.343 1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	1105.160 1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	57.512 21.290 36.452 73.467 78.602 27.604	2.420% 3.614% 3.663% 0.490% 0.490%	315 mm Class 34 315 mm Class 34 315 mm Class 34 160 mm Class 34 160 mm Class 34
P1.9 P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1105.148 1104.343 1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	1104.343 1102.980 1109.135 1108.745 1108.604 1108.463	21.290 36.452 73.467 78.602 27.604	3.614% 3.663% 0.490% 0.490%	315 mm Class 34 315 mm Class 34 160 mm Class 34 160 mm Class 34
P1.10 P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1104.343 1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	1102.980 1109.135 1108.745 1108.604 1108.463	36.452 73.467 78.602 27.604	3.663% 0.490% 0.490%	315 mm Class 34 160 mm Class 34 160 mm Class 34
P2.1 P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1109.499 1109.135 1108.745 1108.604 1108.463 1108.205	1109.135 1108.745 1108.604 1108.463	73.467 78.602 27.604	0.490%	160 mm Class 34 160 mm Class 34
P2.2 P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1109.135 1108.745 1108.604 1108.463 1108.205	1108.745 1108.604 1108.463	78.602 27.604	0.490%	160 mm Class 34
P2.3 P2.4 P2.5 P2.6 P2.7 P2.8	1108.745 1108.604 1108.463 1108.205	1108.604 1108.463	27.604		
P2.4 P2.5 P2.6 P2.7 P2.8	1108.604 1108.463 1108.205	1108.463		0.491%	160 mm Class 34
P2.5 P2.6 P2.7 P2.8	1108.463 1108.205		27.940		100 mm Class 34
P2.6 P2.7 P2.8	1108.205	1108.205		0.489%	160 mm Class 34
P2.7 P2.8			52.146	0.485%	160 mm Class 34
P2.8	1407.004	1107.834	74.360	0.493%	160 mm Class 34
	1107.834	1107.467	73.732	0.491%	160 mm Class 34
P2 9	1107.467	1107.146	64.728	0.490%	160 mm Class 34
1 2.0	1107.146	1106.780	82.263	0.439%	160 mm Class 34
P2.10	1106.780	1106.391	69.923	0.549%	160 mm Class 34
P2.11	1106.391	1105.953	88.404	0.490%	160 mm Class 34
P2.12	1105.953	1105.717	47.115	0.489%	250 mm Class 34
P2.13	1105.717	1105.367	70.510	0.490%	250 mm Class 34
P2.14	1105.367	1105.102	53.149	0.490%	250 mm Class 34
P2.15	1105.102	1104.850	50.339	0.492%	250 mm Class 34
P2.16	1104.850	1104.617	46.515	0.490%	250 mm Class 34
P2.17	1104.617	1104.334	54.914	0.506%	250 mm Class 34
P3.1	1109.065	1108.685	34.497	1.071%	160 mm Class 34
P3.2	1108.685	1108.468	19.256	1.073%	160 mm Class 34
P3.3	1108.468	1107.667	73.778	1.071%	160 mm Class 34
P3.4	1107.667	1106.864	74.006	1.071%	160 mm Class 34
P3.5	1106.864	1106.638	20.085	1.070%	160 mm Class 34
P3.6	1106.638	1106.394	21.643	1.079%	160 mm Class 34
P3.7	1106.394	1104.850	26.574	5.610%	160 mm Class 34
P4.1	1109.749	1109.662	7.191	1.067%	160 mm Class 34
P4.2	1109.662	1109.314	31.180	1.082%	160 mm Class 34
P4.3	1109.314	1108.307	92.573	1.076%	160 mm Class 34
P4.4	1108.307	1107.499	73.966	1.078%	160 mm Class 34
P4.5	1107.499	1107.248	22.312	1.078%	160 mm Class 34
P4.6	1107.248	1106.640	55.475	1.077%	160 mm Class 34
P5.1	1109.174	1108.698	39.194	1.184%	160 mm Class 34
P5.2	1108.698	1108.031	55.266	1.185%	160 mm Class 34
P5.3	1108.031	1107.690	27.830	1.183%	160 mm Class 34
P5.4	1107.690	1107.319	30.357	1.185%	160 mm Class 34
P5.5	1107.319	1107.087	18.506	1.185%	160 mm Class 34
P5.6	1107.087	1106.392	57.768	1.184%	160 mm Class 34
P6.1	1109.737	1109.144	48.394	1.200%	160 mm Class 34
P6.2	1109.144	1108.402	73.194	1.000%	160 mm Class 34
P6.3	1108.402	1107.087	72.046	1.800%	160 mm Class 34
P7.1	1109.266	1109.113	11.712	1.200%	160 mm Class 34

					DESIGNED BY: RALEMA CONS
					DEGIGINED BT: IVALEIMA CONO
					C08/06 PHOENIX VIEW Cnr RIVERSIDE & 14TH
					NOORDWYK X95
No.	DATE	REVISIONS	BY	CHECKED BY	1863

	PIPE LIST-Ramotshana Sewer Network									
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	3D LENGTH TO INSIDE EDGES	SLOPE	DIAMETER AND CLASS					
P7.2	1109.113	1108.433	66.979	1.000%	160 mm Class 34					
P7.3	1108.433	1107.911	42.496	1.200%	160 mm Class 34					
P7.4	1107.911	1107.690	10.064	2.000%	160 mm Class 34					
P8.1	1110.029	1109.804	32.627	0.670%	160 mm Class 34					
P8.2	1109.804	1109.539	51.908	0.500%	160 mm Class 34					
P8.3	1109.539	1109.281	50.725	0.500%	160 mm Class 34					
P8.4	1109.281	1109.113	32.505	0.500%	160 mm Class 34					
P9.1	1109.326	1108.847	35.815	1.300%	160 mm Class 34					
P9.2	1108.847	1108.437	33.243	1.200%	160 mm Class 34					
P10.1	1109.962	1108.829	74.543	1.500%	160 mm Class 34					
P10.2	1108.829	1108.699	7.678	1.500%	160 mm Class 34					
P11.1	1109.639	1108.435	59.231	2.000%	160 mm Class 34					
P11.2	1108.435	1107.487	62.194	1.500%	160 mm Class 34					
P11.3	1107.487	1106.822	32.265	2.000%	160 mm Class 34					
P11.4	1106.822	1105.953	9.048	8.689%	160 mm Class 34					
P12.1	1111.488				160 mm Class 34					
		1111.407	16.376	0.464%						
P12.2	1111.407	1111.375	5.963	0.466%	160 mm Class 34					
P12.3	1111.375	1111.114	55.222	0.464%	160 mm Class 34					
P12.4	1111.114	1110.846	56.675	0.465%	160 mm Class 34					
P12.5	1110.846	1110.581	55.997	0.465%	160 mm Class 34					
P12.6	1110.581	1110.318	55.681	0.465%	160 mm Class 34					
P12.7	1110.318	1110.102	45.419	0.465%	160 mm Class 34					
P12.8	1110.102	1109.746	75.637	0.465%	160 mm Class 34					
P12.9	1109.746	1109.369	80.129	0.464%	160 mm Class 34					
P12.10	1109.369	1109.275	19.392	0.463%	160 mm Class 34					
P12.11	1109.275	1109.008	56.700	0.462%	160 mm Class 34					
P12.12	1109.008	1108.725	59.680	0.467%	160 mm Class 34					
P12.13	1108.725	1108.435	61.163	0.465%	160 mm Class 34					
P13.1	1110.466	1110.286	21.542	0.800%	160 mm Class 34					
P13.2	1110.286	1110.204	9.258	0.800%	160 mm Class 34					
P13.3	1110.204	1109.534	82.693	0.800%	160 mm Class 34					
P13.4	1109.534	1109.008	57.442	0.900%	160 mm Class 34					
P14.1	1110.775	1110.514	39.725	0.641%	160 mm Class 34					
P14.2	1110.514	1109.928	90.737	0.639%	160 mm Class 34					
P14.3	1109.928	1109.534	60.075	0.645%	160 mm Class 34					
P15.1	1110.201	1109.811	62.812	0.611%	160 mm Class 34					
P15.2	1109.811	1109.688	18.751	0.623%	160 mm Class 34					
P15.3	1109.688	1109.078	98.916	0.611%	160 mm Class 34					
P15.4	1109.078	1108.729	56.157	0.610%	160 mm Class 34					
P16.1	1111.092	1110.982	33.214	0.323%	160 mm Class 34					
P16.2	1110.982	1110.741	73.608	0.323%	160 mm Class 34					
P16.3	1110.741	1110.499	73.715	0.324%	160 mm Class 34					
P16.4	1110.499	1110.291	63.640	0.322%	160 mm Class 34					
P16.5	1110.291	1110.103	56.326	0.327%	160 mm Class 34					
P17.1	1110.990	1110.702	56.562	0.500%	160 mm Class 34					
P17.2	1110.702	1110.320	83.920	0.450%	160 mm Class 34					
P18.1	1111.203	1110.582	61.108	1.000%	160 mm Class 34					
P19.1	1111.856	1111.450	56.923	0.700%	160 mm Class 34					
P19.2	1111.450	1110.847	85.188	0.700%	160 mm Class 34					
P20.1	1111.679	1111.114	61.707	0.900%	160 mm Class 34					

CONSULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING
RA EMA	DESIGNED	
NSU TING ENGINEERS	L. Maleka	ISSUED BY:
	DRAWN	
VIEW ESTATES Tel: (011) 312 0873 & 14TH STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng	DATE:
	CHECKED	DATE.

SULTING	DEPARTMENT OF ROADS
	AND STORMWATER
BY:	RECEIVED BY:
	DATE:

.....



	PIPE LIST-Ramotshana Sewer Network										
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	3D LENGTH TO INSIDE EDGES	SLOPE	DIAMETER AND CLASS						
P21.1	1112.070	1111.975	22.883	0.400%	160 mm Class 34						
P21.2	1111.975	1111.909	15.409	0.400%	160 mm Class 34						
P21.3	1111.909	1111.765	34.955	0.400%	160 mm Class 34						
P21.4	1111.765	1111.378	85.053	0.450%	160 mm Class 34						
P22.1	1110.236	1110.000	48.012	0.482%	160 mm Class 34						
P22.2	1110.000	1109.857	29.028	0.477%	160 mm Class 34						
P22.3	1109.857	1109.378	98.611	0.481%	160 mm Class 34						
P22.4	1109.378	1109.036	70.269	0.480%	160 mm Class 34						
P22.5	1109.036	1108.675	74.015	0.481%	160 mm Class 34						
P22.6	1108.675	1108.318	73.480	0.480%	160 mm Class 34						
P22.7	1108.318	1108.000	65.066	0.481%	160 mm Class 34						
P22.8	1107.981	1107.759	45.176	0.481%	200 mm Class 34						
P23.1	1110.491	1109.902	88.124	0.660%	160 mm Class 34						
P23.2	1109.902	1109.610	43.350	0.659%	160 mm Class 34						
P23.3	1109.610	1109.561	6.464	0.663%	160 mm Class 34						
P23.4	1109.561	1109.112	66.957	0.660%	160 mm Class 34						
P23.5	1109.112	1108.766	51.328	0.662%	160 mm Class 34						
P23.6	1108.766	1108.334	64.615	0.658%	160 mm Class 34						
P23.7	1108.334	1108.000	49.600	0.661%	160 mm Class 34						
P24.1	1110.002	1109.113	43.462	2.000%	160 mm Class 34						
P25.1	1110.516	1109.634	72.519	1.200%	160 mm Class 34						
P25.2	1109.634	1109.523	8.251	1.200%	160 mm Class 34						
P25.3	1109.523	1108.768	61.912	1.200%	160 mm Class 34						
P26.1	1111.102	1110.811	44.148	0.644%	160 mm Class 34						
P26.2	1110.811	1110.571	36.365	0.643%	160 mm Class 34						
P26.3	1110.571	1110.499	10.074	0.647%	160 mm Class 34						
P26.4	1110.499	1110.281	32.859	0.645%	160 mm Class 34						
P26.5	1110.281	1110.028	38.329	0.644%	160 mm Class 34						
P26.6	1110.028	1109.659	56.226	0.644%	160 mm Class 34						
P26.7	1109.659	1109.291	55.817	0.647%	160 mm Class 34						
P26.8	1109.291	1108.931	55.172	0.642%	160 mm Class 34						
P26.9	1108.931	1108.791	20.496	0.649%	160 mm Class 34						
P26.10	1108.791	1108.336	70.190	0.639%	160 mm Class 34						
P27.1	1111.048	1110.528	63.618	0.805%	160 mm Class 34						
P27.2	1110.528	1110.081	54.442	0.805%	160 mm Class 34						
P27.3	1110.081	1109.548	65.252	0.806%	160 mm Class 34						
P27.4	1109.548	1108.932	75.242	0.808%	160 mm Class 34						
P28.1	1110.418	1109.913	55.086	0.900%	160 mm Class 34						
P28.2	1109.913	1109.295	71.757	0.850%	160 mm Class 34						
P29.1	1110.790	1110.292	54.325	0.900%	160 mm Class 34						
P29.2	1110.292	1109.663	72.996	0.850%	160 mm Class 34						
P30.1	1111.222	1110.884	55.326	0.600%	160 mm Class 34						
P30.2	1110.884	1110.487	65.224	0.600%	160 mm Class 34						
P30.3	1110.487	1110.030	75.215	0.600%	160 mm Class 34						
P31.1	1109.769	1109.384	37.572	1.000%	160 mm Class 34						
P32.1	1111.325	1111.026	37.235	0.783%	160 mm Class 34						
P32.2	1111.026	1110.680	42.871	0.788%	160 mm Class 34						
P32.3	1110.680	1110.316	45.427	0.785%	160 mm Class 34						
P32.3	1110.316	1110.310	17.616	0.787%	160 mm Class 34						
P32.5	1110.169	1109.949	27.110	0.783%	160 mm Class 34						

	PIPE LIST-Ramotshana Sewer Network										
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	T 3D LENGTH TO INSIDE EDGES SLOPE		DIAMETER AND CLASS						
P32.6	1109.949	1109.857	10.389	0.812%	160 mm Class 34						
P33.1	1111.492	1111.241	53.097	0.465%	160 mm Class 34						
P33.2	1111.241	1110.904	71.518	0.465%	160 mm Class 34						
P33.3	1110.904	1110.583	68.331	0.463%	160 mm Class 34						
P33.4	1110.583	1110.317	56.038	0.466%	160 mm Class 34						
P34.1	1111.554	1111.382	56.304	0.300%	160 mm Class 34						
P34.2	1111.382	1111.221	44.909	0.350%	160 mm Class 34						
P34.3	1111.221	1111.026	42.226	0.450%	160 mm Class 34						
P36.1	1110.939	1110.570	60.574	0.600%	160 mm Class 34						
P36.2	1110.570	1110.510	8.967	0.600%	160 mm Class 34						
P36.3	1110.510	1110.170	55.587	0.600%	160 mm Class 34						
P37.1	1111.542	1111.384	44.107	0.350%	160 mm Class 34						
P38.1	1112.050	1111.911	33.737	0.400%	160 mm Class 34						
P39.1	1109.061	1107.147	62.834	3.000%	160 mm Class 34						

CLIENT

PROJECT TITLE

RUSTENBURG LOCAL MUNUCIPALITY

P O BOX 16 RUSTENBURG 0300

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTIO

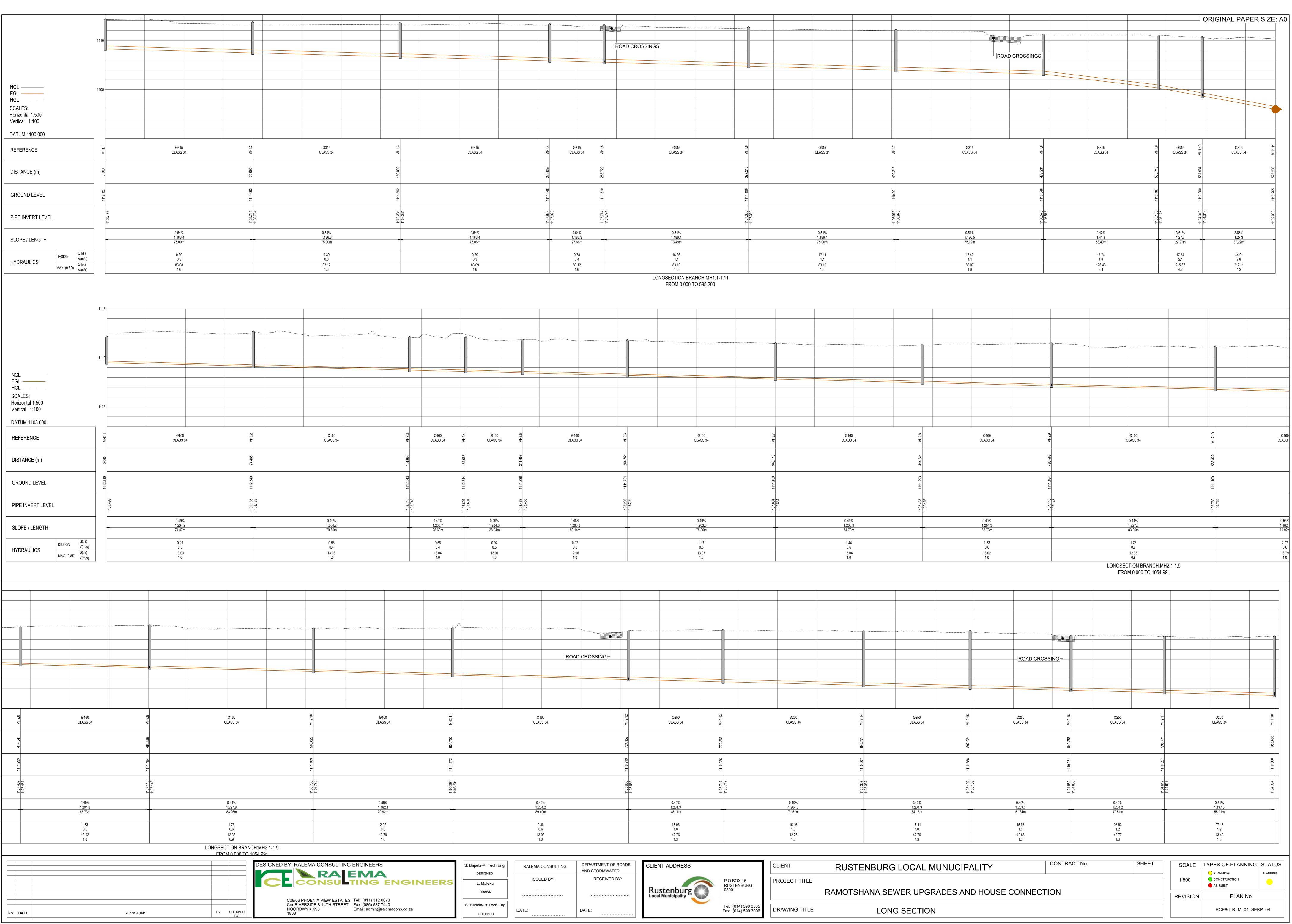
Tel: (014) 590 3535 Fax: (014) 590 3006

DRAWING TITLE

PIPES SETTING OUT DATA

ORIGINAL PAPER SIZE: A0

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
		1:500	 PLANNING CONSTRUCTION AS-BUILT 	
ON		REVISION	PLAN No.	
			RCE86_RLM_04_SE	<p_03< td=""></p_03<>

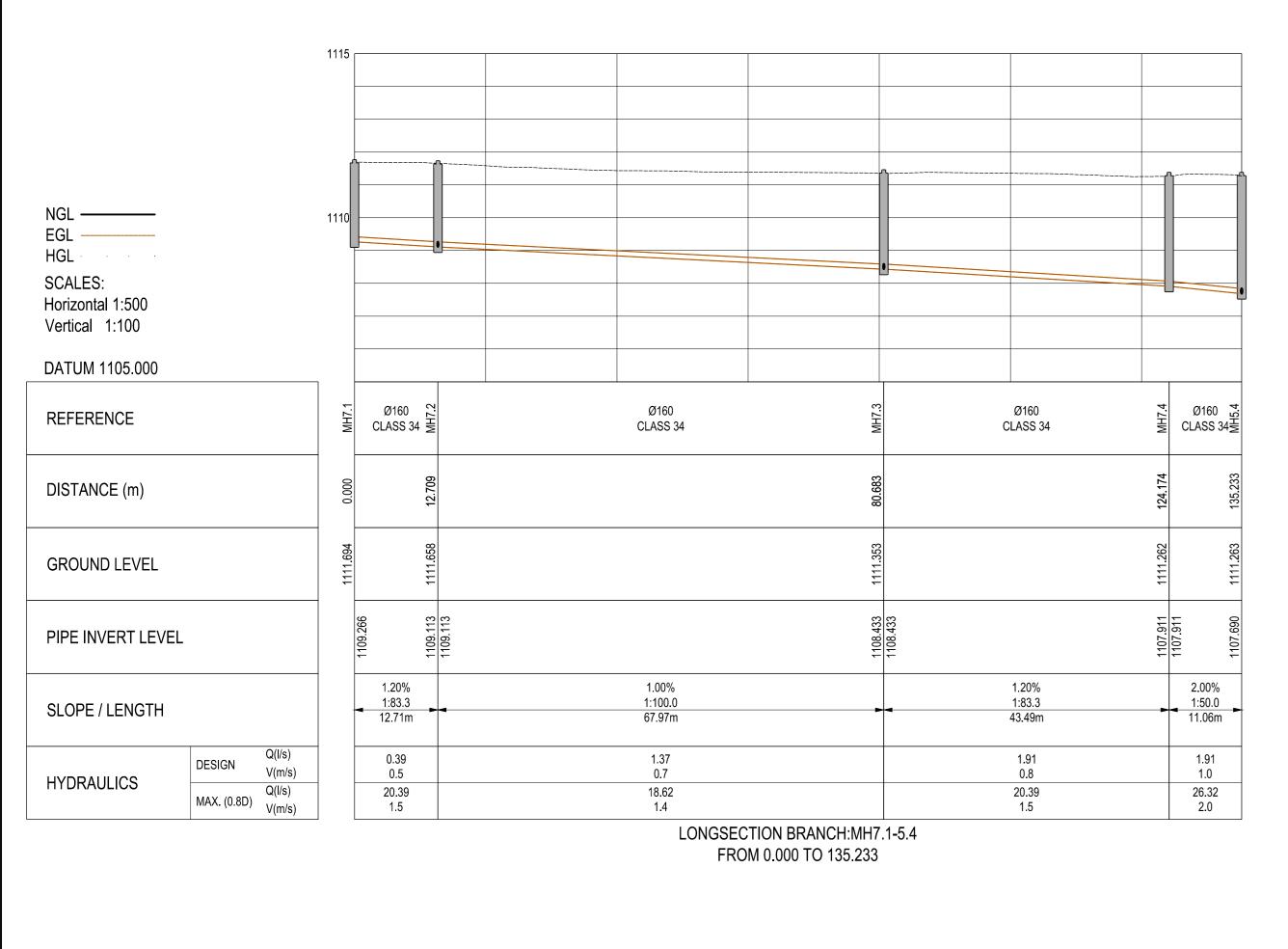


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										S
4	E E E E E E E E E E E E E E E E E E E		Ø315 CLASS 34		MH1.4	Ø: CLA:	315 SS 34	MH1.5		Ø315 CLASS 34
	150 000				226.059			253.722		
	1111 502	-			1111.548			1111.510		
	1108.331	1108.331			1107.923	1107.923		1107.774 1107.774		
	•	-	0.54% 1:186.4 76.06m		Þ	1:1	54% 86.3 66m	-		0.54% 1:186.4 73.49m
			0.39 0.3			0.	78			16.86 1.1
			83.09 1.6			83	.12 .6			83.10 1.6
		1							LC	ONGSECTION BRAI FROM 0.000 TO
			1	A						

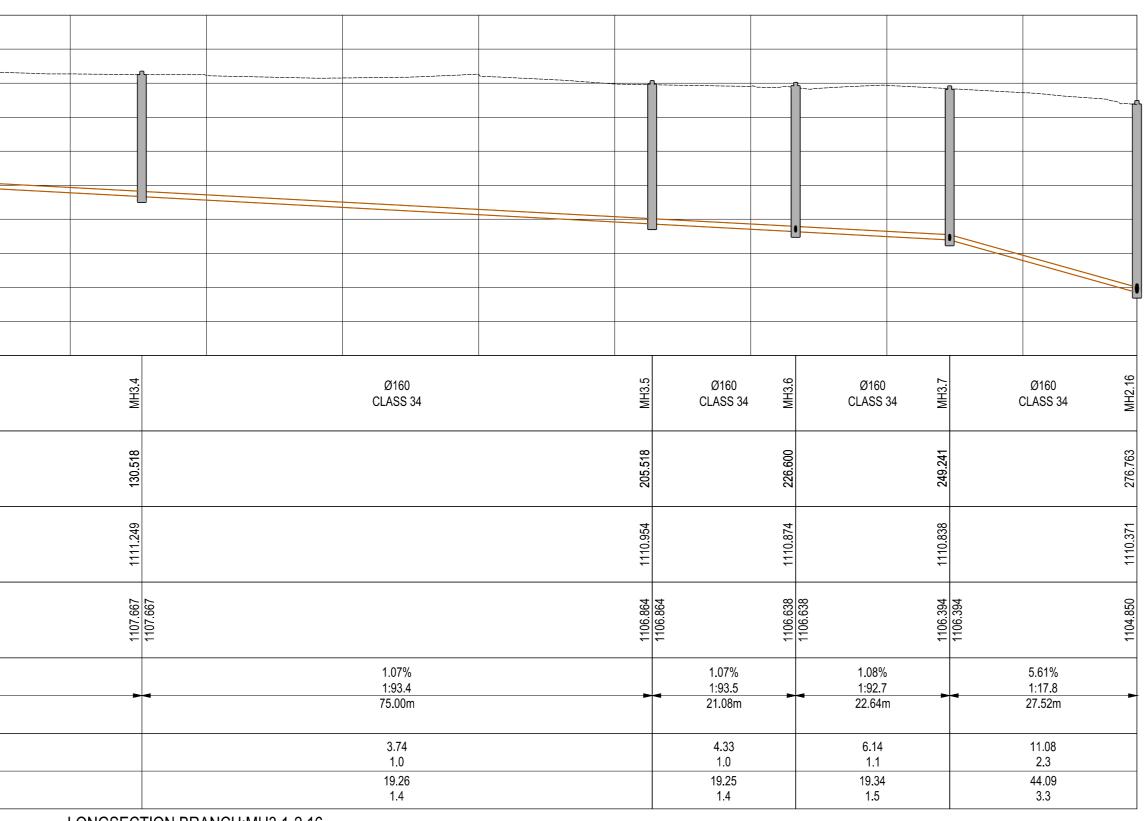
	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
ULTING ENGINEERS		ISSUED BY:	RECEIVED BY:	Rustenburg
ESTATES Tel: (011) 312 0873 STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng CHECKED	DATE:	DATE:	Local Municipality O

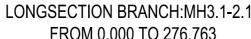
			ļ	&						
			1110							
NGL ——										
EGL HGL										
SCALES:										
Horizontal 1:500			1105							
Vertical 1:100			1105							
DATUM 1103.000										
									1	
REFERENCE			MH3.1	Ø1 CLAS		MH3.2	Ø160 CLASS 34	MH3.3	Ø160 CLASS 34	
DISTANCE (m)			0			61		746		
			000.0			35.493		55.746		
			~			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
GROUND LEVEL			1111.862			1111.642		1111.486		
			7			,				
				065		685 685		468 468		
PIPE INVERT LEVEL	-			1109.065		1108.685 1108.685		1108.468 1108.468		
				1.07	7%		1.07%		 1.07%	
SLOPE / LENGTH			-	1:93	3.4		1:93.2 20.25m		1:93.4 74.77m	
					511		20.2011		/ - //iii	
		Q(I/s) V(m/s)		3.´ 0.	0		3.10 0.9		3.10 0.9	
HYDRAULICS		Q(l/s)		19. 1.	26		19.28 1.4		19.26 1.4	
	()	V(m/s)		1.	÷		1.4		1.4	

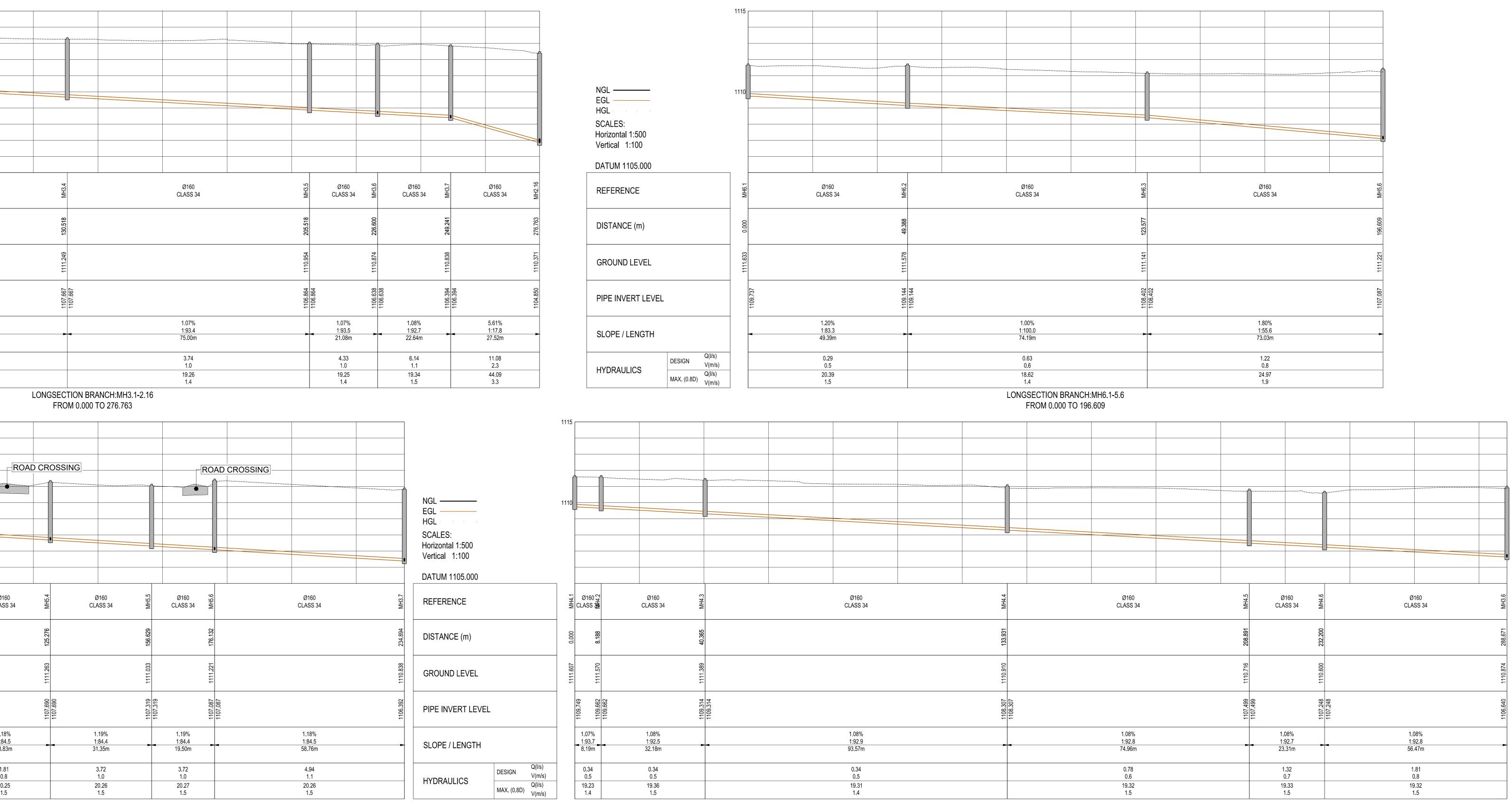
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		-						
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		-			ROAD CROS	SING		
		Ĺ						
NGL		1110						
EGL HGL		Ļ			•			
SCALES:		-						
Horizontal 1:500 Vertical 1:100		-						
		-						
DATUM 1105.000								
REFERENCE		MH5.1	Ø CLA	160 5:5HW SS 34 W		Ø160 CLASS 34	MH5.3	Ø160 CLASS
DISTANCE (m)		0.000		40.190			96.450	
GROUND LEVEL		1111.192		1111.248			1111.143	
PIPE INVERT LEVEL			1109.174	1108.698	1108.698		1108.031	1108.031
SLOPE / LENGTH			1:8	18% 34.5 19m	-	1.19% 1:84.4 56.26m		1.18% 1:84.5 28.83r
DE	Q(I/s) ESIGN		0	.15		0.98		1.81
HYDRAULICS —			20).4).25 .5		0.7 20.26 1.5		0.8 20.25 1.5
	AA. (0.6D) V(m/s)					1.0		LONGSECTIC



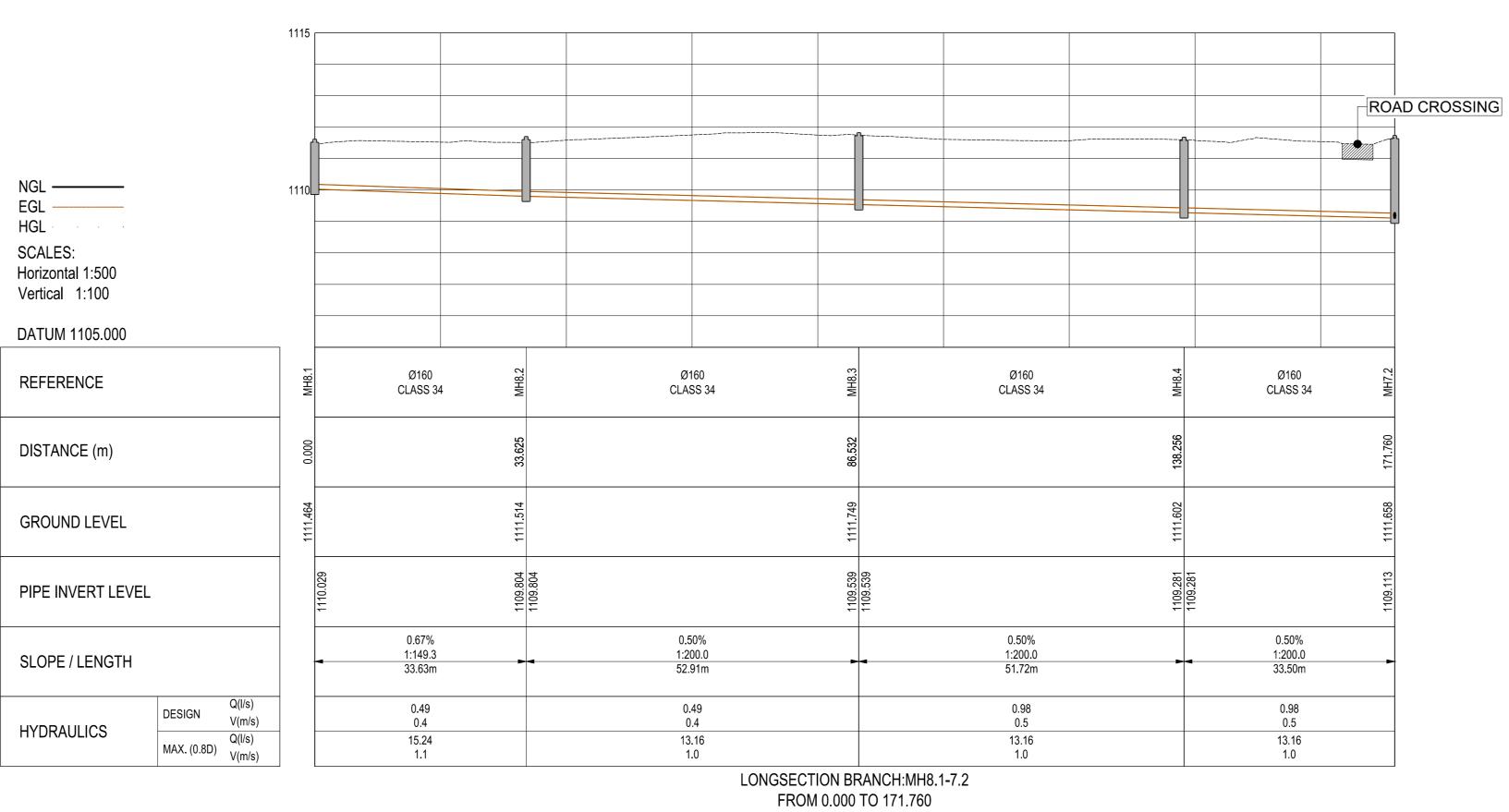








LONGSECTION BRANCH:MH5.1-3.7 FROM 0.000 TO 234.894



LONGSECTION BRANCH:MH4.1-3.6 FROM 0.000 TO 288.671

NGL ——— EGL — HGL SCALES: Horizontal 1:500 Vertical 1:100	
DATUM 1105.000	
REFERENCE	
DISTANCE (m)	
GROUND LEVEL	
PIPE INVERT LEVEL	
SLOPE / LENGTH	
	DESIGN
HYDRAULICS	MAX. (0.8I
L	1

