WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

PROPOSAL NUMBER: WMMLM 00062 - ROADS 2025/2026 MIG ROADS
REQUEST FOR PROPOSAL: REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGE

By the representative of the Tenderer, deemed to be duly authorised, signing this part of this Form of Offer, the Tenderer offers to perform all of the obligations and liabilities under the Contract including compliance with all its terms and conditions according to their true intent and meaning.

The offered total price inclusive of Value Added Tax is:

Amount in Words: .....

……(in figures)

FOR THE BIDDER:
Signature *(of Person authorised to sign the Tender)*: .....

Name *(of Signatory in capitals):* .....

Capacity *(of Signatory):* .....

The Municipal Manager
Winnie-Madikizela Municipality
51 Winnie Madikizela
Mandela Street
Bizana, 4800
Tel: (039) 251 0230 Fax: (039) 251 0917

NAME OF SERVICE PROVIDER :

CONTACT PERSON :

TELEPHONE :

EMAIL :

ADDRESS :

CSD Registration Number: ……..

SARS PIN: ……

CRS Number ……

TENDER CLOSES: …. OCTOBER 2026, 12h00

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

CONTRACT NO.: WMMLM 00062

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

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DOCUMENT CHECKLIST

This document checklist is provided to assist the Tenderer.

		ITEMS	CHECKED
1		Correct Tender Offer carried forward to **C1.1 Form of Offer and Acceptance** and the Form of Offer duly completed and signed…….…..…….	☐
2		Bill of Quantities:	
	i)	Completed in **legible INK** only……....…….……....….....	☐
	ii)	Corrections crossed out and initialled ……..……....….....	☐
3		Contract specific data provided by the Contractor …….…..…....…..…..	☐

Reference Documents

1. CIDB Standard for uniformity in Construction Procurement – July 2015
2. CIDB Standard for uniformity in Engineering and Construction Works Contracts - August 2019

CONTRACT

C1: AGREEMENTS AND CONTRACT DATA

C2: PRICING DATA

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C1: AGREEMENTS AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

A. OFFER

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

Bid No.: WMMLM 00062

CONSTRUCTION OF MXHANTINI ACCESS ROAD & BRIDGE

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

By the representative of the Bidder, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Bidder 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:

R .....(*In words*.)

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

Signature: *(of person authorized to sign the Bid)*: .....

Name: (*of signatory in capitals)*: .....

Capacity: (*of Signatory*): .....

Name of Bidder: (*organisation*): .....

Address: .....

.....

Telephone number: ..... **Fax number:** .....

Witness:

Signature: .....

Name: *(in capitals): .....*

Date: .....

[Failure of a Bidder to sign this form will invalidate the BID]

B. ACCEPTANCE

By signing this part of the Form of Offer and Acceptance, the Employer identified below accepts the Bidder'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 Bidder's Offer shall form an agreement between the Employer and the Bidder 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 1 Agreement, and Contract Data, (which include this Agreement)
Part 2 Pricing Data, including the Bill of Quantities
Part 3 Scope of Work
Part 4 Site Information

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

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

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

Signature: .....

Name: *(in capitals)* .....

Capacity: .....

Name of Employer *(organisation)* .....

Address: .....

.....

Witness:

Signature: ..... Name: .....

Date: .....

C. SCHEDULE OF DEVIATIONS

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 Bid Data and the Conditions of Tender.

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

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

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

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

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Bidder agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Bid Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Bidder 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 bid documents and the receipt by the Bidder 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 BIDDER:

Signature: .....

Name: .....

Capacity: .....

Bidder: *(Name and address of organisation)*.....

.....

Witness:

Signature: .....

Name: .....

Date: .....

FOR THE EMPLOYER

Signature: .....

Name: .....

Capacity: .....

Employer: *(Name and address of organisation)*.....

.....

Witness:

Signature: .....

Name: .....

Date: .....

D: CONFIRMATION OF RECEIPT

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

The ……(day) of …… (month) 20….....(year)

at ..... (place)

For the Contractor:

……
Signature

……
Name

……
Capacity

Signature and Name of Witness:

……
Signature

……
Name

C1.2: CONTRACT DATA

C1.2.1: CONDITIONS OF CONTRACT

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C1.2.1.2 PAYMENT OF LABOUR AND CLO C7

C1.2.1 CONDITIONS OF CONTRACT

C1.2.1.1 GENERAL CONDITIONS OF CONTRACT

This Contract will be based on the "General Conditions of Contract for Construction Works – 3rd Edition 2015", issued by the South African Institution of Civil Engineering (abbreviated title: "General Conditions of Contract 2015").

Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel 011- 805 5947, Fax: 011 – 805 5971).

The Contract Data referred to in the General Conditions of Contract follow, with the Data to be completed Employer furnished. The Bidder is to provide his details in the spaces provided.

C1.2.1.2 PAYMENT OF LABOUR AND CLO

The ward councillor in whose wards work is to be done will, collectively identify a Community Liaison Officer (CLO) for the project and make the person known to the Contractor within two days of being requested to do so. The Contractor will be required to enter into a written contract with the CLO that specifies:

- The hours of work and the wage rate of the CLO **(Current minimum wage prescribed is R5 000.00 per month or as advised by the municipality from time to time).**
- The duration of the appointment.
- The duties to be undertaken by the CLO which could include:
    i. Assisting in all respects relating to the recruitment of local labour.
    ii. Acting as a source of information for the community and councillors on issues related to the contract.
    iii. Keeping the Contractor advised on community issues and issues pertaining to local security.
    iv. Assisting in setting up any meetings or negotiations with affected parties.
    v. Keeping a written record of any labour or community issues that may arise.
    vi. Any other duties that may be required by the Contractor.

Responsibility for the identification of a pool of suitable labour shall rest with the CLO, although the Contractor shall have the right to choose from that pool. The Contractor shall have the right to determine the total number labourers required at any one time and this may vary during the contract.

The Contractor shall have the right to replace labour that is not performing adequately. Should such occasion arise, it must be done in consultation with the CLO.

The Contractor shall have the right to determine the total number of labourers required at any time, and this will vary through the duration of the contract

Local labour shall be paid in accordance with the Civil Engineering Industry minimum wage rate (Current minimum rate prescribed by the Local Municipality is R 200.00/day **or as advised by the municipality from time to time** per day or per task or may change as per employer's instruction), and all statutory conditions of employment shall be met.

It is the contractor responsibility to pay the Community Liaison Officer for the entire duration of the contract. In the event that the contractor's work is not complete within the allowed duration, the community Liaison Officer shall still be paid for by the contractor until labour

force is no longer required. This includes the penalty stage. The item has not been allowed for in the bill of quantities therefore the contractor must allow in his rates for the Community Liaison Officer.

C1.2.2 CONTRACT DATA PROVIDED BY EMPLOYER

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

REFERENCE	CONTRACT SPECIFIC DATA PROVIDED BY THE EMPLOYER
Clause 1.1.1.13:	The Defects Liability Period is **6 months.**
Clause 1.1.1.14	**Time for achieving Practical Completion is 6 months**
Clause 1.1.1.15:	**Name of Employer:** Winnie Madikizela Mandela Local Municipality
Clause 1.2.1.2:	**Address of Employer:** 51 Winnie Madikizela Mandela Street Bizana 4800
Clause 1.1.1.26:	Re-measurement Contract
Clause 1.1.1.16:	**Name of Engineer:** Umpisi Engineers
Clause 1.2.1.2:	**Address of Engineer:** <u>Physical:</u> 108 iL Palazzo Building 5 Zenith Drive Umhlanga Ridge 4319 EMail: info@umpisi.com Telephone No: (031) 566 4209
Clause 3.1.3:	The Engineer is required to obtain the specific approval of the Employer for any expenditure more than the Contract Price.
Clause 5.3.1:	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) Security (Refer to Clause 6.2) Insurance (refer to Clause 8.6)
Clause 5.3.2:	The time to submit the documentation required before commencement with work execution is 14 days.
Clause 5.6.1:	The Contractor shall deliver his programme of work within 14 days of the Commencement Date
Clause 5.8.1 Clause 5.8.1:	The non-working days are Sundays Special non-working days are the construction industry year end break commencing on 11 December 2026 and ending on 08 January 2027 and the following statutory public holidays as declared by National Government: New Year's Day, Human Rights Day, Good Friday, Family Day, Freedom

REFERENCE	CONTRACT SPECIFIC DATA PROVIDED BY THE EMPLOYER
	Day, Workers' Day, Youth Day, National Women's Day, Heritage Day, Day of Reconciliation, Christmas Day and the Day of Goodwill.
Clause 5.13.1:	The penalty for failing to complete the Works by the due Completion date is **R2500 per day** of the Accepted Financial Offer per calendar day
Clause 5.16.3:	The latent defects period is 3 years.
Clause 6.2.2:	The time to deliver the Guarantee is within 14 days of the Commencement Date.
Clause 6.8.2:	The CPA is not applicable to this contract
Clause 6.8.2:	Price adjustments for variation in the costs of special materials are allowed
	The urban area nearest the site is **BIZANA**
	The base month is the month prior to the month in which the closing date for the tender falls.
Clause 6.10.1.5:	The percentage advance on materials not yet built into the Permanent Works is 80%.
Clause 6.10.3:	The limit of retention money is 10% of Contract Sum
Clause 8.6.1.1.3:	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is 14% of required
Clause 8.6.1.3:	The limit of indemnity for liability insurance is R2 500 000,00 (two million, five hundred thousand rand only)
Clause 8.6.1.2	Special Risks Insurance issued by SASRIA is required
Clause 10.5.1	Dispute Resolution shall be by Standing Adjudication
Clause 10.5.3	Number of Adjudication Board Members to be Appointed is One
Clause 10.7.1	Dispute Determination shall be by Arbitration

SIGNATURE OF BIDDER: .....

DATE: .....

C1.2.3 DATA PROVIDED BY THE CONTRACTOR

	Clause	
Name of Contractor	1.1.1.9	…….....
Address of Contractor (Physical and Postal) Tel: Fax: Email:	1.2.1.2	…….. …….. ....
Security to be Provided by Contractor	6.2.1	Refer to Table Below

Type of Security	**Contractor's Choice (Indicate "YES" or "NO")**
Is Value-Added Tax included in the Contract Sum and value of Works for calculating percentages?	
Cash deposit of 15 % of the Contract Sum	
Cash Deposit of 10% of the Contract Sum plus Retention of 10% of the value of Works	
Performance Guarantee of 10% of the Contract Sum plus Retention of 10 % of the value of Works (The Guarantee should be from the company/ its partners registered under JSE)	

Price variation of special materials*	6.8.3	..... ……

Type of Special Material	**Unit**	**Rate or Price***

Rate or price for base month of*	6.8.2	..... ……

Signature: .....

Name of Signatory:

..... Date:

.....

Name of Bidder .....

C1.3: PERFORMANCE GUARANTEE

PRO FORMA PERFORMANCE GUARANTEE

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

1. GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

……

Physical address:

……

"Employer" means:

……..

"Contractor" means:

……

"Employer's Agent" 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: The maximum aggregate amount of R

……..

Amount in words:

……

Type of Performance Guarantee..... *(Insert Variable or Fixed)*

"Expiry Date" means: …… *(Give date)* or any other later date set by the Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated here.

2. CONTRACT DETAILS

Employer's Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate of Completion of the Works as defined in the Contract.

3. GUARANTOR'S LIABILITY

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

3.2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the

Guaranteed Sum, whichever occurs first.

3.3 The Employer's Agent 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.

4. CONDITIONS APPLICABLE TO THIS PERFORMANCE GUARANTEE

4.1 The Guarantor hereby acknowledges that:

4.1.1 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.

4.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

4.2 Subject to the Guarantor's maximum liability referred to in 3.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.2.1 to 4.2.3:

4.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent 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 4.2.2;

4.2.2 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 4.2.1 and the sum certified has still not been paid;

4.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.2.

4.3 Subject to the Guarantor's maximum liability referred to in 3.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

4.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 4.3; or

4.3.2 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 4.3; and

4.3.3 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.

4.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4.2 and 4.3 shall not exceed the Guarantor's maximum liability in terms of 3.1.