CLIENT

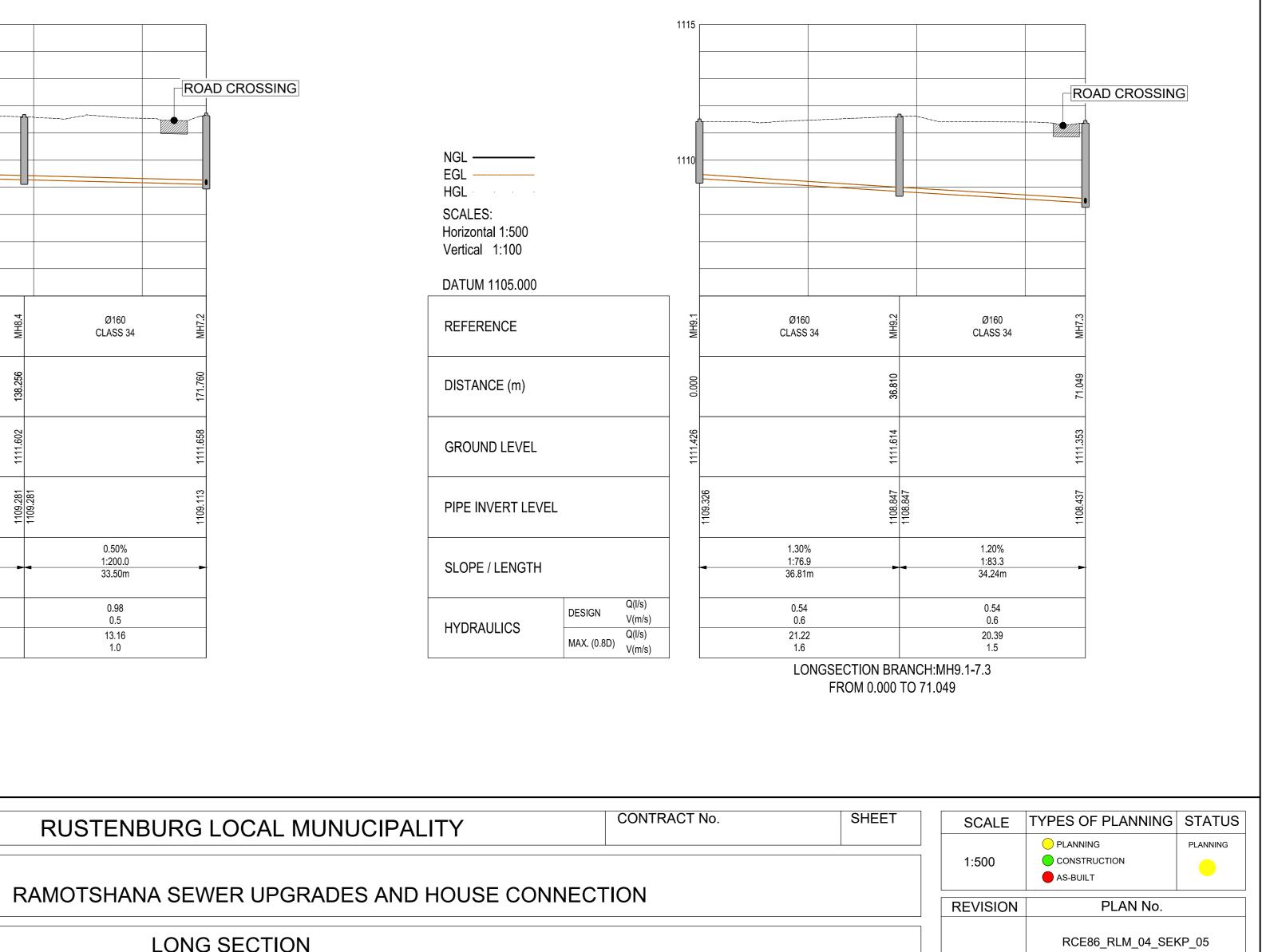
RUSTENBURG LOCAL MUNUCIPALITY

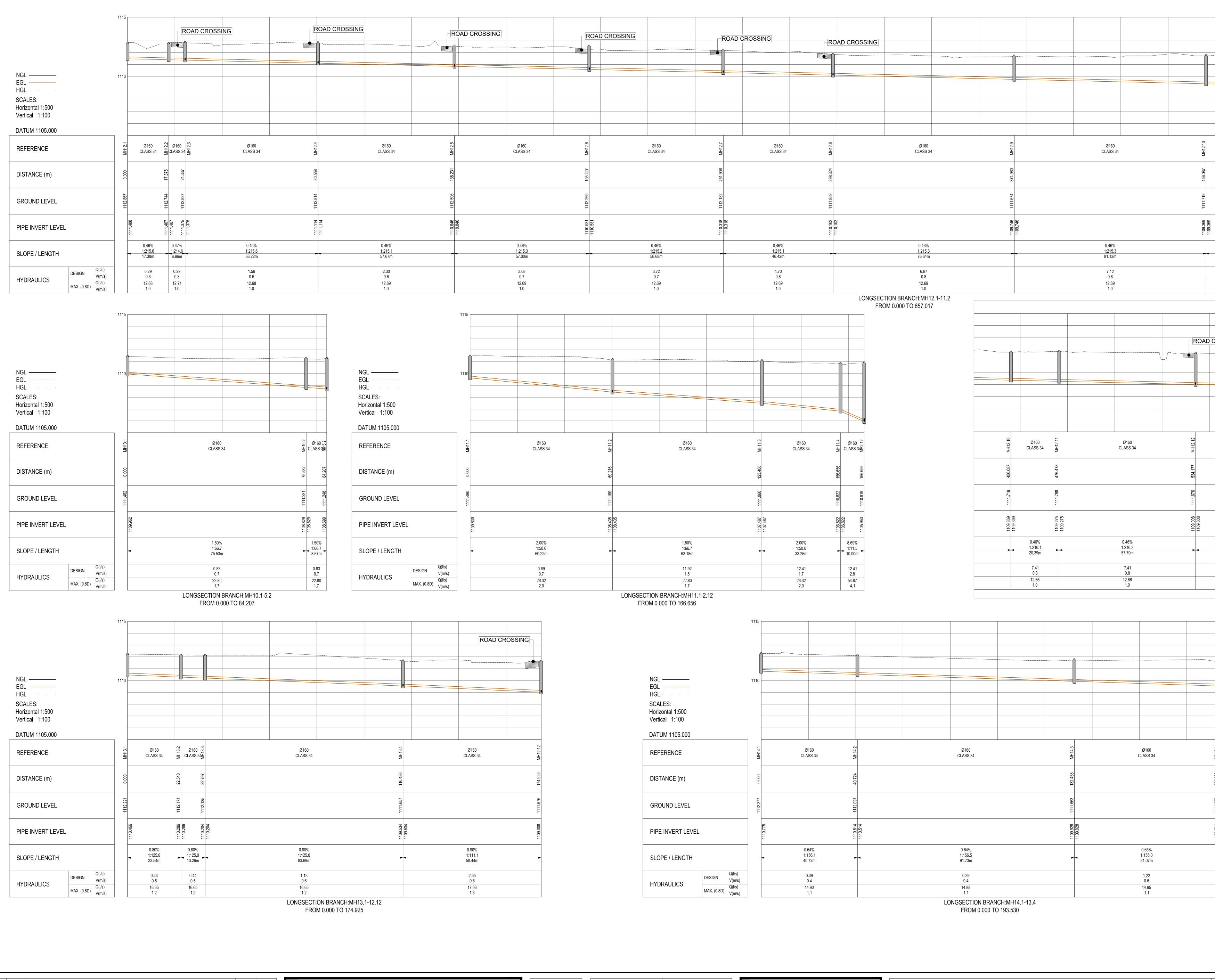
PROJECT TITLE

DRAWING TITLE

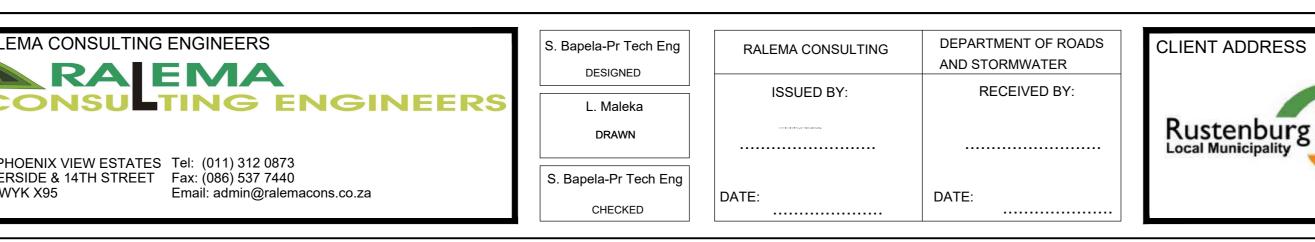
LONG SECTION







					DESIGNED BY: RALE
0.	DATE	REVISIONS	BY	CHECKED	C08/06 PH0 Cnr RIVERS NOORDWY 1863



ROAD CROSS	NG						
MH12.8	Ø160 CLASS 34	MH12.9	Ø160 CLASS 34	0160 0160 0171 0112 0112 0160 0112 0112 0112 0112 011	Ø160 CLASS 34	MH12.12	Ø160 CLASS 34
298.324		374.960		456.087		534.177	
1111.859		1111.674		1111.719		1111.676	
1110.102	0.46%	1109.746	0.46%	0.46% 1109.369 1109.369 1109.369 1109.275	0.46%	1109.008	0.47%
	1:215.3 76.64m 6.87 0.8		1:215.3 81.13m 7.12 0.8	1:216.1 20.39m 7.41 0.8	1:216.3 57.70m 7.41 0.8	_	1:214.3 60.68m 10.20 0.9
LON	12.69 1.0 GSECTION BRANCH:MH12.1-11.2		0.8 12.69 1.0	0.8 12.66 1.0	0.8 12.66 1.0		0.9 12.72 1.0
	FROM 0.000 TO 657.017						
					ROAD CRO	SSING ROAD CRO)SSING
*111 0160 CLASS 34		01 01 01 01 01 01 01 01 01 01 01 01 01 0	Ø160 CLASS 34	2121 2121	Ø160 ASS 34	Ø160 CLASS 34	MH1 2
GCLASS 34 999999999999999999999999999999999999		176.478 MF	CLASS 34	MF	MI M		657 017 MI
1110.822 11		1111.719 4		1111.676	1111.529		111111100
1106.822 1106.822 1105.953		1109.369 1109.369 1109.275 1109.275		1109.008	1108.725 1108.725		1108.435
8.69% 1:11.5 10.00m		0.46% 1:216.1 20.39m	0.46% 1:216.3 57.70m	0 1: 60	.47% 214.3 D.68m	0.47% 1:214.9 62.16m	-
12.41 2.8 54.87 4.1		7.41 0.8 12.66 1.0	7.41 0.8 12.66 1.0		0.20 0.9 2.72 1.0	11.23 0.9 12.70 1.0	
			^				
0 771 6 34 W	Ø160 CLASS 34		Ø160 CLASS 34	MH13.4			
40.724		20 7 F	000	193.530			
1112.091				1111.657			
1110.514	0.64%		1109.928	1109.534			
% 5.1 2m	0.64% 1:156.5 91.73m 0.39 0.4		0.65% 1:155.0 61.07m 1.22 0.6				
0	14.88 1.1 LONGSECTION	N BRANCH:MH14.1-13.4	0.6 14.95 1.1				
		0.000 TO 193.530					

P O BOX 16 RUSTENBURG 0300

CLIENT

RUSTENBURG LOCAL MUNUCIPALITY

Tel: (014) 590 3535 Fax: (014) 590 3006

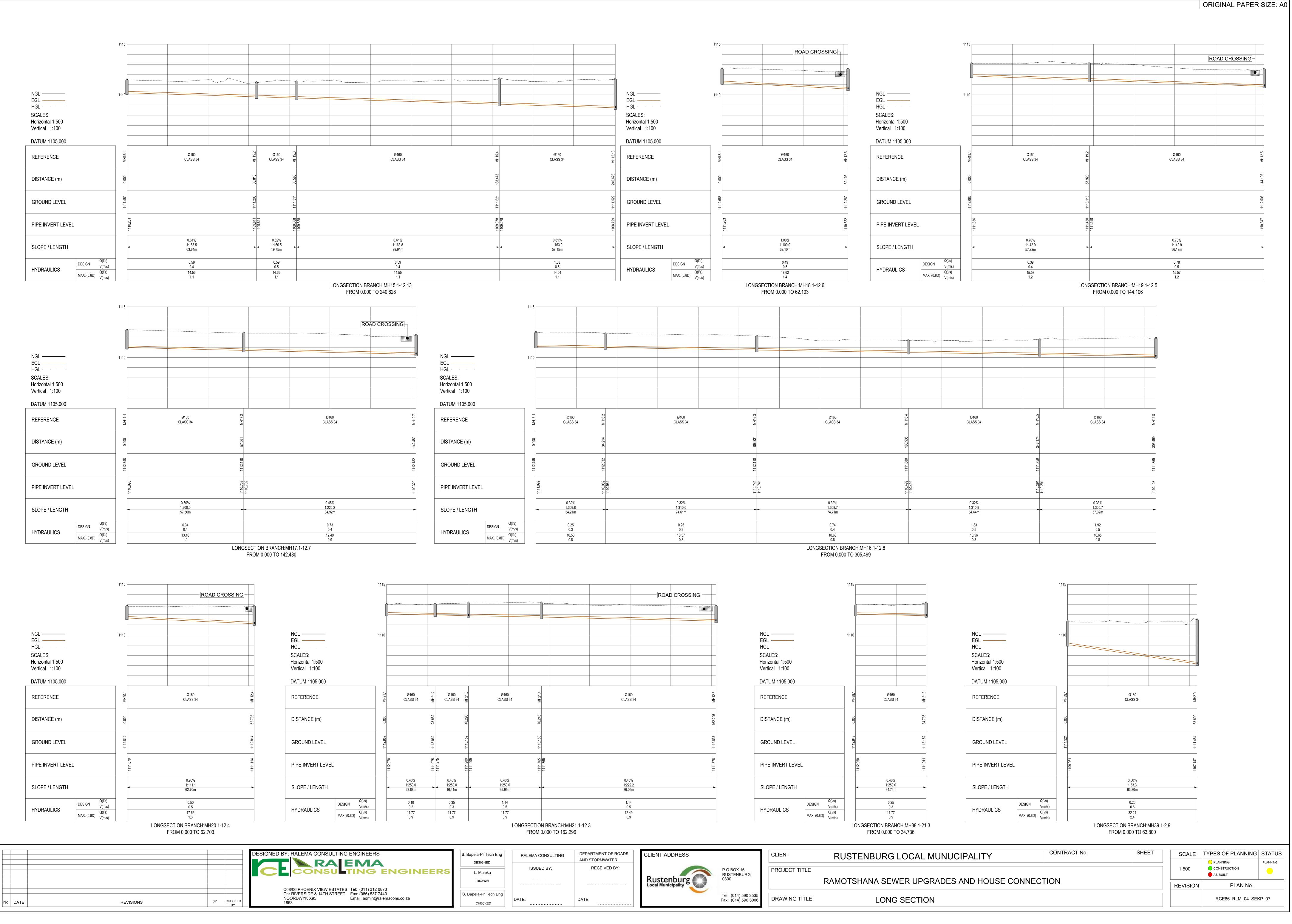
DRAWING TITLE

PROJECT TITLE

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECT

LONG SECTION

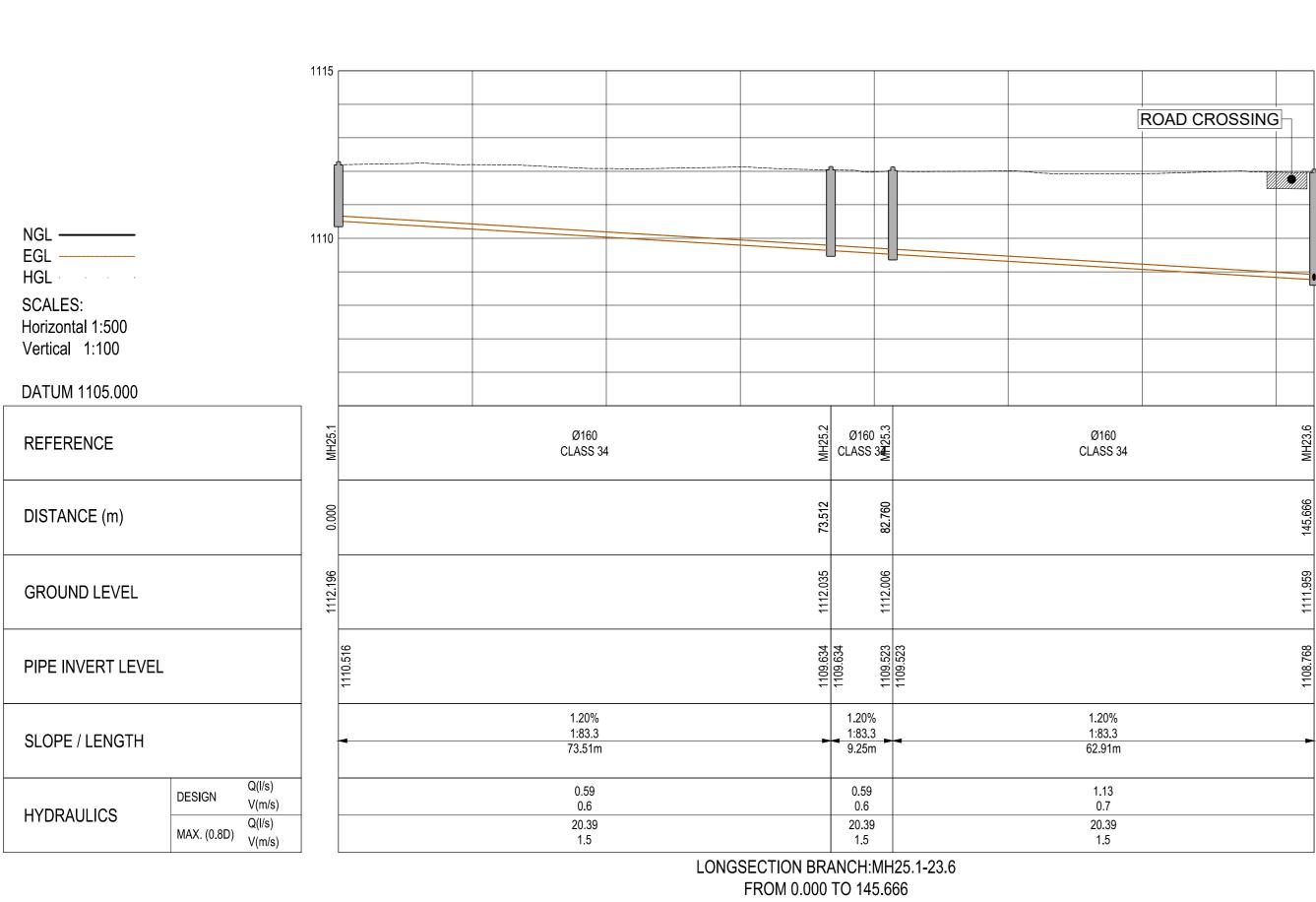
CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
				PLANNING
		1:500		
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ION		REVISIC	N PLAN No.	
			RCE86_RLM_04_SE	<p_06< td=""></p_06<>



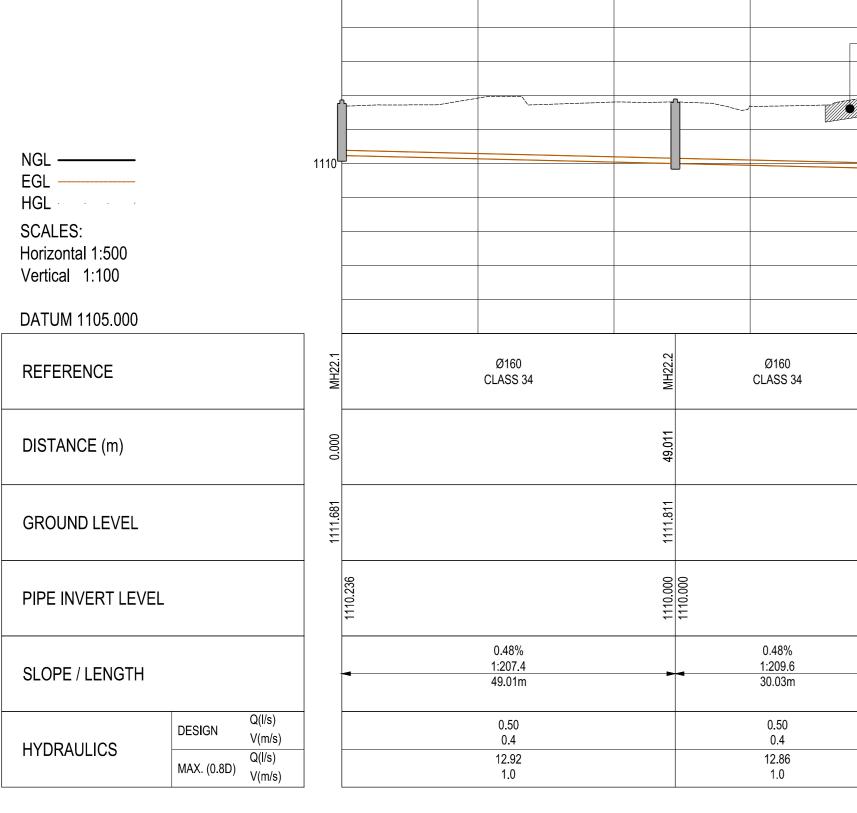
L. Maleka DRAWN STREET Fax: (086) 537 7440 S. Bapela-Pr Tech Eng		S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
ESTATES Tel: (011) 312 0873 STREET Fax: (086) 537 7440 S. Bapela-Pr Tech Eng	U TING ENGINEERS	L. Maleka		RECEIVED BY:	Rustenburg
CHECKED DATE:			DATE:	DATE:	Local Municipality

					DESIGNED BY: RALEMA CONSULTING ENGINE
					C08/06 PHOENIX VIEW ESTATES Tel: (011
0.	DATE	REVISIONS	BY	CHECKED	Cnr RIVERSIDE & 14TH STREET Fax: (086 NOORDWYK X95 Email: ad 1863

0.59 0.6 20.39 1.5



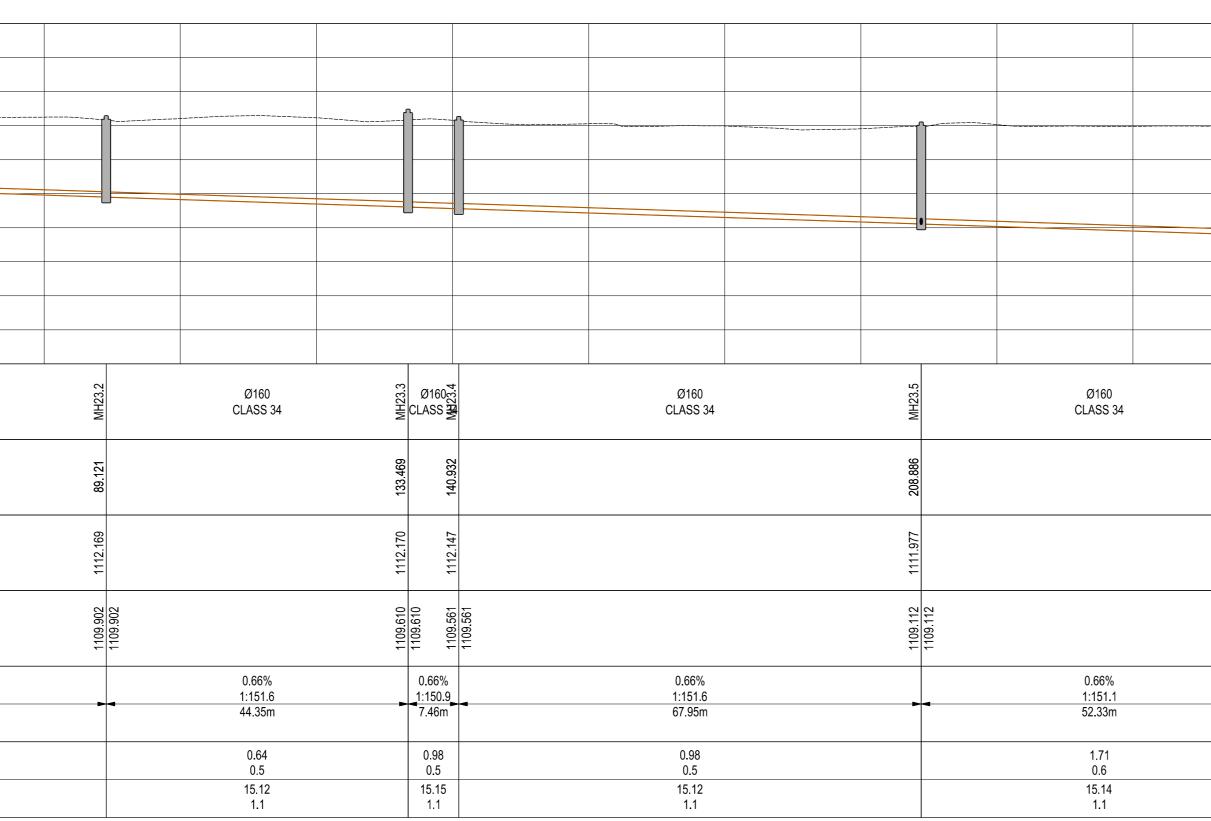
			1115		 	
			1110			
			ſ	h	 	
NGL ——— EGL ———			1110			
HGL						
SCALES: Horizontal 1:500						
Vertical 1:100						
DATUM 1105.000			_			
REFERENCE			MH23.1		Ø160 CLASS 34	
DISTANCE (m)			000.0			
GROUND LEVEL			1112.343			
PIPE INVERT LEVEL			-	1110.491		
SLOPE / LENGTH				-	0.66% 1:151.5 89.12m	
DESIGN Q(I/s) V(m/s)		-		0.64 0.5		
			-		15.12 1.1	



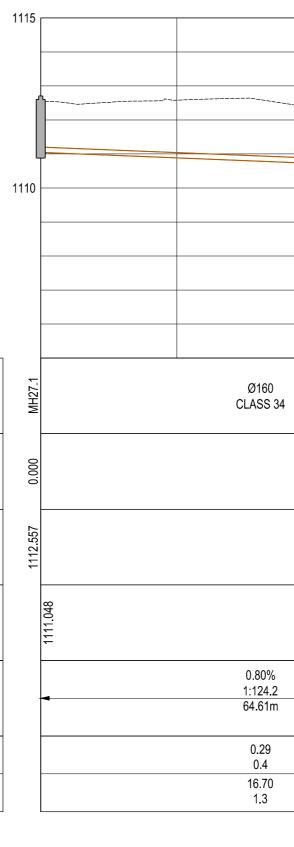
1115 -

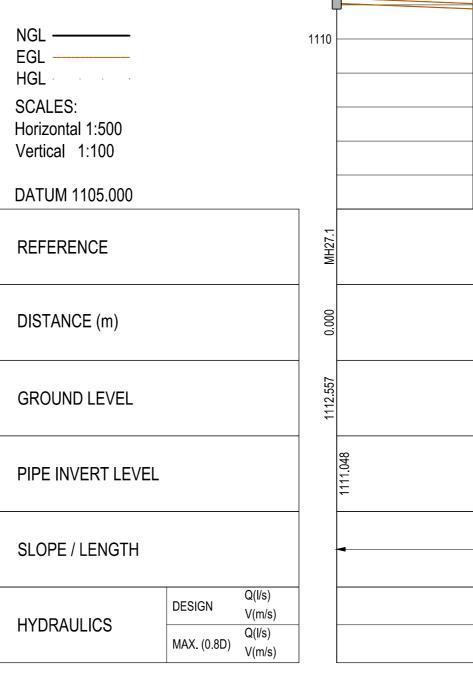
DC	OAD CROSSING									
	0									
MH22.3		Ø160 CLASS 34	MH22.4	Ø160 CLASS 34	MH22.5	Ø160 CLASS 34	MH22.6	Ø160 CLASS 34	MH22.7	CL
79.038			178.647		249.915		324.928		399.406	
1111.885			1112.055		1111.972		112.000		1111.857	
1109.857	1109.857		1109.378		109.036	1109.036	1108.675 1108.675		1108.318 1108.318	
	-	0.48% 1:208.0 99.61m		0.48% 1:208.2 71.27m	► -	0.48% 1:208.1 75.01m		0.48% 1:208.3 74.48m		0 1: 60
		5.45 0.8		5.74 0.8		6.18 0.8		6.18 0.8		
		12.91 1.0		12.90 1.0		12.90 1.0		12.90 1.0		
					LONGSECTIC	N BRANCH MH22 1-1 5				

LONGSECTION BRANCH:MH22.1-1.5 FROM 0.000 TO 511.646



LONGSECTION BRANCH:MH23.1-22.8 FROM 0.000 TO 377.422





ERS	S. Bapela-Pr Tech Eng DESIGNED	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
A 3 ENGINEERS	_	ISSUED BY:	RECEIVED BY:	
	DRAWN			Rustenburg
312 0873 537 7440 nin@ralemacons.co.za	S. Bapela-Pr Tech Eng	DATE:	DATE:	
	CHECKED			

	1		 	L				
						d		
								NGL EGL HGL
								SCALES:
								Horizontal 1:5 Vertical 1:10
								DATUM 1105
MH23.6		Ø160 CLASS 34	MH23.7		Ø160 CLASS 34	MH22.8		REFERENCI
261.212			326.825			377.422		DISTANCE (
1111.959			1111.784			1111.589		GROUND LE
1108.766	1108.766		1108.334	1108.334		1108.000		PIPE INVER
Þ	4	0.66% 1:151.9 65.61m		-	0.66% 1:151.4 50.60m			SLOPE / LEN
		3.18 0.8 15.10			9.41 1.0 15.13			HYDRAULIC
		1.1			1.1			

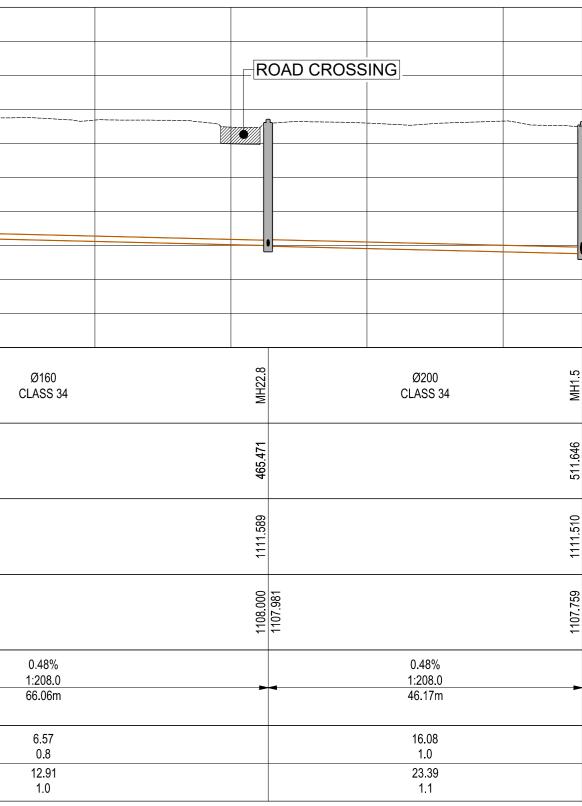
		<u>}</u>		ſ	\				
0 5 34	MH27.2		Ø160 CLASS 34	MH27.3		Ø160 CLASS 34		MH27.4	
	64.615			120.054				186.302	
	1112.550			1112.494				1112.319	
	1110.528	1110.528		1110.081	1110.081			1109.548 1109.548	
%			0.81%			0.81%			
1 <u>.2</u> Im		◄	1:124.2 55.44m		•	1:124.1 66.25m			
9			0.29			0.54			
0			0.4			0.5			
			1.3		ECTION BRANCH:M ROM 0.000 TO 262.				
		CLIE	NT	RUSTE	NBURG LC		IUCIPALIT	Y	 C
	P O BOX 16	PRO	JECT TITLE						

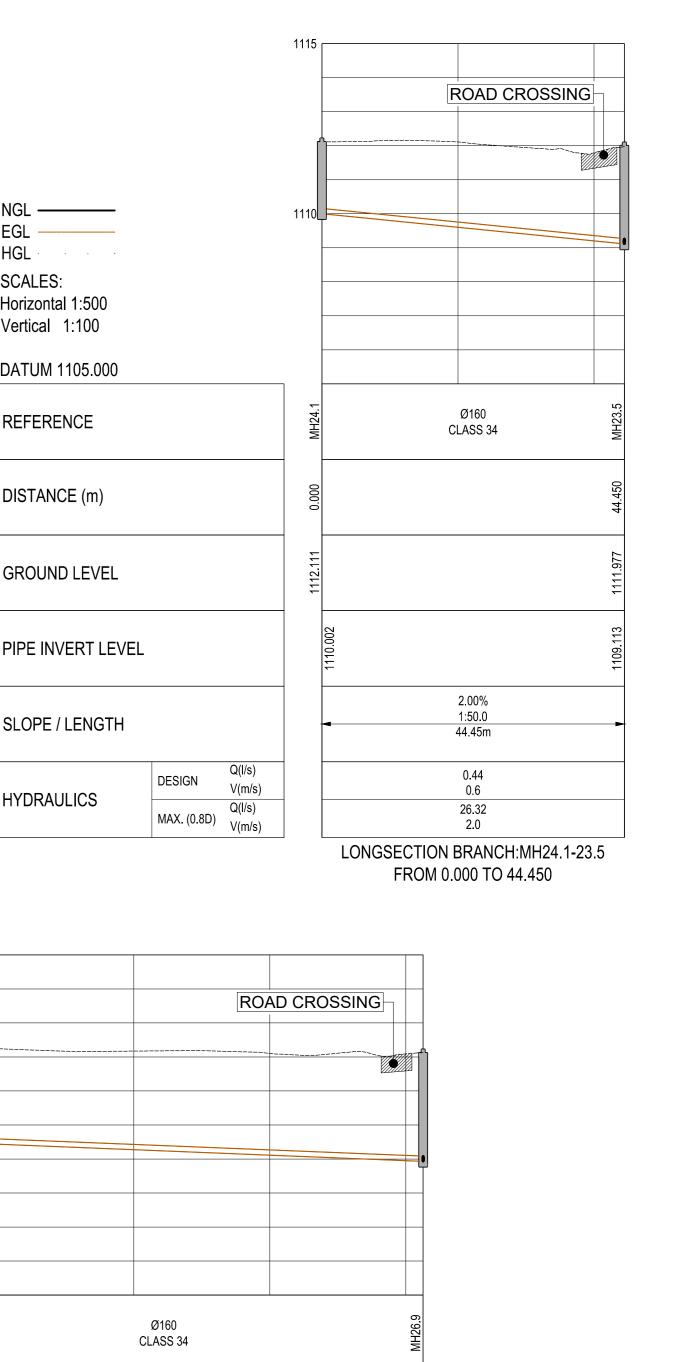
RUSTENBURG 0300 Tel: (014) 590 3535 Fax: (014) 590 3006

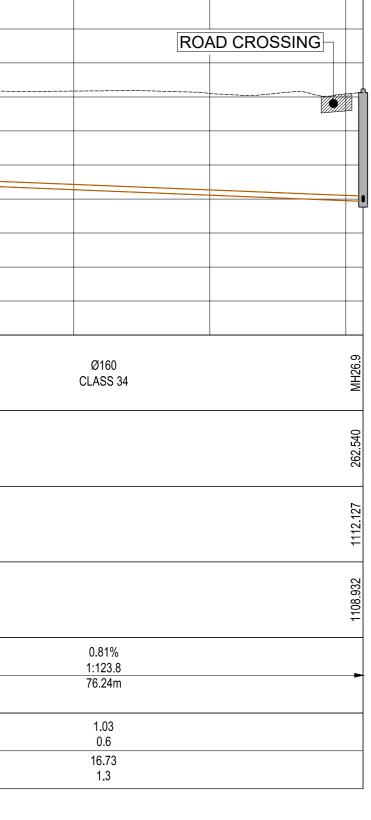
RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTIO

LONG SECTION

DRAWING TITLE

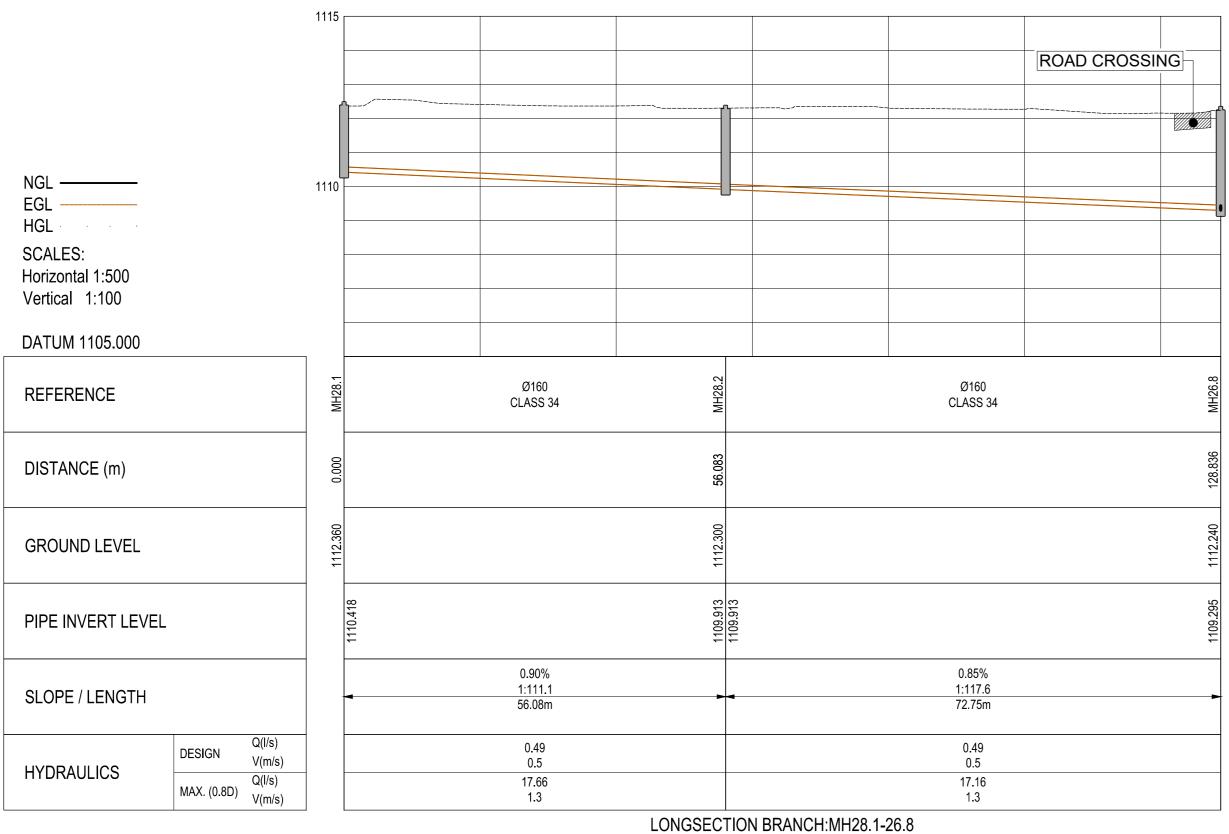


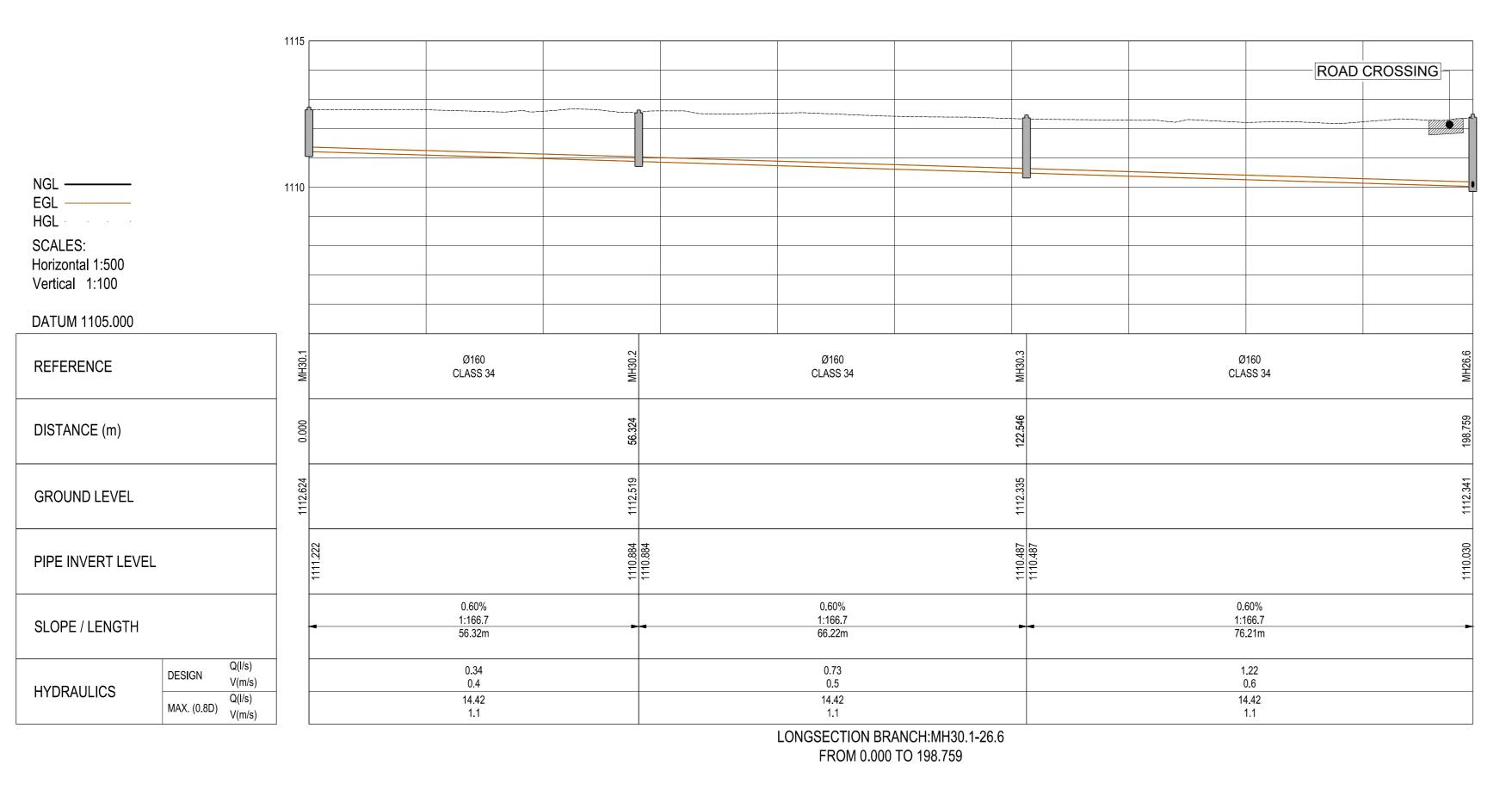




CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
		1:500	 PLANNING CONSTRUCTION AS-BUILT 	
ION		REVISION	PLAN No.	
			RCE86_RLM_04_SEF	KP_08
		L		