4.5 Where the Guarantor has made payment in terms of 4.3, 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.

4.6 Payment by the Guarantor in terms of 4.2 or 4.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

4.7 Payment by the Guarantor in terms of 4.3 will only be made against the return of the original Performance Guarantee by the Employer.

4.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider 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.

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

4.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 3.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

4.11 This Performance Guarantee, with the required demand notices in terms of 4.2 or 4.3, shall be regarded as a liquid document for the purposes of obtaining a court order.

4.12 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' 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) .....

C1.4: DISCLOSURE STATEMENT

(Date)……

Contract*:*
(Name)……..

Contractor:
(Name)……..

Employer:
(Name)……

Engineer:
(Name)……

Dear Sirs,

I am willing and available to serve as (ad-hoc/standing) Adjudication Board Member in the above-mentioned Contract.

In accordance with the General Conditions of Contract for Construction Works Adjudication Board Rules relating to disclosure statements by selected or nominated persons to the adjudication, I hereby state that:

- I shall act with complete impartiality and know of nothing at this time, which could affect my impartiality.
- I had no previous involvement with this project.
- I do not have any financial interest in this project.
- I am not currently employed by the Contractor, Employer or Engineer.
- I do not have any financial connections with the Contractor, Employer or Engineer.
- I do not have or not have had a personal relationship with any authoritative member of the Contractor, Employer or the Engineer which could affect my impartiality.
- I undertake to immediately disclose to the parties any changes in the above position which could affect my impartiality or be perceived to affect the same.

I further declare that I am experienced in the work which is carried out under the Contract and in interpreting contract documentation.

Name in full: .....
Signature: .....

C1.5: ADJUDICATION BOARD MEMBER AGREEMENT

This Agreement is entered into between:

Adjudication Board Member: *(Name, physical address, postal address, email address, fax number, telephone number and mobile number)*
……
……
……

Contractor: *(Name, physical address, postal address, email address, fax number, telephone number and mobile number)*
……
……
……

Employer*: (Name, physical address, postal address, email address, fax number, telephone, number and mobile number)*
……
……
……

The contractor and the Employer will hereinafter be collectively referred to as “the Parties”.

The Parties entered a Contractf or
……..…
(*name of project*) which provides that a dispute under or in connection with the General Conditions of Contract for Construction Works, Third Edition, 2015, must be referred to (*ad-hoc adjudication/ standing adjudication***).

The undersigned natural person has been appointed to serve as Adjudication Board Member and together with the undersigned Parties agree as follows:

1. The Adjudication Board Member accepts to perform his duties in accordance with the terms of the Contract, the General Conditions of Contract for Construction Works Adjudication Board Rules and this Agreement.

2. The Adjudicator undertakes to remain independent and impartial of the Contractor, Employer and Engineer for the duration of the Adjudication Board proceedings.

3. The Adjudication Board Member agrees to serve for the duration of the Adjudication Board proceedings.

4. The Parties may at any time, without cause and with immediate effect, jointly terminate this Agreement.

5. Unless the Parties agree, the Adjudication Board Member shall not act as arbitrator or representative of either Party in any subsequent proceedings between the Parties under the Contract. No Party may call the Adjudication Board Member as a witness in any such subsequent proceedings.

6. The standing Adjudication Board's duties shall end upon the Adjudication Board Member(s) receiving notice from the Parties of their joint decision to disband the Adjudication Board.

7. The Adjudication Board Member shall be paid in respect of time spent upon or in connection with the adjudication including time spent travelling:

   a. A monthly retainer of R……(*amoun*t) for ……(*number)* of months, and /or
   b. A daily fee of R……(*amount*) based on a.....(*number*) hour day, and /or
   c. A hourly fee of R….....(*amount*), and /or
   d. A non- recurrent appointment fee of R.....(*amount*) which shall be accounted for in the final sums payable.

8. The Adjudication Board Member's expenses incurred in adjudication work shall be reimbursed at cost.

   Upon submission of an invoice for fees and expenses to the Parties, the (*Contractor/ Employer***) shall pay the full amount within 28 days of receipt of the invoice and he shall be reimbursed by the other party by half the amount so that the fees and expenses are borne equally by the Parties. Late payment of such invoice shall attract the interest at prime plus 3% points compounded monthly at the prime rate changed by the Adjudication Board Member's bank.
   This Agreement is entered into by:

Contractor's Signature	:	……..
Contractor's name	:	……..
Place	:	……..
Date	:	……..

Employer's signature	:	……..
Employer's name	:	……..
Place	:	……..
Date		

Adjudication Board Member's signature	:	……..
Adjudication Board Member's name	:	……..
Place	:	……..
Date	:	……..

***Delete the inapplicable party*

C1.6: AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT No 85 OF 1993

THIS AGREEMENT is made between **Winnie Madikizela Mandela Local Municipality**

(hereinafter called the EMPLOYER) of the one part, herein represented by:

.....

.....

in his capacity as: .....

AND: .....

(hereinafter called the CONTRACTOR) of the other part, herein represented by

.....

in his capacity as: .....

duly authorized to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an agreement between the CONTRACTOR and the EMPLOYER in respect of

CONTRACT No..... (CONTRACT TITLE)

.....
for the construction, completion and maintenance of the works;

AND WHEREAS the EMPLOYER and the CONTRACTOR have agreed to enter into an agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993, as amended by OHSA Amendment Act No 181/1993 (hereinafter referred to as the ACT);

NOW THEREFORE the parties agree as follows:

1. The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.

2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.

3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's CONSULTING ENGINEERS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.

4. The CONTRACTOR agrees that any duly authorized officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the

right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.

5. The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

Thus signed at ..... and on behalf of the **CONTRACTOR**

on this the ..... day of …….. 20……

SIGNATURE: .....

NAME AND SURNAME: .....

CAPACITY: .....

WITNESSES: 1. .....

2. .....

Thus signed at ..... for and on behalf of the **EMPLOYER**

on this the …….. day of .....20……

SIGNATURE: .....

NAME AND SURNAME: .....

CAPACITY: .....

WITNESSES: 1. .....

2. .....

C2: PRICING DATA

C2.1 PRICING INSTRUCTIONS

The Schedule of Quantities forms part of the Contract Documents and must be read and priced in conjunction with all the other documents comprising the Contract Documents, which include the Conditions of Tender, Conditions of Contract, the Specifications (including the Project Specifications) and the Drawings.

2. DESCRIPTION OF ITEMS IN THE SCHEDULE

The Schedule of Quantities has been drawn up generally in accordance with the relevant provisions of the SANS 1200 Standardized specification for civil engineering construction (1998 edition) published by the South African Institution of Civil Engineering (SAICE).

The short descriptions of the items in the Schedule of Quantities are for identification purposes only and the measurement and payment clause of the SANS 1200 Standard Specifications (1998 edition) and the Particular Specifications, read together with the relevant clauses of the amendments and additions contained in the Project Specifications and directives on the drawings, set out what ancillary or associated work and activities are included in the rates for the operations specified.

For the purposes of this Schedule 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 specifications.

Quantity: The number of units of work for each item.

Rate: The payment per unit of measurement at which the Tenderer tenders to do the work.

Amount: The product of the quantity and the rate tendered for an item.

Lump Sum: An amount tendered for an item, the extent of which is described in the Schedule of Quantities, the specifications or elsewhere but the quantity of work of which is not measured in any units.

3. QUANTITIES REFLECTED IN THE SCHEDULE

The quantities given in the Schedule of Quantities are estimates only and are subject to re-measure during the execution of the work. The quantities finally accepted and certified for payment, and not the quantities given in the Schedule of Quantities, shall be used to determine payments to the Contractor. The Contractor shall obtain the Engineer's detailed instructions for all work before ordering any materials or executing work or making arrangements for it. The quantities of material or work stated in the Schedule of Quantities shall not be regarded as authorisation for the Contractor to order material or to execute work.

The Works as finally completed in accordance with the Contract shall be measured and paid for as specified in the Schedule of Quantities and in accordance with the General and Special Conditions of Contract, the SANS 1200 standard specifications (1998), the Project Specifications and the Drawings. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste. The validity of the contract will in no way be affected by differences between the quantities in the Schedule of Quantities and the quantities finally certified for payment.

4. PROVISIONAL SUMS

Where Provisional sums or Prime Cost sums are provided for items in the Schedule of Quantities, payment for the work done under such items will be made in accordance with clause 6.6 of the General Conditions of Contract 2015. The Employer reserves the right, during the execution of the works, to adjust the stated amounts upwards or downwards according to the work actually done under the item, or the item may be omitted altogether, without affecting the validity of the Contract.

The Tenderer shall not under any circumstances whatsoever delete or amend any of the sums inserted by the Employer in the "Amount" column of the Schedule of Quantities and in the Summary of the Schedule of Quantities unless ordered or authorised in writing by the Employer before closure of tenders. Any unauthorised changes made by the Tenderer to provisional items in the schedule, or to the provisional percentages and sums in the Summary of the Schedule of Quantities, will be treated as arithmetical errors.

5. PRICING OF THE SCHEDULE OF QUANTITIES

The prices and rates to be inserted by the Tenderer in the Bill of Quantities shall be the full inclusive prices to be paid by the Employer for the work described under the several items, and shall include full compensation for all costs and expenses that may be required in and for the completion and maintenance during the defects liability period of all the work described and as shown on the drawings as well as all overheads, profits, incidentals and the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Tender is based.

Each item shall be priced and extended to the "Total" column by the Tenderer, with the exception of the items for which only rates are required (Rate Only), or items which already have Prime Cost or Provisional Sums affixed thereto. If the Contractor omits to price any items in the Bill of Quantities, then these items will be considered to have a nil rate or price.

All items for which terminology such as "inclusive" or "not applicable" have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the Contract.

All rates and amounts quoted in the Bill of Quantities shall be in Rands and Cents and shall include all levies and taxes (other than VAT). VAT will be added in the Summary of the Bill of Quantities.

The Tenderer shall fill in rates for all items where the words "Rate Only" appear in the "Total" column. "Rate Only" items have been included where:

(a) An alternative item or material is contemplated;
(b) Variations of specified components in the make-up of a pay item may be expected; and
(c) No work under the item is foreseen at tender stage but the possibility that such work may be required is not excluded.

For “Rate Only” items no quantities are given in the "Quantity" column, but the quoted rate shall apply in the event of work under this item being required. The Tenderer shall however note that in terms of the Tender Data the Tenderer may be asked to reconsider any such rates which the Employer may regard as unbalanced.

6. CORRECTION OF ENTRIES

Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialled by the Tenderer.

7. INTERIM PAYMENTS

Unless otherwise specified, progress payments in Interim Certificates, referred to in Clause 6.10 of the General Conditions of Contract 2015, in respect of "sum" items in the Schedule of Quantities shall be by means of interim progress instalments assessed by the Engineer and based on the measure in which the work actually carried out relates to the extent of the work to be done by the Contractor.

Notwithstanding any custom to the contrary, the work as executed will be measured for payment in accordance with the methods described in the contract documents under the various items of payment.

8. UNITS OF MEASUREMENT

The units of measurement described in the Schedule of Quantities are metric units. The following abbreviations are used in the Schedule of Quantities.

mm	= millimetre	m^3-km	= cubic metre-kilometre	Prov sum	= provisional sum
m	= metre	l	= litre	kPa	= kilopascal
km	= kilometre	kl	= kilolitre	MPa	= megapascal
km-pass	= kilometre-pass	kg	= kilogram	MN	= meganewton
m^2	= square metre	t	= ton (1 000 kg)	t-km	= ton-kilometre
m^2-pass	= square metre-pas	ha	= hectare	No.	= number
%	= percent	m^3	= cubic metre	PC sum	= prime cost sum
kW	= kilowatt	MN-m	= meganewton-metre	h	= hour
dia	= diameter	Sum	= lump sum		

9. CONSISTENCY OF RATES

In order to ensure that payments certified by the Engineer are reasonably consistent with the market value of the work done, and that variations in quantities do not distort the contract valuation, the rates, prices and amounts tendered in the Schedule of Quantities are required to be in balance.

A tender will be considered out of balance if:

(i) The combined, extended total tendered for the item:

13.01 The Contractor's general obligations

(a) Fixed obligations
(b) Value-related obligations
(c) Time-related obligations

exceeds a maximum of 15% of the Tender Offer (excluding contingencies, escalation and VAT).

(ii) The rates, prices or amounts tendered for any other items differ by more than 20 (twenty) percent from either the next highest or next lowest rates, prices or amounts tendered, or else from the latest departmental estimates.

Any such unbalanced tender may be rejected if, after fourteen (14) days of having been given written notice by the Employer to adjust those rates or lump sums which are unreasonable or out of balance, the Tenderer fails to make the necessary satisfactory adjustments. These adjustments in rectification will be such that increases are balanced by decreases, leaving the tender offer unchanged.

C2.2 BILL OF QUANTITIES

CONTENT

C2.2: BILL OF QUANTITIES C26

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGE

SUMMARY OF SECTIONS

Section	Description	Amount R
1200	GENERAL REQUIREMENTS AND PROVISIONS	
1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	
1400	HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL	
1500	ACCOMODATION OF TRAFFIC	
1600	OVERHAUL	
1700	CLEARING AND GRUBBING	
2100	DRAINS	
2200	PREFABRICATED CULVERTS	
2300	CONCRETE KERBING, CONCRETE CHANNELING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS	
3100	BORROW MATERIALS	
3300	MASS EARTHWORKS	
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL	
4100	PRIME COAT	
4500	DOUBLE SEALS	
5100	PITCHING, STONEWORK AND PROTECTION AGAINST EROSION	
5200	GABIONS	
5400	GUARDRAILS	
5600	ROAD SIGNS	
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	
6100	FOUNDATIONS FOR STRUCTURES	
6200	FALSEWORK, FORMWORK AND CONCRETE FINISHES	
6300	STEEL REINFORCEMENT FOR STRUCTURES	
6400	CONCRETE STRUCTURES	
6600	NO-FINES CONCRETE, JOINTS, BEARING, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURE	
7100	CONCRETE PAVEMENTS	
8100	TESTING MATERIALS AND WORKMANSHIP	
9400	OCCUPATIONAL HEALTH AND SAFETY	
	Sub-total	
1	Add Contingencies @ 10% Sub-total	
2	ADD VAT @15%	

Forward To Summary Of Schedules

SECTION 1200

1200 GENERAL REQUIREMENTS AND PROVISIONS

Item	Description	Unit	Qty	Rate	Amount R
1200	**GENERAL REQUIREMENTS AND PROVISIONS**				
12.01	Excavation for existing services				
	(a) Excavation in seacrh of existing services in all materilas situated in the following depth ranges:				
	(i) 0m to 1m	m³	150		
12/22.02	Backfilling of services				
	(a) Using the excavated material	m³	100		
B12.04	Daywork				
	(a) Labour	hr	8		
	(b) Foreman	hr	8		
	(c) Artisans	hr	8		
	(d) Air compressor, 4m³/min, complete with drills, jackhammers, etc.	hr	8		
	(e) Pump including all necessary hoses	hr	8		
	(f) Truck as follows:				
	(i) Truck (3-5t) with operator	hr	8		
	(ii) Truck (6-10t) with operator	hr	8		
	(g) Concrete mixer 0.5m³	hr	8		
	(h) Vibrating roller (BM 60) Compactor, 0,6m wide	hr	8		
	(i) Front end loader with operator, 0,8m³	hr	8		
	(j) Backactor with operator, 0,3m³	hr	8		
	(k) Watercart, 500l	hr	8		
	(l) Survey assistant	hr	8		
	(m) (i) Allow a provisional sum for purchase of materials	Prov Sum	1	R 15 000.00	R 15 000.00
	(ii) Handling cost and profit in respect of subitem 22.04 (m)(i)	%	R 15 000.00		
12.19	Removal and relocation of existing services	Prov Sum	1	R 50 000.00	R 50 000.00
	Handling cost on item 12.19 above	%	R 50 000.00		
Total Carried Forward To Summary					

SECTION 1300

1300 CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

Item	Description	Unit	Qty	Rate	Amount R
13.01	Contractor's general obligations				
	(a) Fixed obligations	L/Sum	1		
	(b) Value-related obligations	L/Sum	1		
	(c) Time-related obligations	Month	6		
	(d) Compliance with Health & Safety Act + Environmental Management obligations	Month	6		
	NOTE: The combined total tendered for item (a) through to (d) above shall not exceed 15% of the Total Tendered Sum for this phase of the project, excluding VAT, Contingency, and Contract Price Adjustment.				
	Allowance for obtaining Environmental Authorisation (DEDEAT) and Water Use License (DWS)	Prov Sum	1	R 350 000.00	R 350 000.00
	Allowance for ECO Environmental officer	Prov Sum	6	R 30 000.00	R 180 000.00
	Provisional Sum for Student				
	(a) Student Costs (at R10 000/month)	Prov Sum	1	R 60 000.00	R 60 000.00
	(b) Handling cost on (a)	%	60 000.00		
	Community Liaison Officer				
	(a) CLO Costs (at R7 500/month)	Prov Sum	1	R 45 000.00	R 45 000.00
	(b) Handling cost on (a)	%	45 000.00		
	Project Steering Committee				
	(a) Remuneration of PSC members to attend official meetings	Prov Sum	1	R 20 000.00	R 20 000.00
	(b) Handling cost on (a)	%	R 20 000.00		
	Institutional and Social Development Consultant				
	(a) Remuneration of ISD Services	Prov Sum	1	R 100 000.00	R 100 000.00
	(b) Handling cost on (a)	%	R 100 000.00		
13.02	Penalties to be deducted from the Contractor:				
	(a) For failing to complete the work on time at **R2500/day** until all work is complete.	day	-	R 2 500.00	-
	(b) For non- compliance with requirements for Health & Safety				
	(i) Fixed sum per occurrence at **R 5000/occurrence**	No	-	R 5 000.00	-
	(ii) Time related penalty at **R2000/day** until compliance	day	-	R 2 000.00	-
	(c) For non- compliance with requirements for accommodation of traffic				-
	(i) Fixed sum per occurrence at **R 3000/occurrence**	No	-	R 3 000.00	-
	(ii) Time related penalty at **R2000/day** until compliance	day	-	R 2 000.00	-
	(d) For removing plant from site without the consent of the Engineer at R2000/day until plant is back on to site.	day	-	R 2 000.00	-
Total Carried Forward To Summary					

SECTION 1300

1300 CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

Item	Description	Unit	Qty	Rate	Amount R
Total Carried Forward					
13.03	Construction Boards				
	(a) Installation of Contract nameboards	L/Sum	2		
	(b) Allowance for dealing with water	Prov Sum	1	R 20 000.00	R 20 000.00
	(c) Handling costs and charges for Contractor for items (a) and (b)	%	R 20 000.00		
Total Carried Forward To Summary					

SECTION 1400

14.00 HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL

Item	Description	Unit	Qty	Rate	Amount R
14.00	**HOUSING, OFFICES AND LABORATORY FOR THE ENGINEER'S SITE PERSONNEL**				
14.01	Office and laboratory accommodation				
	(a) Offices (interior floor space only and should Parkhome type of	m²	30		
	(e) Ablution units	m²	3		
	(f) Stores	m²	30		
14.02	Office and laboratory furniture				
	(a) Chairs	No	15		
	(d) Desks, complete with drawers and locks	No	1		
14.03	Office and laboratory fittings, installations and equipment				
	(a) Items measured by number:				
	(i) Power points	No	2		
	(iv) Double 50 watt fluorescent-light	No	1		
	(viii) Notice boards as specified	No	2		
	(b) Prime-cost items and items paid for in a lump sum:				
	(x) Cost of cellular phone calls on contract administration business and rental charges	Prov Sum	1	R 20 000.00	R 20 000.00
	(xi) Handling costs and profit in respect of sub-item 14.03(b)(x)	%	R 20 000.00		
	(c) Items measured by area				
	(vii) Venetian blinds	m²	2		
14.08	Services as specified in clause 1404, namely water, electricity, sewerage, etc, etc:				
	(a) Services at offices				
	(i) Fixed costs	L.Sum	1		
	(ii) Running costs	month	6		
14.11	Telephones				
	(a) Cost of calls in connection with contract administration	Prov Sum	1	R 30 000.00	R 30 000.00
	(b) Handling cost and profit in respect of subitem 14.11 (a)	%	R 30 000.00		
Total Carried Forward To Summary					

SECTION 1500
15.00 ACCOMMODATION OF TRAFFIC

Item	Description	Unit	Qty	Rate	Amount R
15.00	**ACCOMODATION OF TRAFFIC**				
15.03	Temporary traffic-control facilities				
	(a) Flagmen	man-day	368		
	(b) Portable STOP and GO-RY signs	No	2		
	(e) Road signs, R- and TR-series (Engineering Grade background)				
	(i) R-series (1200mm diameter)	No	3		
	(ii) R-series (triangular - 1500mm sides)	No	3		
	(iii) TR-series (1200mm diameter)	No	3		
	(f) Road signs, TW-series	No	3		
	(g) Road signs, STW-, DTG-, TGS- and TG-series (Engineering Grade background, sizes as specified for 40km/hr)	m²	40		
	(h) Delineators (DTH50J) (Size - 1000mm x 250mm including sand bags)				
	(i) Single	No	10		
	(ii) Mounted back-to-back	No	20		
	(i) Movable barricade/road sign combination (size indicated)	No	3		
	(j) Two-way communication devices	No	2		
15.15	Provision of traffic safety equipment for use by the Engineer				
	(a) Safety Jackets	No	1		
	(b) Amber Flashing lights with magnetic mounts	No	1		
Total Carried Forward To Summary					

SECTION 1600
16.00 OVERHAUL

Item	Description	Unit	Qty	Rate	Amount R
16.00	**OVERHAUL**				
16.01	Overhaul on material hauled more than free-haul distance of 0.5km, for haul up to or through 1.0km (restricted overhaul)	m^3	2205		
16.02	Overhaul on material hauled in excess of 2,0 km (ordinary overhaul)	m^3/km	17640		
Total Carried Forward To Summary					

SECTION 1700

17.00 CLEARING AND GRUBBING

Item	Description	Unit	Qty	Rate	Amount R
17.00	**CLEARING AND GRUBBING**				
17.01	Clearing and grubbing	ha	2.1		
17.04	Cleaning & grubbing at inlets and outlets of hydraulic structures	m²	150		
Total Carried Forward To Summary					

SECTION 2100

21.00 DRAINS

Item	Description	Unit	Qty	Rate	Amount R
2100	**DRAINS**				
21.01	Excavation for open drains				
	(a) Excavating soft material situated within ranges				
	(i) 0m to 1.5m	m³	1000		
	(b) Extra over subitem 21.01(a) for excavation in hard material irrespective of depth	m³	150		
21.02	Cleaning & shaping existing open drains	m³	120		
21.04	Impermeable backfilling	m³	1260		
21.06	Natural permeable material in subsoil drainage systems (crushed				
	(b) Crushed stone obtained from commercial sources (19mm nominal	m³	500		
21.07	Natural permeable material in subsoil drainage systems (sand):				
	(b) Sand obtained from commercial source				
	(i) Coarse Grade as per 2104 (b)	m³	50		
21.08	Pipes in subsoil drainage systems:				
	(b) Unplasticised PVC pipes and fittings, normal duty complete with				
	(i) 100 mm internal dia. perforated or slotted	m	200		
21.1	Synthetic-fibre filter fabric (Grade C)	m²	560		
Total Carried Forward To Summary					