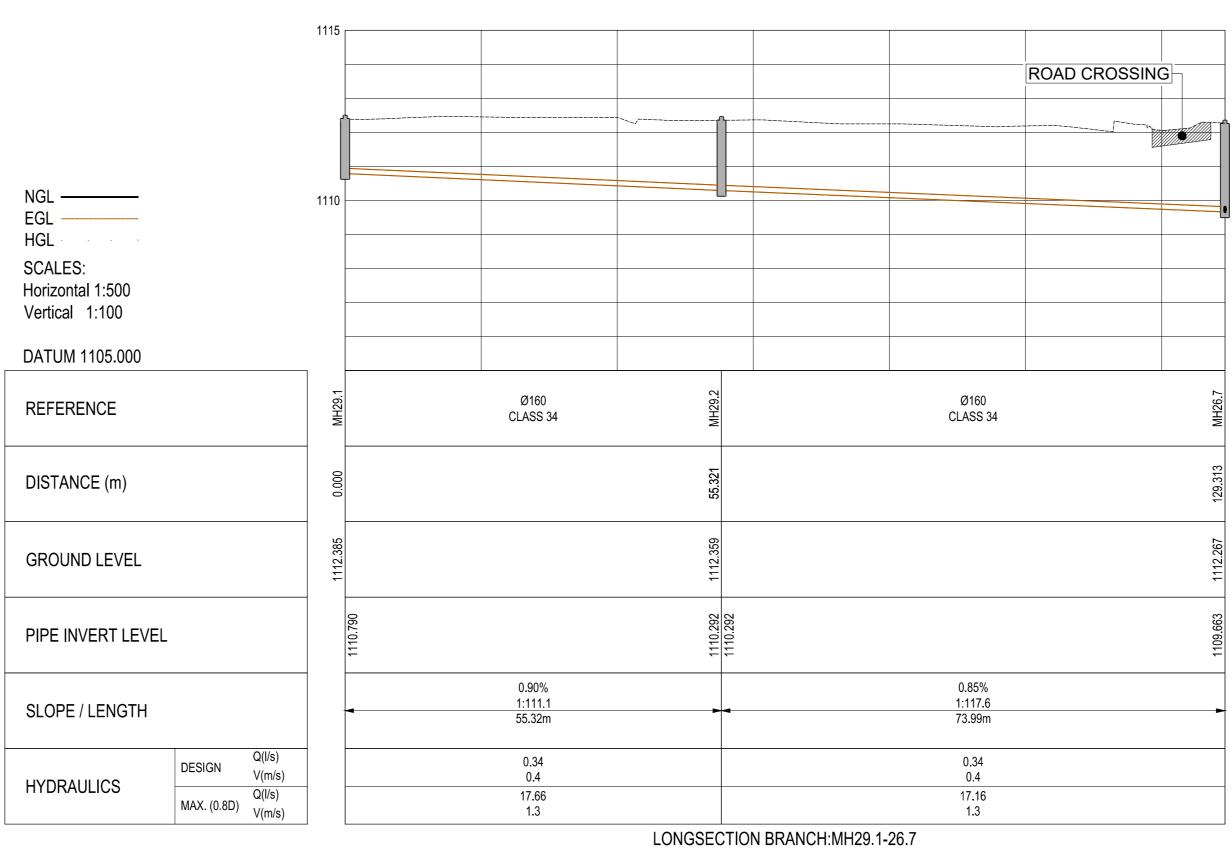
			1115		
			1115		
			ſ	·	
NGL			4440		
EGL			1110		
SCALES:					
Horizontal 1:500					
Vertical 1:100					
DATUM 1105.000			1		
REFERENCE			MH26.1	C	Ø160 CLASS 34
DISTANCE (m)			0.000		
			35		
GROUND LEVEL			1112.565		
PIPE INVERT LEVEL				1111.102	
PIPE INVERT LEVEL				1111	
					0.64% 1:155.2
SLOPE / LENGTH				4	45.15m
Q(I/s) DESIGN					0.59
HYDRAULICS					0.5
	MAX. (0.8D)	V(m/s)			1.1

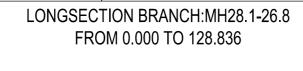




					DESIGNED BY: RALEMA CONS
No.	DATE	REVISIONS	BY	CHECKED BY	C08/06 PHOENIX VIEW Cnr RIVERSIDE & 14TH NOORDWYK X95 1863

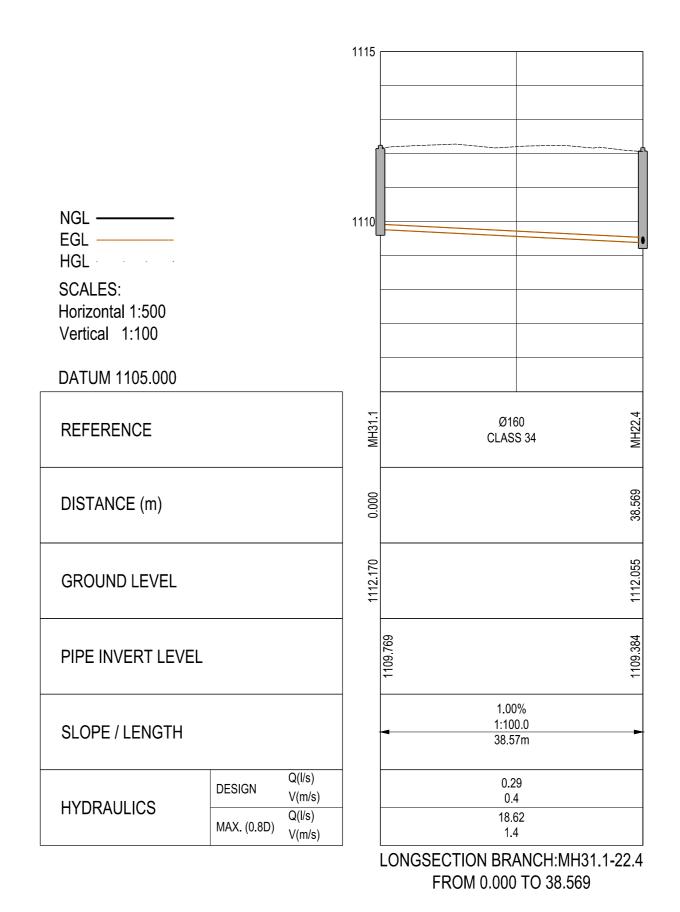
			ROAD CROSSI	NG										
										0				
		°		ı u				<u> </u>			~~~~	oj 2400 0		
MH26	Ø160 CLASS 34	© Ø160 ⁴ 97 87 97 97 97 97 97 97 97 97 97 97 97 97 97	Ø160 CLASS 34	MH26	Ø160 CLASS 34	MH26	Ø160 CLASS 34	MH26	Ø160 CLASS 34	MH26	Ø160 CLASS 34	0160 0000000000000000000000000000000000	Ø160 CLASS 34	
45.146		82.509 93.582		127.439		166.766		223.990		280.804		336.974 358.468		
1112.401		1112.395 1112.317		1112.158		1112.341		1112.267		1112.240		1112.127		
1110.811		1110.571 1110.571 1110.499 1110.499		1110.281		1110.028 1110.028		1109.659		1109.291		1108.931 1108.931 1108.791 1108.791		
	0.64% 1:155.4 37.36m	0.65% 1:154.6 11.07m	0.64% 1:155.1 33.86m		0.64% 1:155.4 39.33m	►	0.64% 1:155.2 57.22m		0.65% 1:154.5 56.81m		0.64% 1:155.7 56.17m	0.65% 1:154.1 21.49m	0.64% 1:156.4 71.19m	
	0.59 0.5	0.59 0.5	0.93 0.5		0.93 0.5		2.40 0.7		3.38 0.8		4.36 0.8	5.98 0.9	5.98 0.9	
	14.93 1.1	14.97 1.1	14.95 1.1		14.93 1.1		14.94 1.1		14.98 1.1		14.92 1.1	15.00 1.1	14.88 1.1	





JLTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
ULTING ENGINEERS	L. Maleka	ISSUED BY:	RECEIVED BY:	Rustanhura
ESTATES Tel: (011) 312 0873 STREET Fax: (086) 537 7440	DRAWN S. Bapela-Pr Tech Eng			Local Municipality
Email: admin@ralemacons.co.za	CHECKED	DATE:	DATE:	

LONGSECTION BRANCH:MH29.1-26.7 FROM 0.000 TO 129.313



g P O BOX 16 RUSTENBURG 0300 CLIENT

RUSTENBURG LOCAL MUNUCIPALITY

Tel: (014) 590 3535 Fax: (014) 590 3006

DRAWING TITLE

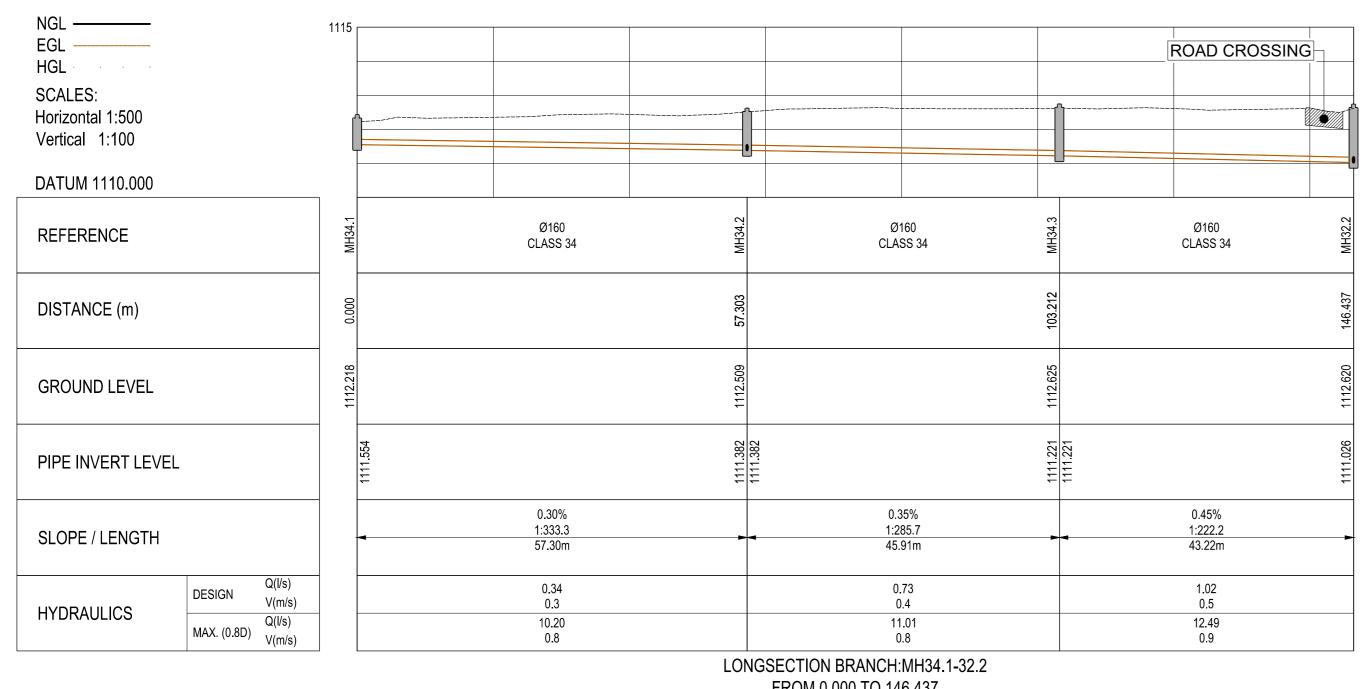
PROJECT TITLE

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTION

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	ORIGINAL PAPER SIZE: A0

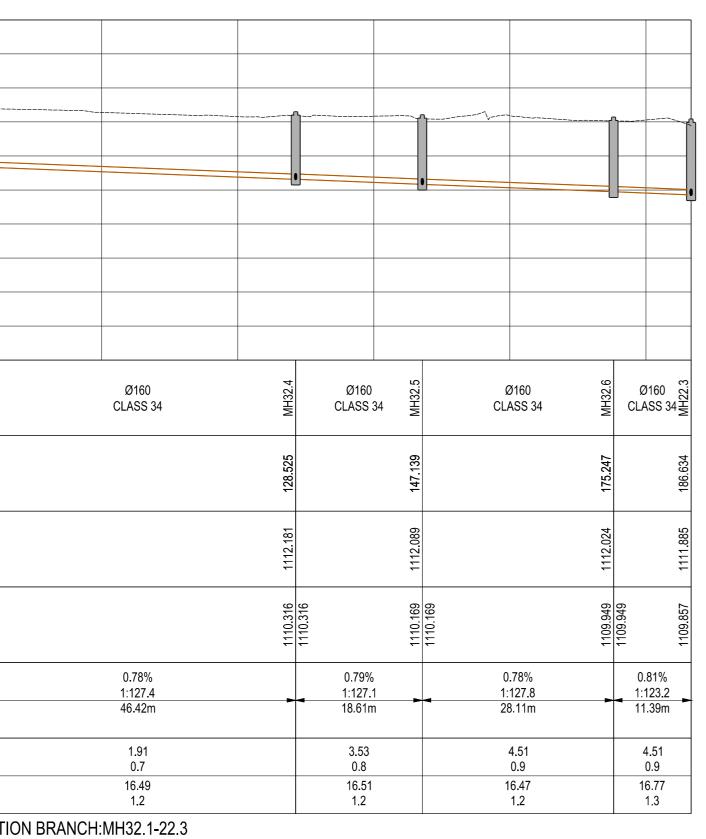
SHEET	SCALE	TYPES OF PLANNING	STATUS
ION		 PLANNING CONSTRUCTION AS-BUILT 	
		PLAN No.	
			(P_09
	SHEET	SHEET SCALE 1:500 REVISION	1:500 PLANNING As-BUILT

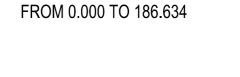
		1115					
						n	
				0			
NGL ——— EGL ——— HGL		1110					
SCALES: Horizontal 1:500							
Vertical 1:100							
DATUM 1105.000							
REFERENCE		MH32.1	Ø160 CLASS 34	MH32.2		160 87.25 SS 34 W	
DISTANCE (m)		0.000		38.232		82.101	
GROUND LEVEL		1112.507		1112.620		1112.395	
PIPE INVERT LEVE	EL	1111.325		1111.026 1111.026		1110.680 1110.680	1110.000
SLOPE / LENGTH			0.78% 1:127.8 38.23m	•	1:1	79% 26.9 87m	
	Q(I/s) DESIGN	-	0.25		1.	27	
HYDRAULICS		-	0.4		16	.6	
	WIAX. (0.oD) V(m/s)		1.2		1	2 LONGSE	CTI RON



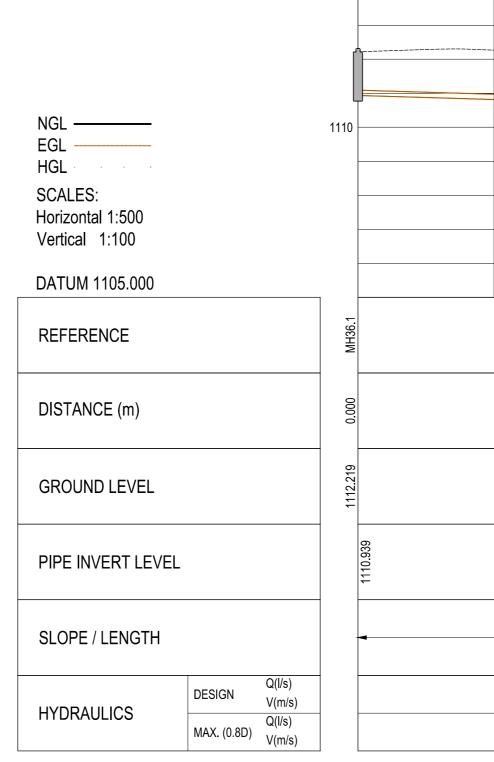
FROM 0.000 TO 146.437

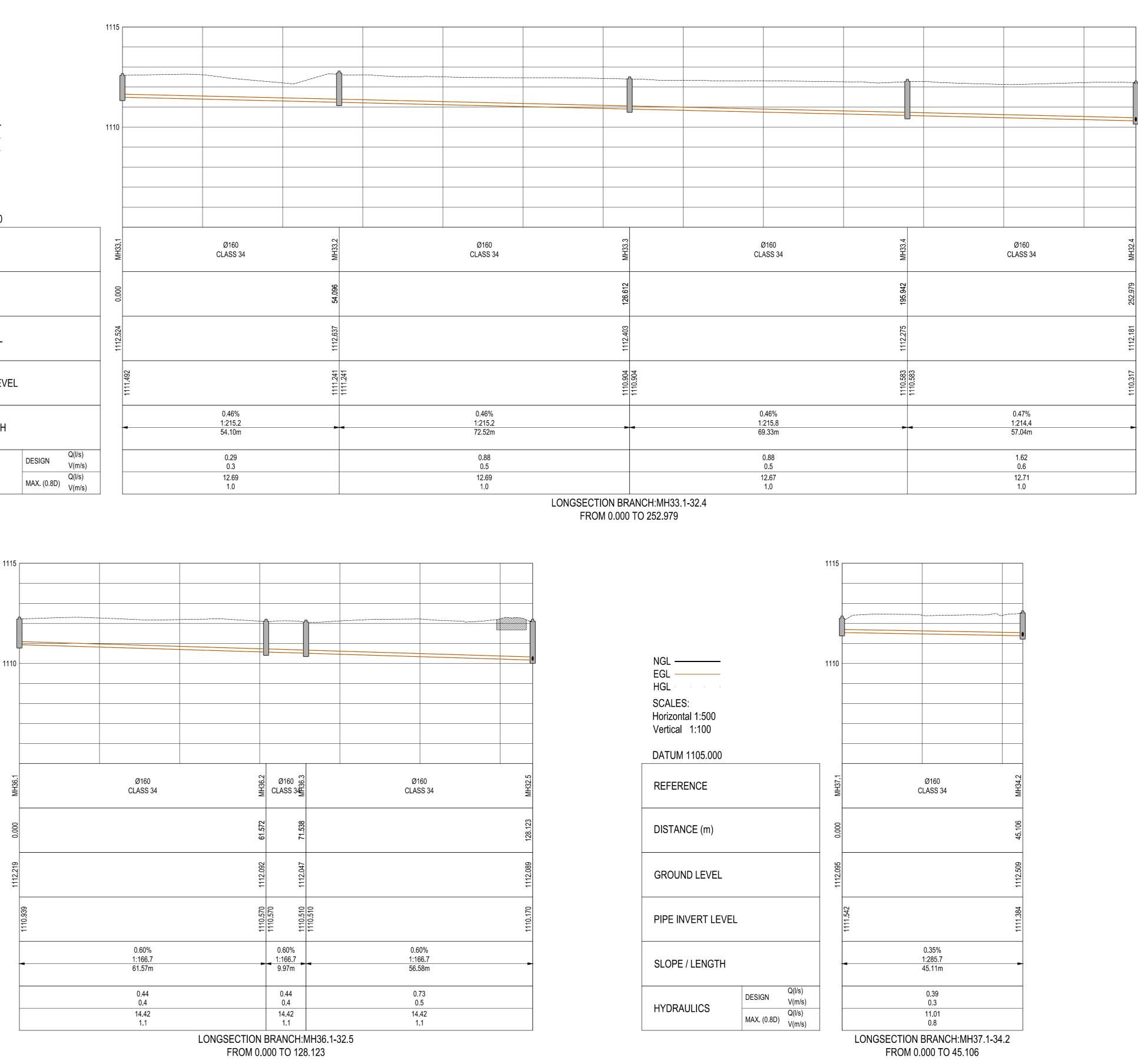
					DESIGNED BY: RALEMA CONSUL
					C08/06 PHOENIX VIEW ES
No.	DATE	REVISIONS	BY	CHECKED BY	Cnr RIVERSIDE & 14TH ST NOORDWYK X95 1863





NGL — EGL — HGL - SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000			1110	
REFERENCE			MH33.1	
DISTANCE (m)			0.000	
GROUND LEVEL			1112.524	
PIPE INVERT LEVEL				1111.492
SLOPE / LENGTH				-
HYDRAULICS	DESIGN MAX. (0.8D)	Q(I/s) V(m/s) Q(I/s) V(m/s)		







CONSULTING	DEPARTMENT OF ROADS
001100211110	AND STORMWATER
JED BY:	RECEIVED BY:
	DATE:





CLIENT

P O BOX 16 RUSTENBURG 0300 PROJECT TITLE

Tel: (014) 590 3535 Fax: (014) 590 3006

DRAWING TITLE

RUSTENBURG LOCAL MUNUCIPALITY	CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
	1:500	PLANNING CONSTRUCTION	PLANNING		
			1.500	AS-BUILT	
RAMOISHANA SEWER UPGRADES AND HOUSE CON	RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTION				
LONG SECTION		RCE86_RLM_04_SE	KP_10		

	STR	UCTURE	ELIST-Ran	notshana Sewer	Network	
STRUCTURE NAME	Y	Х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIAL
MH1.1	-28 069.101	2 837 514.247	1112.227	1109.136 3.091	P1.1-INV OUT 1109.136	Ирис
MH1.2	-28 034.888	2 837 447.505	1111.902	1108.734 3.169	P1.1-INV IN 1108.734 P1.2-INV OUT 1108.734	Uрус Uрус
MH1.3	-28 000.675	2 837 380.763	1111.835	1108.331 3.504	P1.2-INV IN 1108.331 P1.3-INV OUT 1108.331	Uрус Uрус
MH1.4	-27 965.979	2 837 313.079	1111.695	1107.923 3.772	P1.3-INV IN 1107.923 P1.4-INV OUT 1107.923	Upvc Upvc
MH1.5	-27 952.841	2 837 288.735	1111.619	1107.759 3.860	P22.8-INV IN 1107.759 P1.4-INV IN 1107.774 P1.5-INV OUT 1107.774	Upvc Upvc Upvc
MH1.6	-27 919.839	2 837 223.070	1111.396	1107.380 4.016	P1.5-INV IN 1107.380 P1.6-INV OUT 1107.380	Орус Ирус Ирус
MH1.7	-27 885.626	2 837 156.328	1111.156	1106.978 4.178	P1.6-INV IN 1106.978 P1.7-INV OUT 1106.978	Uрус Uрус
MH1.8	-27 849.970	2 837 090.326	1110.654	1106.575 4.078	P1.7-INV IN 1106.575 P1.8-INV OUT 1106.575	Орус Орус Орус
MH1.9	-27 822.551	2 837 038.664	1110.538	1105.148 5.391	P1.8-INV IN 1105.160 P1.9-INV OUT 1105.148	Upvc Upvc
MH1.10	-27 812.463	2 837 018.815	1110.389	1104.325 6.064	P2.17-INV IN 1104.334 P1.9-INV IN 1104.343	Uрус Uрус
MH1.11	-27 795.602	2 836 985.638	1110.603	1102.980 7.623	P1.10-INV OUT 1104.343 P1.10-INV IN 1102.980	Uрvс Upvc
MH2.1	-26 891.631	2 836 756.006	1112.213	1109.499 2.714	P2.1-INV OUT 1109.499	Ирис
MH2.2	-26 966.070	2 836 757.973	1112.743	1109.135 3.608	P2.1-INV IN 1109.135 P2.2-INV OUT 1109.135	Ирус Ирус
MH2.3	-27 045.617	2 836 760.889	1112.162	1108.745 3.417	P2.2-INV IN 1108.745 P2.3-INV OUT 1108.745	Upvc Upvc
MH2.4	-27 074.197	2 836 762.009	1112.142	1108.604 3.538	P2.3-INV IN 1108.604 P2.4-INV OUT 1108.604	Upvc Upvc
MH2.5	-27 101.362	2 836 771.986	1111.883	1108.463 3.420	P2.4-INV IN 1108.463 P2.5-INV OUT 1108.463	Upvc Upvc
MH2.6	-27 137.718	2 836 810.749	1111.823	1108.205 3.618	P2.5-INV IN 1108.205 P2.6-INV OUT 1108.205	Upvc Upvc
MH2.7	-27 189.853	2 836 865.162	1111.534	1107.834 3.700	P2.6-INV IN 1107.834 P2.7-INV OUT 1107.834	Upvc Upvc
MH2.8	-27 241.058	2 836 919.593	1111.367	1107.467 3.900	P2.7-INV IN 1107.467 P2.8-INV OUT 1107.467	Upvc Upvc
MH2.9	-27 286.466	2 836 967.114	1111.584	1107.146	P39.1-INV IN 1107.147 P2.8-INV IN 1107.146	Upvc Upvc
				4.438	P2.9-INV OUT 1107.146 P2.9-INV IN 1106.780	Upvc Upvc
MH2.10	-27 347.162	2 837 024.108	1111.201	4.421	P2.10-INV OUT 1106.780 P2.10-INV IN 1106.391	Uрус Uрус
MH2.11	-27 416.286	2 837 039.975	1111.272	4.882	P2.11-INV OUT 1106.391 P2.11-INV IN 1105.953	Uрус Uрус
MH2.12	-27 503.945	2 837 057.541	1110.983	1105.953 5.030	P11.4-INV IN 1105.953 P2.12-INV OUT 1105.953	Upvc Upvc
MH2.13	-27 551.272	2 837 066.203	1111.045	1105.717 5.328	P2.12-INV IN 1105.717 P2.13-INV OUT 1105.717	Uрvс Upvc
MH2.14	-27 621.539	2 837 079.470	1110.963	1105.367 5.596	P2.13-INV IN 1105.367 P2.14-INV OUT 1105.367	Uрvс Upvc
MH2.15	-27 674.760	2 837 089.438	1110.936	1105.102 5.834	P2.14-INV IN 1105.102 P2.15-INV OUT 1105.102	Uрvс Upvc
MH2.16	-27 720.702	2 837 066.529	1110.471	1104.850 5.622	P2.15-INV IN 1104.850 P3.7-INV IN 1104.850 P2.16-INV OUT 1104.850	Ирус Ирус Ирус
MH2.17	-27 762.939	2 837 044.766	1110.383	1104.617 5.766	P2.16-INV IN 1104.617 P2.17-INV OUT 1104.617	Uрvс Uрvс
MH3.1	-27 818.880	2 837 318.568	1111.901	1109.065 2.837	P3.1-INV OUT 1109.065	Upvc
MH3.2	-27 822.457	2 837 283.256	1111.743	1108.685 3.058	P3.1-INV IN 1108.685 P3.2-INV OUT 1108.685	Uрvс Upvc
MH3.3	-27 821.913	2 837 263.010	1111.669	1108.468 3.201	P3.2-INV IN 1108.468 P3.3-INV OUT 1108.468	Uрис Uрис
MH3.4	-27 787.673	2 837 196.539	1111.335	1107.667 3.668	P3.3-INV IN 1107.667 P3.4-INV OUT 1107.667	Uрvс Upvc
MH3.5	-27 753.328	2 837 129.865	1111.054	1106.864 4.191	P3.4-INV IN 1106.864 P3.5-INV OUT 1106.864	Uрис Uрис
MH3.6	-27 743.674	2 837 111.123	1111.006	1106.638 4.368	P3.5-INV IN 1106.638 P4.6-INV IN 1106.640 P3.6-INV OUT 1106.638	Ирус Ирус Ирус
MH3.7	-27 733.306	2 837 090.996	1110.900	1106.392 4.508	P5.6-INV IN 1106.392 P3.6-INV IN 1106.394 P3.7-INV OUT 1106.394	Ирус Ирус Ирус
MH4.1	-27 844.468	2 837 271.881	1111.669	1109.749 1.919	P4.1-INV OUT 1109.749	Upvc
MH4.2	-27 852.545	2 837 270.538	1111.664	1109.662 2.002	P4.1-INV IN 1109.662 P4.2-INV OUT 1109.662	Ирус Ирус
MH4.3	-27 881.163	2 837 255.828	1111.486	1109.314 2.172	P4.2-INV IN 1109.314 P4.3-INV OUT 1109.314	Ирус Ирус
MH4.4	-27 838.761	2 837 172.421	1111.096	1108.307 2.789	P4.3-INV IN 1108.307 P4.4-INV OUT 1108.307	Ирус Ирус
MH4.5	-27 804.675	2 837 105.659	1110.831	1107.499 3.332	P4.4-INV IN 1107.499 P4.5-INV OUT 1107.499	Ирус Ирус
MH4.6	-27 793.769	2 837 085.059	1110.700	1107.248 3.452	P4.5-INV IN 1107.248 P4.6-INV OUT 1107.248	Upvc Upvc
MH5.1	-27 510.547	2 837 114.427	1111.292	1109.174 2.119	P5.1-INV OUT 1109.174	Upvc
MH5.2	-27 549.864	2 837 122.757	1111.348	1108.698 2.650	P10.2-INV IN 1108.699 P5.1-INV IN 1108.698 P5.2-INV OUT 1108.698	Ирус Ирус Ирус
MH5.3	-27 604.923	2 837 134.320	1111.298	1108.031 3.267	P5.2-INV IN 1108.031 P5.3-INV OUT 1108.031	Upvc Upvc Upvc
MH5.4	-27 633.742	2 837 134.951	1111.363	1107.690 3.673	P5.3-INV IN 1107.690 P7.4-INV IN 1107.690	Uрvс Upvc
MH5.5	-27 661.898	2 837 121.157	1111.133	1107.319	P5.4-INV OUT 1107.690 P5.4-INV IN 1107.319 P5.5-INV OUT 1107.319	Upvc Upvc Upvc
MH5.6	-27 681.155	2 837 118.075	1111.448	3.814	P5.5-INV OUT 1107.319 P5.5-INV IN 1107.087 P6.3-INV IN 1107.087	Upvc Upvc Upvc
MH6.1	-27 704.240	2 837 271.102	1111.713	4.360	P5.6-INV OUT 1107.087	Upvc Upvc
IVIFIO, I	-21 (04.240		1111.713	1.976 1109.144	P6.1-INV OUT 1109.737 P6.1-INV IN 1109.144	Орус Орус
MH6.2	-27 748 422	2 837 249.030	1 1 1 1 1 1 1 1 1	2.569	P6.2-INV OUT 1109.144	Upvc

					DESIGNED BY: RALEMA CONSU
۱o.	DATE	REVISIONS	BY	CHECKED BY	Cnr RIVERSIDE & 14TH S NOORDWYK X95 1863

STRUCTURE NAME	Y	Х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIA
MH7.1	-27 687.429	2 837 255.741	1111.748	1109.266	P7.1-INV OUT 1109.266	Ирус
MH7.2	-27 681,865	2 837 244,314	1111.715	1109.108	P8.4-INV IN 1109.113 P7.1-INV IN 1109.113	Uрус Uрус
IVII 17 .2	-27 001.000	2 007 244.014		2.607	P7.2-INV IN 1109.113	Upvc Upvc
MH7.3	-27 650.340	2 837 184.093	1111.442	1108.433 3.009	P7.2-INV IN 1108.433 P7.3-INV OUT 1108.433	Upvc Upvc
MH7.4	-27 630.340	2 837 145.474	1111.362	1107.911 3.450	P7.3-INV IN 1107.911 P7.4-INV OUT 1107.911	Uрvс Upvc
MH8.1	-27 525.684	2 837 221.883	1111.598	1110.029 1.569	P8.1-INV OUT 1110.029	Upvc
MH8.2	-27 547.469	2 837 247.497	1111.684	1109.804 1.880	P8.1-INV IN 1109.804 P8.2-INV OUT 1109.804	Uрvс Upvc
MH8.3	-27 600.082	2 837 253.063	1111.805	1109.539 2.266	P8.2-INV IN 1109.539 P8.3-INV OUT 1109.539	Ирус Ирус
MH8.4	-27 651.518	2 837 258.510	1111.662	1109.281 2.381	P8.3-INV IN 1109.281 P8.4-INV OUT 1109.281	Ирус Ирус
MH9.1	-27 582.720	2 837 196.195	1111.501	1109.326 2.175	P9.1-INV OUT 1109.326	Upvc
MH9.2	-27 619.435	2 837 198.831	1111.677	1108.843 2.834	P9.1-INV IN 1108.847 P9.2-INV OUT 1108.847	Uрvс Upvc
MH10.1	-27 529.242	2 837 202.059	1111.525	1109.962 1.563	P10.1-INV OUT 1109.962	Upvc
MH10.2	-27 542.768	2 837 127.748	1111.381	1108.829 2.552	P10.1-INV IN 1108.829 P10.2-INV OUT 1108.829	Uрvс Upvc
MH11.1	-27 467.383	2 837 218.652	1111.556	1109.639 1.917	P11.1-INV OUT 1109.639	Upvc
MH11.2	-27 478.891	2 837 159.546	1111.254	1108.435 2.819	P12.13-INV IN 1108.435 P11.1-INV IN 1108.435 P11.2-INV OUT 1108.435	Uрvс Upvc Upvc
MH11.3	-27 490.536	2 837 097.444	1111.160	1107.487 3.673	P11.2-INV IN 1107.487 P11.3-INV OUT 1107.487	Uрус Uрус
MH11.4	-27 497.116	2 837 064.846	1110.922	1106.822 4.100	P11.3-INV IN 1106.822 P11.4-INV OUT 1106.822	Upvc Upvc
MH12.1	-26 974.000	2 836 783.138	1112.867	1111.488	P12.1-INV OUT 1111.488	Upvc
MH12.2	-26 981.866	2 836 798.631	1112.844	1111.407 1.437	P12.1-INV IN 1111.407 P12.2-INV OUT 1111.407	Uрус Uрус
MH12.3	-26 986.576	2 836 803.757	1112.937	1111.375	P12.2-INV IN 1111.375 P21.4-INV IN 1111.378	Upvc Upvc
				1.562	P12.3-INV OUT 1111.375 P12.3-INV IN 1111.114	Upvc Upvc
MH12.4	-27 024.866	2 836 844.923	1112.914	1111.114 1.800	P20.1-INV IN 1111.114 P12.4-INV OUT 1111.114	Upvc Upvc
MH12.5	-27 065.209	2 836 886.138	1112.639	1110.846 1.794	P19.2-INV IN 1110.847 P12.4-INV IN 1110.846 P12.5-INV OUT 1110.846	Uрvс Uрvс Uрvс
MH12.6	-27 103.766	2 836 928.112	1112.635	1110.581	P18.1-INV IN 1110.582 P12.5-INV IN 1110.581	Upvc Upvc
				2.054	P12.6-INV OUT 1110.581	Upvc
MH12.7	-27 142.925	2 836 969.090	1112.296	1110.318 1.979	P12.6-INV IN 1110.318 P12.7-INV OUT 1110.318	Upvc Upvc
MH12.8	-27 175.013	2 837 002.630	1111.959	1110.102 1.858	P12.7-INV IN 1110.102 P16.5-INV IN 1110.103 P12.8-INV OUT 1110.102	Upvc Upvc Upvc
MH12.9	-27 227.925	2 837 058.069	1111.793	1109.746 2.047	P12.8-INV IN 1109.746 P12.9-INV OUT 1109.746	Upvc Upvc
MH12.10	-27 283.092	2 837 117.551	1111.824	1109.369 2.455	P12.9-INV IN 1109.369 P12.10-INV OUT 1109.369	Uрvс Upvc
MH12.11	-27 301.404	2 837 126.522	1111.884	1109.275 2.609	P12.10-INV IN 1109.275 P12.11-INV OUT 1109.275	Uрvс Upvc
MH12.12	-27 358.008	2 837 137.708	1111.706	1109.008	P12.11-INV IN 1109.008 P13.4-INV IN 1109.008	Ирус Ирус
				2.698	P12.12-INV OUT 1109.008 P15.4-INV IN 1108.729	Uрvс Upvc
MH12.13	-27 417.769	2 837 148.220	1111.629	1108.725 2.904	P12.12-INV IN 1108.725 P12.13-INV OUT 1108.725	Uрус Uрус
MH13.1	-27 349.115	2 837 304.724	1112.279	1110.466 1.813	P13.1-INV OUT 1110.466	Upvc
MH13.2	-27 334.637	2 837 287.449	1112.226	1110.286 1.940	P13.1-INV IN 1110.286 P13.2-INV OUT 1110.286	Uрvс Upvc
MH13.3	-27 332.229	2 837 277.479	1112.188	1110.204 1.985	P13.2-INV IN 1110.204 P13.3-INV OUT 1110.204	Uрvс Upvc
MH13.4	-27 347.258	2 837 195.150	1111.733	1109.534 2.199	P14.3-INV IN 1109.534 P13.3-INV IN 1109.534 P13.4-INV OUT 1109.534	Upvc Upvc Upvc
MH14.1	-27 359.585	2 837 322.508	1112.339	1110.775 1.564	P14.1-INV OUT 1110.775	Upvc
MH14.2	-27 390.981	2 837 296.571	1112.197	1110.514 1.683	P14.1-INV IN 1110.514 P14.2-INV OUT 1110.514	Ирус Ирус
MH14.3	-27 407.304	2 837 206.301	1111.831	1109.928 1.903	P14.2-INV IN 1109.928 P14.3-INV OUT 1109.928	Uрvс Upvc
MH15.1	-27 268.709	2 837 018.211	1111.568	1110.201 1.367	P15.1-INV OUT 1110.201	Орус
MH15.2	-27 312.682	2 837 064.451	1111.308	1109.811 1.497	P15.1-INV IN 1109.811 P15.2-INV OUT 1109.811	Uрvс Upvc
MH15.3	-27 329.899	2 837 074.127	1111.368	1109.688 1.680	P15.2-INV IN 1109.688 P15.3-INV OUT 1109.688	Ирус Ирус
MH15.4	-27 428.196	2 837 092.025	1111.666	1109.078 2.589	P15.3-INV IN 1109.078 P15.4-INV OUT 1109.078	Uрvс Upvc
MH16.1	-27 035.768	2 836 808.011	1112.545	1111.092 1.453	P16.1-INV OUT 1111.092	Upvc
MH16.2	-27 069.972	2 836 808.839	1112.428	1110.982 1.447	P16.1-INV IN 1110.982 P16.2-INV OUT 1110.982	Ирус Ирус
MH16.3	-27 121.426	2 836 862.865	1112.187	1110.741 1.446	P16.2-INV IN 1110.741 P16.3-INV OUT 1110.741	Ирус Ирус
MH16.4	-27 172.718	2 836 917.190	1111.779	1110.499 1.280	P16.3-INV IN 1110.499 P16.4-INV OUT 1110.499	Uрус Uрус
MH16.5	-27 217.334	2 836 963.963	1111.894	1110.291 1.603	P16.4-INV IN 1110.291 P16.5-INV OUT 1110.291	Upvc Upvc
MH17.1	-27 041.305	2 836 985.688	1112.773	1110.990 1.783	P17.1-INV OUT 1110.990	Upvc
MH17.2	-27 081.086	2 837 027.289	1112.518	1110.702 1.816	P17.1-INV IN 1110.702 P17.2-INV OUT 1110.702	Uрvс Upvc
MH18.1	-27 058.940	2 836 971.094	1112.654	1111.203 1.451	P18.1-INV OUT 1111.203	Upvc
MH19.1	-26 962.871	2 836 903.271	1113.155	1111.856 1.299	P19.1-INV OUT 1111.856	Upvc
MH19.2	-27 002.626	2 836 945.394	1113.218	1111.450 1.768	P19.1-INV IN 1111.450 P19.2-INV OUT 1111.450	Uрус Uрус