SECTION 2200
22.00 PREFABRICATED CULVERTS

Item	Description	Unit	Qty	Rate	Amount R
22.00	**PREFABRICATED CULVERTS**				
22.01	Excavation				
	(a) Excavating in all materials situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1.5 m	m³	200		
	(ii) Exceeding 1.5 m and up to 3 m	m³	30		
	(b) Extra-over sub-item 22.01(a) for excavation in hard material, irrespective of depth	m³	60		
22.02	Backfilling:				
	(a) Using the excavated material	m³	185		
	(b) Using the Imported material	m³	100		
22.03	Concrete pipe culverts:				
	(a) On class C bedding				
	(i) Class 75D of 600mm dia	m	150		
	(i) Class 75D of 900mm dia	m	25		
	(c) 20Mpa concrete in inlet and outlet structures, skew ends, catch pits, manholes, thrust and anchor blocks, including formwork and class U2 surface finish	m³	50		
22.07	Cast in situ concrete and formwork				
	(b) In floor slabs for portal culverts including formwork, joints and class U2 surface finish	m³	20		
	(d) formwork of concrete under subitem 22.07(c) above	m²	50		
22.08	Concrete backfill for culverts, ducts and other services (15 Mpa)	m³	10		
22.10	Steel reinforcement				
	(c) Welded steel mesh ref 617	kg	120		
22.18	Single Pipe Brick headwall at outlet & inlet (as per drawing)				
	d) For pipe diameters 450 mm to 900mm	No	35		
Total Carried Forward to Summary					

SECTION 2300

2300 CONCRETE KERBING, CONCRETE CHANNELING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS

Item	Description	Unit	Qty	Rate	Amount R
23.00	**CONCRETE KERBING, CONCRETE CHANNELING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS**				
23.01	Concrete kerbing				
	(a) Fig 6 Mountable kerbing & Cast in-situ Channel (on lower side of road)	m	2100		
	(c) Mini Kerb (Figure 12)	m	2100		
23.05	Inlet, outlet, transition and similar structures				
	(a) 2m transition between mountable and barrier kerb	No	10		
23.16	Variation of Tests on extruded kerbing (a) Sets of 3 cores	No	6		
23.17	Junction with existing kerb & channel	m	50		
Total Carried Forward To Summary					

SECTION 3100
3100 BORROW MATERIALS

Item	Description	Unit	Qty	Rate	Amount R
31.00	**BORROW MATERIALS**				
31.01	Excess overburden	m³	2100		
31.03	Finishing-off borrow areas in:				
	(b) Intermediate material	ha	2.1		
Total Carried Forward To Summary					

SECTION 3300
3300 MASS EARTHWORKS

Item	Description	Unit	Qty	Rate	Amount R
33.00	**MASS EARTHWORKS**				
33.01	Cut and borrow to fill, including free-haul up to 0.5km. Material obtained from other excavations:				
	(a) Gravel material in compacted layer thickness of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m³	14700		
	(c) Dump Rock Layer (200mm thickness or less, compacted, formed with not more than 300mm diameter commercial source stones & biddim)	m³	300		
33.04	Cut to spoil, including free-haul up to 1,0km. Material obtained from;				
	(a) Soft excavation	m³	1470		
	(b) Intermediate	m³	2940		
	(d) Hard excavation	m³	8820		
	(e) Boulder excavation	m³	1470		
33.10	Roadbed preparation and the compaction of material				
	(b) Compaction to 93% of modified AASHTO density	m³	2520		
33/16.02	Overhaul on material hauled in excess of 2,0km (ordinary overhaul) up to or through 2,0km (restricted overhaul)	m³-km	7350		
Total Carried Forward To Summary					

SECTION 3400

3400 PAVEMENT LAYERS OF GRAVEL MATERIAL

Item	Description	Unit	Qty	Rate	Amount R
34.00	**PAVEMENT LAYERS OF GRAVEL MATERIAL**				
34.01	Pavement layers constructed from gravel obtained from commercial sources (unlimited overhaul) or borrow pits				
	(e) Gravel base/ selected layer (G7) compacted to:				
	(ii) 98% of modified AASHTO density - (150mm layer thickness)	m³	2205		
	(ii) 98% of modified AASHTO density - (150mm layer thickness)	m³	2205		
	Chemical stabilization agent				
	Ordinary Portland Cement (i) CEM III-A Grade 32,5N (3%)	t	95		
	Supply, Delivery, Mixing and Application of silanes polymer (Terrasil) with water at 1 kg/m³ compound into a NME-3	kg	2205		
Total Carried Forward To Summary					

SECTION 4100

4100 PRIME COAT

Item	Description	Unit	Qty	Rate	Amount R
4100	**PRIME COAT**				
41.01	Prime coat (c) MC-30 cutback bitumen @ 0.7 liters per square meter	m²	4800		
41.03	Extra-over item 41.01 for applying the prime coat in areas accessible only to hand held equipment	l	480		
Total Carried Forward To Summary					

SECTION 4500

4500 DOUBLE SEALS

Item	Description	Unit	Qty	Rate	Amount R
4500	**DOUBLE SEALS**				
45.01	Double Seal using:				
	(c) 13.2mm nominal single-sized crushed stone and 6.7mm nominal single-sized crushed stone.	m²	4000		
45.02	Bitumous Binder variations				
	First Application				
	(d) 65% spray grade cationic nano-modified emulsion (SC-E1) + silanes polymer compound @ 1.2 liters per square meter	l	5760.0		
	Second Application				
	(d) 65% spray grade cationic nano-modified emulsion (SC-E1) + silanes polymer compound @ 0.8 liters per square meter	l	3840.0		
45.03	Aggregate variations				
	(b) 13.2mm nominal single-sized crushed stone	m³	2.0		
	(d) 6.7mm nominal single-sized crushed stone	m³	1.2		
	Variations in active filler content				
	(a) Cement	t	1		
	100mm cores in asphalt paving	No	24		
Total Carried Forward To Summary					

SECTION 5100

5100 PITCHING, STONEWORK AND PROTECTION AGAINST EROSION

Item	Description	Unit	Qty	Rate	Amount R
51.00	**PITCHING, STONEWORK AND PROTECTION AGAINST EROSION**				
51.01	Stone pitching:				
	(b) Grouted stone pitching	m²	1050		
Total Carried Forward To Summary					

SECTION 5200
5200 GABIONS

Item	Description	Unit	Qty	Rate	Amount R
52.00	**GABIONS**				
52.01	Foundation trench excavation and backfilling:				
	(a) In solid rock	m³	20		
	(b) In all other classes of materials	m³	48		
52.02	Surface preparation for bedding the gabions	m²	120		
52.03	Gabions:				
	(a) Galvanized gabion boxes				
	1,0 m wide by 1,0 m wide	m³	100		
	6,0 m wide by 1,0 m wide	m³	50		
	(c) Galvinised gabion mattresses 0.17 x 6x 2m				
	0.17m x 6m x 2m	m³	60		
52.04	Filter fabric type bidim U24 or similar approved by Engineer	m²	350		
Total Carried Forward To Summary					

SECTION 5400
5400 GUARDRAILS

Item	Description	Unit	Qty	Rate	Amount R
54.00	**GUARDRAILS**				
	Guard rails must comply with SABS 1350				
	Guard rails must be supplied together with all bolts, nuts, washers and fixing material				
54.01	Guardrails on timber posts (a) Galvanised	m	100		
54.03	Extra over item 54.01: for horizontally curved guard rails, factory bent in radius not more than 45m	m	20		
54.04	End treatments: (a) Bull Noses	No	9		
	Nailing of gang nale plates on top of timber guardrail posts	No	75		
Total Carried Forward To Summary					

SECTION 5600
5600 ROAD SIGNS

Item	Description	Unit	Qty	Rate	Amount R
56.00	**ROAD SIGNS**				
56.01	Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class 1 retro-reflective material, where the sign board is constructed from:				
	(c) Prepainted galvanized steel plate (chromadek 1,6 mm thick or approved equivalent):				
	(c) Sheet steel (chromadek 1.6mm thick)				
	(1) Rectangular area not exceeding 2m²	m²	50		
	(2) Octagonal				
	(a) 610mm	No	5		
	(3) Triangular				
	(a) 914mm	No	8		
	(4) Round				
	(a) 610mm	No	8		
56.02	Extra over item 56.01 for using:				
	(a) Background of retro-reflective material:				
	(i) Engineering grade	m²	20		
	(b) Lettering, symbols, numbers, arrows, emblems and borders of retro-reflective material:				
	(i) High intensity grade	m²	10		
56.03	Road sign supports: (overhead road sign structures excluded)				
	(b) Bitumen Treated 100mmØ Timber Posts	m	150		
56.05	Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m³	30		
56.06	Extra over item 56.05 for cement treated soil backfill	m³	40		
56.07	Extra over item 56.05 for rock excavation	m³	10		
56.08	Dismantling, storing and re-erecting road signs with a surface area of				
	(a) Up to 2m²	No	3		
Total Carried Forward To Summary					

SECTION 5900
FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

5900

Item	Description	Unit	Qty	Rate	Amount R
59.00	**FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS**				
59.01	Finishing the road and road reserve:				
	(b) Single carriageway road	km	2.1		
Total Carried Forward To Summary					

SECTION 6100

6100 FOUNDATIONS FOR STRUCTURES

Item	Description	Unit	Qty	Rate	Amount R
61.00	**FOUNDATIONS FOR STRUCTURES**				
	Excavation:				
	Excavating soft material situated within the following successive depth ranges:				
61.1	(i) 0 m up to 2 m	m³	50		
61.2	(ii) Exceeding 2 m and up to 4 m	m³	50		
61.3	(b) Extra over) for excavation in hard material irre- spective of depth	m³	10		
61.4	(c) Extra over for additional excavation required by the engineer after the excavation has been completed	m³	5		
61.5	(d) Extra over for excavation by hand	m³	5		
	Access and drainage:				
61.6	(a) Access	L/sum	1		
61.7	(b) Drainage where no access has been provided	L/sum	1		
	Backfill to excavations utilising:				
61.8	(a) Material from the excavation [compated to 98% of modified AASHTO density]	m³	100		
61.9	(b) Imported material G7 [compated to 98% of modified AASHTO density]	m³	100		
61.1	(c) Slopping footing areas	m³	10		
61.11	Overhaul in excess of 1,0 km on excavated material and on material imported for backfill, foundation fill and fill for caissons	m³.km	250		
	Foundation lining (provisional):				
61.12	(a) Polyethylene sheeting 0,15 mm thickness	m²	150		
	Layer works G5 Foundation footing				
61.13	G5	m³	25		
Total Carried Forward To Summary					

SECTION 6200

6200 FALSEWORK, FORMWORK AND CONCRETE FINISHES

Item	Description	Unit	Qty	Rate	Amount R
6200	**FALSEWORK, FORMWORK AND CONCRETE FINISHES**				
62.01	Formwork to provide : F3 Finish				
(a)	Foundation and Ground Beams	m²	11		
(b)	Top Slab	m²	10		
(c)	Approach	m²	6		
(d)	Wingwalls	m²	40		
€	Bridge Bollards	m²	4		
Total Carried Forward To Summary					

SECTION 6300
6300 STEEL REINFORCEMENT FOR STRUCTURES

Item	Description	Unit	Qty	Rate	Amount R
6300	**STEEL REINFORCEMENT FOR STRUCTURES**				
63.01	Steel reinforcement Foundation and Ground Beams	t	4		
(a)	Top Slab	t	3		
(b)	Approach	t	2		
(c)	Wingwalls	t	1		
(d)	Bridge Bollards	t	2		
Total Carried Forward To Summary					

SECTION 6400
6400 CONCRETE STRUCTURES

Item	Description	Unit	Qty	Rate	Amount R
6400	**CONCRETE FOR STRUCTURES**				
64.01	Cast in Situ Concrete:				
(a)	Foundation and Ground Beams (Class W25/19)	m³	28		
(b)	Top Slab (Class W25/19)	m³	20		
(c)	Approach slabs (Class W25/19)	m³	15		
(d)	Wingwalls (Class W25/19)	m³	10		
(e)	Biridge Bollards (Class W25/19)	m³	16		
(f)	Supply and Install 1.5m high x1.5m wide Rectangular Culverts Type 75S	No	60		
(g)	Fill between culverts (Class W15/19)	m³	1		
(h)	Blinding for culverts and bridge (Class W15/19)	m³	11		
Total Carried Forward To Summary					

SECTION 6600

6600 NO-FINES CONCRETE, JOINTS, BEARING, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURE

Item	Description	Unit	Qty	Rate	Amount R
6600	**NO-FINES CONCRETE, JOINTS, BEARING, BOLT GROUPS FOR ELECTRIFICATION, PARAPETS AND DRAINAGE FOR STRUCTURE**				
	Filled joints:				
(a)	10mm joints filled with 10mm x 10mm thick silicon sealant and compressible bitumen-impregnate-soft-board joint filler (at culvert/wingwalls and apron slab interfaces, depth equal to or less than 150mm)	m	25		
Total Carried Forward To Summary					

SECTION 7100
7100 CONCRETE PAVEMENTS

Item	Description	Unit	Qty	Rate	Amount R
7100	**CONCRETE PAVEMENTS**				
71.01	Concrete trial pavement				
71.02	150mm thick concrete pavement (20MPa) requiring hand placing ***excluding texturing and curing***	m^3	225		
71.03	Extra Over item 71.02 for concrete pavement requiring hand placing	m^2	34		
71.04	Texturing and curing the concrete pavement:				
	(a) Burlap-dragged and groove texture	m^2	1500		
	(b) Curing	m^2	1500		
71.05	Variation in rate of application of the curing compound	litre	23		
71.06	Joints: a) 10mm wide expansion joints sealed with a closed cell polythelene jointing material at 5m centres	m	45		
71.07	Drilling and testing of cores				
	(b) 100mm core drilled from the pavement and tested for compressive strength	No	5		
71.08	Steel reinforcement in concrete pavement				
	(a) Multicell 150mm - Supplier KAYTECH	Prov. Sum	1	R 90 750.00	R 90 750.00
	(b) Rate to Supply and install (a)	m^2	1500		
Total Carried Forward To Summary					

SECTION 8100
8100 TESTING MATERIALS AND WORKMANSHIP

Item	Description	Unit	Qty	Rate	Amount R
81.00	**TESTING MATERIALS AND WORKMANSHIP**				
81.02	Other special tests requested by the Engineer	Prov Sum	1	R 25 000.00	R 25 000.00
	Contractor's charges and profit	%	R 25 000.00		
Total Carried Forward To Summary					

SECTION 9400

9400 OCCUPATIONAL HEALTH AND SAFETY

Item	Description	Unit	Qty	Rate	Amount R
9400	**OCCUPATIONAL HEALTH AND SAFETY**				
C.01	Preparation of Contractor's Project Specific Health and Safety Plan	L/Sum	1		
C.02	Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	L/sum	1		
C.05	Provision of full time Construction Health and Safety Officer	Month	6		
C.06	PPPE	No	20		
	Provision of full time Construction Health and Safety Officer	Month	6		
C.07	OHS training(Induction, COVID-19, HIV? AIDS etc)	No	20		
	OHS training	No	20		
C.09	Provision of fire extiguisher as per CR 27	No	20		
C.10	Payment for Health and Safety Representatives at Meetings	man-day	80		
C.11	Provision of First Aid Boxes	No	1		
Total Carried Forward To Summary					

C3: SCOPE OF WORK

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C3: SCOPE OF WORK

C3.1: STANDARD SPECIFICATIONS

The Standard Specifications on which this contract is based are the **COLTO Standard Specifications for Road and Bridge Works for State Road Authorities 1998 edition.**

C3.2 PROJECT SPECIFICATIONS

The Project Specifications, consisting of two parts, form an integral part of the Contract and supplement the Standard Specifications.

Part A contains a general description of the Works, the Site and the requirements to be met.

Part B contains variations, amendments and additions to the Standard Specifications and, if applicable, the Particular Specifications.

In the event of any discrepancy between a part or parts of the Standard or Particular Specifications and the Project Specifications, the Project Specifications shall take precedence. In the event of a discrepancy between the Specifications (including the Project Specifications) and the drawings and / or the Schedule of Quantities, the discrepancy shall be resolved by the Employer's Agent before the execution of the work under the relevant item.

The Standard Specifications, which form part of this contract, have been written to cover all phases of work normally required for road contracts, and they may therefore cover items not applicable to this particular contract.

PART A: GENERAL

*[**NOTE:** This description is a broad outline of the Contract Works and does not limit the work to be executed by the Contractor in terms of the contract. The quantities of some of the major items indicated in this section are indicative, not absolute, and are provided to define in general terms the overall scope of the project. [For Compiler information purposes only]*

C3.2.1 Employer's Objective and Overview of the works

The objective of the project is the Rehabilitation of Mxhantini Access Road & Bridge in Ward 23 of Winnie Madikizela Mandela Local Municipality. The project scope consists of the construction of approximately **2.1km** long surfaced road. Once completed, the commissioned access road will provide all-weather access to the community of Mxhantini and its connecting villages.

The Scope of Works will also include the upgrade of existing stormwater infrastructure, both longitudinal and cross drainage infrastructure. Erosion Protection works and other ancillary works including road signages also form part of the construction works.

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

Labour-intensive works comprise the activities which are to be performed by hand. Such works shall be constructed using local workers who are temporarily employed in terms of this Scope of Work.

The Contractor shall be required to attend meetings of the local Project Liaison Committee (PLC) from time to time. Requirements of the Expanded Public Works Programme (EPWP) are contained in Part F of section C3.3 Particular Specifications. These requirements include provisions for the National Youth Service programme. Requirements in terms of Government's initiatives for broad based black economic empowerment with respect to small contractor development are contained in Part G of section C3.3 Particular Specifications.

C3.2.2 Overview of the works

The scope of work is envisaged to include the following:

- **Establishment of Contractors and Engineers Site Camp.**
- **Proving, exposing and relocation of various electricity, water and sewer services.**
- **The construction of 2.1km long & 5m wide surfaced road**
- **200mm thick roadbed preparation compacted to 93% MOD AASHTO density**
- **150mm thick layers of G7 material compacted to 98% MOD AASHTO density**
- **150mm thick base course using NME stabilized G7 crushed stone compacted to 98% MOD AASHTO density**
- **20mm thick double seal dressing**
- **150mm thick concrete pavement in sections with grades steeper than 14%**
- **Preparation of foundation for the bridge structure**
- **Construction of 2 x 10m long portal culvert (1.5m x 1.5m) bridge crossings consisting of 2 x abutments, deck slab, pad foundation, wing walls, parapets and approach slabs**
- **Excavation, laying & backfilling of 600mm & 900mm diameter pipe culverts with a total length of 300m for stormwater discharge**
- **Installation of gabion and mattresses for erosion protection along steep banks**
- **Constructions of 32 catchpits and headwalls for stormwater discharge.**
- **4.2 km of kerb and channel on both sides of the road**
- **Construction of new side drains, stone pitching, headwalls and associated inlets and outlet structures**
- **Installation of appropriate road signage and guardrails that promotes maximum use of hand labour**
- **Cleaning of 2.1 km road reserve, landscape and tie sections adjoining new works, complete with necessary hydroseeding or grassing.**

C3.2.3 Location of site and access

The site is located within Ward 23 of Winnie Madikizela Mandela Municipality as depicted in the Locality Plan.

C3.2.4 Ground and Subsoil Investigations

Geotechnical investigations have been undertaken on the site and the details of the subsoil conditions will be provided with the tender document.

C3.2.5 Ancillary works

The existing gravel roads are to be formalized as depicted in the issued tender drawings.

C3.2.6 Climatic conditions

The proposed project area is in a high summer rainfall region with an average annual precipitation ranges from 800mm to 1000mm.

C3.2.7 Labour

A Project Liaison Committee will be established and is a vital means of communication between

all parties involved with the project. The composition of the PLC comprises representatives of the Employer, the Engineer and formal structures within the community.

The Contractor shall make use of these communication channels and shall appoint from amongst his site personnel a responsible person to participate in the affairs of the PLC, and this representative will be also required to attend the monthly PLC meetings.

It is mandatory that the Contractor shall interact with the community via proactive project liaison and project participation by its leaders and constituted organizations and forums, as well as through the employment of its people, and these activities shall constitute essential facets of the project.

Local labour is to be used and the employment of such labour is to be done in conjunction with the PLC and in line with the Employer's policies.

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

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

Except where the use of plant is essential in order, in the opinion of the Employer's Agent, to meet the specified requirements by the Due Completion Date, or where the use of plant is essential as a result of occupational health and safety considerations, the Contractor shall use only hand tools and equipment in the construction of those portions of the Works that are required in terms of these Project Specifications to be constructed using labour-intensive construction methods.
These portions of the Works shall be constructed utilizing only locally employed labour and/or the labour of local subcontractors, supplemented by the Contractor's key personnel to the extent necessary and unavoidable, unless otherwise instructed by the Employer's Agent and in accordance with the further provisions of the relevant sections of Portion B of the Project Specifications.

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

- Clearing and grubbing of the Site;
- Excavation for structures up to 1,5 m deep;
- Bedding, selected fill, backfilling and compaction of all pipe trenches irrespective of depth, but assisted by mechanical compaction equipment in order to achieve the specified densities;
- Transportation of cut to spoil of the unsuitable insitu materials;
- Importation of G7 material from suitable commercial source to form gravel layerworks
- Landscaping;
- Excavation and compaction and gabion backfilling;
- Erosion Protection;
- Erection of road signs;
- Retaining walls;
- Dismantling and re-erection of fences;
- Mixing and placing of concrete; for concrete sidewalks, Drains, Kerb and Channel (Kerbs to be sourced from local suppliers where possible) or manufactured on site depending on the quantum required;
- Pipe Culverts;
- Headwalls using local materials;
- Guardrail installation;
- Road safety improvement;
- Alien vegetation removal;
- Construction of all brickwork required for structures; and

- Cleaning and tidying up of the Site.

In respect of those portions of the Works which are not listed above, the construction methods adopted and the plant utilized shall be at the discretion of the Contractor, provided always that the construction methods adopted and the plant utilized 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.

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

C.3.2.8 Spoiling of surplus material

Surplus material shall be spoiled in designated areas approved by the Employer's Agent. The spoil material shall be disposed of in accordance with sub-clause 3306(f) of the COLTO standard specifications.

C.3.2.9 Material sources, spoil and stockpile areas

Where possible, the contractor shall source material from within 20km of the site utilizing local suppliers. The material which may be sourced locally:

- Cement;
- River sand (Coarse Grade Nom. 4.75mm); and
- 19mm sized crushed stone aggregates.

All commercial pavement and construction material should be sourced within Bizana as far as is practical. G7 material shall be imported from suitable commercial source to form gravel layerworks up to wearing course level provided the same has been tested and the subsequent results are favourable. Spoil areas and areas for the temporary stockpiling of construction materials shall be determined and agreed on site in conjunction with the Engineer. The Contractor shall be permitted to use only these agreed spoil and stockpile areas, which shall be landscaped and vegetated on completion of the work.

Spoil areas and areas for the temporary stockpiling of construction materials shall be determined and agreed on site in conjunction with the Engineer, the PLC (where applicable) and the local communities (where applicable). The Contractor shall be permitted to use only these agreed spoil and stockpile areas, which shall be landscaped and vegetated on completion of the work.

C.3.2.10 Accommodation of traffic

The accommodation of traffic forms and integral part of the contract.

C.3.2.11 Existing services

The Contractor shall make himself acquainted with the position of all existing services before any excavation or other work likely to affect the existing services has commenced.

It is also expected that unknown domestic services crossings requiring relocation or protection may be encountered along the route as the work proceeds. The Contractor shall make every effort to establish the location of these services in any area prior to excavations commencing in that area. Such efforts shall include diligent enquiry and discussions with adjacent landowners, visual surface inspection and exploratory trenching investigation as necessary.

The Contractor will be held responsible for any damage to known existing services caused by or arising out of his operations and any damage shall be made good at his own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur.

The transporting of excavators and any other similar-wheeled machinery shall be done using a low bed truck to limit damage to existing roads and infrastructure. This is a compulsory requirement.

C.3.2.12 Employer's Agent's site offices and laboratory

The Contractor shall be required to provide furnished site office facilities, laboratory facilities, ablution facilities, and carports for the Engineer at a site located in close proximity to the Contractor's office establishment and to the Works. A possible area for such site establishment shall be indicated by the Engineer before the commencement of construction.

C.3.2.13 Temporary Works

Vertical, horizontal and inclined falsework and formwork will be used during the construction of the culvert structures. Provisions of access scaffolding and temporary propping will also be required. Temporary shoring will be utilised on unstable excavations.