	STF	RUCTURE	E LIST-Rar	notshana Sewei	^r Network	
STRUCTURE NAME	Y	х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIAL
MH20.1	-26 979.757	2 836 888.475	1112.948	1111.679 1.269	P20.1-INV OUT 1111.679	Ирус
MH21.1	-26 897.571	2 836 802.513	1113.087	1112.070 1.017	P21.1-INV OUT 1112.070	Ирус
MH21.2	-26 888.152	2 836 824.459	1113.141	1111.975 1.166	P21.1-INV IN 1111.975 P21.2-INV OUT 1111.975	Ирус Ирус
MH21.3	-26 898.989	2 836 836.780	1113.254	1111.909 1.345	P38.1-INV IN 1111.911 P21.2-INV IN 1111.909	Ирус Ирус
MH21.4	-26 923.893	2 836 862.712	1113.261	1111.765	P21.3-INV OUT 1111.909 P21.3-INV IN 1111.765	Uрус Uрус
MH22.1	-27 474.487	2 837 257.642	1111.843	1.495 1110.236	P21.4-INV OUT 1111.765 P22.1-INV OUT 1110.236	Uрус Uрус
MH22.2	-27 506.997	2 837 294.319	1111.874	1.607	P22.1-INV IN 1110.000	Upvc
				1.874	P22.2-INV OUT 1110.000 P22.2-INV IN 1109.857	Uрус Uрус
MH22.3	-27 534.221	2 837 306.986	1112.069	2.213	P32.6-INV IN 1109.857 P22.3-INV OUT 1109.857	Uрус Uрус
MH22.4	-27 633.151	2 837 318.601	1112.155	1109.378 2.777	P31.1-INV IN 1109.384 P22.3-INV IN 1109.378 P22.4-INV OUT 1109.378	Ирус Ирус Ирус
MH22.5	-27 704.013	2 837 326.187	1112.084	1109.036 3.048	P22.4-INV IN 1109.036 P22.5-INV OUT 1109.036	Ирус Ирус
MH22.6	-27 778.635	2 837 333.842	1112.068	1108.675 3.393	P22.5-INV IN 1108.675 P22.6-INV OUT 1108.675	Ирус Ирус
MH22.7	-27 852.880	2 837 339.734	1111.999	1108.318 3.682	P22.6-INV IN 1108.318 P22.7-INV OUT 1108.318	Ирус Ирус
MH22.8	-27 912.200	2 837 310.654	1111.691	1107.981 3.709	P22.7-INV IN 1108.000 P23.7-INV IN 1108.000 P22.8-INV OUT 1107.981	Ирус Ирус Ирус
MH23.1	-27 887.701	2 837 538.838	1112.441	1110.491 1.951	P23.1-INV OUT 1110.491	Ирус
MH23.2	-27 976.410	2 837 547.399	1112.270	1109.902 2.368	P23.1-INV IN 1109.902 P23.2-INV OUT 1109.902	Ирус Ирус
MH23.3	-28 016.160	2 837 527.733	1112.463	1109.610 2.853	P23.2-INV IN 1109.610 P23.3-INV OUT 1109.610	Upvc Upvc
MH23.4	-28 019.824	2 837 521.232	1112.247	1109.561 2.687	P23.3-INV IN 1109.561 P23.4-INV OUT 1109.561	Ирус Ирус
MH23.5	-27 988.545	2 837 460.905	1112.090	1109.112	P24.1-INV IN 1109.113 P23.4-INV IN 1109.112	Uрус Uрус
				2.977	P23.5-INV OUT 1109.112 P25.3-INV IN 1108.768	Uрvс Upvc
MH23.6	-27 964.994	2 837 414.178	1112.044	3.278	P23.5-INV IN 1108.766 P23.6-INV OUT 1108.766	Uрус Uрус
MH23.7	-27 935.430	2 837 355.604	1111.884	1108.334 3.550	P26.10-INV IN 1108.336 P23.6-INV IN 1108.334 P23.7-INV OUT 1108.334	Ирус Ирус Ирус
MH24.1	-27 949.155	2 837 481.503	1112.205	1110.002 2.203	P24.1-INV OUT 1110.002	Ирус
MH25.1	-27 895.585	2 837 522.920	1112.268	1110.516 1.753	P25.1-INV OUT 1110.516	Ирус
MH25.2	-27 902.762	2 837 449.759	1112.122	1109.634 2.489	P25.1-INV IN 1109.634 P25.2-INV OUT 1109.634	Ирус Ирус
MH25.3	-27 909.085	2 837 443.011	1112.106	1109.523 2.583	P25.2-INV IN 1109.523 P25.3-INV OUT 1109.523	Ирус Ирус
MH26.1	-27 612.212	2 837 490.991	1112.615	1111.102 1.513	P26.1-INV OUT 1111.102	Ирус
MH26.2	-27 616.942	2 837 446.093	1112.505	1110.811 1.693	P26.1-INV IN 1110.811 P26.2-INV OUT 1110.811	Ирус Ирус
MH26.3	-27 621.045	2 837 408.956	1112.477	1110.571 1.906	P26.2-INV IN 1110.571 P26.3-INV OUT 1110.571	Ирус Ирус
MH26.4	-27 623.372	2 837 398.131	1112.386	1110.499 1.887	P26.3-INV IN 1110.499 P26.4-INV OUT 1110.499	Uрус Uрус
MH26.5	-27 642.268	2 837 370.037	1112.289	1110.281 2.008	P26.4-INV IN 1110.281 P26.5-INV OUT 1110.281	Uрус Uрус
MH26.6	-27 681.348	2 837 374.441	1112.476	1110.028 2.449	P30.3-INV IN 1110.030 P26.5-INV IN 1110.028 P26.6-INV OUT 1110.028	Ирус Ирус Ирус
MH26.7	-27 738.352	2 837 379.446	1112.339	1109.659 2.680	P26.6-INV IN 1109.659 P29.2-INV IN 1109.663 P26.7-INV OUT 1109.659	Ирус Ирус Ирус
MH26.8	-27 794.850	2 837 385.435	1112.331	1109.291 3.040	P26.7-INV IN 1109.291 P28.2-INV IN 1109.295	Upvc Upvc
				1108.931	P26.8-INV OUT 1109.291 P26.8-INV IN 1108.931	Upvc Upvc
MH26.9	-27 850.702	2 837 391.405	1112.213	3.282	P27.4-INV IN 1108.932 P26.9-INV OUT 1108.931	Upvc Upvc
MH26.10	-27 871.867	2 837 387.656	1112.202	1108.791 3.411 1111.048	P26.9-INV IN 1108.791 P26.10-INV OUT 1108.791	Ирис Ирис
MH27.1	-27 717.410	2 837 521.860	1112.684	1111.048 1.636 1110.528	P27.1-INV OUT 1111.048 P27.1-INV IN 1110.528	Uрvс Upvc
MH27.2	-27 781.758	2 837 527.730	1112.654	2.126	P27.2-INV IN 1110.528 P27.2-INV OUT 1110.528 P27.2-INV IN 1110.081	Орус Upус Upус
MH27.3	-27 836.924	2 837 533.221	1112.600	2.518	P27.3-INV IN 1110.081 P27.3-INV OUT 1110.081 P27.3-INV IN 1109.548	Орус Upус Upус
MH27.4	-27 843.752	2 837 467.326	1112.426	2.878	P27.4-INV OUT 1109.548	Ирус
MH28.1	-27 782.059	2 837 513.633	1112.469	2.051	P28.1-INV OUT 1110.418 P28.1-INV IN 1109.913	Uрvс Upvc
MH28.2 MH29.1	-27 787.316 -27 725.447	2 837 457.797 2 837 508.114	1112.365	2.452 1110.790	P28.2-INV OUT 1109.913 P29.1-INV OUT 1110.790	Upvc Upvc
МН29.1	-27 725.447	2 837 506.114	1112.465	1.695 1110.292	P29.1-INV IN 1110.292	Ирус
мн29.2	-27 611.032	2 837 510.296	1112.724	2.148	P29.2-INV OUT 1110.292 P30.1-INV OUT 1111.222	Uрvс Upvc
MH30.2	-27 667.050	2 837 516.156	1112.619	1.501 1110.884 1.734	P30.1-INV OUT 1110.884 P30.2-INV OUT 1110.884	Upvc Upvc
MH30.3	-27 673.576	2 837 450.256	1112.450	1.734 1110.487 1.963	P30.2-INV OUT 1110.884 P30.2-INV IN 1110.487 P30.3-INV OUT 1110.487	Орус Uрус Uрус
MH31.1	-27 627.388	2 837 356.737	1112.226	1.963 1109.769 2.456	P30.3-INV OUT 1110.487	Орус
MH32.1	-27 497.322	2 837 484.800	1112.604	1111.325 1.279	P32.1-INV OUT 1111.325	Ирус
MH32.2	-27 501.423	2 837 446.788	1112.720	1111.026 1.694	P34.3-INV IN 1111.026 P32.1-INV IN 1111.026	Ирус Ирус
MH32.3	-27 505.954	2 837 403.155	1112.495	1110.680	P32.2-INV OUT 1111.026 P32.2-INV IN 1110.680	Upvc Upvc
				1.815	P32.3-INV OUT 1110.680 P33.4-INV IN 1110.317 P32.3-INV IN 1110.316	Upvc Upvc
MH32.4	-27 511.239	2 837 357.032	1112.281	1.966	P32.3-INV IN 1110.316 P32.4-INV OUT 1110.316	Ирус Ирус

	S. Bapela-Pr Tech Eng DESIGNED	}
RA EMA NSULTING ENGINEERS	L. Maleka	
VIEW ESTATES Tel: (011) 312 0873 & 14TH STREET Fax: (086) 537 7440	DRAWN S. Bapela-Pr Tech Eng	
5 Email: admin@ralemacons.co.za	CHECKED DATE:	

DEPARTMENT OF ROADS CLIENT ADDRESS Rustenburg

AND STORMWATER

DATE:

RECEIVED BY:

.....

STRUCTURE LIST-Ramotshana Sewer Network									
STRUCTURE NAME	Y	Х	RIM ELEVATION	SUMP ELEVATION SUMP DEPTH	INVERT ELEVATION	MATERIA			
MH32.5	-27 513.773	2 837 338.592	1112.189	1110.169 2.020	P36.3-INV IN 1110.170 P32.4-INV IN 1110.169 P32.5-INV OUT 1110.169	Ирус Ирус Ирус			
MH32.6	-27 524.267	2 837 312.516	1112.124	1109.949 2.175	P32.5-INV IN 1109.949 P32.6-INV OUT 1109.949	Ирус Ирус			
MH33.1	-27 499.388	2 837 498.374	1112.656	1111.492 1.164	P33.1-INV OUT 1111.492	Upvc			
MH33.2	-27 553.188	2 837 504.026	1112.782	1111.241 1.541	P33.1-INV IN 1111.241 P33.2-INV OUT 1111.241	Ирус Ирус			
MH33.3	-27 560.960	2 837 431.928	1112.493	1110.904 1.589	P33.2-INV IN 1110.904 P33.3-INV OUT 1110.904	Uрvс Uрvс			
MH33.4	-27 567.968	2 837 362.953	1112.367	1110.583 1.784	P33.3-INV IN 1110.583 P33.4-INV OUT 1110.583	Uрvс Upvc			
MH34.1	-27 391.531	2 837 363.898	1112.410	1111.554 0.856	P34.1-INV OUT 1111.554	Ирус			
MH34.2	-27 428.269	2 837 407.875	1112.604	1111.382 1.222	P37.1-INV IN 1111.384 P34.1-INV IN 1111.382 P34.2-INV OUT 1111.382	Uрvс Uрvс Uрvс			
MH34.3	-27 458.411	2 837 442.502	1112.725	1111.221 1.504	P34.2-INV IN 1111.221 P34.3-INV OUT 1111.221	Ирус Ирус			
MH36.1	-27 404.906	2 837 359.151	1112.293	1110.939 1.354	P36.1-INV OUT 1110.939	Upvc			
MH36.2	-27 450.876	2 837 318.189	1112.192	1110.570 1.622	P36.1-INV IN 1110.570 P36.2-INV OUT 1110.570	Ирус Ирус			
MH36.3	-27 460.833	2 837 318.611	1112.147	1110.510 1.638	P36.2-INV IN 1110.510 P36.3-INV OUT 1110.510	Ирус Ирус			
MH37.1	-27 462.804	2 837 378.861	1112.343	1111.542 0.801	P37.1-INV OUT 1111.542	Upvc			
MH38.1	-26 915.150	2 836 806.032	1113.049	1112.050 0.999	P38.1-INV OUT 1112.050	Upvc			
MH39.1	-27 240.562	2 837 011.424	1111.475	1109.061 2.414	P39.1-INV OUT 1109.061	Upvc			

P O BOX 16 RUSTENBURG 0300 $\langle D \rangle$

CLIENT PROJECT TITLE

RUSTENBURG LOCAL MUNUCIPALITY

Tel: (014) 590 3535 Fax: (014) 590 3006

DRAWING TITLE

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTI

MANHOLES SETTING OUT DATA

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS		
		1:500	PLANNING PLANNING CONSTRUCTION AS-BUILT			
ION		REVISION	REVISION PLAN No.			
			RCE86_RLM_04_SE	KP_02		

	PIPE LIST-Ramotshana Sewer Network												
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	3D LENGTH TO INSIDE EDGES	SLOPE	DIAMETER AND CLASS								
P1.1	1109.136	1108.734	74.003	0.536%	315 mm Class 34								
P1.2	1108.734	1108.331	74.003	0.537%	315 mm Class 34								
P1.3	1108.331	1107.923	75.061	0.536%	315 mm Class 34								
P1.4	1107.923	1107.774	26.665	0.537%	315 mm Class 34								
P1.5	1107.774	1107.380	72.494	0.537%	315 mm Class 34								
P1.6	1107.380	1106.978	74.003	0.537%	315 mm Class 34								
P1.7	1106.978	1106.575	74.020	0.536%	315 mm Class 34								
P1.8	1106.575	1105.160	57.512	2.420%	315 mm Class 34								
P1.9	1105.148	1104.343	21.290	3.614%	315 mm Class 34								
P1.10	1104.343	1102.980	36.452	3.663%	315 mm Class 34								
P2.1	1109.499	1109.135	73.467	0.490%	160 mm Class 34								
P2.2	1109.135	1108.745	78.602	0.490%	160 mm Class 34								
P2.3	1108.745	1108.604	27.604	0.491%	160 mm Class 34								
P2.4	1108.604	1108.463	27.940	0.489%	160 mm Class 34								
P2.5	1108.463	1108.205	52.146	0.485%	160 mm Class 34								
P2.6	1108.205	1107.834	74.360	0.493%	160 mm Class 34								
P2.7	1107.834	1107.467	73.732	0.491%	160 mm Class 34								
P2.8	1107.467	1107.146	64.728	0.490%	160 mm Class 34								
P2.9	1107.146	1106.780	82.263	0.439%	160 mm Class 34								
P2.10	1106.780	1106.391	69.923	0.549%	160 mm Class 34								
P2.10	1106.391	1105.953	88.404	0.490%	160 mm Class 34								
	1105.953												
P2.12		1105.717	47.115	0.489%	250 mm Class 34								
P2.13	1105.717	1105.367	70.510	0.490%	250 mm Class 34								
P2.14	1105.367	1105.102	53.149	0.490%	250 mm Class 34								
P2.15	1105.102	1104.850	50.339	0.492%	250 mm Class 34								
P2.16	1104.850	1104.617	46.515	0.490%	250 mm Class 34								
P2.17	1104.617	1104.334	54.914	0.506%	250 mm Class 34								
P3.1	1109.065	1108.685	34.497	1.071%	160 mm Class 34								
P3.2	1108.685	1108.468	19.256	1.073%	160 mm Class 34								
P3.3	1108.468	1107.667	73.778	1.071%	160 mm Class 34								
P3.4	1107.667	1106.864	74.006	1.071%	160 mm Class 34								
P3.5	1106.864	1106.638	20.085	1.070%	160 mm Class 34								
P3.6	1106.638	1106.394	21.643	1.079%	160 mm Class 34								
P3.7	1106.394	1104.850	26.574	5.610%	160 mm Class 34								
P4.1	1109.749	1109.662	7.191	1.067%	160 mm Class 34								
P4.2	1109.662	1109.314	31.180	1.082%	160 mm Class 34								
P4.3	1109.314	1108.307	92.573	1.076%	160 mm Class 34								
P4.4	1108.307	1107.499	73.966	1.078%	160 mm Class 34								
P4.5	1107.499	1107.248	22.312	1.078%	160 mm Class 34								
P4.6	1107.248	1106.640	55.475	1.077%	160 mm Class 34								
P5.1	1109.174	1108.698	39.194	1.184%	160 mm Class 34								
P5.2	1108.698	1108.031	55.266	1.185%	160 mm Class 34								
P5.3	1108.031	1107.690	27.830	1.183%	160 mm Class 34								
P5.4	1107.690	1107.319	30.357	1.185%	160 mm Class 34								
P5.5	1107.319	1107.087	18.506	1.185%	160 mm Class 34								
P5.6	1107.087	1106.392	57.768	1.184%	160 mm Class 34								
P6.1	1109.737	1109.144	48.394	1.200%	160 mm Class 34								
P6.2	1109.144	1108.402	73.194	1.000%	160 mm Class 34								
P6.3	1108.402	1107.087	72.046	1.800%	160 mm Class 34								
P7.1	1109.266	1109.113	11.712	1.200%	160 mm Class 34								
				L	·]								

					DESIGNED BY: RALEMA CONSULT
					C08/06 PHOENIX VIEW EST
					Cnr RIVERSIDE & 14TH STR
			DV		NOORDWYK X95
No.	DATE	REVISIONS	BY	CHECKED	1863
				BY	

	PIPE LIST-Ramotshana Sewer Network												
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	3D LENGTH TO INSIDE EDGES	SLOPE	DIAMETER AND CLASS								
P7.2	1109.113	1108.433	66.979	1.000%	160 mm Class 34								
P7.3	1108.433	1107.911	42.496	1.200%	160 mm Class 34								
P7.4	1107.911	1107.690	10.064	2.000%	160 mm Class 34								
P8.1	1110.029	1109.804	32.627	0.670%	160 mm Class 34								
P8.2	1109.804	1109.539	51.908	0.500%	160 mm Class 34								
P8.3	1109.539	1109.281	50.725	0.500%	160 mm Class 34								
P8.4	1109.281	1109.113	32.505	0.500%	160 mm Class 34								
P9.1	1109.326	1108.847	35.815	1.300%	160 mm Class 34								
P9.2	1108.847	1108.437	33.243	1.200%	160 mm Class 34								
P10.1	1109.962	1108.829	74.543	1.500%	160 mm Class 34								
P10.2	1108.829	1108.699	7.678	1.500%	160 mm Class 34								
P11.1	1109.639	1108.435	59.231	2.000%	160 mm Class 34								
P11.2	1108.435	1107.487	62.194	1.500%	160 mm Class 34								
P11.3	1107.487	1106.822	32.265	2.000%	160 mm Class 34								
P11.4	1106.822	1105.953	9.048	8.689%	160 mm Class 34								
P12.1	1111.488	1111.407	16.376	0.464%	160 mm Class 34								
P12.2	1111.407	1111.375	5.963	0.466%	160 mm Class 34								
P12.3	1111.375	1111.114	55.222	0.464%	160 mm Class 34								
P12.4	1111.114	1110.846	56.675	0.465%	160 mm Class 34								
P12.5	1110.846	1110.581	55.997	0.465%	160 mm Class 34								
P12.6	1110.581	1110.318	55.681	0.465%	160 mm Class 34								
P12.7	1110.318	1110.102	45.419	0.465%	160 mm Class 34								
P12.8	1110.102	1109.746	75.637	0.465%	160 mm Class 34								
P12.9	1109.746	1109.369	80.129	0.464%	160 mm Class 34								
P12.10	1109.369	1109.275	19.392	0.463%	160 mm Class 34								
P12.11	1109.275	1109.008	56.700	0.462%	160 mm Class 34								
P12.12	1109.008	1108.725	59.680	0.467%	160 mm Class 34								
P12.13	1108.725	1108.435	61.163	0.465%	160 mm Class 34								
P13.1	1110.466	1110.286	21.542	0.800%	160 mm Class 34								
P13.2	1110.286	1110.204	9.258	0.800%	160 mm Class 34								
P13.3	1110.204	1109.534	82.693	0.800%	160 mm Class 34								
P13.4	1109.534	1109.008	57.442	0.900%	160 mm Class 34								
P14.1	1110.775	1110.514	39.725	0.641%	160 mm Class 34								
P14.2	1110.514	1109.928	90.737	0.639%	160 mm Class 34								
P14.3	1109.928	1109.534	60.075	0.645%	160 mm Class 34								
P15.1	1110.201	1109.811	62.812	0.611%	160 mm Class 34								
P15.2	1109.811	1109.688	18.751	0.623%	160 mm Class 34								
P15.3	1109.688	1109.078	98.916	0.611%	160 mm Class 34								
P15.4	1109.078	1108.729	56.157	0.610%	160 mm Class 34								
P16.1	1111.092	1110.982	33.214	0.323%	160 mm Class 34								
P16.2	1110.982	1110.741	73.608	0.323%	160 mm Class 34								
P16.3	1110.741	1110.499	73.715	0.324%	160 mm Class 34								
P16.4	1110.499	1110.291	63.640	0.322%	160 mm Class 34								
P16.5	1110.291	1110.103	56.326	0.327%	160 mm Class 34								
P10.5	1110.291	1110.702	56.562	0.500%	160 mm Class 34								
P17.1	1110.990	1110.702	83.920	0.500%	160 mm Class 34								
				1.000%									
P18.1	1111.203	1110.582	61.108		160 mm Class 34								
P19.1	1111.856	1111.450	56.923	0.700%	160 mm Class 34								
P19.2	1111.450	1110.847	85.188	0.700%	160 mm Class 34								
P20.1	1111.679	1111.114	61.707	0.900%	160 mm Class 34								

SULTING ENGINEERS	S. I
AIEMA	
SU TING ENGINEERS	
ESTATES Tel: (011) 312 0873 I STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S.

S. Bapela-Pr Tech Eng DESIGNED L. Maleka DRAWN S. Bapela-Pr Tech Eng

CHECKED

RALEMA CONSULTING ISSUED BY: DATE

DEPARTMENT OF ROADS AND STORMWATER RECEIVED BY:

CLIENT ADDRESS

DATE: Rustenburg

	PIPE L	IST-Ramote	shana Sewer	Networ	k
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	3D LENGTH TO INSIDE EDGES	SLOPE	DIAMETER AND CLASS
P21.1	1112.070	1111.975	22.883	0.400%	160 mm Class 34
P21.2	1111.975	1111.909	15.409	0.400%	160 mm Class 34
P21.3	1111.909	1111.765	34.955	0.400%	160 mm Class 34
P21.4	1111.765	1111.378	85.053	0.450%	160 mm Class 34
P22.1	1110.236	1110.000	48.012	0.482%	160 mm Class 34
P22.2	1110.000	1109.857	29.028	0.477%	160 mm Class 34
P22.3	1109.857	1109.378	98.611	0.481%	160 mm Class 34
P22.4	1109.378	1109.036	70.269	0.480%	160 mm Class 34
P22.5	1109.036	1108.675	74.015	0.481%	160 mm Class 34
P22.6	1108.675	1108.318	73.480	0.480%	160 mm Class 34
P22.7	1108.318	1108.000	65.066	0.481%	160 mm Class 34
P22.8	1107.981	1107.759	45.176	0.481%	200 mm Class 34
P23.1	1110.491	1109.902	88.124	0.660%	160 mm Class 34
P23.2	1109.902	1109.610	43.350	0.659%	160 mm Class 34
P23.3	1109.610	1109.561	6.464	0.663%	160 mm Class 34
P23.4	1109.561	1109.112	66.957	0.660%	160 mm Class 34
P23.5	1109.112	1108.766	51.328	0.662%	160 mm Class 34
P23.6	1108.766	1108.334	64.615	0.658%	160 mm Class 34
P23.7	1108.334	1108.000	49.600	0.661%	160 mm Class 34
P24.1	1110.002	1109.113	43.462	2.000%	160 mm Class 34
P25.1	1110.516	1109.634	72.519	1.200%	160 mm Class 34
P25.2	1109.634	1109.523	8.251	1.200%	160 mm Class 34
P25.3	1109.523	1108.768	61.912	1.200%	160 mm Class 34
P26.1	1111.102	1110.811	44.148	0.644%	160 mm Class 34
P26.2	1110.811	1110.571	36.365	0.643%	160 mm Class 34
P26.3	1110.571	1110.499	10.074	0.647%	160 mm Class 34
P26.4	1110.499	1110.281	32.859	0.645%	160 mm Class 34
P26.5	1110.281	1110.028	38.329	0.644%	160 mm Class 34
P26.6	1110.028	1109.659	56.226	0.644%	160 mm Class 34
P26.7	1109.659	1109.291	55.817	0.647%	160 mm Class 34
P26.8	1109.291	1108.931	55.172	0.642%	160 mm Class 34
P26.9	1108.931	1108.791	20.496	0.649%	160 mm Class 34
P26.10	1108.791	1108.336	70.190	0.639%	160 mm Class 34
P27.1	1111.048	1110.528	63.618	0.805%	160 mm Class 34
P27.2	1110.528	1110.081	54.442	0.805%	160 mm Class 34
P27.3	1110.081	1109.548	65.252	0.806%	160 mm Class 34
P27.4	1109.548	1108.932	75.242	0.808%	160 mm Class 34
P28.1	1110.418	1109.913	55.086	0.900%	160 mm Class 34
P28.2	1109.913	1109.295	71.757	0.850%	160 mm Class 34
P29.1	1110.790	1110.292	54.325	0.900%	160 mm Class 34
P29.2	1110.292	1109.663	72.996	0.850%	160 mm Class 34
P30.1	1111.222	1110.884	55.326	0.600%	160 mm Class 34
P30.2	1110.884	1110.487	65.224	0.600%	160 mm Class 34
P30.3	1110.487	1110.030	75.215	0.600%	160 mm Class 34
P31.1	1109.769	1109.384	37.572	1.000%	160 mm Class 34
P32.1	1111.325	1111.026	37.235	0.783%	160 mm Class 34
P32.2	1111.026	1110.680	42.871	0.788%	160 mm Class 34
P32.3	1110.680	1110.316	45.427	0.785%	160 mm Class 34
P32.3	1110.316	1110.310	17.616	0.787%	160 mm Class 34
P32.5	1110.169	1109.949	27.110	0.783%	160 mm Class 34

	PIPE L	IST-Ramote	shana Sewer	Networ	k
PIPE NAME	START INVERT LEVEL	END INVERT LEVEL	3D LENGTH TO INSIDE EDGES	SLOPE	DIAMETER AND CLASS
P32.6	1109.949	1109.857	10.389	0.812%	160 mm Class 34
P33.1	1111.492	1111.241	53.097	0.465%	160 mm Class 34
P33.2	1111.241	1110.904	71.518	0.465%	160 mm Class 34
P33.3	1110.904	1110.583	68.331	0.463%	160 mm Class 34
P33.4	1110.583	1110.317	56.038	0.466%	160 mm Class 34
P34.1	1111.554	1111.382	56.304	0.300%	160 mm Class 34
P34.2	1111.382	1111.221	44.909	0.350%	160 mm Class 34
P34.3	1111.221	1111.026	42.226	0.450%	160 mm Class 34
P36.1	1110.939	1110.570	60.574	0.600%	160 mm Class 34
P36.2	1110.570	1110.510	8.967	0.600%	160 mm Class 34
P36.3	1110.510	1110.170	55.587	0.600%	160 mm Class 34
P37.1	1111.542	1111.384	44.107	0.350%	160 mm Class 34
P38.1	1112.050	1111.911	33.737	0.400%	160 mm Class 34
P39.1	1109.061	1107.147	62.834	3.000%	160 mm Class 34

CLIENT

RUSTENBURG LOCAL MUNUCIPALITY

P O BOX 16 RUSTENBURG 0300

PROJECT TITLE

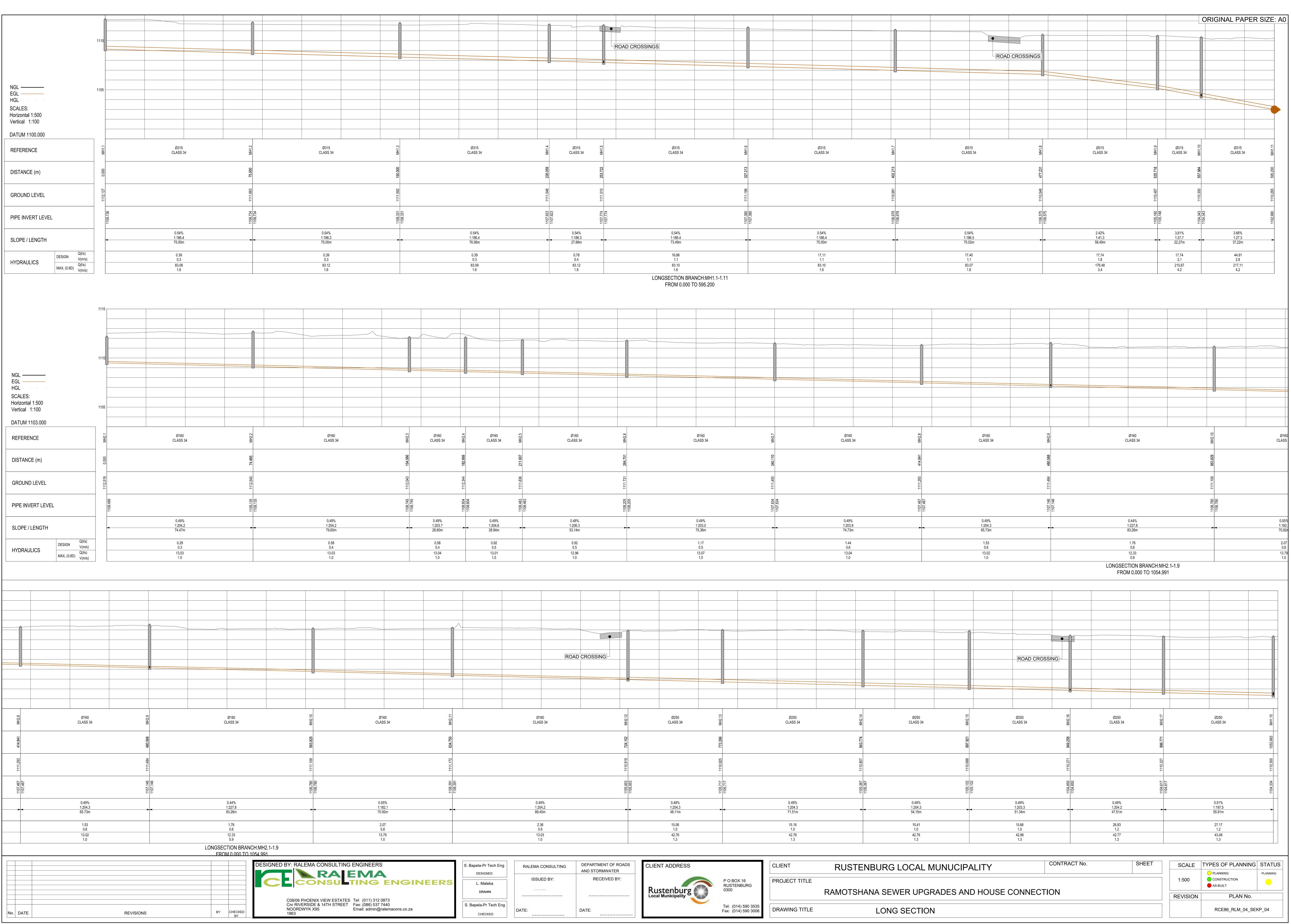
RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTIO

Tel: (014) 590 3535 Fax: (014) 590 3006

DRAWING TITLE

PIPES SETTING OUT DATA

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
		1:500	PLANNING PLANNING CONSTRUCTION AS-BUILT	
ON		REVISION	PLAN No.	
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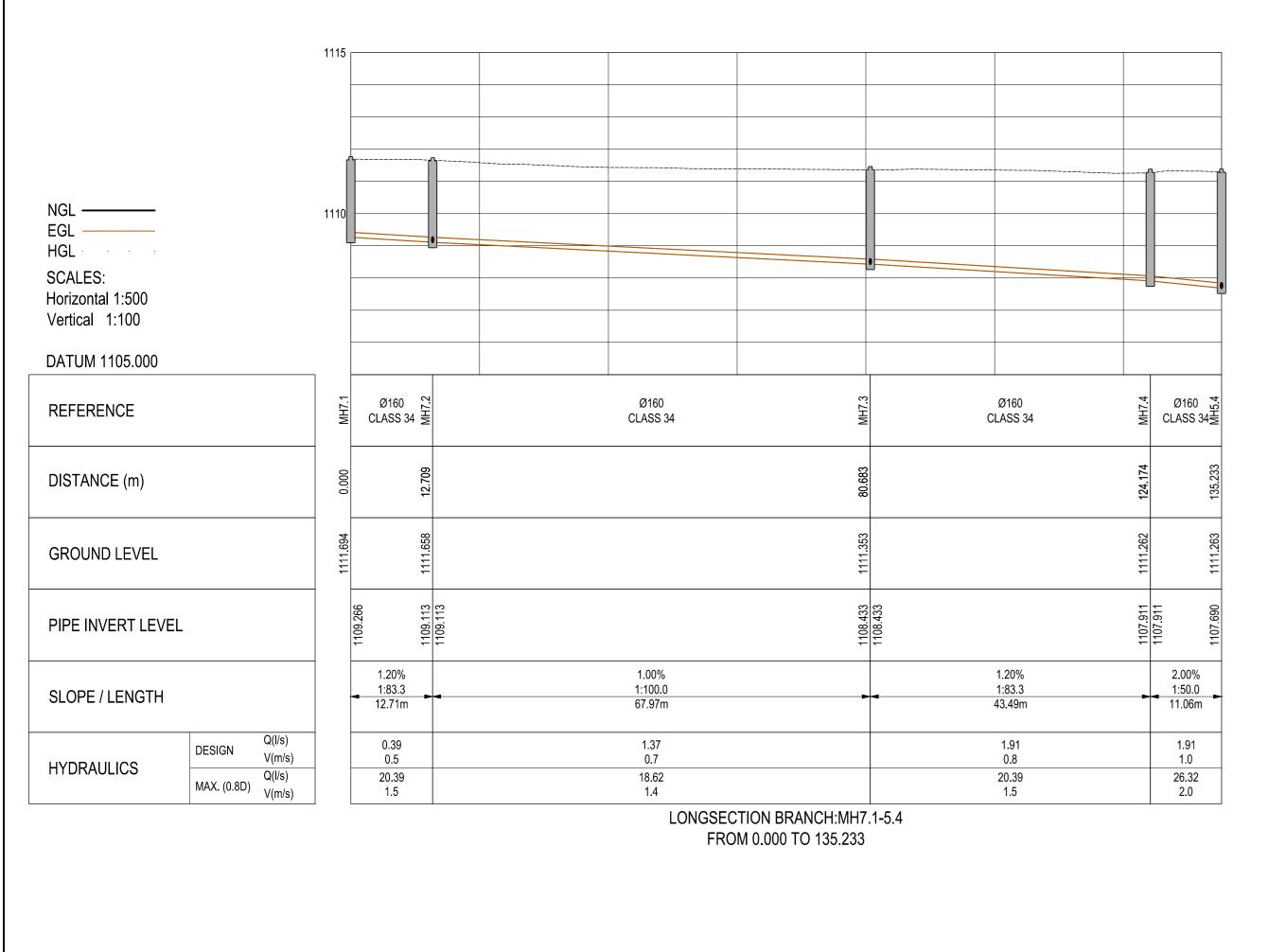
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	15(5			22(25		
	00	2			48				10		
	1111 502				1111.548				1111.510		
	8 331	1108.331			1107.923	7.923			1107.774 1107.774		
	110	10			110	110			110		
			0.54%				0.54	1%			0.54%
		-	1:186.4 76.06m			4	1:18 27.6	6.3 6m			1:186.4 73.49m
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			1108		1108.604			1108.463 1108.463				1108	1108	
2%				0.49%	-	0.49%				0.48%				
9% 4.2 0m				1:203.7 28.60m		0.49% 1:204.6				0.48% 1:206.3 53.14n	3	-		
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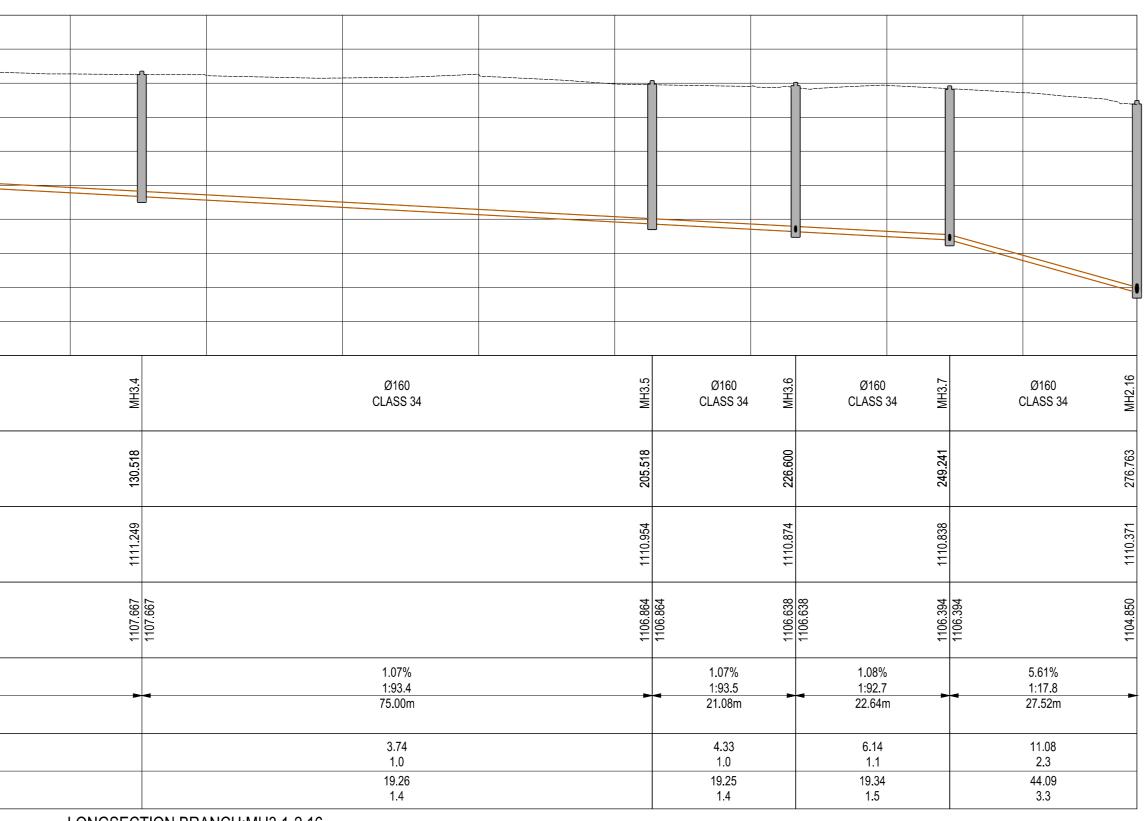
	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
LA EMA		ISSUED BY:	RECEIVED BY:	Duratanhuma
ESTATES Tel: (011) 312 0873 STREET Fax: (086) 537 7440	DRAWN S. Bapela-Pr Tech Eng			Local Municipality
Email: admin@ralemacons.co.za	CHECKED	DATE:	DATE:	