The Temporary Works required under this Contract shall include the traffic accommodation measures implemented, the provision of drainage control, falsework and formwork during the construction of the minor drainage structures, and the provision of any scaffolding or temporary propping used during the erection of the road signs.

All Temporary Works shall be removed from the Site on completion of the Contract.

C.3.2.14 Maintenance of the Works during the construction period

The Contractor shall take note of the various requirements of the General Conditions of Contract 2015 and the standard specifications with respect to the care and protection of the Works.

The handing-over of the road reserve for this contract is described later in the Project Specifications. The Contractor shall be responsible for maintaining this portion of the road from the date of hand-over until the issue of the Certificate of Practical Completion.

C.3.2.15 Testing of materials

A provisional sum has been allowed in section 8100 of the Schedule of Quantities for all acceptance control testing laboratory work to be carried out by the Engineer using the laboratory facilities included in section 1400 and/or commercial laboratory facilities.

The Contractor shall carry out at his own cost the required process control testing as specified in terms of the COLTO standard specifications.

C.3.2.16 Power supply and other services

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

C.3.2.17 Construction in confined areas

The works are to be undertaken in a built-up area and it will be inevitable for the Contractor to work within confined areas. Except where provided for in the specifications, no additional payment shall be made for work done in restricted areas. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the Contractor's constructional plant.

However, the Contractor shall note that, unless otherwise provided for in terms of the scheduled payment items in the COLTO Standard Specifications or these project specifications, measurement and payment shall be in accordance with the specified cross sections and dimensions only, irrespective of the method used for achieving these cross sections and dimensions, and that the tendered rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions, and that no extra payment shall be made nor shall any claim for additional payment be considered in such cases.

C.3.2.18 Contractor's campsite

Possible locations for a campsite shall be pointed out at the clarification meeting.

The Contractor shall make his own arrangements for the provision of his campsite and housing

for construction personnel but the chosen site shall be subject to the approval of the Engineer, the local authorities and, where applicable, the Project Liaison Committee (PLC) associated with the project.

The standard of the Contractor's camp, offices, accommodation, ablution, and other facilities must comply with the requirements of all local authority, environmental and industrial regulations concerned. In establishing and maintaining his campsite, due cognisance is to be taken of the requirements of the Project Specifications. The Contractor is to fully familiarise himself with all local by-laws and Government regulations for the employment, transport and accommodation of labour on site.

The Contractor shall particularly note that there is a high risk of theft, vandalism and damage to property in this area and strict security will be required for all plant, establishment, temporary works and partially completed works. The Contractor shall be responsible for providing security for all plant, establishment, temporary works and partially completed works.
No separate payment shall be made for the provision of such security since full compensation for these costs shall be deemed to be included in the amount tendered for item B13.01(c) (The contractor's general obligations: Time-related obligations).

C.3.2.19 Additional requirements for construction activities

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

The Contractor's tendered rates shall include full compensation for all costs which may arise from the construction and maintenance of deviations and construction under traffic. No claim for additional costs which may arise from these methods of traffic accommodation and no additional payment owing to inconvenience as a result of the Contractor's method of working shall be considered.

C3.2.20 Design

- The Contractor is responsible for the Temporary Works, Site Camp and Contractor's office accommodation design.
- Site layouts for the Engineer Representative's temporary office accommodation and a Monthly Meeting venue.

The costs of the designs will be deemed to have been included in the scheduled items in the Schedule of Quantities. No other additional payments will be certified to cover these activities.

The bid drawings are applicable to the contractor are detailed in this tender document. These drawings have been used for setting up the Bills of Quantities.

C3.2.21 Quality Assurance (QA) *(Read with SANS 1921 – 1: 2004 clause 4.4)*

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

The Contractor shall ensure that efficient supervisory staff, the required transport, instruments, equipment and tools are available to control the quality of his own workmanship in accordance with his QA-system. His attention is drawn to the fact that it is not the duty of the Engineer or the Engineer's representative to act as foreman or surveyor.

C3.2.22 Programme in terms of Clause 5.6 of the General Conditions of Contract

It is essential that the construction programme, which shall conform in all respects to Clause 5.6 of the General Conditions of Contract, be furnished within the time stated in the Contract Data. The preliminary programme to be submitted with the tender shall be used as basis for this programme.

C.3.2.23 Construction programme

In addition to any other restrictions accommodated by the Contractor in compiling the construction programme, the following constraints shall be taken into account in the preparation thereof:

(1) The whole of the Works (and the portions of the Works if completion in portions is required) shall be completed within the time period(s) stated (refer to the Contract Data in section C1.2.2).

(2) Working days lost due to abnormal rainfall shall be treated as set out in clause B1215.

(3) Allowance shall be made for non-working days and special non-working days (refer to the Contract Data in section C1.2.2).

(4) Construction activities must comply with all the specified environmental requirements including clause B1233 and the requirements of Part C: Environmental Management Specification contained in section C3.3 Particular Specifications.

(5) Construction activities must comply with all the specified health and safety obligations including the requirements of the OHSA 1993 Health and Safety Specifications.

(6) Strict control of access to and from local public roads shall be required when construction vehicles, plant or equipment leave or enter the site.

(7) Throughout the contract period traffic must be accommodated through the site and all other contractors engaged on the construction of Bizana Access Roads must be accommodated.

(8) The Contractor’s programme of work shall take due cognisance of risks by limiting the duration of the exposure of the various construction elements to natural phenomena.

(9) Programme must clearly indicate work carried out by the nominated sub-contractors and its impact on the contractors works programme

For the guidance of Tenderers, a provisional preliminary construction programme is included below. This programme is given in good faith and no claims shall be entertained due to inaccuracies, discrepancies or omissions contained in the programme.

PRELIMINARY CONSTRUCTION PROGRAMME

ACTIVITY	DURATION (Weeks)	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6			

C.3.2.24 Management and disposal of water *(Read with SANS 1921 - 1 : 2004 clause 4.6)*

The Contractor shall pay special attention to the management and disposal of water and stormwater on the site. It is essential that all completed works or parts thereof are kept dry and properly drained. Claims for delay and for repair of damage caused to the works as a result of the Contractor's failure to properly manage rain and surface water, will not be considered.

C.3.2.25 Earthworks *(Read with SANS 1921 - 1 : 2004 clause 4.10)*

Borrow pits and spoil areas

The borrow pits to be used for this contract, where possible, shall be pointed out at the Compulsory Site Inspection. It is however the contractor's responsibility to locate the closest borrow pit which will be tested by an approved Geotechnical Engineering specialist prior to the source being used. The rate for gravel material shall be deemed to include all overhaul based on the identified borrow pits' distance.

The Contractor shall be permitted to use only those borrow pits approved by the Engineer. The spoil sites shall be determined on site in conjunction with the Engineer and the Municipality. The Contractor shall be permitted to use only those spoil areas approved by the Engineer. Should the Contractor wish to use any other tip area for the disposal of soil, rubble, vegetation, etc., its use shall be subject to the approval of the Engineer and the landowner.

C.3.2.26 Testing *(Read with SANS 1921 – 1 : 2004 clause 4.11)*

Process control

The Contractor shall arrange for all tests required for process control to be done by a laboratory acceptable to and approved by the Engineer.

The Contractor may establish his own laboratory on site or he may employ the services of an independent commercial laboratory. Whatever method is used, the Contractor must submit the results of tests carried out on materials and workmanship when submitting work for acceptance by the Engineer. The costs for these tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required.

Acceptance control

The process control test results submitted by the Contractor for approval of materials and workmanship may be used by the Engineer for acceptance control. However, before accepting any work, the Engineer may have further control tests carried out by a laboratory of his choice. The cost of such additional tests will be covered by a provisional sum provided in the schedule of quantities, but tests that failed to confirm compliance with the specifications, will be for the account of the Contractor.

C.3.2.27 Accommodation of Employees

No employees except for security guards will be allowed to sleep or be accommodated on the site in urban areas.

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site.

No informal housing or squatting will be allowed.
The of the works for the use of his employees. Chemical toilets only will be allowed where temporary facilities have to be provided.

C.3.2.28 Survey beacons *(Read with SANS 1921 - 1 : 2004 clause 4.15)*

The Contractor shall take special precautions to protect all permanent survey beacons or pegs such as bench-marks, stand boundary pegs and trigonometrical beacons, regardless whether such beacons or pegs were placed before or during the execution of the Contract. If any such

beacons or pegs have been disturbed by the Contractor or his employees, the Contractor shall have them replaced by a registered land surveyor at his own cost.

C.3.2.29 Health and Safety *(Read with SANS 1921 - 1: 2004 clause 4.18)*

C.3.2.29.1 General statement

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the OHSA 1993 Construction Regulations 2003 issued on 18 July 2003 by the Department of Labour.

For this contract the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of the Occupational Health and Safety Act in the form as included in section C1.2.4

C.3.2.29.2 Health and Safety Specifications and Plans

(a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification will be included in the tender documents as part of the Project Specifications.
[*Note to compiler: The Employer's Safety Specification is available and must be included*]

(b) Tenderer's Health and Safety Plan

The Tenderer shall submit with his tender his own documented Health and Safety Plan he proposes to implement for the execution of the work under the contract. His Health and Safety Plan must at least cover the following:

i. a proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 7 to 28;
ii. pro-active identification of potential hazards and unsafe working conditions;
iii. provision of a safe working environment and equipment;
iv. statements of methods to ensure the health and safety of subcontractors, employees and visitors to the site, including safety training in hazards and risk areas (*Regulation 5)*;
v. monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the Construction Regulations;
vi. details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of Regulation 6 and other applicable regulations; and
vii. details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2003.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or Contractor shall provide the necessary ablution facilities at his camp site and the site amendment, if necessary, before commencement of construction work. The Contractor will
not be allowed to commence work, or his work will be suspended if he had already commenced work, before he has obtained the Employer's written approval of his Health and Safety Plan.

Time lost due to delayed commencement or suspension of the work as a result of the Contractor's failure to obtain approval for his safety plan, shall not be used as a reason to claim for extension of time or standing time and related costs

C.3.2.29.3 Cost of compliance with the OHSA Construction Regulations

The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract.

Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health

and Safety Specification.

C.3.2.29.4 Management of the environment *(Read with SANS 1921 - 1: 2004 clause 4.19)*

Respect for the environment is an important aspect of this contract and the Contractor shall pay special attention to the following:

(a) Natural Vegetation

The Contractor shall confine his operation to the limits of the road reserve for constructing the works and where applicable detours, shall be sited in consultation with the Engineer and the local communities.

Only those trees and shrubs directly affected by the works and those the Engineer may directly instruct, shall be cut down and stumped. The natural vegetation, grassing and other plants shall not be disturbed other than in areas where it is essential for the execution of the work or where directed by the Engineer.

(b) Fires

The Contractor shall comply with the statutory and local fire regulations. He shall also take all necessary precautions to prevent any fires. In the event of fire, the Contractor shall take active steps to limit and extinguish the fire and shall accept full responsibility for damages and claims resulting from such fires which may have been caused by him or his employees.

(c) Environmental Management Plan

In addition to the above all requirements according to the Environmental Management Framework prepared by the Municipality, and the project specific Environmental Management Plan will be adhered to.

C.3.2.30 EPWP Alignment Clauses

C.3.2.30.1 (1.2) Personal & Other Protective Equipment *(Sections 8/15/23 or the OHS Act)*

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

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

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

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

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

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

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

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

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

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

C.3.2.30.2 (B1200 (e)) COMMUNITY LIAISON OFFICER (CLO)

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

(a) Duties of the Community Liaison Officer
The Community Liaison Officer's duties will be:
(i) To be available on site daily between the hours of ___(insert time) and ___(insert time) and at other time as the need arises. His normal working day will extend from _____morning until __(insert time) in the afternoon.
(ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.

(iii) To communicate daily with the contractor and the engineer to determine the labour requirements regarding numbers and skill, to facilitate in labour disputes and to assist in their resolution.
(iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a "labour desk".
(v) To attend all meetings in which the community and/or labour are present or are required to be represented.
(vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor's requirements.
(vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
(viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
(ix) To keep a daily written record of his interviews and community liaison.
(x) To attend monthly site meetings to report on labour and RDP matters.
(xi) All such other duties as agreed upon between all parties concerned.
(xii) To submit monthly returns regarding community liaison.