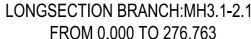
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DATUM 1103.000									
		_		Ø160	5	Ø160	e	Ø160	
REFERENCE		MH3.1		CLASS	MH3.2	CLASS 34	MH3.3	CLASS 34	
DISTANCE (m)		0000			35.493		55.746		
		0			Ж		21		
		362			342		186		
GROUND LEVEL		1111.862			1111.642		1111.486		
		-							
PIPE INVERT LEVEL			1109.065		1108.685 1108.685		1108.468 1108.468		
			11(110		110		
				1.07% 1:93.4		1.07% 1:93.2		1.07% 1:93.4	
SLOPE / LENGTH			4	35.49n		20.25m		74.77m	
	Q(l/s)			3.10		3.10		3.10	
HYDRAULICS	V(m/s) Q(l/s)			0.9 19.26	 	0.9		0.9	
	V(m/s)			1.4		1.4		1.4	

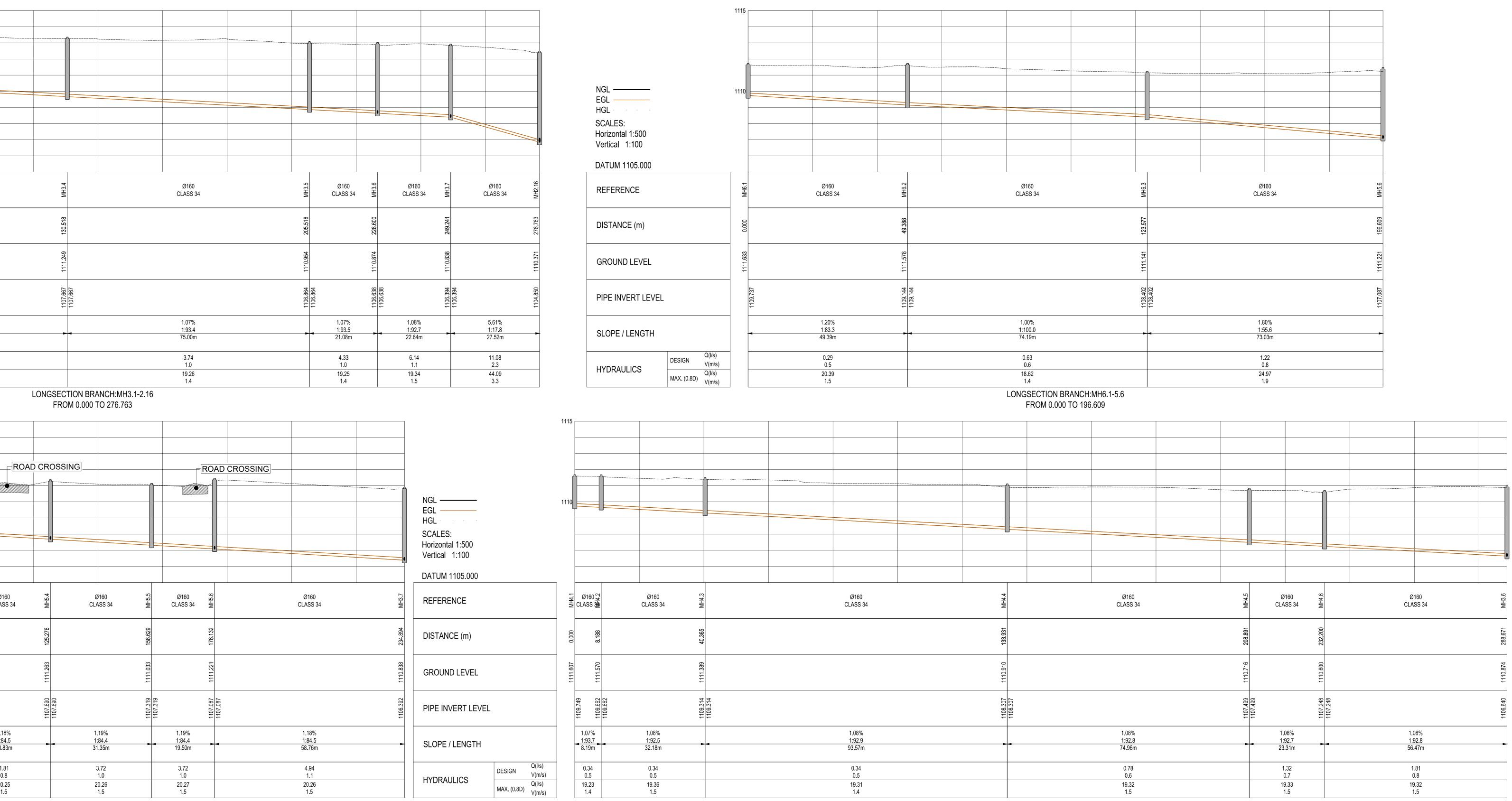
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REFERENCE		MH5.1	Ø CLA	160 C. SH SS 34 H		Ø160 CLASS 34	MH5.3	Ø160 CLASS
DISTANCE (m)		0.000		40.190			96.450	
		1111.192		248			.143	
GROUND LEVEL		1111		1111.248			1111.143	
			174	698	698		.031	031
PIPE INVERT LEVE	_		1109.174	1108.	1108.698		1108.031	1108
				18% 34.5		1.19% 1:84.4		1.18% 1:84.5
SLOPE / LENGTH				19m		56.26m		 28.83r
	DESIGN Q(l/s) V(m/s)		0	.15).4		0.98 0.7		1.81 0.8
HYDRAULICS	MAX. (0.8D) Q(l/s) V(m/s)		20).25 I.5		20.26		20.25 1.5
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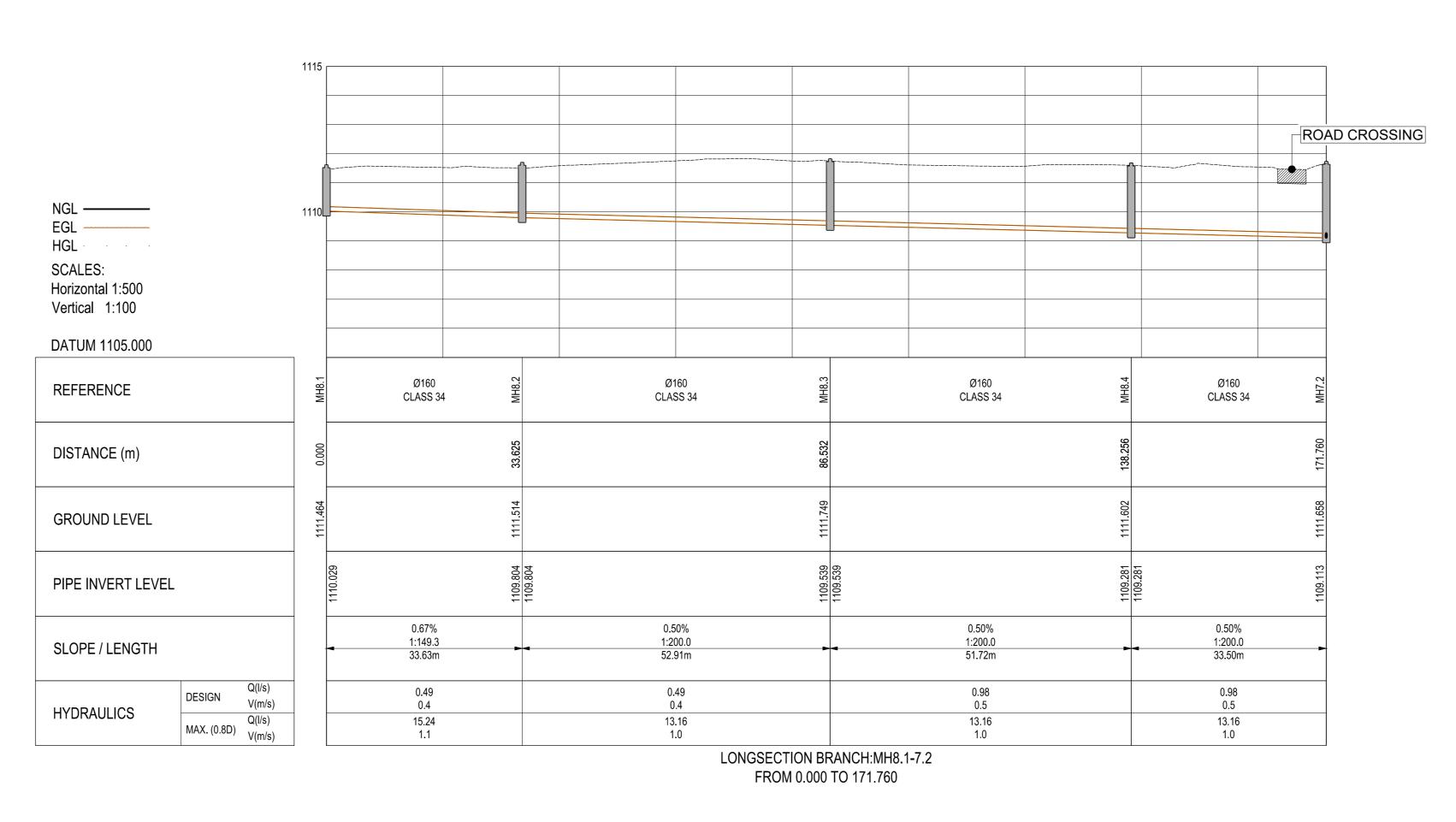








LONGSECTION BRANCH:MH5.1-3.7 FROM 0.000 TO 234.894



LONGSECTION BRANCH:MH4.1-3.6 FROM 0.000 TO 288.671

NGL — EGL — HGL · · · · · · · SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000	
SCALES: Horizontal 1:500 Vertical 1:100	
Horizontal 1:500 Vertical 1:100	
Vertical 1:100	
DATUM 1105.000	
DATUM 1105.000	
REFERENCE	
DISTANCE (m)	
GROUND LEVEL	
PIPE INVERT LEVEL	
SLOPE / LENGTH	
DESIGN	٧
HYDRAULICS	
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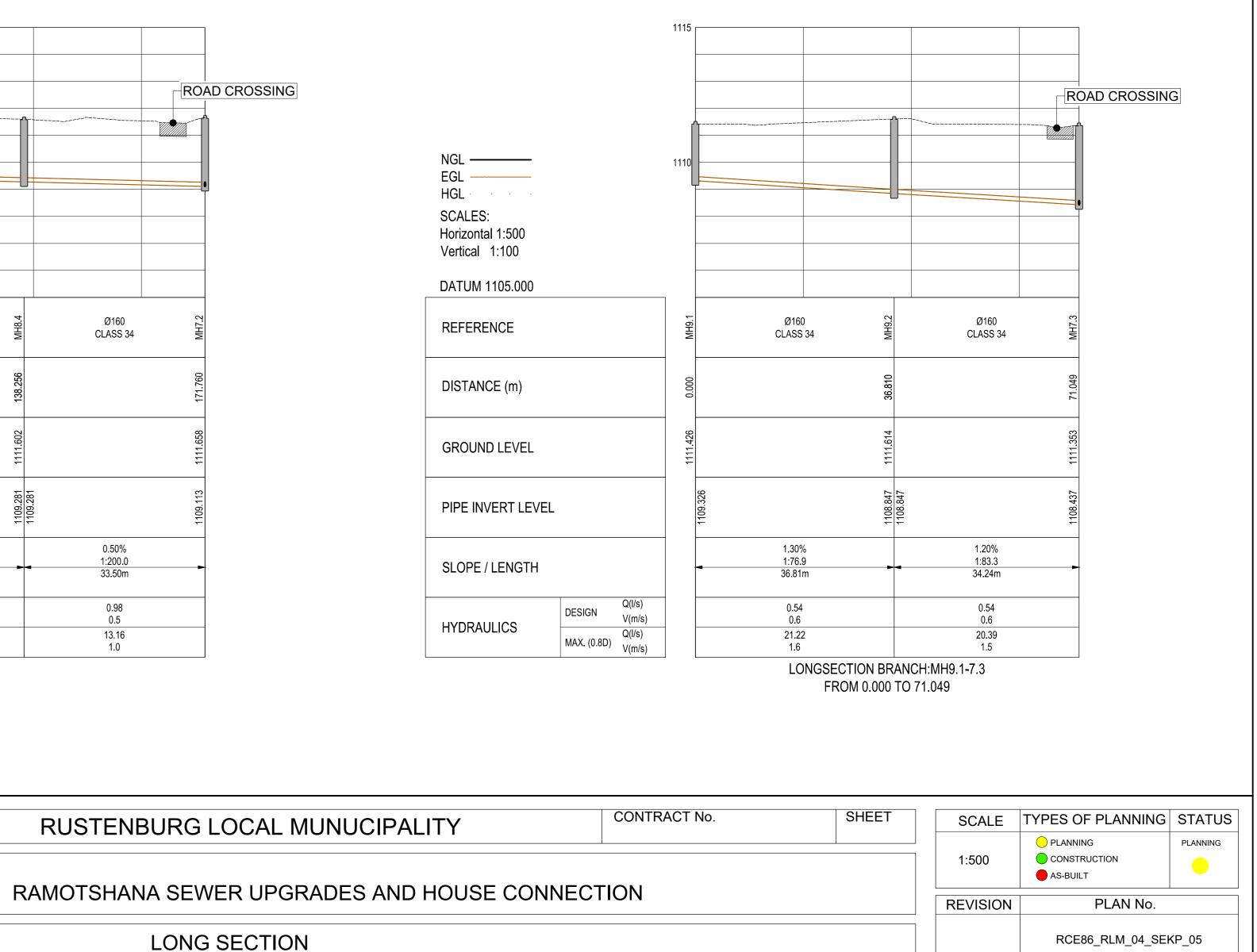
RUSTENBURG LOCAL MUNUCIPALITY

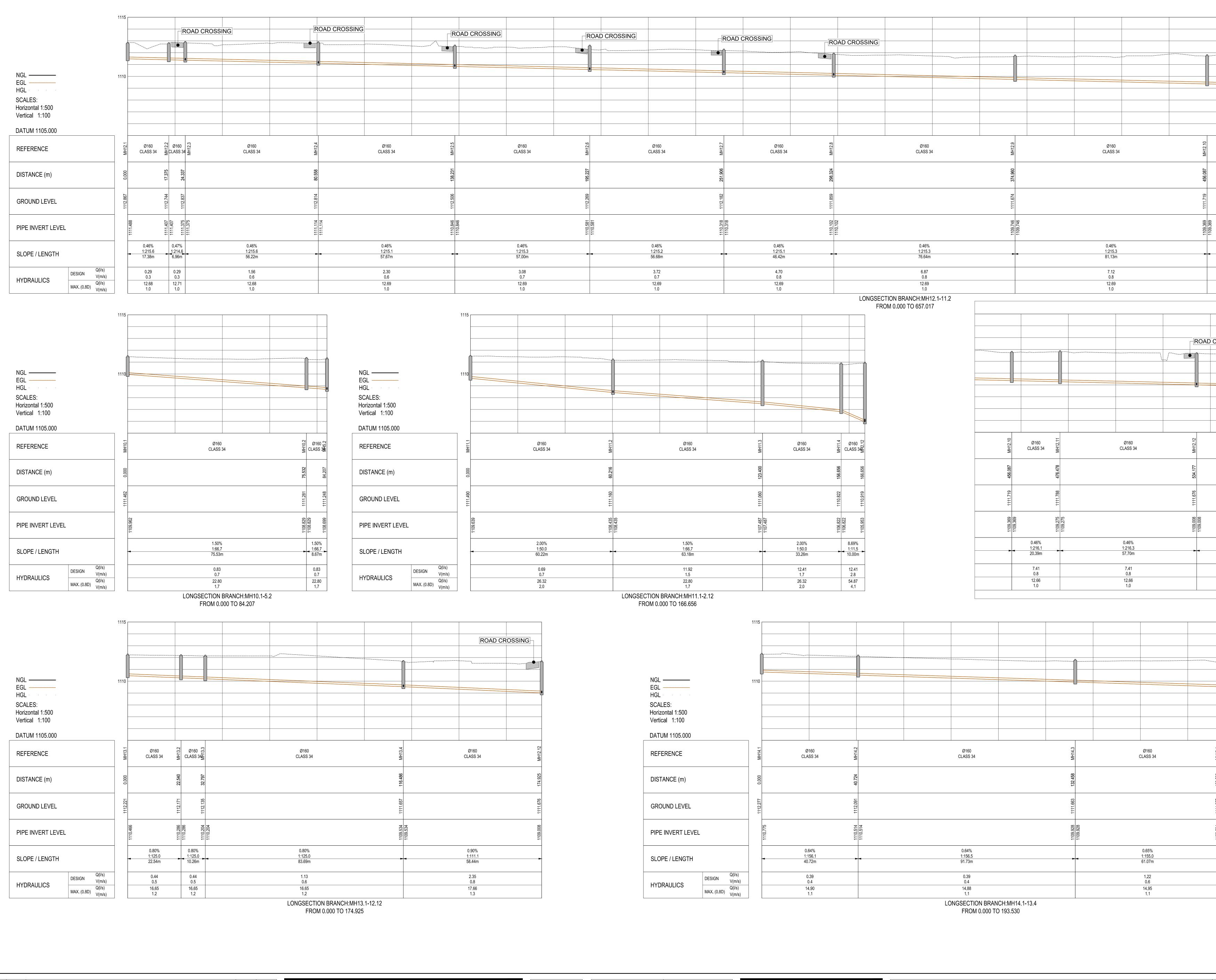
PROJECT TITLE

LONG SECTION

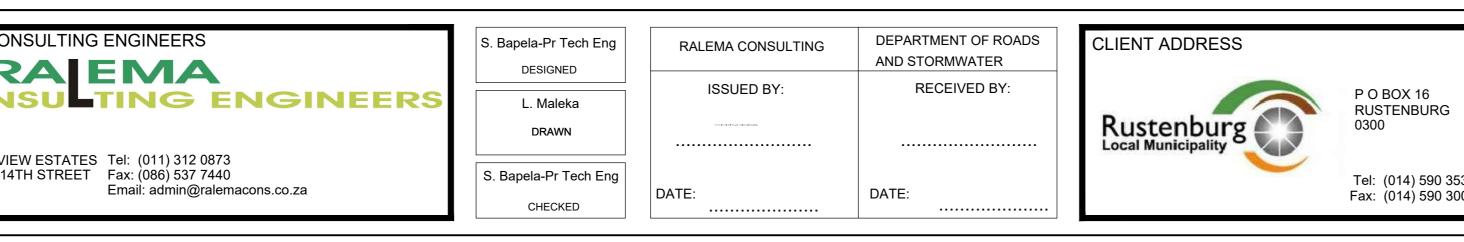
DRAWING TITLE







					DESIGNED BY: RALEMA CON
					CEICON
					C08/06 PHOENIX VIE
					Cnr RIVERSIDE & 14
lo.	DATE	REVISIONS	BY	CHECKED	NOORDWYK X95 1863



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0									
MH12.8	Ø160 CLASS 34	MH12.9		Ø160 CLASS 34	0160 CLASS 3	4 HW	Ø160 CLASS 34	MH12.12	Ø160 CLASS 34
298.324		374.960			456.087	476.478		534.177	
1111.859		1111.674			111.719	1111.788		1111.676	
1110.102		1109.746 1109.746			1109.369	1109.275 1109.275		1109.008	
	0.46% 1:215.3 76.64m			0.46% 1:215.3 81.13m	0.46% 1:216.1 20.39m		0.46% 1:216.3 57.70m		0.47% 1:214.3 60.68m
	6.87 0.8 12.69 1.0			7.12 0.8 12.69 1.0	7.41 0.8 12.66 1.0		7.41 0.8 12.66 1.0		10.20 0.9 12.72 1.0
	SECTION BRANCH:MH12.1-11.2 FROM 0.000 TO 657.017								
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7:100 160 160 12:10 160 160 160 161 161 161 161 161 161 1		MH12.10	Ø160 112 CLASS 34 HJ	Ø160 CLASS 34	H12.12	Ø160 CLASS 34	H12.13	Ø160 CLASS 34	
56.656 N 66.656 N		156.087 h	.76.478 N		34.177 N		94.855 A		
1110.822 1 1110.919 1		1111.719	1111.788		1111.676		1111.529		
1106.822 1 1106.822 1 1105.953 1		1109.369	1109.275 1109.275		1109.008		1108.725 1108.725		
8.69% 1:11.5 10.00m			0.46% 1:216.1 20.39m	0.46% 1:216.3 57.70m		0.47% 1:214.3 60.68m		0.47% 1:214.9 62.16m	
12.41 2.8 54.87			7.41 0.8 12.66 1.0	7.41 0.8 12.66 1.0		10.20 0.9 12.72 1.0		11.23 0.9 12.70 1.0	
4.1			1.0	1.0		1.0		1.0	
^			d	λ					
MH14.2	Ø160 CLASS 3	4	MH14.3	Ø160 CLASS 34	MH13.4				
40.724			132.458		193.530				
1112.091			1111.663		1111.657				
1110.514 1110.514			1109.928	1109.928	1109.534				
	0.64% 1:156.5 91.73m			0.65% 1:155.0 61.07m					
	0.39 0.4 14.88 1.1			1.22 0.6 14.95 1.1					
		ION BRANCH:MH14 M 0.000 TO 193.530							

PROJECT TITLE

Tel: (014) 590 3535 Fax: (014) 590 3006 DRAWING TITLE RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTI

CONTRACT No.	SHEET		SCALE	TYPES OF PLANNING	STATUS
					PLANNING
			1:500	 CONSTRUCTION AS-BUILT 	•
ON			REVISION	PLAN No.	
				RCE86_RLM_04_SEk	(P_06

NGL ——— EGL ———	1110			
HGL SCALES:				
Horizontal 1:500 Vertical 1:100				
DATUM 1105.000				
REFERENCE	MH15.1	Ø160 CLASS 34	MH15.2	Ø160 양 CLASS 34 표
DISTANCE (m)	0000		63.810	83.560
GROUND LEVEL	1111.469		1111.208	1111.311
PIPE INVERT LEVEL	1110.201		110 <u>9.8</u> 11 110 <u>9.8</u> 11	1109.688
SLOPE / LENGTH		0.61% 1:163.5 63.81m		0.62% 1:160.5 19.75m
HYDRAULICS	m/s)	0.59 0.4 14.56 1.1		0.59 0.5 14.69 1.1
	1115			
NGL	1110			
EGL HGL · · · · ·				
SCALES: Horizontal 1:500 Vertical 1:100				
DATUM 1105.000				
REFERENCE	MH17.1	Ø160 CLASS 34	MH17.2	Ø1 CLAS
DISTANCE (m)	0.000		57.561	
GROUND LEVEL	1112.748		1112.418	
PIPE INVERT LEVEL	1110.990		1110.702	
SLOPE / LENGTH		0.50% 1:200.0 57.56m		0.4 1:22 84.9
HYDRAULICS	m/s)	0.34 0.4		0. 0
	m/s)	13.16 1.0		12. 0. RANCH:MH17.1-12.7
			FROM 0.000) TO 142.480
	1115			
	h			
NGI				NO
NGL ———— EGL ———— HGL · · · · ·	1110			NGL EGL HGL
EGL HGL SCALES: Horizontal 1:500	1110			EGL HGL SCALES: Horizontal 1:500
EGL HGL SCALES: Horizontal 1:500 Vertical 1:100	1110			EGL HGL SCALES: Horizontal 1:500 Vertical 1:100
EGL HGL SCALES: Horizontal 1:500	11110	Ø160 CLASS 34	MH12.4	EGL HGL SCALES: Horizontal 1:500
EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000				EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000
EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE	MH20.1		MH12:4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE
EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m)	0.000 MH20.1		62.703 MH12.4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m)
EGL — HGL · · · · · · · · · · · · · · · · · · ·	1112.814 0.000 MH20.1		1112.814 62.703 MH12.4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m) GROUND LEVEL
EGL	Vs) M/s) M/s) M/s) Vs) M/s) Vs) M/s) Vs) Vs) Vs) Vs) Vs) Vs) Vs) V	CLASS 34	1112.814 62.703 MH12.4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m) GROUND LEVEL PIPE INVERT LEVE
EGL	Image: state	CLASS 34	1111.114 112.814 62.703 MH12.4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m) GROUND LEVEL PIPE INVERT LEVE SLOPE / LENGTH
EGL	Image: state	CLASS 34 0.90% 1:111.1 62.70m 0.50 0.5 17.66 1.3 DNGSECTION BRANCH:MH20.1	-12.4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m) GROUND LEVEL PIPE INVERT LEVE SLOPE / LENGTH HYDRAULICS
EGL	Image: state	CLASS 34 0.90% 1:111.1 62.70m 0.50 0.5 17.66 1.3 DNGSECTION BRANCH:MH20.1	-12.4	EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m) GROUND LEVEL PIPE INVERT LEVE SLOPE / LENGTH HYDRAULICS
EGL	Image: state	CLASS 34 0.90% 1:111.1 62.70m 0.50 0.5 17.66 1.3 DNGSECTION BRANCH:MH20.1		EGL HGL SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000 REFERENCE DISTANCE (m) GROUND LEVEL PIPE INVERT LEVE SLOPE / LENGTH HYDRAULICS

1115 -

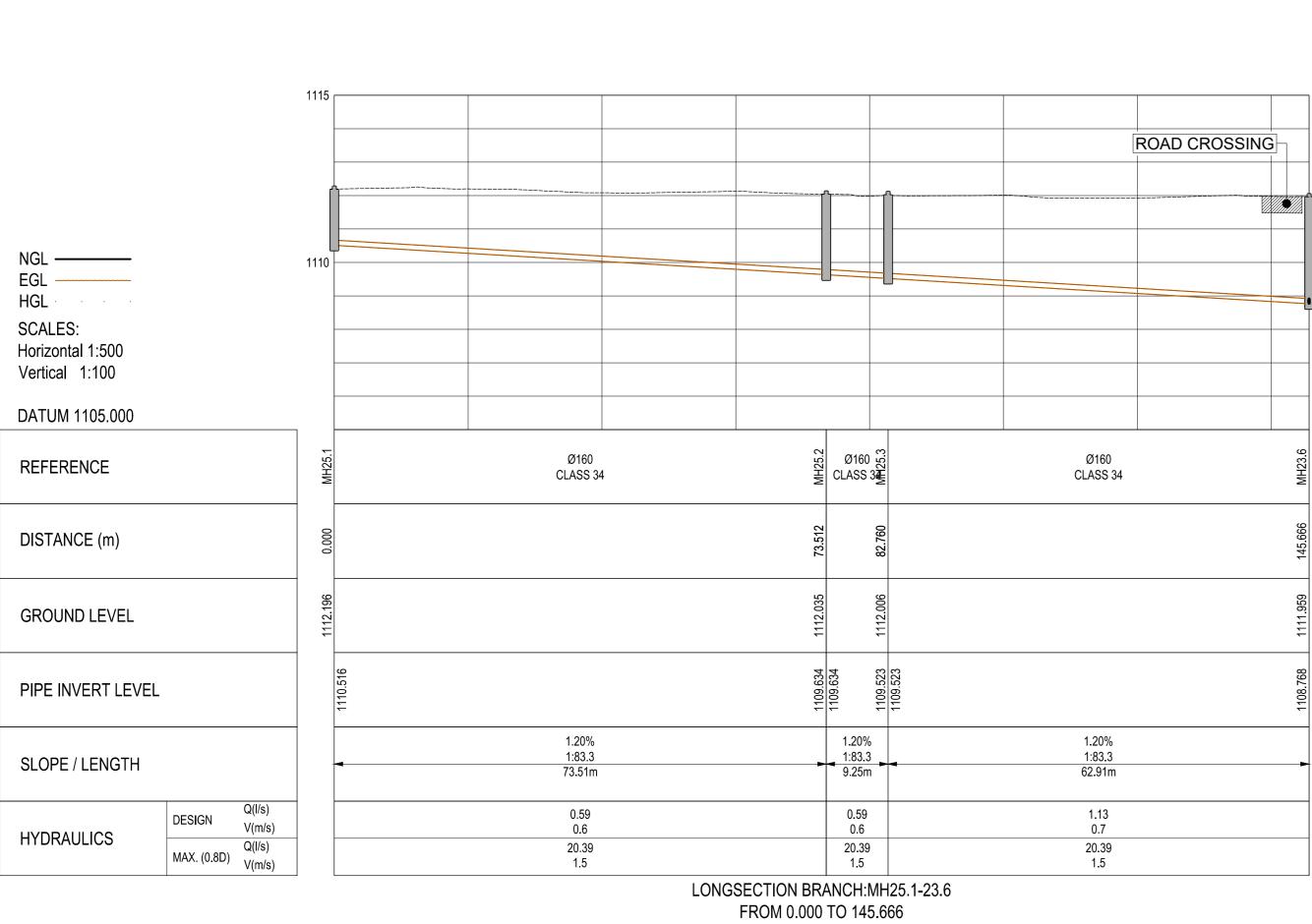


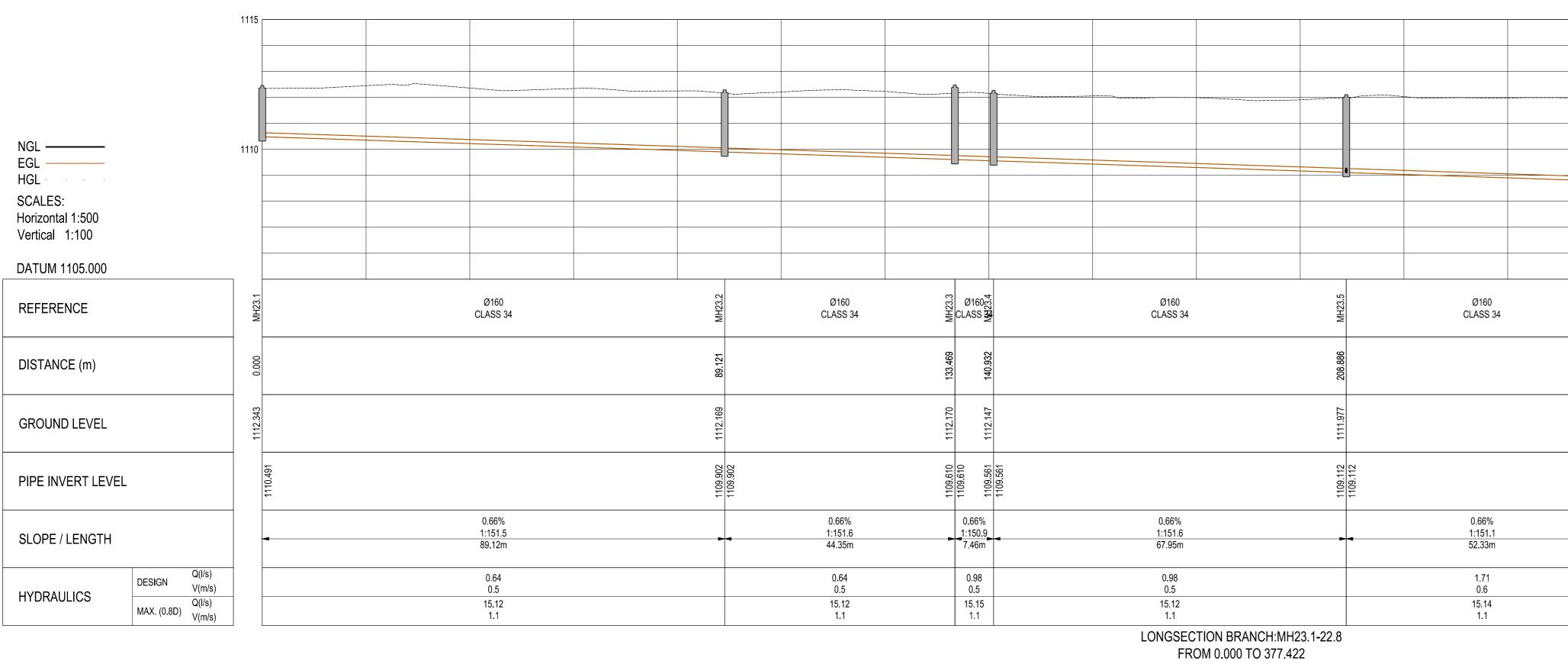


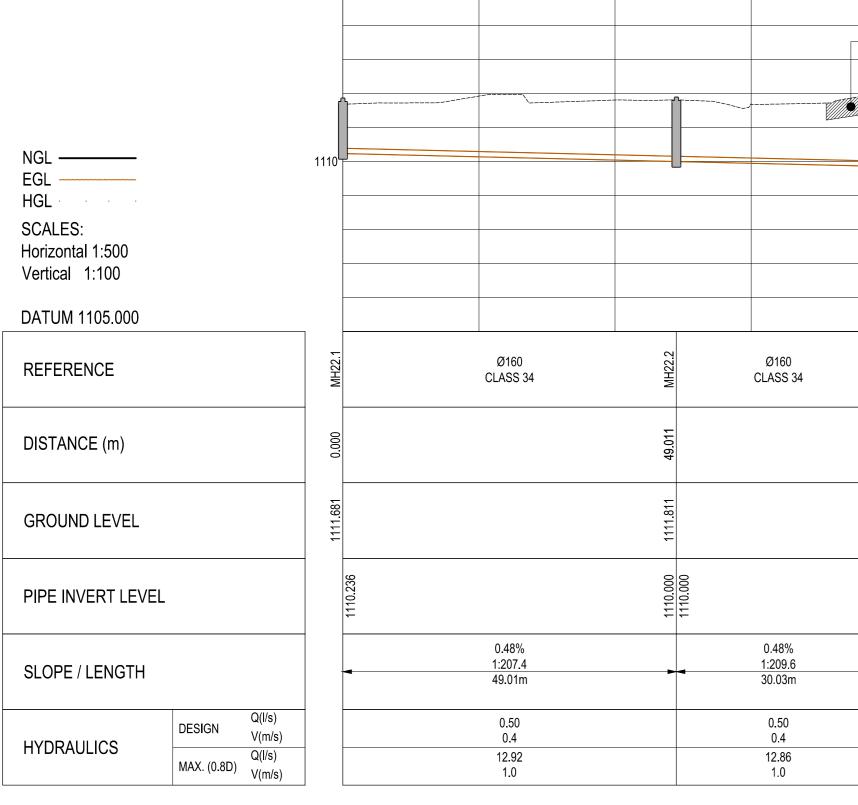
	_			
ULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS	CLIENT ADDRESS
	DESIGNED		AND STORMWATER	
U TING ENGINEERS	L. Maleka	ISSUED BY:	RECEIVED BY:	
	DRAWN			Rustenburg
ESTATES Tel: (011) 312 0873 STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng	DATE:	DATE:	

					DESIGNED BY: RALEMA CONSULTING ENGINEERS
					CE RALEMA
					C08/06 PHOENIX VIEW ESTATES Tel: (011) 312 0 Cnr RIVERSIDE & 14TH STREET Fax: (086) 537 7
No.	DATE	REVISIONS	BY	CHECKED BY	NOORDWYK X95 Email: admin@ra 1863
L			1		