(b) Payment for the community liaison officer

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

(c) Period of employment of the community liaison officer

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

PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS

PROJECT SPECIFICATIONS RELATING TO THE STANDARD SPECIFICATIONS AND OTHER ADDITIONAL SPECIFICATIONS

In certain clauses in the COLTO Standard Specifications, allowance is made for a choice to be specified in the Project Specifications between alternative materials or methods of construction, and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this Contract are contained in this part of the Project Specifications. It also contains the necessary additional specifications required for this Contract.

The clauses and payment items dealt with in this part of the Project Specifications are numbered 'B' with a number corresponding to the relevant clause or item number in the COLTO Standard Specifications.

New clauses and payment items not covered by clauses or items in the COLTO Standard Specifications have been included here and have also been designated with the prefix 'B'. Such clauses and items have been given a new number following upon the last number used in the particular section referred to in the COLTO Standard Specifications.

(a) The following specifications shall apply to this contract:

The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998). The

contractor may purchase copies from the South African Institution of Civil Engineers at:

SAICE
Waterfall Park / Postnet Suite 81
Howick Gardens/ Private Bag X65
Vorna Valley / Halfwayhouse Becker
Street/ 1685
Midrand

Tel: (011) 805-5947
Fax: (011) 805-5971

(b) SANS or BS Specifications and Codes of Practice

Wherever any reference is made to the South African National Standards(SANS) and the British Standards Specification (BSS) in either these Bill of Quantities or the Specification of Materials and Methods to be Used (OOG-001E), this reference shall be deemed to read "SANS or equivalent standard" and BS or equivalent standard" respectively.

(c) Various other specifications specified in the COLTO Standard Specifications or the Project Specifications.

SECTION 1100: DEFINITIONS AND TERMS

In all cases where "Directorate Land Transport" appears in the text or in drawings contained in this document it shall be read as "Province of KwaZulu-Natal".

B1115 GENERAL CONDITIONS OF CONTRACT

Replace clause 1115 with the following:

"The General Conditions of Contract for Construction Works, 3rd edition 2015 (abbreviated elsewhere in C3.2 Project Specifications and C3.3 Particular Specifications as "GCC 2015" or as "General Conditions of Contract 2015") published by the South African Institution of Civil Engineering (SAICE), together with the Special Conditions of Contract form part of the contract.

All references in the COLTO Standard Specifications for Road and Bridge Works are to the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities. Consequently, all references in the COLTO Standard Specifications have to be amended accordingly to reflect the appropriate General Conditions of Contract relevant to the Contract. The COLTO Standard Specifications have been scrutinized and the clauses, which refer to the COLTO General Conditions of Contract, identified. Each COLTO clause reference is tabulated in Table B1115 below (context of reference is also given) together with the relevant equivalent clause in the SAICE General Conditions of Contract for Construction Works 3rd edition 2015 applicable for this contract.

Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the SAICE General Conditions of Contract for Construction Works 3rd edition 2015 reference, as amended by the Special Conditions of Contract in the Contract Data, shall apply and the Contractor shall be responsible for interpretation of the equivalent clause.

The COLTO Standard Specifications make frequent use of the term "engineer". The Project Specifications and the Schedule of Quantities in turn make reference to the COLTO Standard Specifications and may use similar terminology in order to facilitate the reading and cross-referencing thereof.

Wherever in the COLTO Standard Specifications or in the Project Specifications or in the Schedule of Quantities reference is made to the "engineer" or the "Engineer", this is to be interpreted as the "Employer's Agent" as defined in subclause 1.1.1.16 of GCC 2015.

Wherever in the COLTO Standard Specifications or in the Project Specifications or in the Schedule of Quantities reference is made to the "engineer's representative" or the "Engineer's Representative", this is to be interpreted as the "Employer's Agent's Representative" as defined in subclause 1.1.1.17 of GCC 2015."

TABLE B1115: REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT SAICE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS 3rd EDITION 2015

COLTO Standard Specification		**COLTO General Conditions of Contract 1998**		**SAICE General Conditions of Contract for Construction Works 3rd Edition 2015**	
Clause No.	**Page No.**	**Clause No.**	**Description or Reference**	**Clause No.**	**Description or Reference**
1202	1200-2	15	Programme	5.6	Programme
1209(e)	1200-5	52: 52(1)(e) 52(2)	 Monthly payments (documentary evidence of ownership of materials) Valuation of material brought onto Site	6.9 & 6.10: 6.9 6.10.2	 Vesting of Plant and materials Valuation of material brought onto Site
1210	1200-5	54: 54(1) 54(2) 54(3)	 Certificate of Practical Completion	5.14: 5.14.1 5.14.2 5.14.3	 Certificate of Practical Completion
1212(l)	1200-7	49: 49(2)	 Application of Contract Price Adjustment Factor	6.8: 6.8.2	 Application of the Contract Price Adjustment Factor
1215	1200-9	45	Extension of time for completion	5.12	Extension of time for Practical Completion
1217	1200-10	35	Care of the Works	8.2	Care of the Works
1303	1300-1 and 1300-2	49 & 53: 49(2) and 49(3) 53	 Application of Contract Price Adjustment Factor and Variation in cost of special materials Variations exceeding 20 per cent	6.8 & 6.11: 6.8.2 and 6.8.3 6.11	 Application of the Contract Price Adjustment Factor and Variation in cost of special materials Variations exceeding 15 per cent
1303	1300-2	12 &45: 12 45	 Commencement of Works and Commencement Date Extension of time for completion	5.3 & 5.12: 5.3 5.12	 Commencement of the Works Extension of time for Practical Completion
1403 (c)(ii)	1400-4	40(1)	Valuation of variations	6.4.1	Valuation of variations
1505	1500-3	40: 40(1)	 Valuation of variations	6.4: 6.4.1	 Valuation of variations
1517 Items: 15.08 15.09 15.11	1500-8	48: 48.1	 Provisional Sums	6.6: 6.6.1	 Provisional sums

COLTO Standard Specification		**COLTO General Conditions of Contract 1998**		**SAICE General Conditions of Contract for Construction Works 3rd Edition 2015**	
Clause No.	**Page No.**	**Clause No.**	**Description or Reference**	**Clause No.**	**Description or Reference**
3108 Note (2)	3100-4	40: 40(1)	Valuation of variations	6.4: 6.4.1	Valuation of variations
3204 (b)(iii)	3200-2	40: 40(1)	Valuation of variations	6.4: 6.4.1	Valuation of variations
3303(b)	3300-2	2	Engineer and Engineer's Representative	3.	Employer's Agent
5803(c)	5800-3	40: 40(1)	Valuation of variations	6.4: 6.4.1	Valuation of variations
5805(d)	5800-4	40: 40(1)	Valuation of variations	6.4: 6.4.1	Valuation of variations
5809 Item 58.10	5800-10	48: 48.1	Provisional Sums	6.6: 6.6.1	Provisional sums
8103(c)	8100-1	40: 40(1)	Valuation of variations	6.4: 6.4.1	Valuation of variations
8117 Item 81.03	8100-26	22	Clearance of Site on completion	5.15	Clearance of Site

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1200 COMMUNITY PARTICIPATION

A Project Liaison Committee (PLC) is a vital means of communication between all parties involved with the project. The PLC comprises representatives of the Employer, the Employer's Agent and formal structures within the Community. Were one is not available, this role shall be played by the existing ward committee members, or any other members as deemed fit by the client. The Contractor shall make use of these communication channels, and shall appoint from amongst his site personnel a responsible person to participate in the affairs of the PLC, and this representative shall also attend the monthly PLC meetings when so requested.

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

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

Procedures:
- The PLC deals with labour and SMME involvement on the project and shall meet at least once every month until such time as it is of the opinion that it could fulfil its tasks by meeting less frequently.
- The PLC shall make recommendations by consensus. If consensus cannot be reached, the decision of the Employer will be final in cases that have no financial implications for the Contractor or where payment is to be made from PC items. Where the financial responsibility for the successful completion of the works rests with the Contractor, the Contractor's decision shall be final. In fulfilling its tasks, the PLC shall be guided by the relevant sections of this specification and the supplementary documents.

Tasks of the PLC
- To assist with community liaison and resolution of disputes.
- To devise fair and transparent procedures that will assist the Contractor in the engagement of labour and the award of sub-contracts to SMME's.
- To advise on and monitor labour issues.
- To assist in resolving labour disputes.

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

B1200(e) COMMUNITY LIAISON OFFICER (CLO)

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

(a) Duties of the Community Liaison Officer

The Community Liaison Officer's duties will be:

(i) To be available on site daily between the hours of 07h30 and 16h30 and at other time as the need arises. His normal working day will extend from 07h30 morning until 16h30 in the afternoon.

(ii) To determine, in consultation with the contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.

(iii) To communicate daily with the contractor and the engineer to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.

(iv) To assist in and facilitate in the recruitment of suitable temporary labour and the

establishment of a "labour desk".

(v) To attend all meetings in which the community and/or labour are present or are required to be represented.

(vi) To assist in the identification, and screening of labourers from the community in accordance with the contractor's requirements.

(vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.

(viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.

(ix) To keep a daily written record of his interviews and community liaison.

(x) To attend monthly site meetings to report on labour and RDP matters.

(xi) All such other duties as agreed upon between all parties concerned.

(xii) To submit monthly returns regarding community liaison as illustrated in Part C of this document.

(b) Payment for the community liaison officer

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

(c) Period of employment of the community liaison officer

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

B1202 SERVICES

Add the following at the end of clause 1202:

"A provisional sum is included in the Schedule of Quantities to cover the costs of relocating the known services. This provisional sum shall be used to effect payments for the services relocation work carried out by either the main contractor or subcontractor, in consultation with the Employer for this purpose."

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following paragraph to the end of clause 1204:

"Testing for quality control shall be conducted in accordance with the requirements of Section 8200 for Quality Control."

B1206 THE SETTING-OUT OF WORK AND PROTECTION OF BEACONS

Delete the first paragraph of clause 1206 in its entirety and replace it with the following:

"The Contractor shall comply with all legal provisions in regard to surveying and setting out work."

Add the following paragraph to the end of clause 1206:

"It may become necessary to construct, level and coordinate new survey beacons during the course of the contract, or to protect existing survey beacons. A provisional sum is included in the Schedule of Quantities to cover the costs of such work."

B1209 PAYMENT

(a) Contract rates

Add the following new paragraph at the end of subclause 1209(a):

"All rates tendered are to be exclusive of VAT."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Extension of time resulting from abnormal rainfall shall be calculated according to the requirements of Method (ii) (Critical-path method).

Method (ii) (Critical-path method)

Delete the words "(based on a five-day working week)" *in the fifth and sixth lines of the second paragraph of Method (ii).*

Add the following to the end of Method (ii):

"The value of "n" working days expected delay caused by normal rainy weather as referred to in Method (ii) shall be as given in Table B1215 below for each respective calendar month of any year:

TABLE B1215

Month	Expected delay of "n" working days due to normal rainy weather	Month	Expected delay of "n" working days due to normal rainy weather
January***	5	July	1
February	4	August	1
March	4	September	2
April	3	October	3
May	2	November	4
June	1	December***	5

*** Includes the whole month of December / January.

Each "n"-value in Table B1215 applies only to the calendar month immediately to the left of the number, and the "n"-values as specified shall not be taken as being carried forward so as to accumulate over the contract period. If no abnormal rainfall occurs during a particular calendar month in a particular year, then no extension of time for abnormal rainfall shall be granted with respect to that calendar month for that year, and no further consideration shall be given to that "n"-value in respect of that year.

Similarly, if the "n" working days expected delay caused by normal rainy weather during a particular calendar month in a particular year (for which the Contractor shall have made provision in his programme of work in accordance with Method (ii)) are not taken up (either in whole or in part) by standing time due to normal rainy weather during that month of that year, then no further consideration shall be given to those "n" working days (or portion thereof), which effectively have been gained, when any subsequent extension of time claims which may arise later during the contract period are assessed by the Employer's Agent."