1.20% 1:83.3 73.51m 0.59 0.6 20.39 1.5

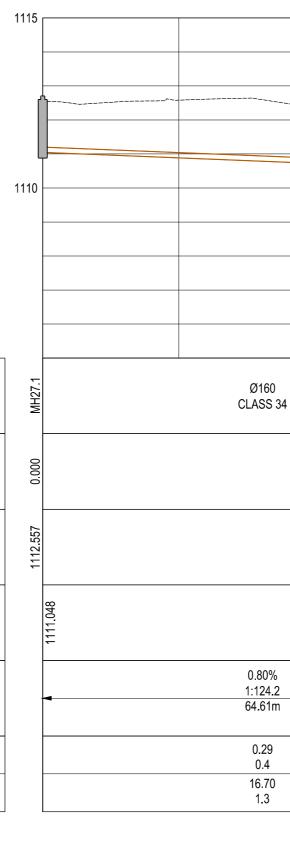


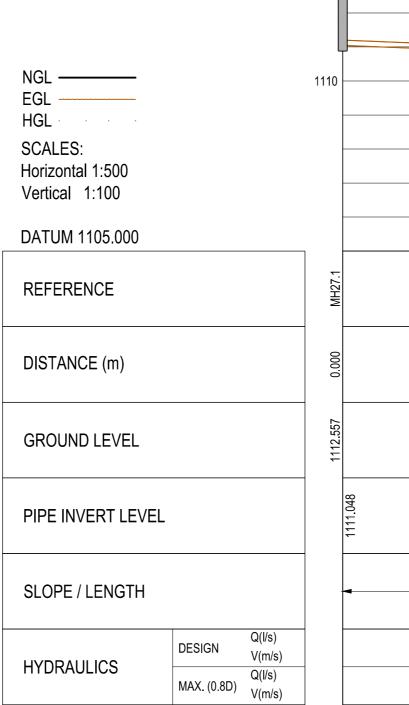




1115 -

2.3	Ø160	2.	Ø160	25	Ø160		Ø160	2.7	
MH2	Ø160 CLASS 34	EHM HA	Ø160 CLASS 34	MH2	Ø160 CLASS 34	WH3	CLASS 34	MH2	CL
038		647		915		928		406	
79.0		178		249		324		336	
				.972		000			
		27 27		<u></u>		112		<u></u>	
1109.857		1109.378		1109.036 1109.036		<u>1108.675</u> 1108.675		1108.318 1108.318	
1100		1100		1100		1100		1100	
	0.48% 1:208.0 99.61m	> 4	0.48% 1:208.2 71.27m	►	0.48% 1:208.1 75.01m	> _	0.48% 1:208.3 74.48m		C 1:
	99.61m								6
	5.45 0.8		5.74 0.8		6.18 0.8		6.18 0.8		
	12.91 1.0		12.90 1.0		12.90 1.0		12.90 1.0		
				I ONGSECTION BRANCH:M	H22 1-1 5				







S. Bapela-Pr Tech Eng

RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
ISSUED BY:	RECEIVED BY:	
		Rustenburg
DATE:	DATE:	

LONGSECTION BRANCH:MH22.1-1.5 FROM 0.000 TO 511.646

	^		 ^		\	
					\/	
			•			
- HN 23 6		Ø160 CLASS 34	MH23.7		Ø160 CLASS 34	MH22.8
261 212 212			326.825			377.422
20	3		84			68
1111 959			1111.784			1111.589
1108 766	1108.766		1108.334	1108.334		1108.000
		0.66%			0.66%	
•	-	0.66% 1:151.9 65.61m	 	4	0.66% 1:151.4 50.60m	•
		2.40	 		0.44	
		3.18 0.8			9.41 1.0	
		15.10 1.1			15.13 1.1	
	•		I			

	f							
Ø160 CLASS 34	MH27.2	Ø160 CLASS 34	MH27.3		Ø160 CLASS 34		MH27.4	1
	64.615		120.054				186.302	
	1112.550		1112.494				1112.319	
	1110.528 1110.528		1110.081				1109.548	
0.80% 1:124.2 64.61m		0.81% 1:124.2 55.44m			0.81% 1:124.1 66.25m			
0.29 0.4 16.70 1.3		0.29 0.4 16.71 1.3			0.54 0.5 16.71 1.3			
				CTION BRANCH:MI ROM 0.000 TO 262.	H27.1-26.9		I	
DRESS		CLIENT	RUSTEN	IBURG LC	DCAL MUN	UCIPALIT	Y	C
hurg	P O BOX 16 RUSTENBURG 0300	PROJECT TITLE						

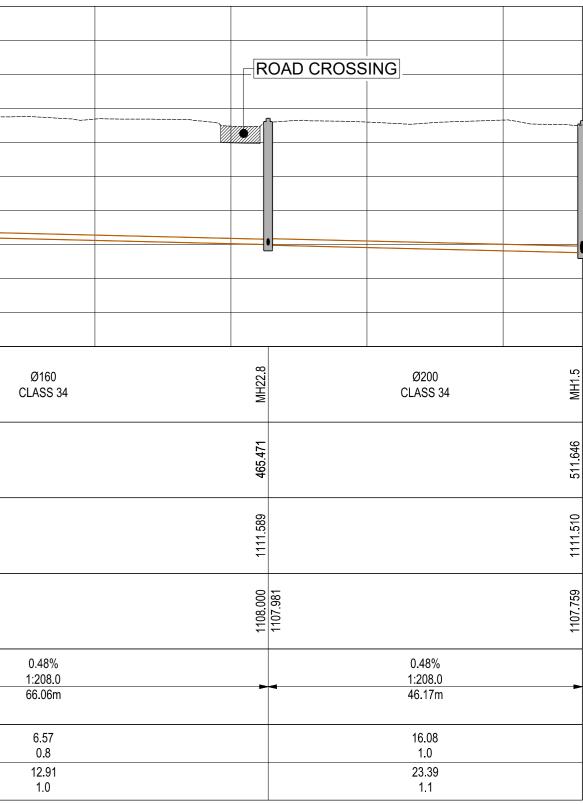
P O BOX 16 RUSTENBURG 0300 Tel: (014) 590 3535 Fax: (014) 590 3006

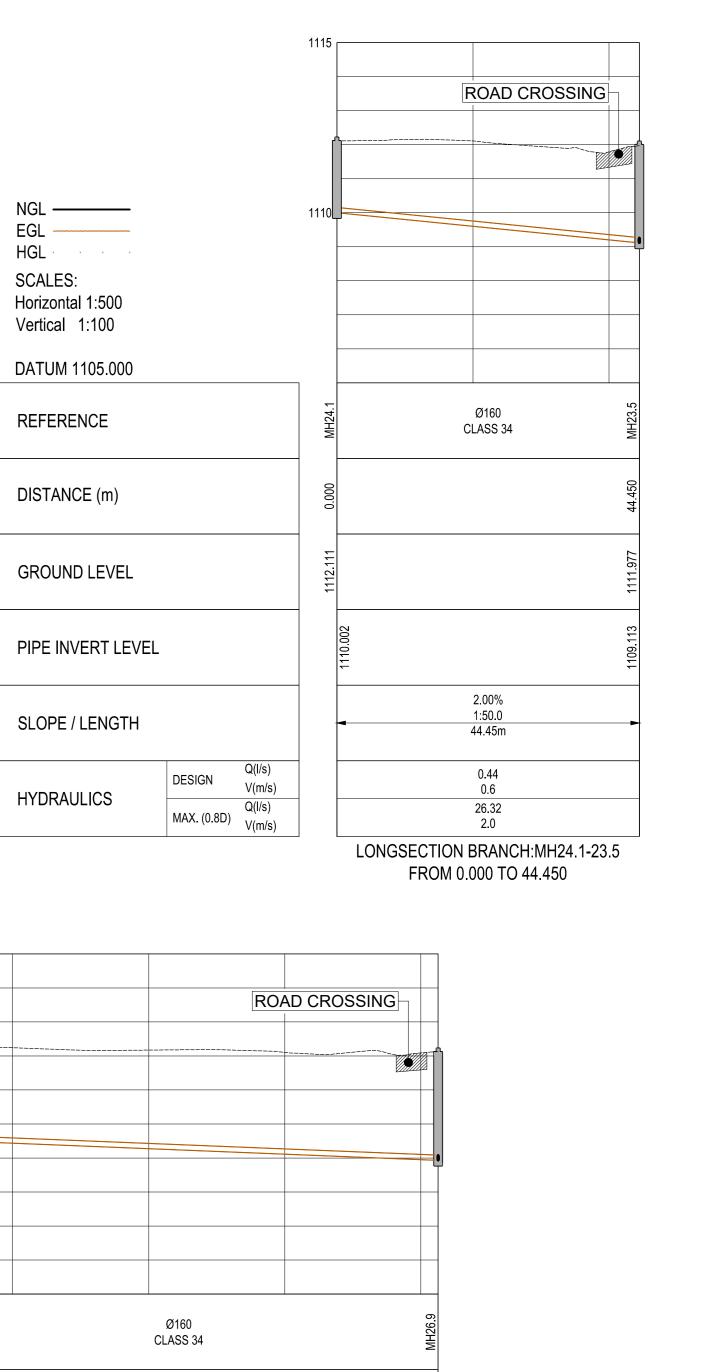
PROJECT TITLE

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTION

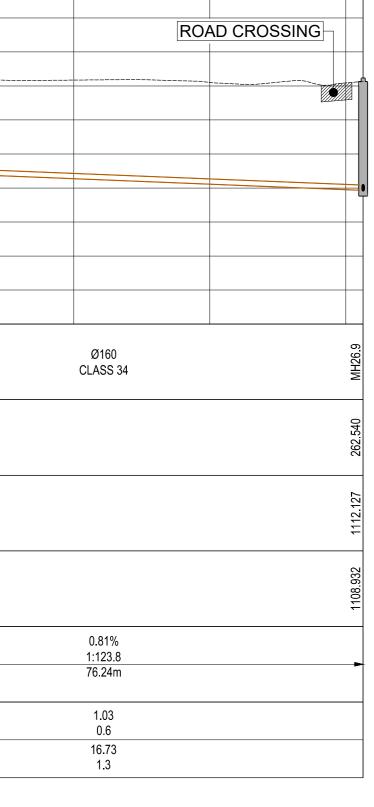
DRAWING TITLE

LONG SECTION



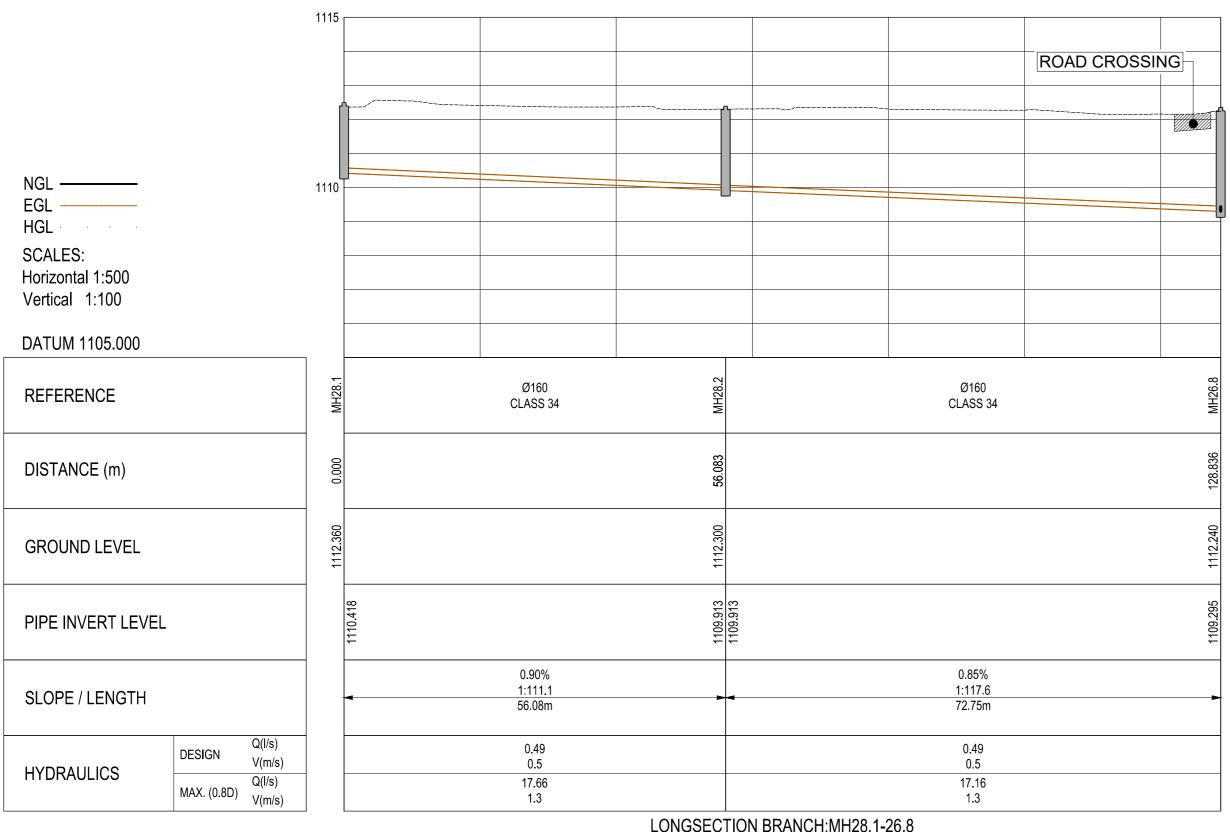


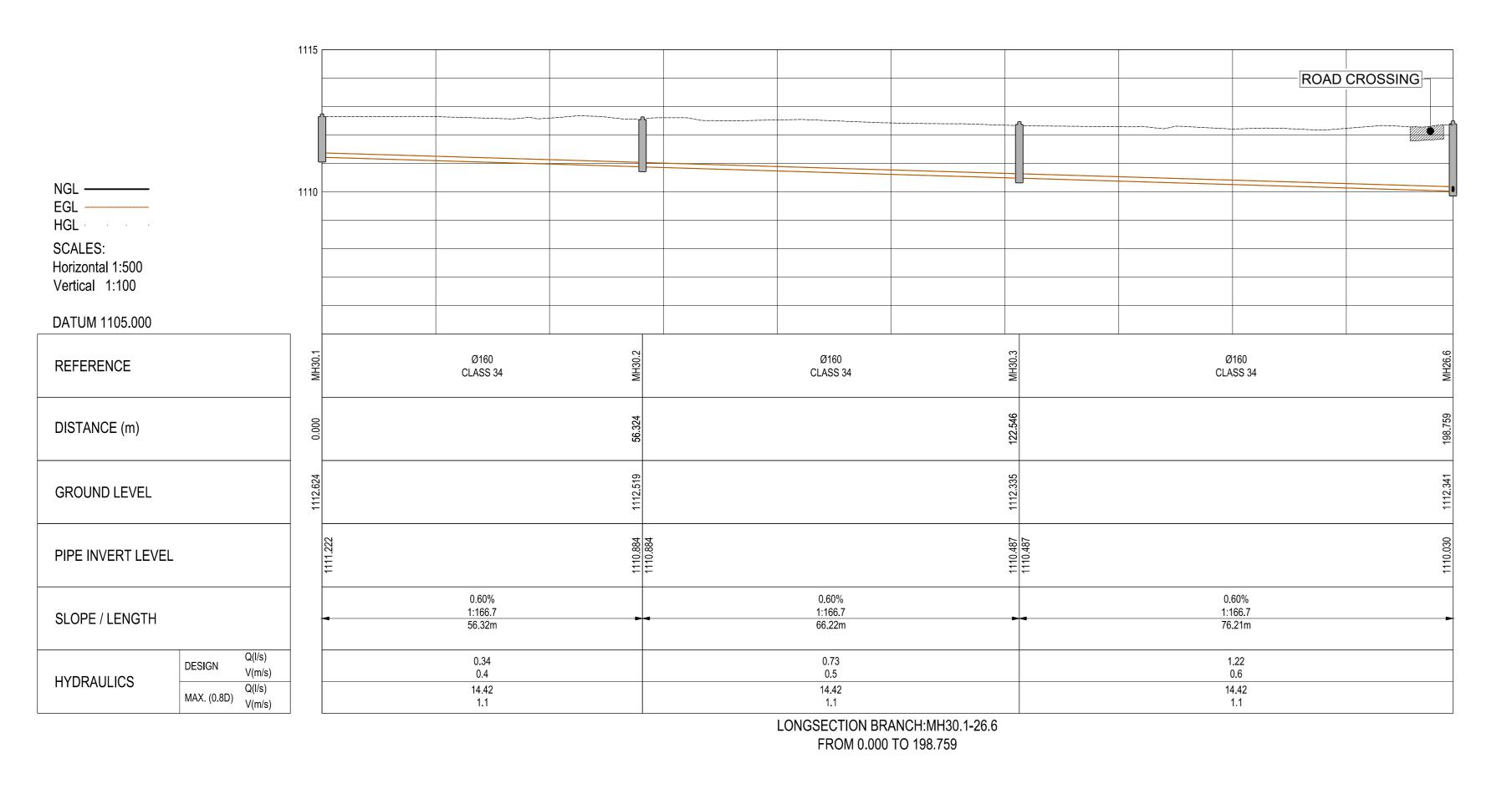
SCALES:



CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
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ION		REVISION	PLAN No.	
			RCE86_RLM_04_SE	KP_08
			•	

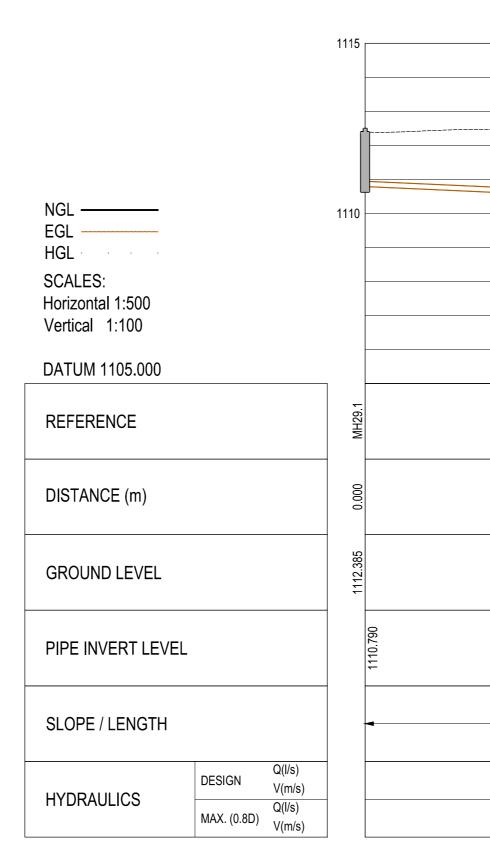
			1115		
			1115		
			ŕ	۲ ۲	
			l		
NGL			1110		
EGL			1110		
SCALES:					
Horizontal 1:500					
Vertical 1:100					
DATUM 1105.000			1		
			<u>-</u>		Ø160
REFERENCE			MH26.1	С	LASS 34
DISTANCE (m)			00000		
()			Ö		
			565		
GROUND LEVEL			1112.565		
PIPE INVERT LEVEL				1111.102	
					0.64%
SLOPE / LENGTH					1:155.2 45.15m
		0/1/->			
	DESIGN	Q(l/s) V(m/s)			0.59 0.5
HYDRAULICS	MAX. (0.8D)	Q(I/s)			14.94
MAX. (0.8D) V(m/s)					1.1





					DESIGNED BY: RALEMA CONSU
No.	DATE	REVISIONS	BY	CHECKED BY	C08/06 PHOENIX VIEW I Cnr RIVERSIDE & 14TH NOORDWYK X95 1863

					ROAD CROSS													
				·						 ·							- <u>A</u>	
								0					_				_	
																		0
ŀ	MH26.2	Ø160 CLASS 34	01 CLAS	60 ⁴⁷ SS 34W	Ø160 CLASS 34	MH26.5	Ø160 CLASS 34	MH26.6	Ø160 CLASS 34	MH26.7	Ø160 CLASS 34	1	MH26.8	Ø160 CLASS 34	MH26.9	Ø160 CLASS 34	0160 CLASS) 34 22:52 WH
	45.146		82.509	93.582		127.439		166.766		223.990			280.804		336.974		358.468	429.656
	1112.401		1112.395	1112.317		1112.158		1112.341		1112.267			1112.240		1112.127		1112.082	1111.784
	1110.811		1110.571 1110.571	1110.499 1110.499		1110.281		1110.028 1110.028		1109.659 1109.659			1109.291 1109.291		1108.931 1108.931		1108.791	1108.336
		0.64% 1:155.4 37.36m	0.6 1:15 11.0	5% 54.6	0.64% 1:155.1 33.86m		0.64% 1:155.4 39.33m		0.64% 1:155.2 57.22m		0.65% 1:154.5 56.81m			0.64% 1:155.7 56.17m		0.65% 1:154 . 1	0.64% 1:156. 71.19r	6 4
		37.36m	11.0)7m	33.86m		39.33m		57.22m		56.81m			56.17m		21.49m	71.19	m 🗖
		0.59 0.5	0.	59 .5	0.93 0.5		0.93 0.5		2.40 0.7		3.38 0.8			4.36 0.8		5.98 0.9	5.98	
		14.93 1.1	14. 1	.97 .1	14.95 1.1		14.93 1.1		14.94 1.1		14.98 1.1			14.92 1.1		15.00 1.1	14.88	
	LONGSECTION BRANCH:MH26.1-23.7 FROM 0.000 TO 429.656																	

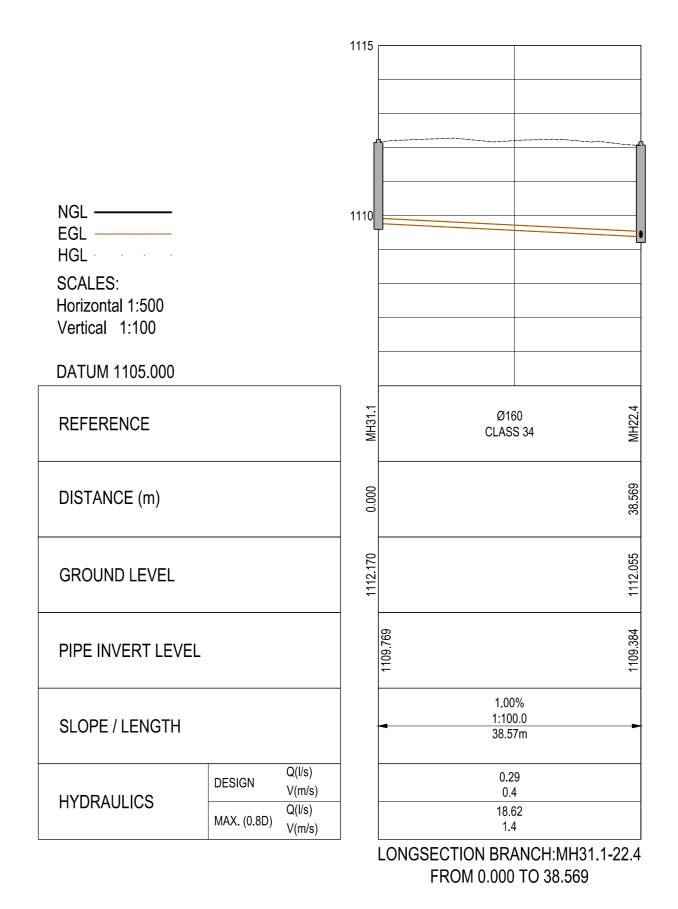




ULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
ULTING ENGINEERS	L. Maleka	ISSUED BY:	RECEIVED BY:	Rustanhung
ESTATES Tel: (011) 312 0873 STREET Fax: (086) 537 7440	DRAWN S. Bapela-Pr Tech Eng			Local Municipality
Email: admin@ralemacons.co.za	CHECKED	DATE:	DATE:	

1	1					
					ROAD CROSSING	
						2
 	r					
]				
Ø160 CLASS 34	MH29.2			Ø160 CLASS 34		MH26.7
	55.321					129.313
	1112.359					1112.267
	1110.292	1110.292				1109.663
 0.90% 1:111.1 55.32m		4		0.85% 1:117.6 73.99m		
0.34 0.4				0.34 0.4		
17.66 1.3				17.16 1.3		
	LONGSEC	TIOI	N BRANCH:MH29.1-	-26.7]

FROM 0.000 TO 129.313





CLIENT

RUSTENBURG LOCAL MUNUCIPALITY

Tel: (014) 590 3535 Fax: (014) 590 3006

DRAWING TITLE

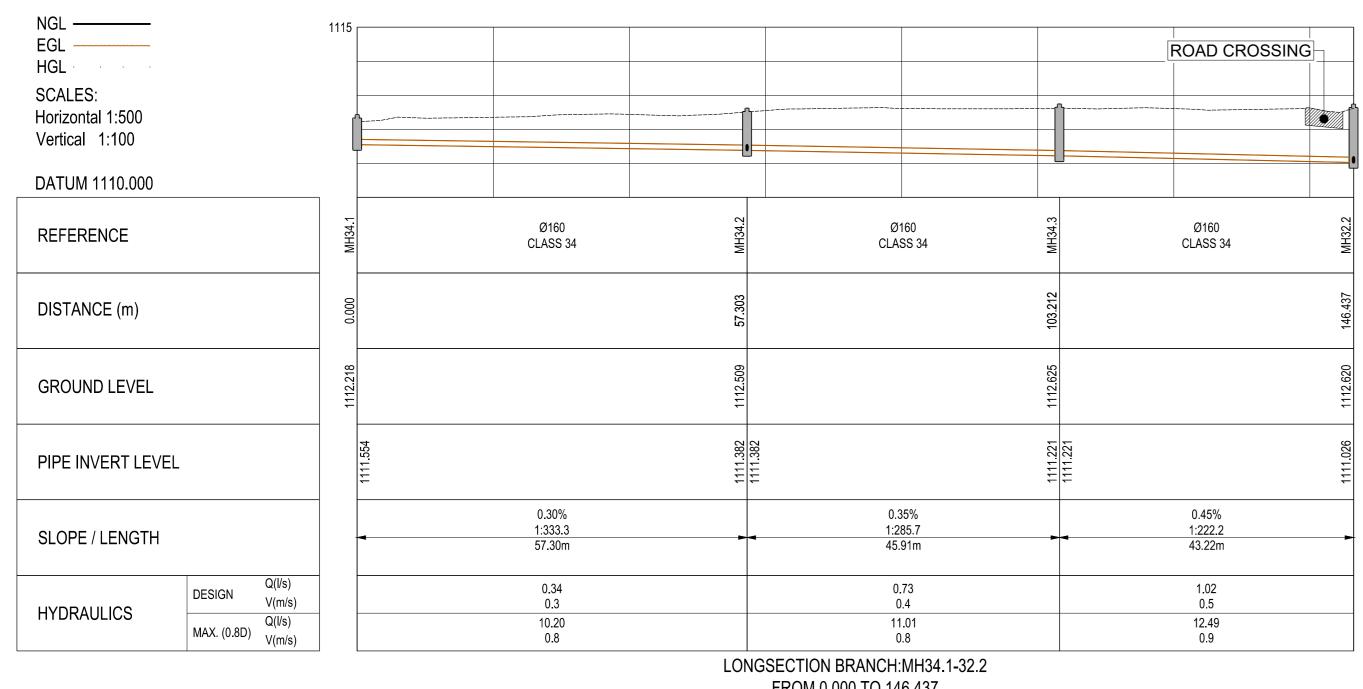
PROJECT TITLE

RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTION

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	ORIGINAL PAPER SIZE: A0

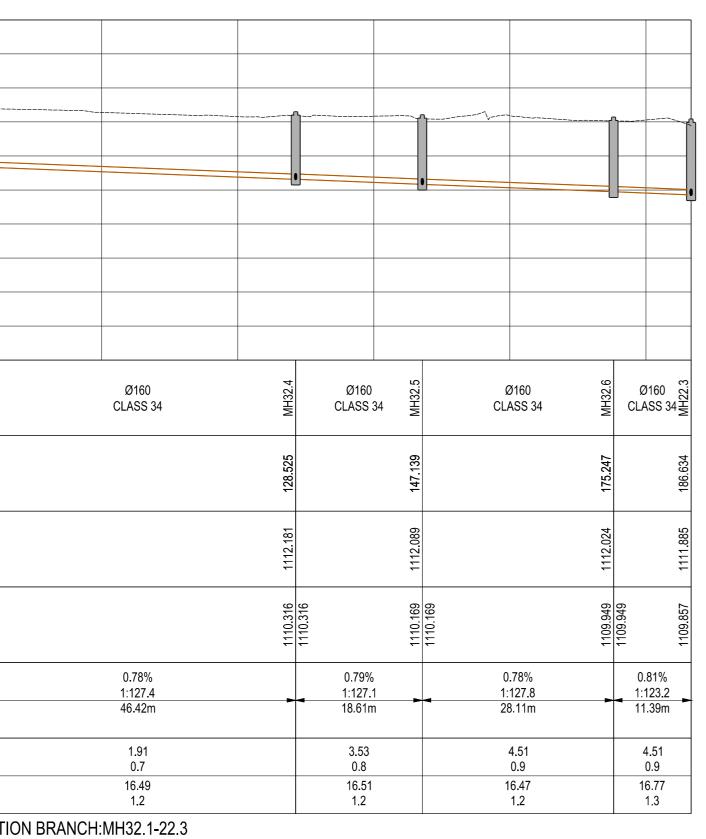
SHEET	SCALE	TYPES OF PLANNING	STATUS
ION		 PLANNING CONSTRUCTION AS-BUILT 	
	REVISION	PLAN No.	
		RCE86_RLM_04_SE	(P_09
	SHEET	1:500	1:500 PLANNING As-BUILT

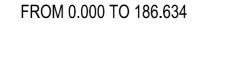
		1115				
				f		
				0		
NGL ———— EGL ———— HGL · · · · · ·		1110				
SCALES: Horizontal 1:500		_				
Vertical 1:100						
DATUM 1105.000						
REFERENCE		MH32.1	Ø16 CLASS			160 85 34 W
DISTANCE (m)		0.000		38.232		82.101
GROUND LEVEL		1112.507		1112.620		1112.395
PIPE INVERT LEVE	EL	1111.325		1111.026 1111.026		1110.680 1110.680
SLOPE / LENGTH			0.78 1:12 38.23	7.8	. 1:1	79% 26.9 87m
	DESIGN Q(I/s)		0.2	5	1	.27
HYDRAULICS	DESIGN V(m/s) MAX. (0.8D) Q(l/s) V(m/s) V(m/s)		0.4 16.4 1.2	.7	16).6 (.53 (.2
_	V(m/s)		1.2			LONGSECT



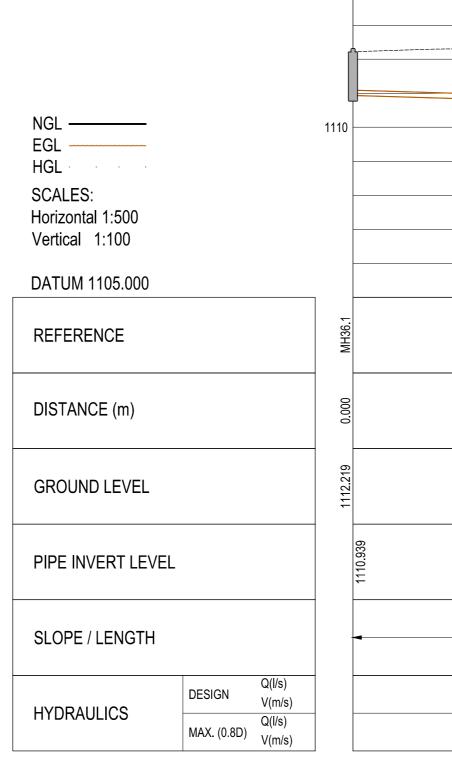
FROM 0.000 TO 146.437

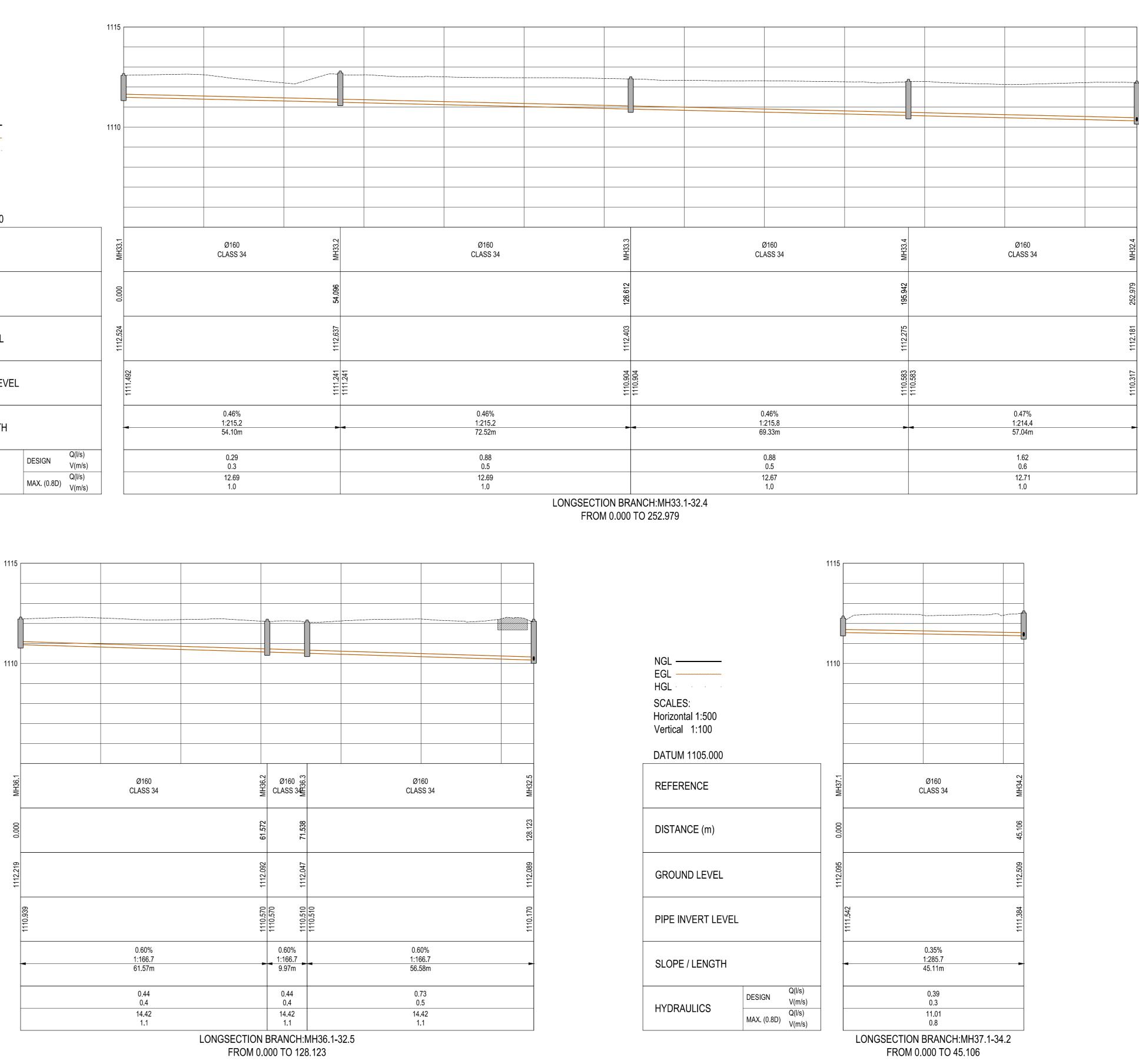
					DESIGNED BY: RALEMA CONSUL
No. D	DATE	REVISIONS	BY	CHECKED	C08/06 PHOENIX VIEW ES Cnr RIVERSIDE & 14TH ST NOORDWYK X95 1863





NGL — EGL — HGL – SCALES: Horizontal 1:500 Vertical 1:100 DATUM 1105.000			1110	
REFERENCE			MH33.1	
DISTANCE (m)			0.000	
GROUND LEVEL			1112.524	
PIPE INVERT LEVEL				1111.492
SLOPE / LENGTH				
HYDRAULICS	DESIGN MAX. (0.8D)	Q(I/s) V(m/s) Q(I/s) V(m/s)		







MA CONSULTING	DEPARTMENT OF ROAD
	AND STORMWATER
SUED BY:	RECEIVED BY:
	DATE:

DADS	CLIENT ADDRESS
	Rustenburg



CLIENT

RUSTENBURG LOCAL MUNUCIPALITY

P O BOX 16 RUSTENBURG 0300 PROJECT TITLE

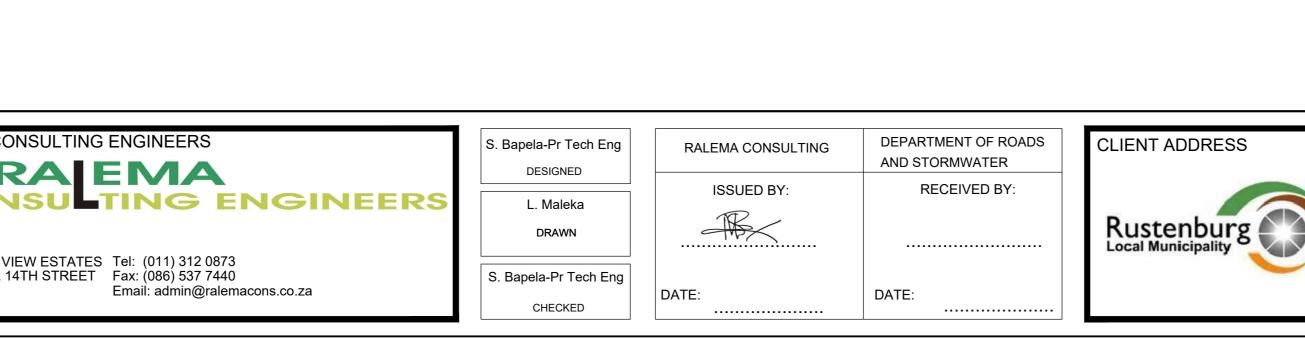
RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECT

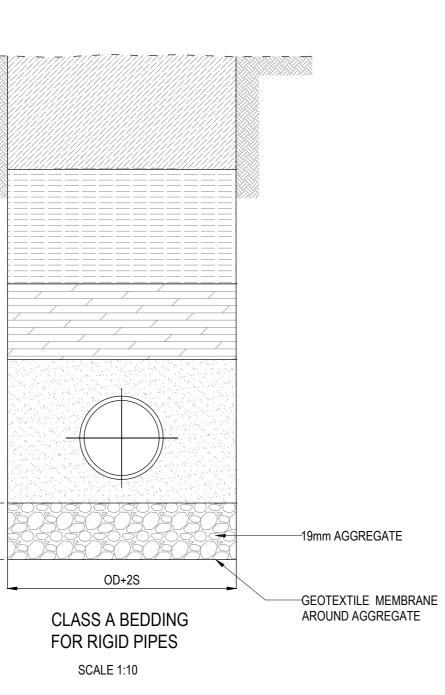
Tel: (014) 590 3535 Fax: (014) 590 3006

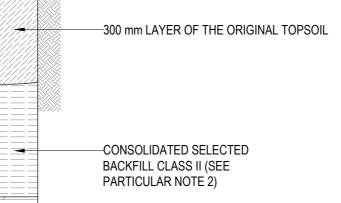
DRAWING TITLE

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
		1:500	 PLANNING CONSTRUCTION AS-BUILT 	
ION		REVISION	PLAN No.	
			RCE86_RLM_04_SE	<p_10< td=""></p_10<>

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				Net Image: Constrained of the second of the secon
No. DATE	F	REVISIONS	BY CHECKED BY	ED BY: RALEMA CONSULTING ENGINEERS REALEMACONSULTING ENGINEERS CO8/06 PHOENIX VIEW ESTATES CNR RIVERSIDE & 14TH STREET NOORDWYK X95 1863





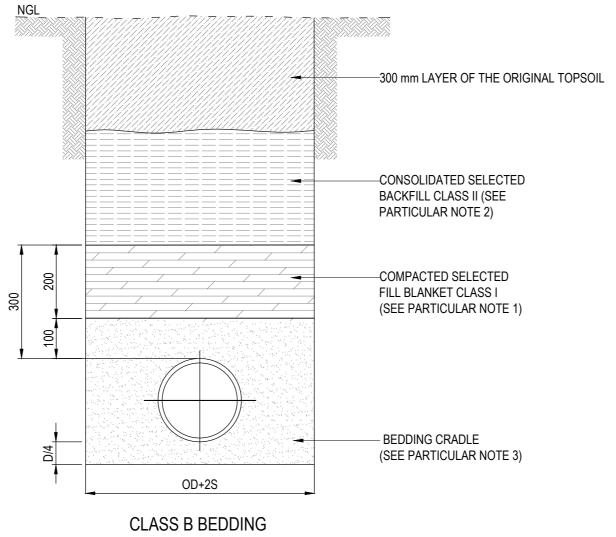


-COMPACTED SELECTED FILL BLANKET CLASS I

(SEE PARTICULAR NOTE 1)

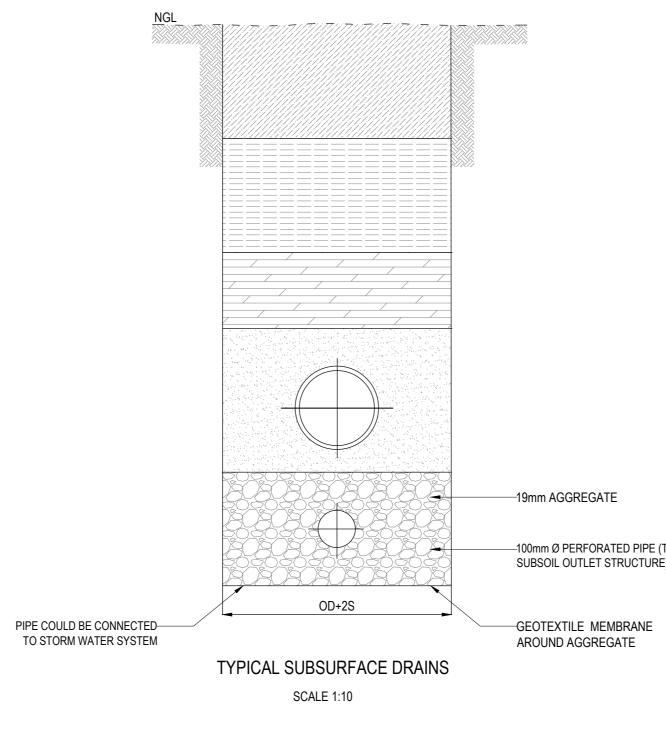
CONCRETE PIPE

-CONCRETE BEDDING



FOR FLEXIBLE PIPES SCALE 1:10

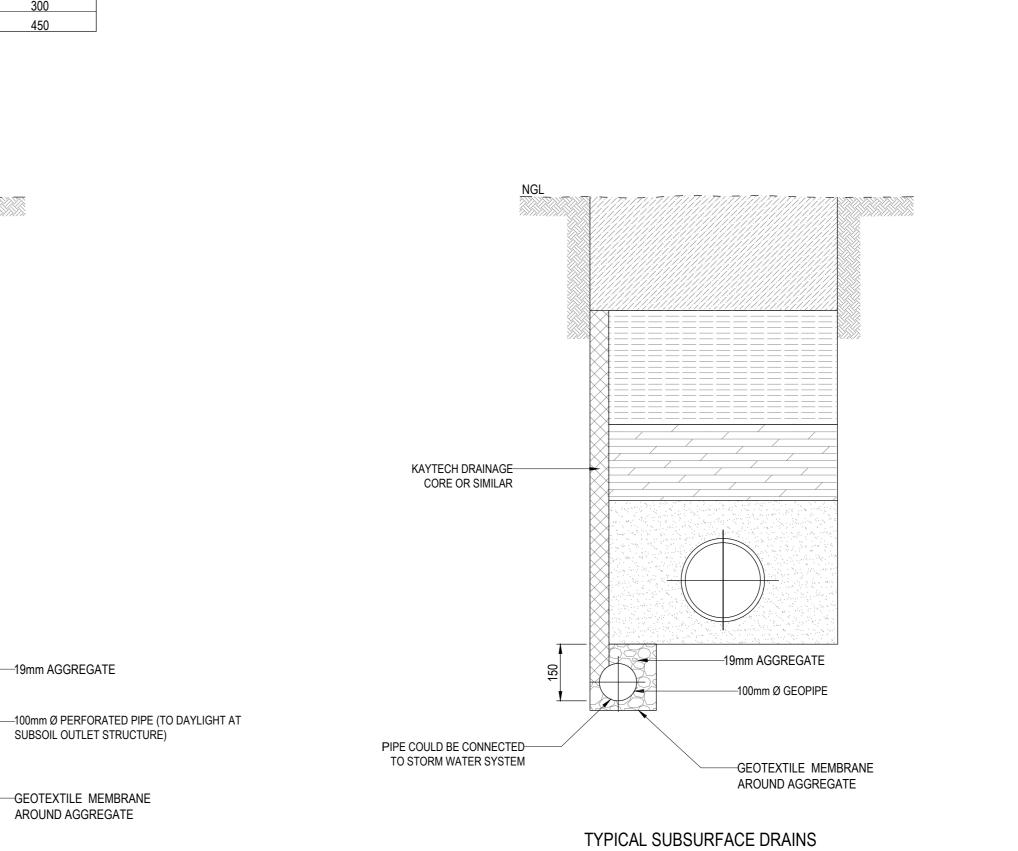
S-VALUES (mm)				
PIPE	RIGID	RIGID	FLEXIBLE	
BEDDING	CONCRETE	SOIL	SOIL	
0.900	200	300	300	
0.950	300	450	450	



GEOTEXTILE MEMBRANE DEPENDANT ON SOIL PERMEABILITY & GRADING - TO BE SPECIFIED BY THE DESIGNER

CLIENT RUSTENBURG LOCAL MUNUCIPALITY P O BOX 16 RUSTENBURG 0300 PROJECT TITLE RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECT Tel: (014) 590 3535 Fax: (014) 590 3006 DRAWING TITLE SEWER RETICULATION PIPE TRENCH AND BEDDING DETAILS

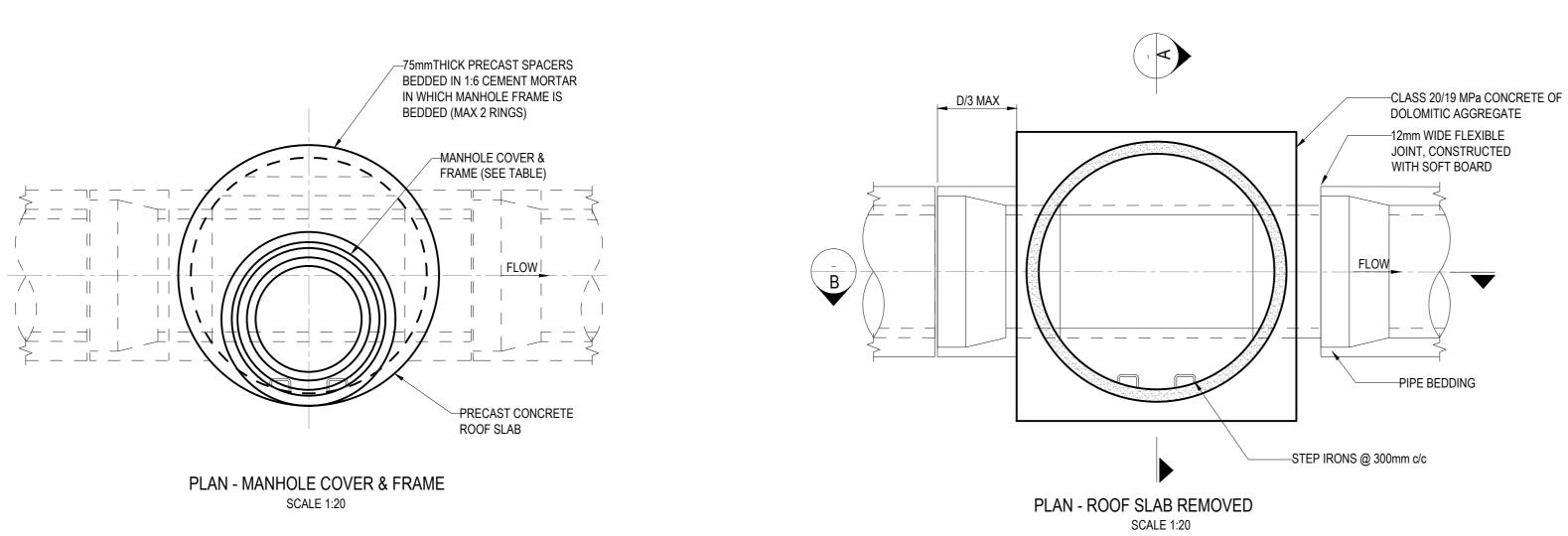


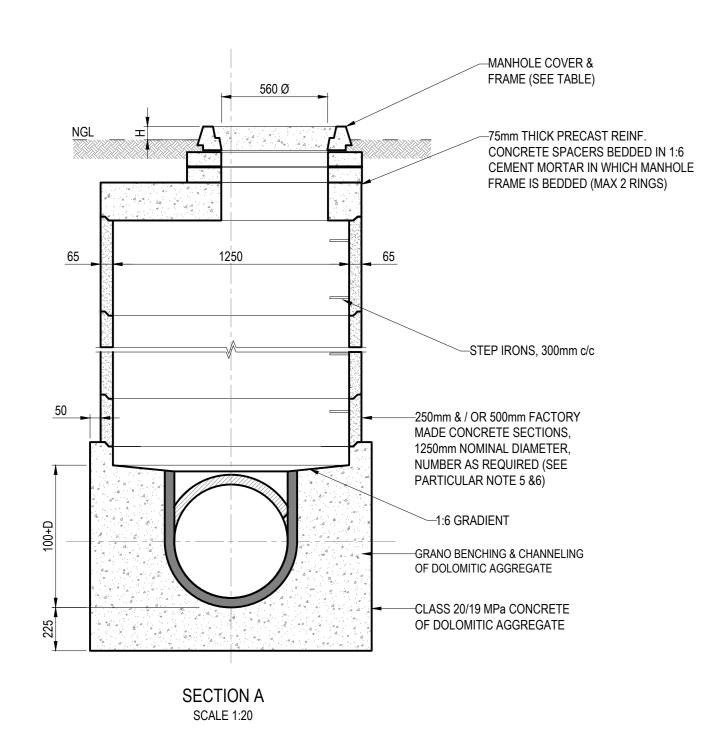


NGL 300 mm LAYER OF THE ORIGINAL TOPSOIL BACKFILL CLASS II (SEE PARTICULAR NOTE 2) -----COMPACTED SELECTED FILL BLANKET CLASS I (SEE PARTICULAR NOTE 1) _____ - BEDDING CRADLE (SEE PARTICULAR NOTE 3) OD+2S CLASS B BEDDING FOR RIGID PIPES

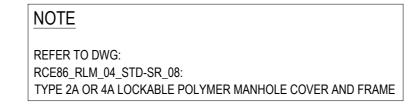
SCALE 1:10

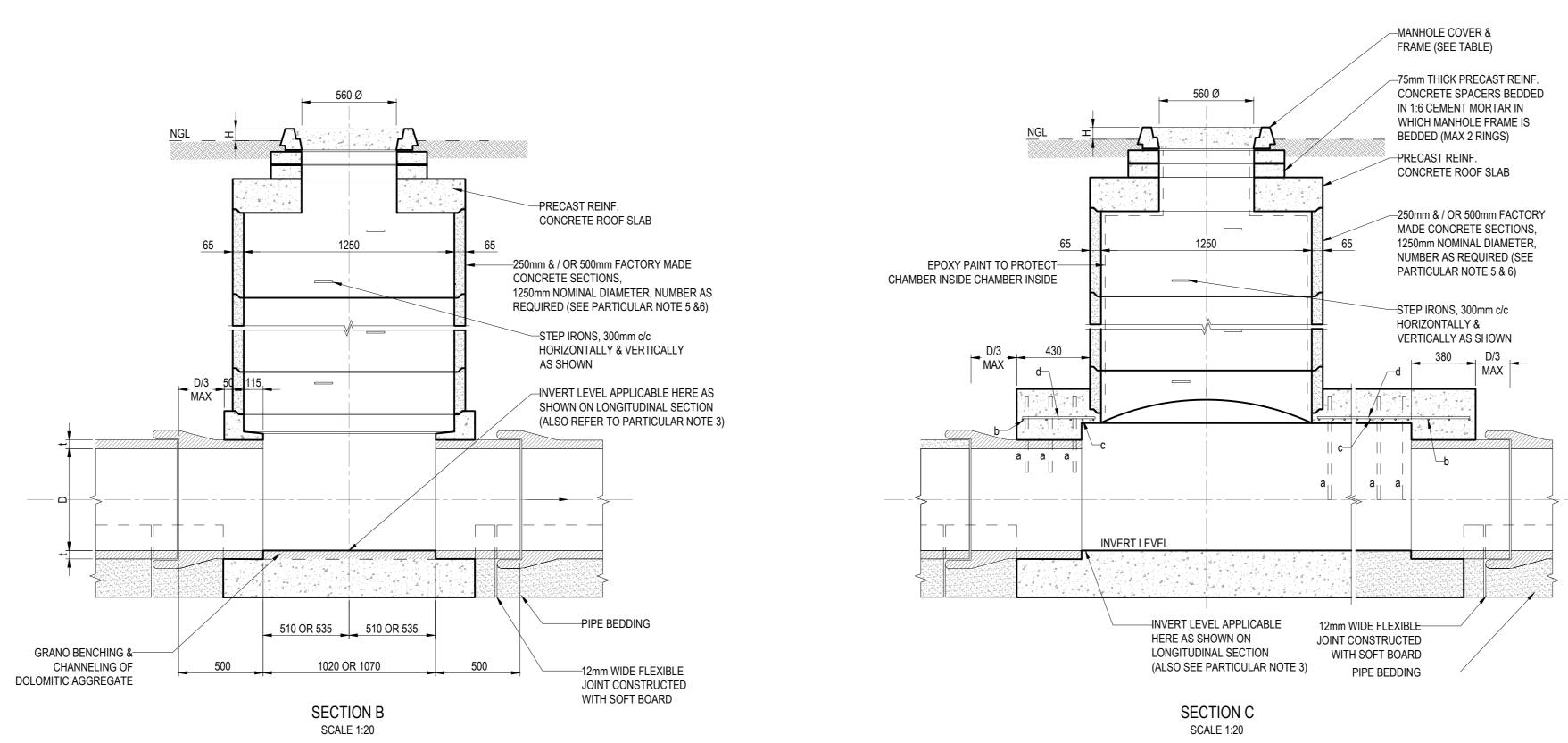
CONTRACT No. SHEET 1 OF 8 SCALE TYPES OF PLANNING PLANNING AS SHOWN O CONSTRUCTION PLANNING AS SHOWN As-BUILT O REVISION PLAN No. 0 0 RCE86_RLM_04_STD-SR_01				
AS SHOWN OCCURRENT OF LANNING	CONTRACT No.	SCALE	TYPES OF PLANNING	STATUS
REVISION PLAN No.		AS SHOWN		
0 RCE86_RLM_04_STD-SR_01	TION	REVISION	PLAN No.	
		0	RCE86_RLM_04_STD-SI	R_01

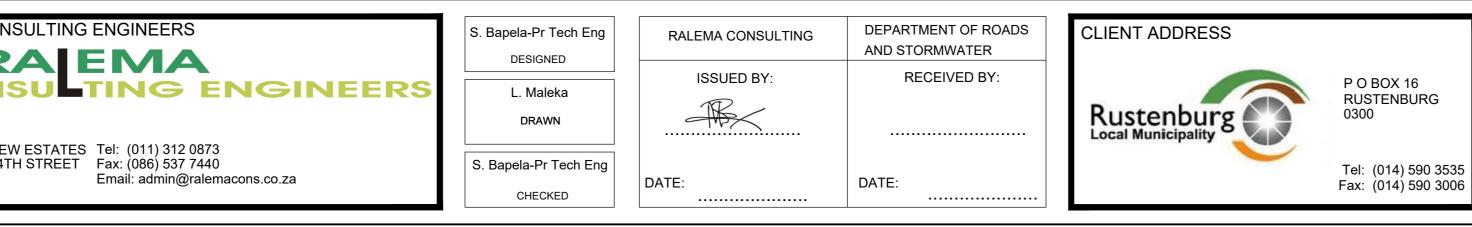


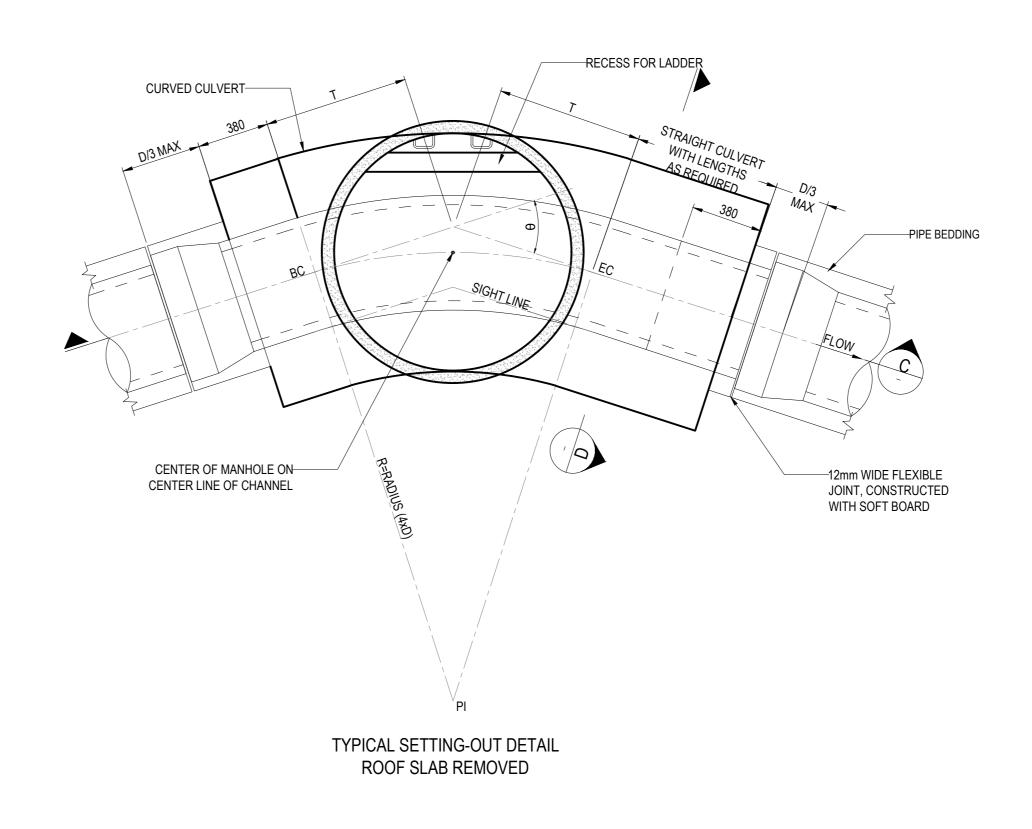


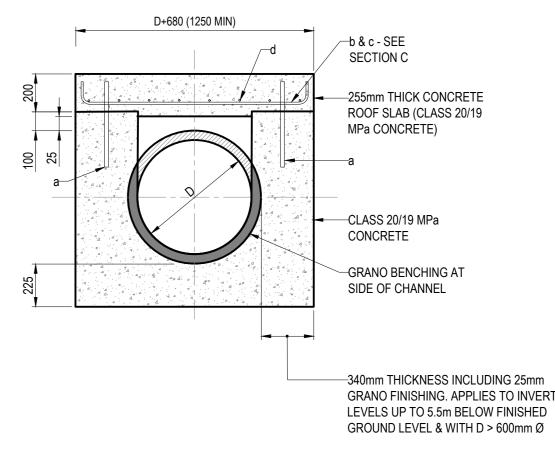
					DESIGNED BY: RALEMA CON
No.	DATE	REVISIONS	BY	CHECKED BY	C08/06 PHOENIX VIEV Cnr RIVERSIDE & 14T NOORDWYK X95 1863











SECTION D SCALE 1:20

DESCRIPTION OF REBAR (AS SHOWN IN SECTION C & D): a = Y20 @ 150 VERT, 450mm LONG b = Y12 @ 150 - B1, BENT AS SHOWN IN SECTION D C = Y12 @ 75 - B1, AS SHOWN IN SECTION C d = Y12 @ 150 - B2, DISTRIBUTION BARSCONCRETE COVER = 40mm

CLIENT PROJECT TITLE

RUSTENBURG LOCAL MUNUCIPALITY

MARIKANA WEST SEWER NETWORK CONNECTION

DRAWING TITLE

CONTRACT No. SHEET 2 OF 8 SCALE TYPES OF PLANNING STATUS PLANNING PLANNING CONSTRUCTION AS SHOWN AS-BUILT REVISION PLAN No. RCE86_RLM_01_STD-SR_02 SEWER RETICULATION MANHOLE DETAILS FOR SEWER PIPES LARGER THAN 300mm NOMINAL DIAMETER

ORIGINAL PAPER SIZE: A0

∕—b & c - SEE

SECTION C

—a

255mm THICK CONCRETE

MPa CONCRETE)

-CLASS 20/19 MPa

GRANO BENCHING AT

GRANO FINISHING. APPLIES TO INVERT

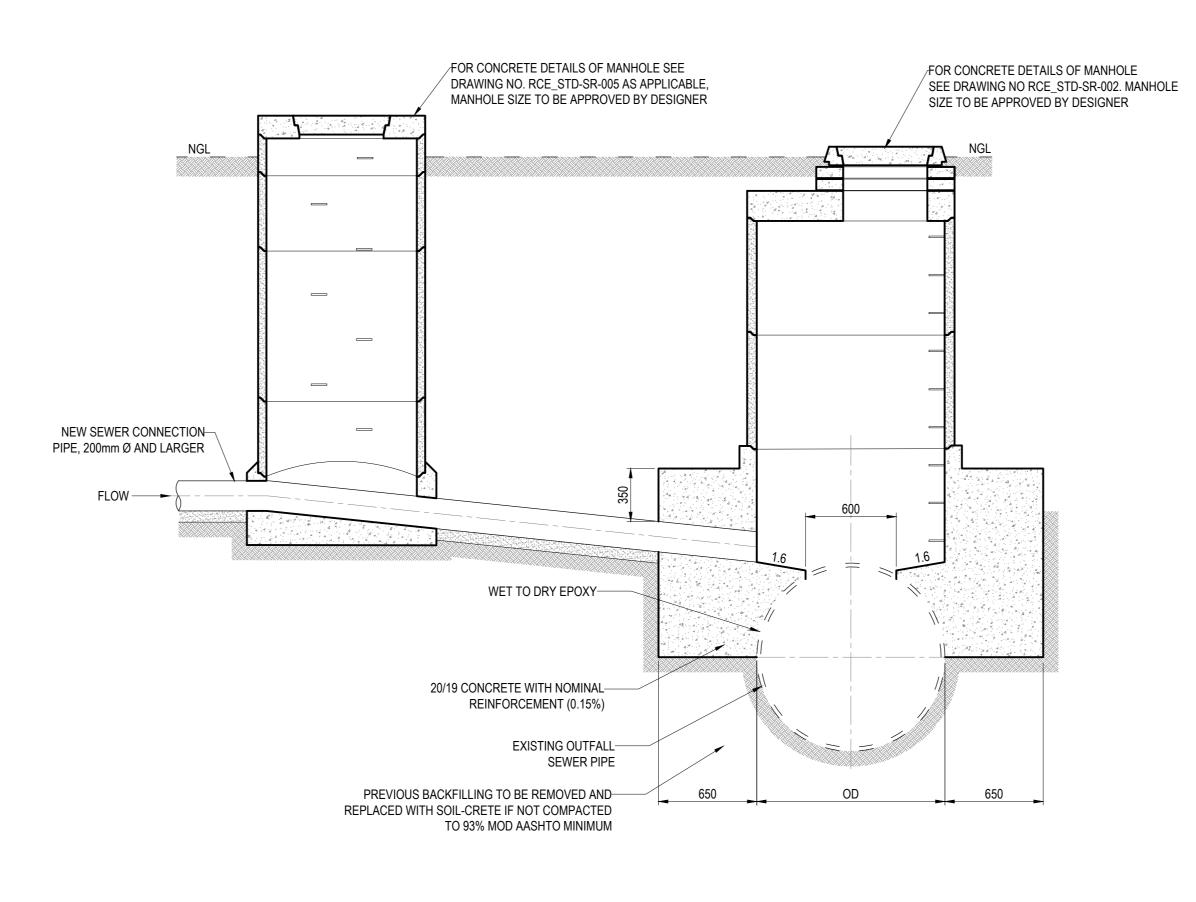
LEVELS UP TO 5.5m BELOW FINISHED GROUND LEVEL & WITH D > 600mm Ø

SIDE OF CHANNEL

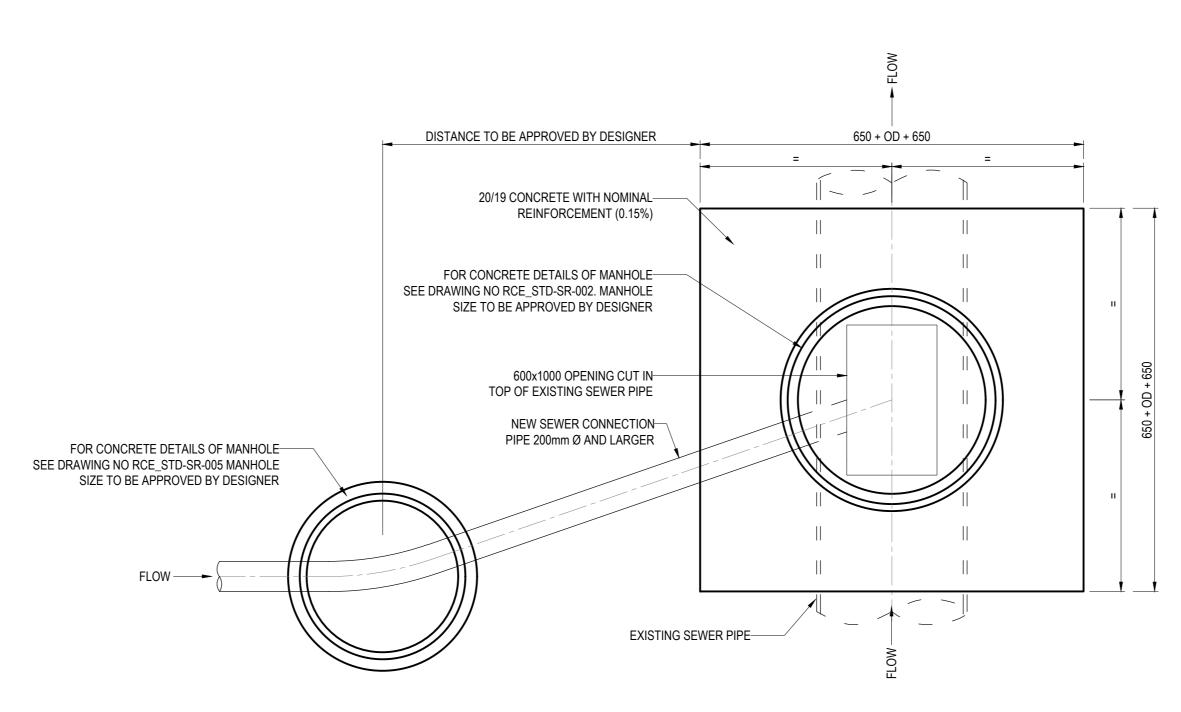
CONCRETE

ROOF SLAB (CLASS 20/19

				DESIGNED BY: RALEMA CON
				DESIGNED BY: RALEMA CON
				C08/06 PHOENIX VIE Cnr RIVERSIDE & 14
No. DATE	REVISIONS	BY	CHECKED BY	NOORDWYK X95 1863



SEWER PIPE INTO OUTFALL SEWER PIPE

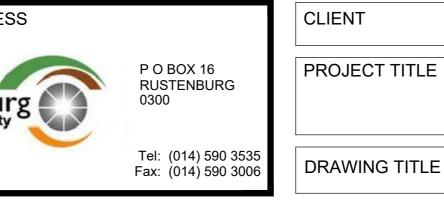


PLAN SHOWING TYPICAL DETAIL OF CONNECTION SEWER PIPE INTO OUTFALL SEWER PIPE SCALE 1:25

SEWER PIPES 200mm Ø & LARGER CONNECTION TO OUTFALL SEWER

SULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
A EMA SULTING ENGINEERS	DESIGNED	ISSUED BY:	RECEIVED BY:	
W ESTATES Tel: (011) 312 0873	DRAWN	-RK		Rustenburg
H STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng CHECKED	DATE:	DATE:	

SECTION SHOWING TYPICAL DETAIL OF CONNECTION SCALE 1:25

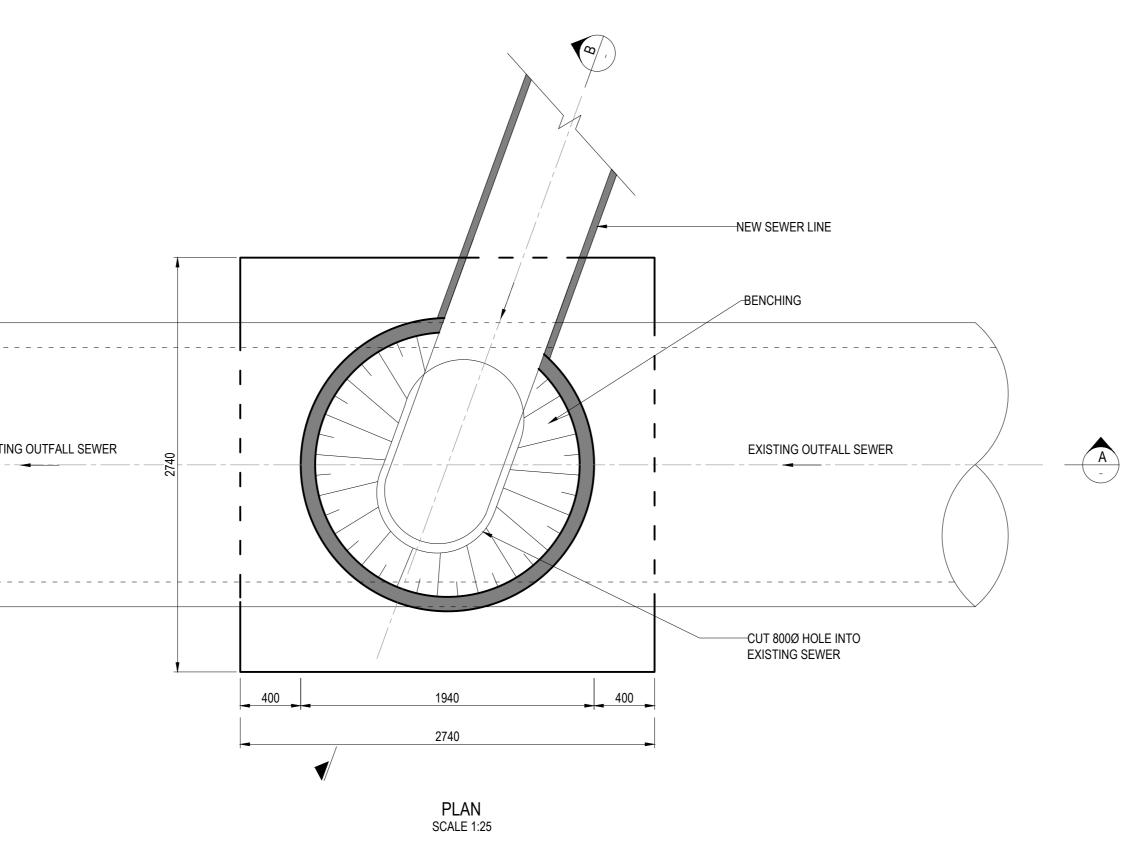


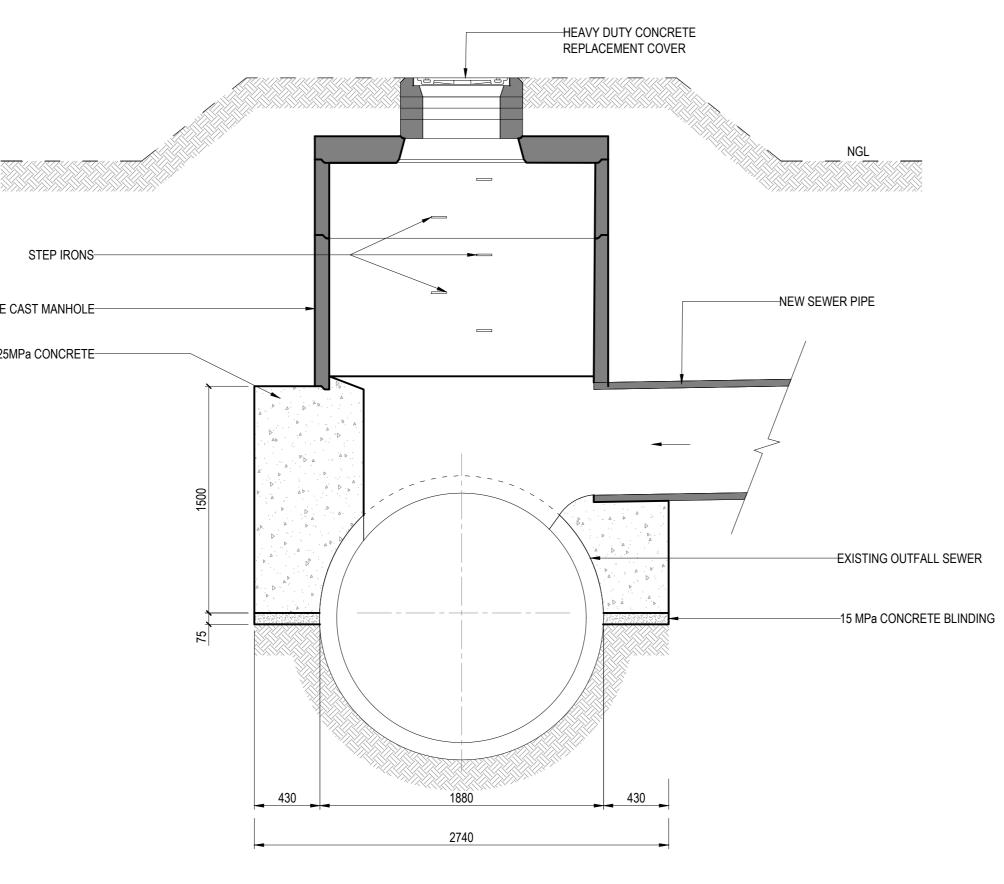
RUSTENBURG LOCAL MUNUCIPALITY

DRAWING TITLE SEWER RETICULATION TYPICAL SEWER CONNECTIONS TO EXISTING OUTFALL SEWE

RUSTENBURG LOCAL MUNUCIPALITY	CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
		3 OF 8			PLANNING
			AS SHOWN	CONSTRUCTION AS-BUILT	•
RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECTION			REVISION	PLAN No.	
SEWER RETICULATION TYPICAL SEWER CONNECTIONS TO EXISTING OUTFALL	. SEWER		0	RCE86_RLM_04_STD-SF	२_03

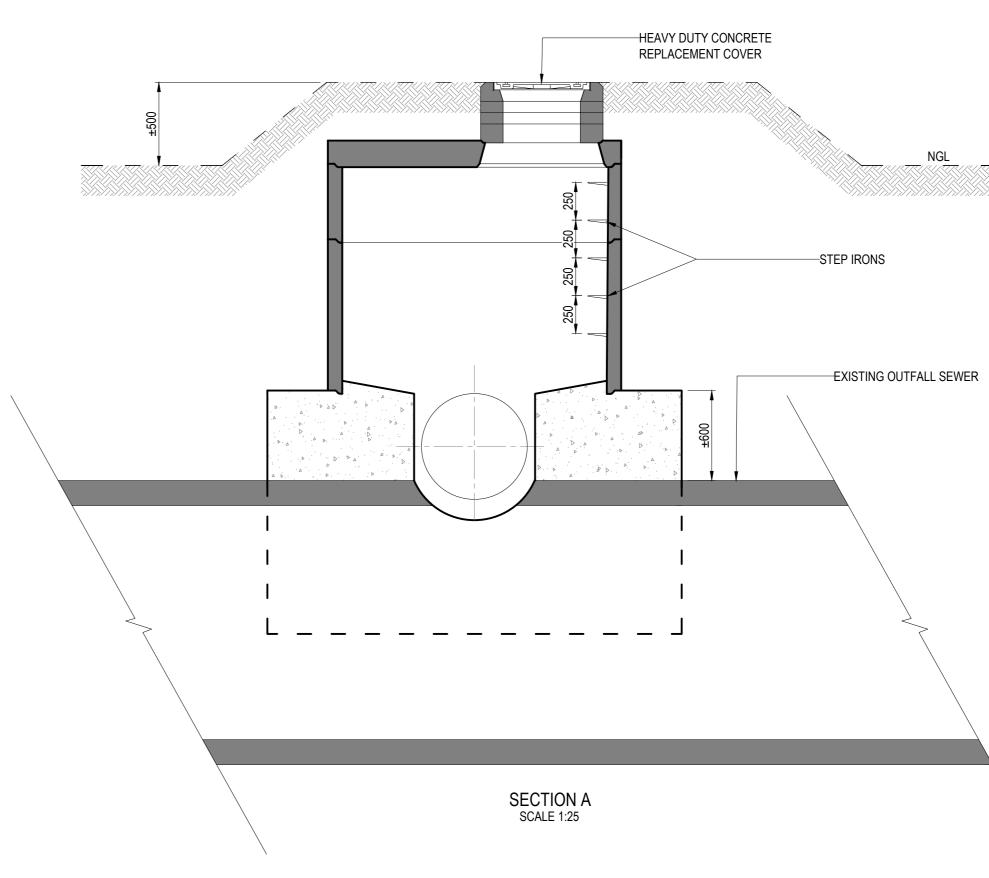
S 1750ND PRE CAS 25MPa	
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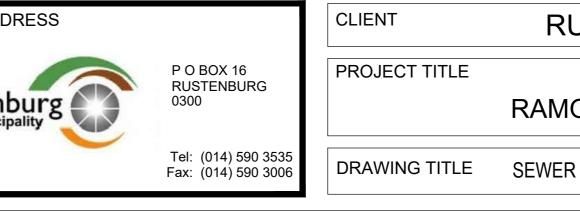




SECTION B SCALE 1:25

ISULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS	CLIENT ADDRES
	DESIGNED		AND STORMWATER	
	_	ISSUED BY:	RECEIVED BY:	
SULTING ENGINEERS	L. Maleka	(AT)		
	DRAWN	-		Rustenbur
W ESTATES Tel: (011) 312 0873				Local Municipality
TH STREET Fax: (086) 537 7440	S. Bapela-Pr Tech Eng			
Email: admin@ralemacons.co.za		DATE:	DATE:	
	CHECKED	•••••		





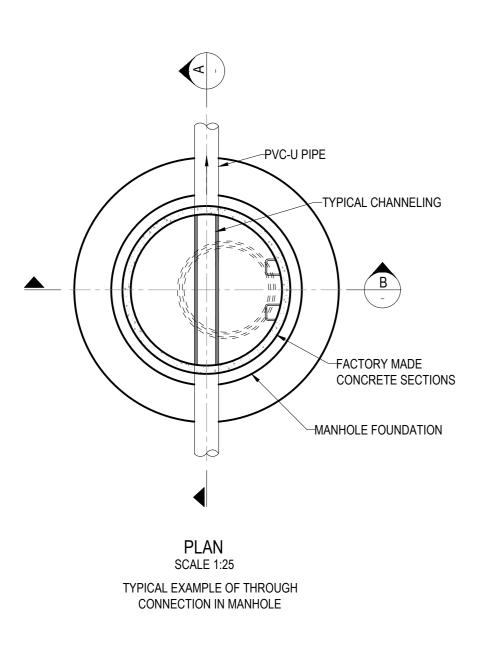
RUSTENBURG LOCAL MUNUCIPALITY

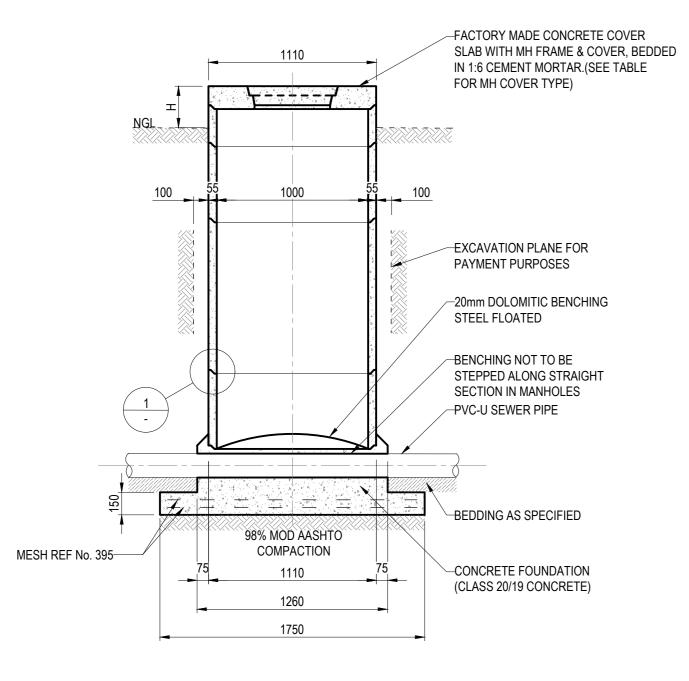
RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECT

SEWER RETICULATION TYPICAL SEWER MANHOLE CONNECTION TO EXISTING OUTFAL

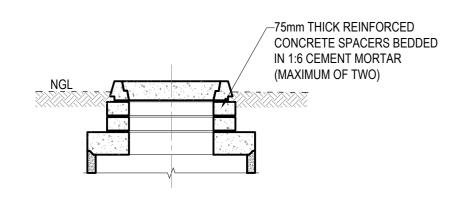
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SHEET	SCALE	TYPES OF PLANNING	STATUS
4 OF 6	AS SHOWN	 PLANNING CONSTRUCTION AS-BUILT 	
	REVISION	PLAN No.	
	0	RCE86_RLM_04_STD-SI	R_04
	SHEET 4 OF 8	4 OF 8 AS SHOWN REVISION	4 OF 8 OF 8 AS SHOWN PLANNING AS SHOWN As-BUILT REVISION PLAN No.

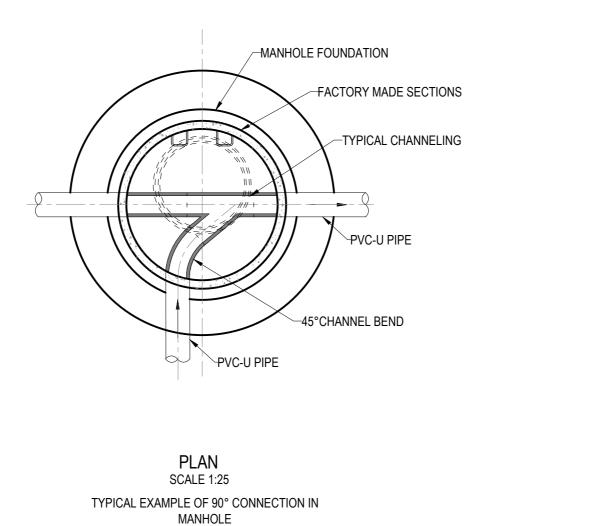




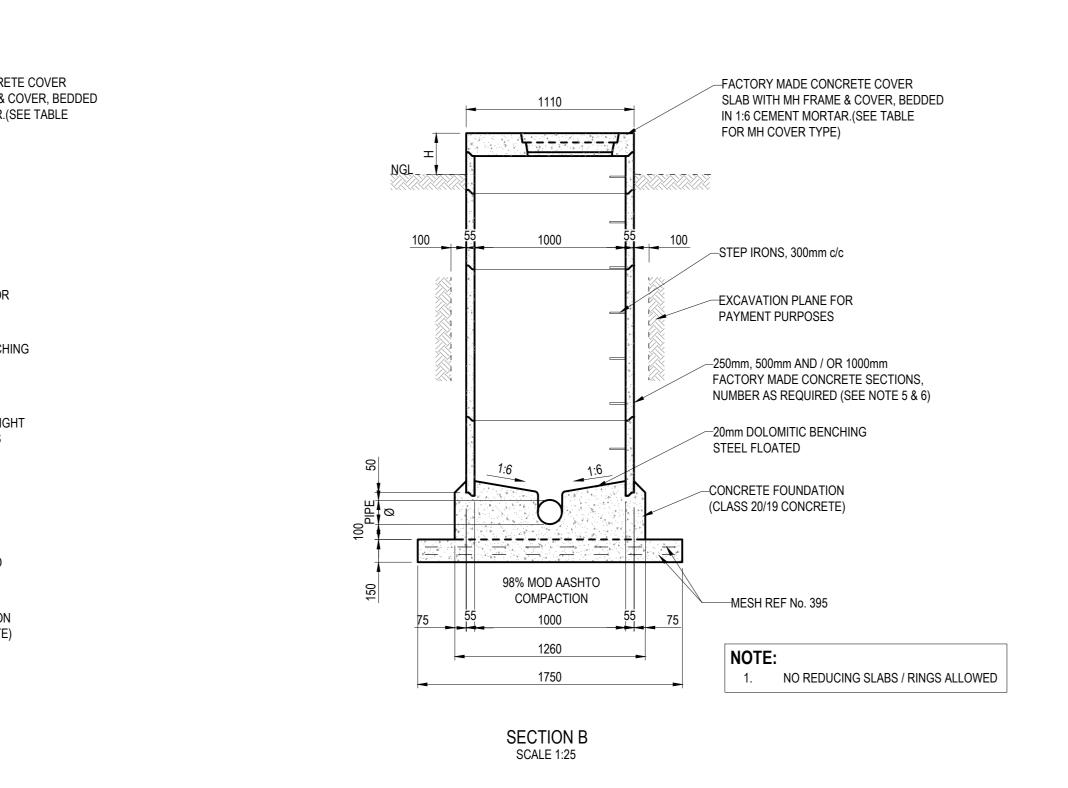
SECTION A SCALE 1:25

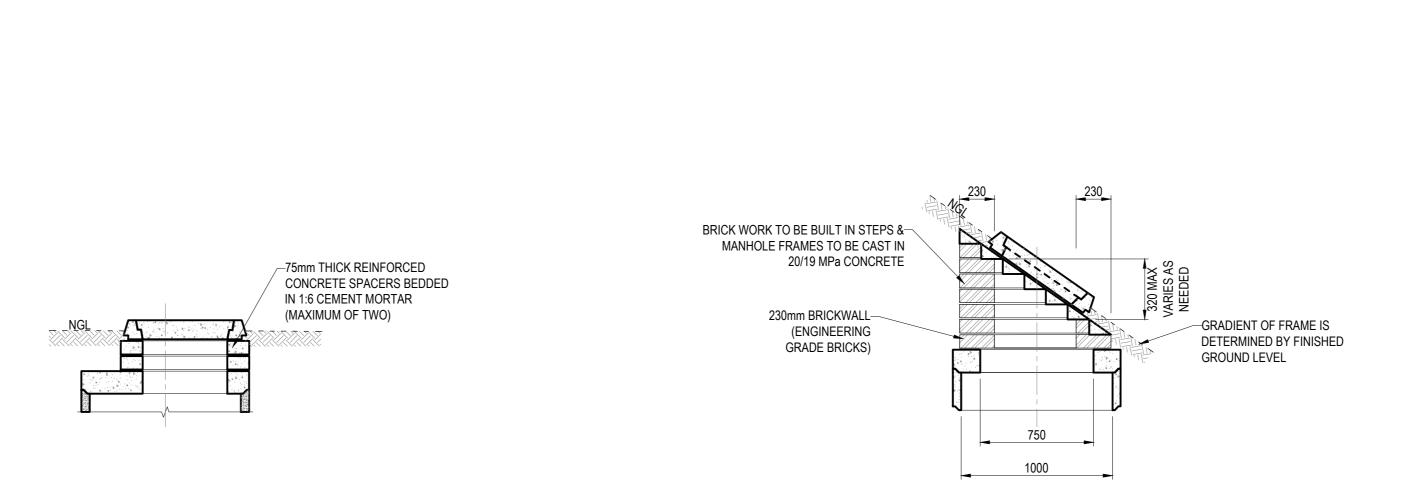


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No. DATE	REVISIONS	BY	CHECKED	C08/06 PHOENIX VIEW Cnr RIVERSIDE & 14TH NOORDWYK X95 1863



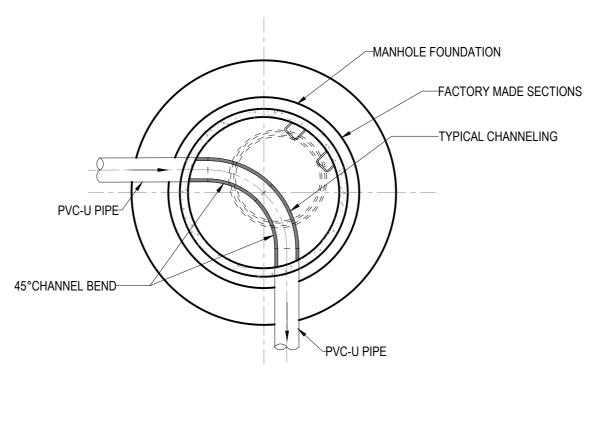
TYPICAL MANHOLE LAYOUTS SHOWING POSITIONS OF MANHOLE FRAME, STEPS & CHANNELING



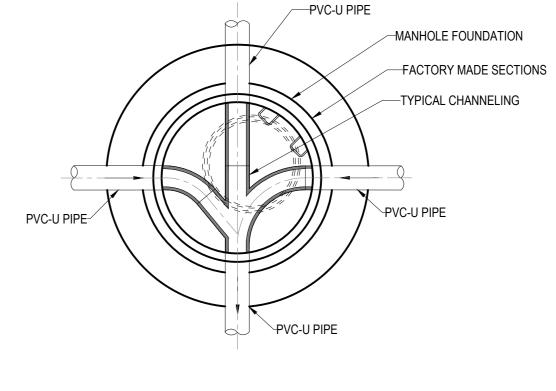


ALTERNATIVE LAYOUT WITH SPACERS

	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS	CLIENT ADDRES
	DESIGNED	ISSUED BY:	AND STORMWATER RECEIVED BY:	
SULTING ENGINEERS	L. Maleka DRAWN	A		Rustenbur
W ESTATES Tel: (011) 312 0873 TH STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng CHECKED	DATE:	DATE:	,

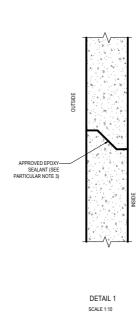






PLAN SCALE 1:25 TYPICAL EXAMPLE OF SIDE CONNECTIONS IN MANHOLE

SANS 50124 (SABS EN 124)						
POSITION OF MANHOLE FRAME AND COVER TYPE						
CARRIAGEWAY	560mm Ø CLASS D400 POLYESTER RESIN					
STREET RESERVE	560mm Ø CLASS B125 POLYESTER RESIN OR TYPE 4 CONCRETE REPLACEMENT					
ERVEN	560mm Ø CLASS B125 POLYESTER RESIN OR TYPE 4 CONCRETE REPLACEMENT					
GENERAL ONLY 560mm Ø, CLASS D400 POLYESTER RESIN MAY BE USED FOR SEWERS 300mm Ø AND LARGER						
NOTE: CAST IRON FROM THE	COVERS AND FRAMES ARE USED ONLY WITH WRITTEN INSTRUCTIONS					
	COVERS AND FRAMES ARE USED ONLY WITH WRITTEN INSTRUCTIONS					
	COVERS AND FRAMES ARE USED ONLY WITH WRITTEN INSTRUCTIONS ENGINEER					
FROM THE	COVERS AND FRAMES ARE USED ONLY WITH WRITTEN INSTRUCTIONS ENGINEER MANHOLE CHAMBER SIZES					
FROM THE NOMINAL Ø (mm)	COVERS AND FRAMES ARE USED ONLY WITH WRITTEN INSTRUCTIONS ENGINEER MANHOLE CHAMBER SIZES USAGE					



Jirg O P O BOX 16 RUSTENBURG 0300 Tel: (014) 590 3535 Fax: (014) 590 3006

CLIENT

TYPICAL SECTION SCALE 1:25

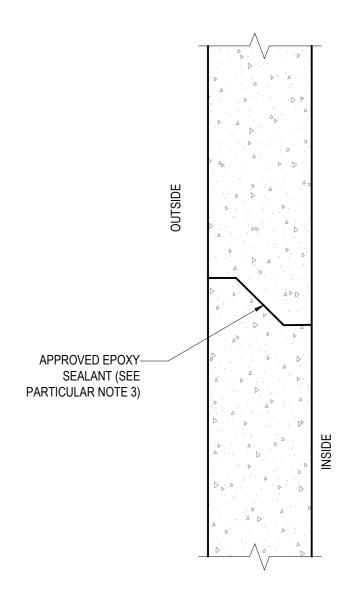
BUILT IN MANHOLE FRAME AT FINISHED SLOPED SIDEWALKS (WITH WRITTEN PERMISSION FROM THE ENGINEER ONLY)

RUSTENBURG LOCAL MUNUCIPALITY

PROJECT TITLE RAMOTSHANA SEWER UPGRADES AND HOUSE CONNECT

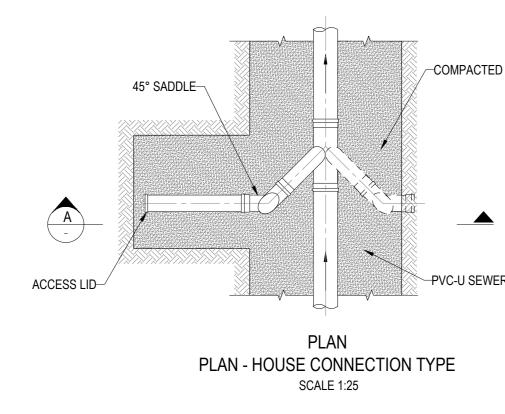
DRAWING TITLE SEWER RETICULATION MANHOLE DETAILS FOR SEWER PIPES UP TO 300mm NOMINAL

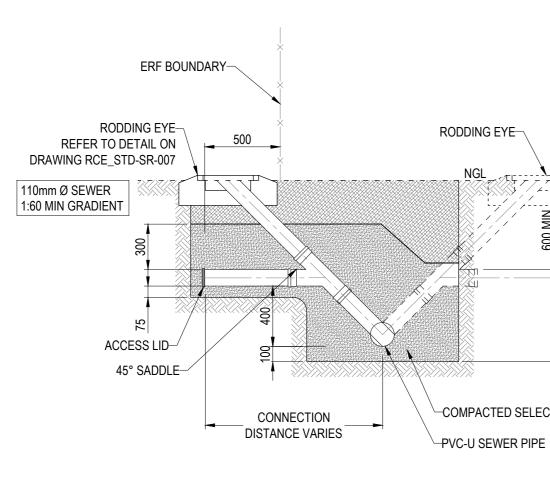
ORIGINAL PAPER SIZE: A0



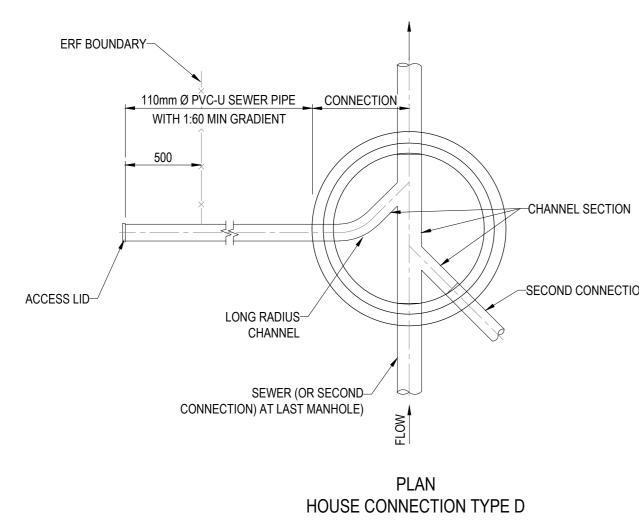
DETAIL 1 SCALE 1:10

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
	5 OF 8	AS SHOWN	 PLANNING CONSTRUCTION AS-BUILT 	
CTION		REVISION	PLAN No.	
L DIAMETER		0	RCE86_RLM_04_STD-SI	R_05



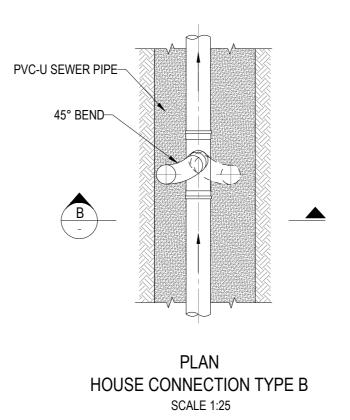


SECTION A SCALE 1:25



SCALE 1:25 (CONNECTION AT MANHOLE)

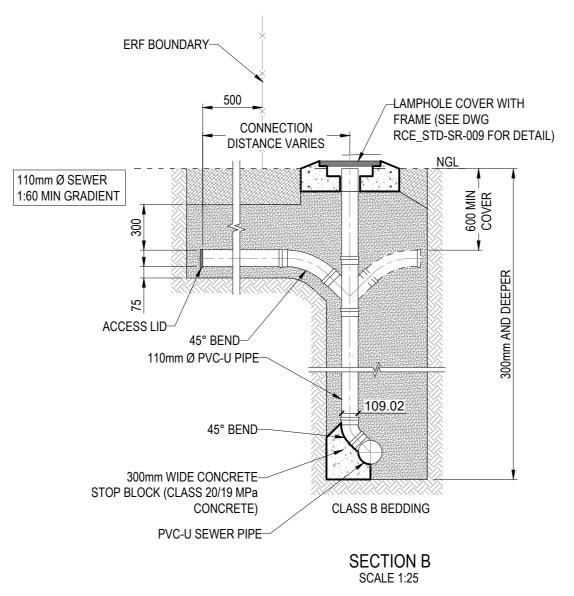
					DESIGNED BY: RALEMA CONS
No.	. DATE	REVISIONS	BY	CHECKED	C08/06 PHOENIX VIEW Cnr RIVERSIDE & 14TH NOORDWYK X95 1863

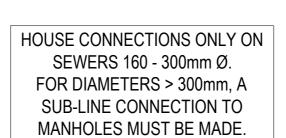


-COMPACTED SELECTED BEDDING PVC-U SEWER PIPE



COMPACTED SELECTED BEDDING





-SECOND CONNECTION

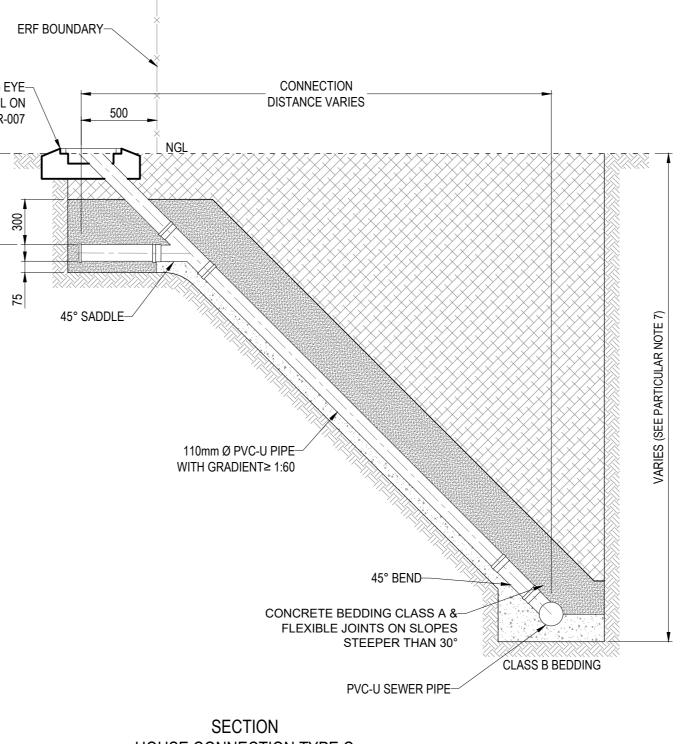
SULTING ENGINEERS S. Bapela-Pr Tech Eng RALEMA CONSULTING **EXACEMA** DESIGNED ISSUED BY: L. Maleka \mathbb{R} DRAWN W ESTATES Tel: (011) 312 0873 TH STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za S. Bapela-Pr Tech Eng DAT CHECKED

G DEPARTMENT OF ROADS AND STORMWATER	
RECEIVED BY:	
DATE:	

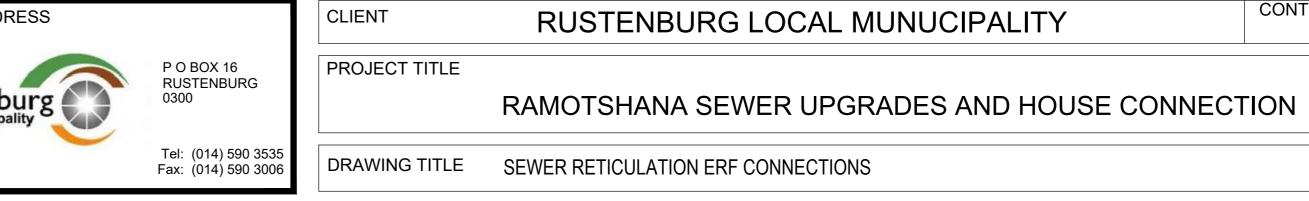
CLIENT ADDRESS Rustenburg

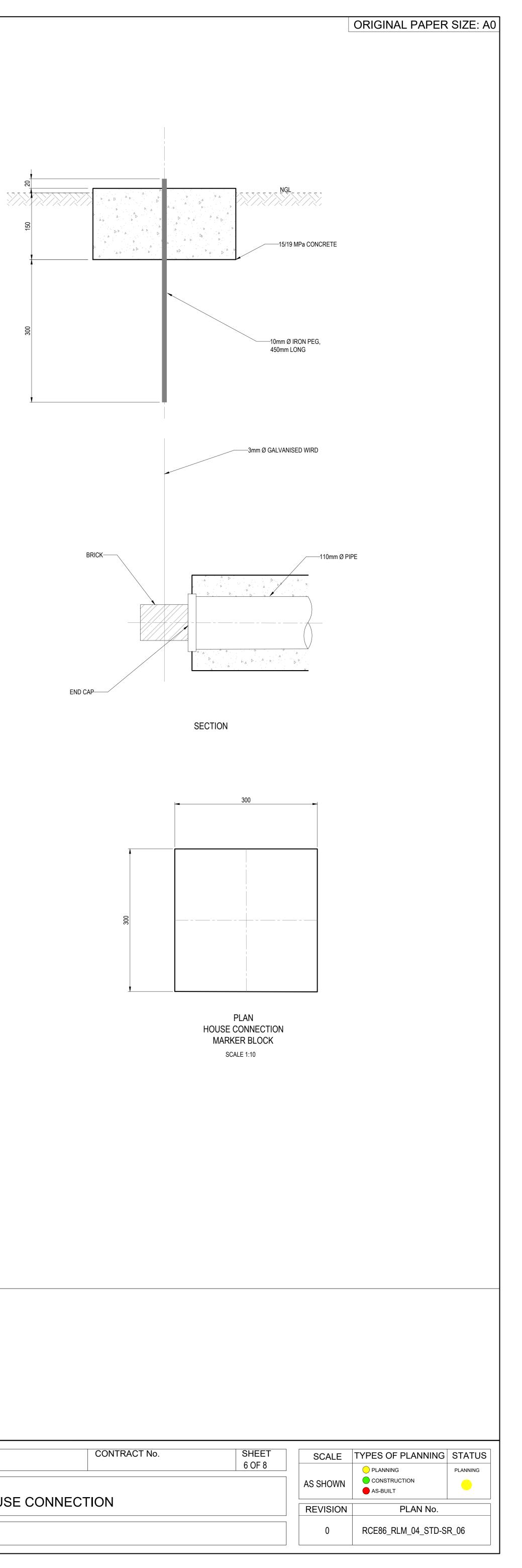
RODDING EYE-

REFER TO DETAIL ON DRAWING RCE_STD-SR-007

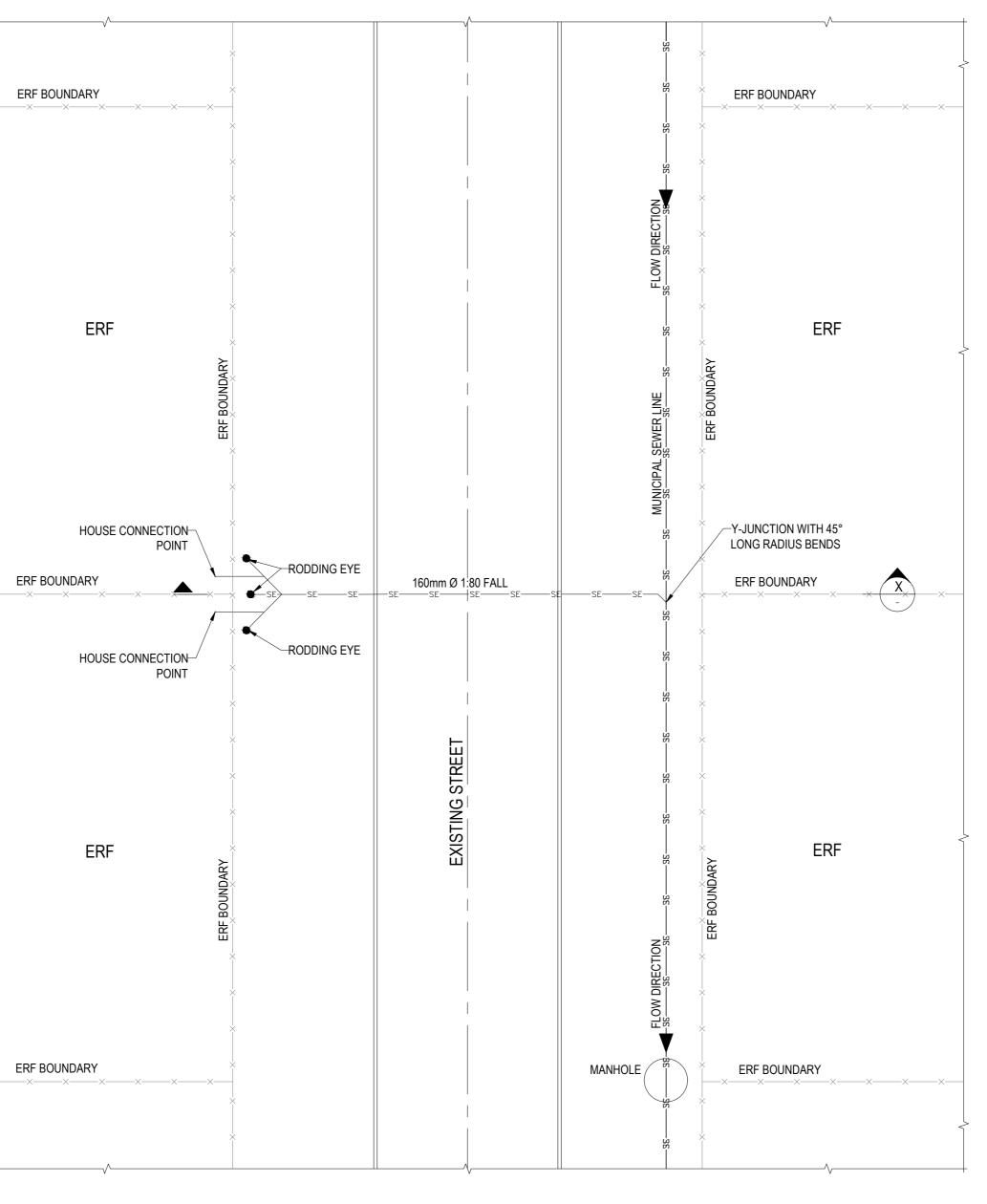


HOUSE CONNECTION TYPE C SCALE 1:25



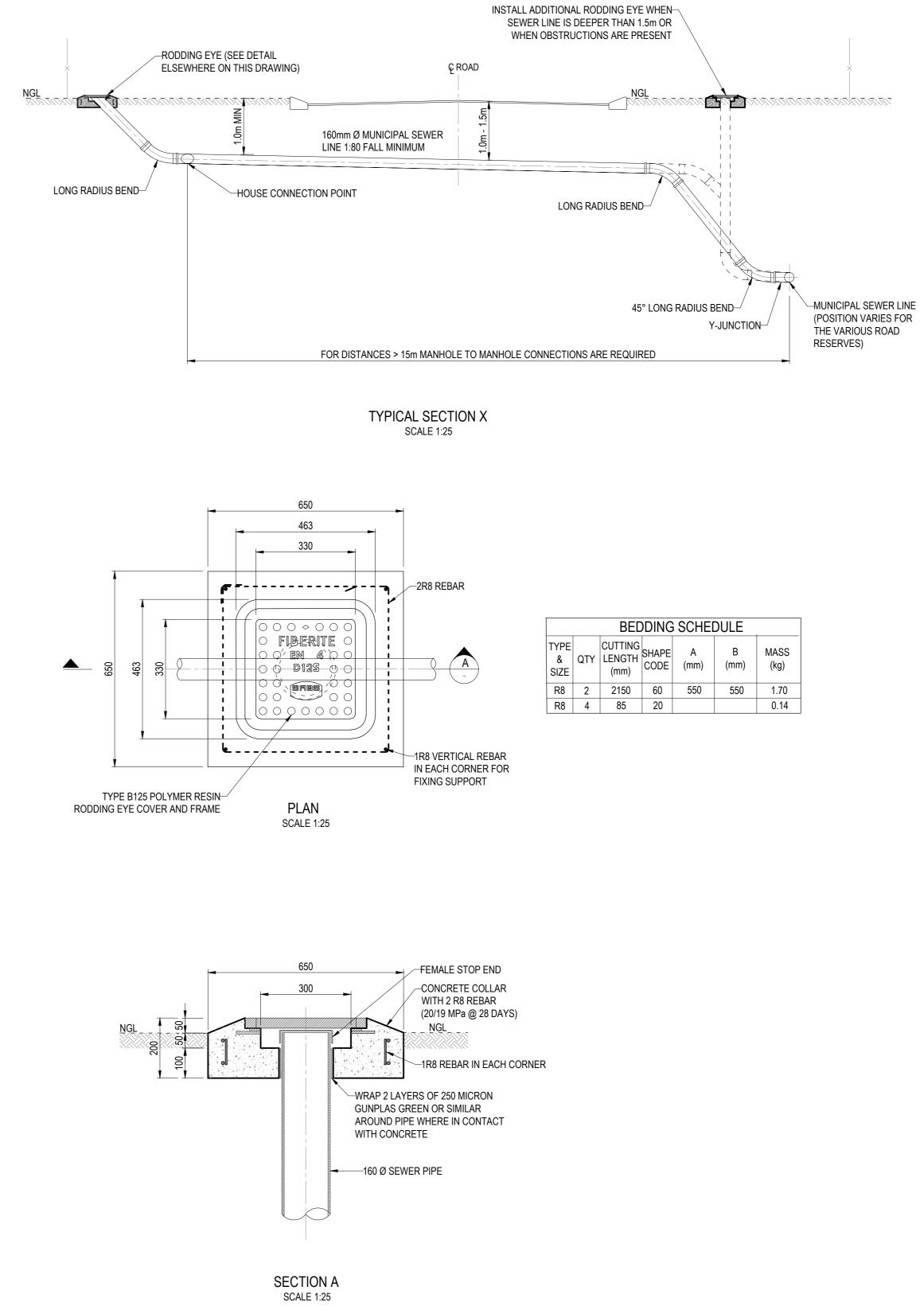


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					DESIGNED BY: RALEM	A CO
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Na			BY	CHECKED	C08/06 PHOEI Cnr RIVERSID NOORDWYK X	NIX VI DE & 14 X95
110.	DATE	REVISIONS	21		1863	



TYPICAL SEWER LAYOUT FOR ERVEN WITH NO MID-BLOCK SEWERS SCALE 1:25





TYPICAL RODDING EYE DETAIL

CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
7 OF 8		AS SHOWN	 PLANNING CONSTRUCTION AS-BUILT 	
TION		REVISION	PLAN No.	
SEWERS		0	RCE86_RLM_04_STD-S	R_07

					DESIGNED BY: RALEMA CON
					C08/06 PHOENIX VIE Cnr RIVERSIDE & 14
No.	DATE	REVISIONS	BY	CHECKED BY	Cnr RIVERSIDE & 14 NOORDWYK X95 1863

NOTES

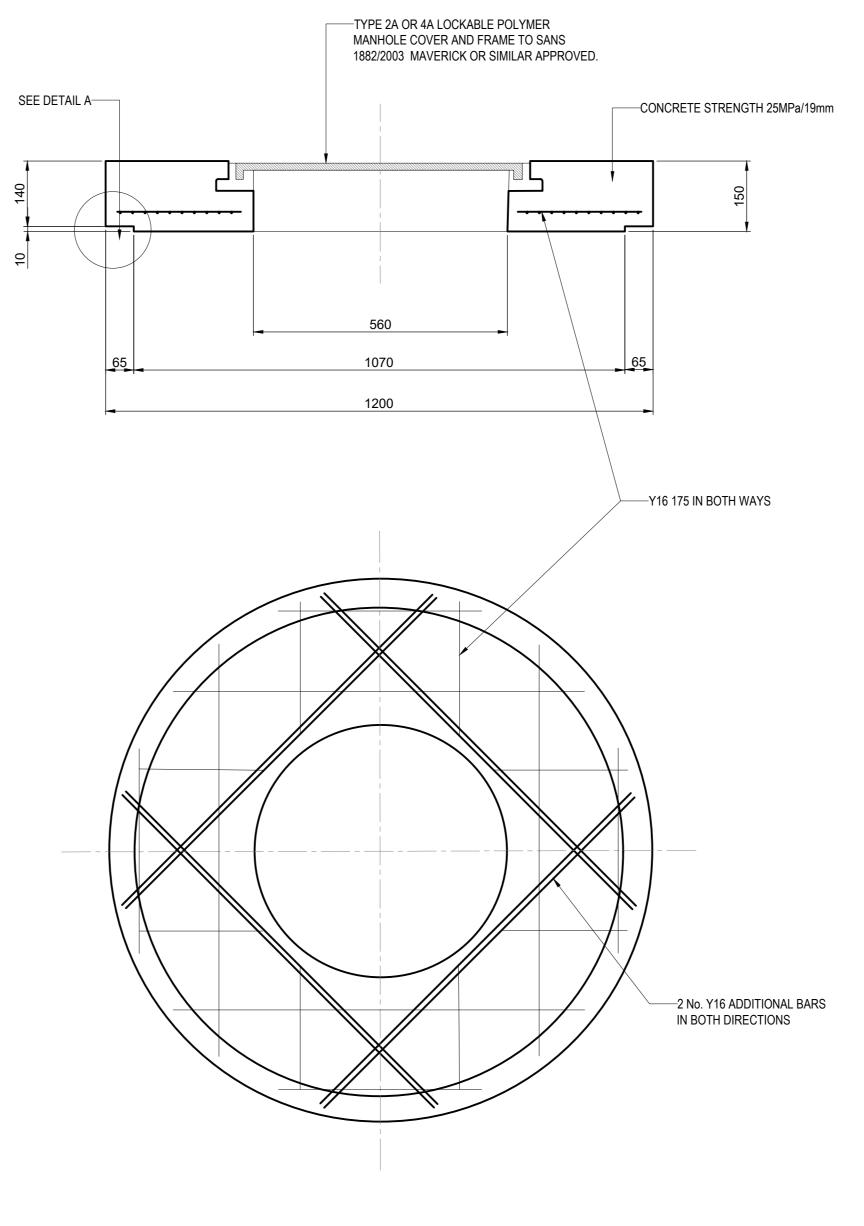
- 1. REMOVE EXISTING MANHOLE COVER SLAB INCLUDING COVER AND FRAME AND CART TO SPOIL.
- 2. MANHOLE COVER AND FRAME TO BE POLYMER CONCRETE AND BE LOCKABLE. MAVERICK TRADING OR SIMILAR APPROVED.
- 3. MAKE GOOD AND CLEAN SITE ON COMPLETION.



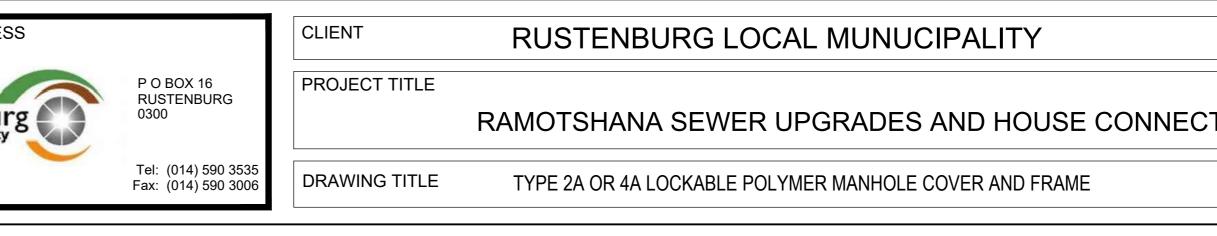
DETAIL A SCALE 1:10

DETAILS OF REPLACEMENT SEWER MANHOLE COVER SLABS

SULTING ENGINEERS	S. Bapela-Pr Tech Eng	RALEMA CONSULTING	DEPARTMENT OF ROADS AND STORMWATER	CLIENT ADDRESS
	DESIGNED	ISSUED BY:	RECEIVED BY:	
SULTING ENGINEERS	L. Maleka			
	DRAWN			Kustenburg
N ESTATES Tel: (011) 312 0873 H STREET Fax: (086) 537 7440 Email: admin@ralemacons.co.za	S. Bapela-Pr Tech Eng	DATE	DATE	
	CHECKED	DATE:	DATE:	



DETAIL OF COVER SLAB SCALE 1:10



CONTRACT No.	SHEET	SCALE	TYPES OF PLANNING	STATUS
	8 OF 8	AS SHOWN		
TION		REVISION	PLAN No.	
		0	RCE86_RLM_04_STD-SI	R_08