B1219 WATER

Add the following paragraph to the end of clause 1219:

"The Contractor shall arrange for chemical tests to be carried out to confirm the suitability of his proposed water sources for use as drinking water and for use in the concrete construction. The Contractor shall ensure that these tests also include testing for salinity and sugar content levels.

The Contractor shall note that the necessary permission must be obtained from the Department of Water Affairs for the abstraction of water from streams and rivers."

B1229 SABS CEMENT SPECIFICATIONS

Add the following paragraphs to the end of clause 1229:

"All cement used on this contract shall comply with SANS 50197-1: Cement Part 1: Composition, specifications and conformity criteria for common cements.

Where reference is made in these Project Specifications or in the COLTO Standard Specifications to the former SABS cement specifications (e.g., SABS 471, SABS 626, SABS 831, SABS 1491), such reference shall be replaced with the new specification:

- SANS 50197-1: Cement Part 1: Composition, specifications and conformity criteria for common cements.

The blending of cements on site shall not be permitted."

Add the following new clauses at the end of Section 1200:

B1230 UNEMPLOYMENT INSURANCE FUND

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

B1231 COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 1993

All labour employed on the site shall be covered by the Compensation for Occupational Injuries and Diseases Act, 1993, as amended. The Contractor shall pay in full, including the payment of the necessary levies, such amounts as are due in terms of the Act. The manner in which compensation in terms of this Act shall be handled shall be resolved by the Contractor at the commencement of the contract.

B1232 COMPLIANCE WITH THE ROAD TRAFFIC ACT

When a service necessitates vehicles or plant travelling or working on a public road, the following shall apply:

- The vehicles and plant shall be licensed in terms of the National Road Traffic Act 1996 (Act No. 93 of 1996) as amended.

- Every driver and operator of a vehicle or an item of plant shall be in possession of a valid permit in respect of the class of vehicle or item of plant he / she is driving or operating.

The Contractor shall provide, erect and maintain sufficient road signs, barricades, fencing and guarding as may be necessary or required by the Employer's Agent or by any act, regulation or statutory authority in order to minimise the danger and inconvenience caused to vehicle and pedestrian traffic. The Contractor by accepting this contract shall be deemed to have indemnified the Employer and the Employer's Agent against any claims, damages and / or costs that may arise in this regard.

B1233 ENVIRONMENTAL IMPACT CONTROL

In addition to aspects of the design which are intended to avoid or reduce environmental impact, and in addition to normal good construction practice expected of the Contractor, the following requirements shall also be observed:

(a) The Contractor shall comply with the requirements of Part C: Environmental Management Specification contained in section C3.3 Particular Specifications.

(b) Clearing shall be limited to the road prism and, where applicable, to detours, which shall be sited in consultation with the Employer's Agent and the local communities.

(c) No littering by construction workers shall be allowed. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the Employer's Agent.

(d) Adequate provision shall be made for temporary toilet requirements in construction areas. Use of the veld for this purpose shall not be allowed under any circumstances.

(e) Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants, such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate tailings, wash water, organic materials and bituminous products. In the event of spillage, prompt action shall be taken to clear the affected area. Emergency measures in the event of spillage shall be set out and the responsible person shall be made aware of the required action. The construction of temporary and / or permanent dams shall be done with the necessary approvals from the Department of Water Affairs and Forestry and the Department of Environmental Affairs and Tourism.

(f) Bituminous and / or other hazardous products shall not be spoiled on site and shall only be disposed of at licensed authorised disposal facilities.

(g) Provision shall be made to prevent excessive erosion and siltation throughout the contract and in particular on adjacent land. Should excessive erosion and / or siltation take place outside the road reserve as a direct result of the Contractor's construction activities, the Contractor shall be responsible for making good the erosion / siltation to the satisfaction of the landowner and the Employer's Agent.

(h) Invader species of plants shall be controlled.

(i) Dust and noise pollution shall be restricted to acceptable levels.

No separate payment shall be made for observing these requirements as such payment shall be deemed to be included in the amount tendered for item B13.01(c) (The contractor's general obligations: Time-related obligations). Any avoidable non-compliance with these requirements shall be considered sufficient grounds for withholding payment of part or all of the amounts to be paid for the above item in order to pay for the repairs to any damages.

B1234 MEASUREMENT AND PAYMENT

Expenditure under the items scheduled in B1200 (c) to (f) shall be made in accordance with clause 6.6 of the General Conditions of Contract 2015.

The tendered percentage is a percentage of the amount of expenditure approved by the Employer's Agent under the respective subitems in B1200 (c) to (f) and shall include full compensation for the handling costs of the Contractor and the profit in connection with the said works.

SECTION 1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS

B1301 GENERAL REQUIREMENTS

(c) Legal and contractual requirements and responsibility to the public

Add the following new paragraphs to the end of subclause 1302(c):

"Legislation imposes mutual obligations on the Employer and Contractor in the performance of their duties to society and to the built and natural environment. To assist the Contractor in understanding and assessing his obligations, and thus to make allowances for the cost of compliance with this legislation, Parts C, E, F and G are included in section C3.3 Particular Specifications in the project specifications.

The Contractor's general obligations shall also include the training of temporary labour, the management of labour enhanced work, the application of the Compensation for Occupational Injuries and Diseases Act, 1993, and compliance with the requirements of Part C: Environmental Management Specification, Part E: OHSA 1993 Health and Safety Specification, Part F: Requirements of the Expanded Public Works Programme (EPWP) and Part G: Small Contractor Development contained in section C3.3 Particular Specifications.

Part C: Environmental Management Specification contains the environmental management specification for this project. Its provisions regulate the Contractor's construction methods so as to ensure responsible conduct with respect to the environment and responsible treatment of the environment relevant to the project. No separate payment mechanism has been made available for the Contractor to allow for his compliance with the environmental management specification. The Contractor shall therefore include for such costs in the existing pay item B13.01 in section 1300.

Part E: OHSA 1993 Health and Safety Specification contains the specifications that regulate the Contractor's construction methods so as to ensure the health and safety of his employees and the public. A new pay item B13.02 is included in section 1300 to allow the Contractor to make separate provision for the cost of health and safety obligations during the construction process.

Part F: Requirements of the Expanded Public Works Programme (EPWP) contains requirements for employment and training in terms of the National Youth Service programme (where applicable – refer to Part F). Various pay items related to these requirements are included in Part F. However, to the extent that any costs relating to the requirements of Part F are not covered by the pay items in that section, the Contractor shall include for such costs in the existing pay item B13.01 in section 1300.

Part G: Small Contractor Development contains provisions that regulate the Contractor's construction processes for compliance with Government's initiatives towards broad-based black economic empowerment. Various pay items related to these requirements are included in Part G. However, to the extent that any costs relating to the requirements of Part G are not covered by the pay items in that section, the Contractor shall include for such costs in the existing pay item B13.01 in section 1300. The Contractor shall note that non-compliance with the provisions of Part G may lead to the imposition of penalties as described in clause G1003(d)."

B1303 PAYMENT

Add the following at the start of clause 1303:

"All references in clause 1303 to the final value of the work increasing or decreasing by "twenty (20) per cent" in terms of the COLTO Standard Specification shall be read as increasing or decreasing by "fifteen (15) per cent" in terms of the General Conditions of Contract 2015.

Separate provision has been made in the Schedule of Quantities for the pricing of the Contractor's "General Item" obligations with regard to Health and Safety."

Refer to the second sentence of the fourth last paragraph of clause 1303, page 1300-2 of the COLTO Standard Specifications and delete the words "from the date on which the Contractor has received the letter of acceptance in terms of clause 12 of the general conditions of contract," *and replace these words with the following:*

"from the Commencement Date in terms of clause 5.2.1 of the General Conditions of Contract 2015,".
Add the following at the end of clause 1303:

"The amount payable to the Contractor for time-related general obligations arising from extensions of time granted in accordance with Clause 5.12.1.and 5.12.2 of the GCC 2015, shall be calculated as follows:

(i) The Contractor shall apply for the extension of time in terms of the number of days' delay incurred calculated in accordance with clause 5.1 of the GCC 2015.

(ii) The number of days' extension of time calculated in accordance with clause 5.1 of the GCC 2015, finally granted shall then be added to the Due Completion Date of the contract by the Employer's Agent, commencing on the first working day after the day of the original Due Completion Date. Non-working days and special non-working days as defined in the contract data shall not be counted as working days in calculating the extended completion date.

(iii) The number of calendar days extension of time granted from the original completion date to the extended completion date as calculated in (ii) above shall then be calculated, commencing on the first calendar day after the day of the original completion date.

The following formula shall then be used to calculate the number of months' extension of time granted:

No. of months' extension of time granted = [(No. of calendar days' extension of time granted / 365)] x 12

(iv) The number of months' extension of time granted calculated as in (iii) above shall be the number of additional months measured for payment for time-related general obligations under item B13.01(c) and in accordance with clause 5.12.3 as a result of the extensions of time granted.

Note: The number of months extension of time granted calculated as in (iii) above shall also be included in the measurement of any other items scheduled under Sections 1300, 1400, 1500 or elsewhere in the Schedule of Quantities that involve the unit of measurement "month" and that were provided on site for the full duration of the extended period. Where such items were provided for a portion of the extended period only, a pro rata payment shall be made, based on the number of calendar days the item was provided on site after the original completion date divided by the number of calendar days as calculated in (iii) above for the extension of time granted."

Item **Unit**

B13.01 **The contractor's general obligations:**

Add the following before the start of the first paragraph of item 13.01:

"Subitems B13.01(a), (b) and (c) are "General Items" as defined in clause 1.1.1.21 of GCC 2015."

After the end of subsubclause (iii) in the fourth paragraph of item 13.01, add the following new sub subclauses which further define the contractor's general obligations:

"(iv) Complying with the requirements and conditions of the additional specifications in Part C:

Environmental Management Specification.

(v) Complying with the requirements and conditions of the additional specifications in Part F: Requirements of the Expanded Public Works Programme (EPWP) to the extent that any costs relating to the requirements of Part F are not covered by the pay items included in that section.

(vi) Complying with the requirements and conditions of the additional specifications in Part G: Small Contractor Development relating to the Government's broad-based black economic empowerment initiatives to the extent that any costs relating to the requirements of Part G are not covered by the pay items included in that section."

Add the following new payment items at the end of clause 1303:

"Item
Unit

B13.02 Health and Safety obligations:

(a) Fixed obligations for the preparation of risk assessments, safe work procedures, the project Health & Safety file, the Health & Safety plan and any other Health & Safety matters that the Contractor deems necessary lump sum (Sum)
(b) Fixed obligations for completing and checking the Project Health & Safety file and handing it over to the Employer on completion of the Works lump sum (Sum)
(c) Time-related obligations for updating and amending the risk assessments, the safe work procedures, the project Health & Safety file and the Health & Safety plan, and for full compliance with all Health & Safety matters during the construction of the Works under the contract month

Payment of the lump sums tendered under subitems B13.02(a) and (b) and the rate per month for subitem B13.02(c) shall, for the three subitems together, include full compensation for all the Contractor's costs in respect of compliance with the OHS Act and Construction Regulations.

Payment of each of the lump sums tendered under subitems B13.02(a) and (b) shall be made in three instalments as specified in the COLTO standard specifications for the payment of the lump sum tendered under subitem 13.01(a).

The tendered rate for subitem B13.02(c) shall be paid as specified in the COLTO standard specifications for the payment of the tendered rate for subitem 13.01(c).

B13.03 Supply, transport to site and erection of the contract signboard

ITEM		**UNIT**
B13.03	Supply, transport to site and erection of the contract signboard	
	(a) Contract sign boards	No
	(b) Information boards	No

The unit of measurement shall be the number of contract signboards erected as instructed by the Employer's Agent.

The tendered rate shall include full compensation for providing and erecting each contract signboard complete (refer to the typical signboard face detail shown in Section C4.2), including for timber poles and fixings, excavation and backfill, and for dismantling and removing the signboard structures and reinstating the signboard area on completion."

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

SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE EMPLOYER'S AGENT'S SITE PERSONNEL

B1402 OFFICES AND LABORATORIES

(a) General

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

The offices and ablution shall, unless otherwise agreed, be erected in close proximity to the contractor's offices, and the entire area shall be fenced with security fencing and provided with a gate. The contractor shall take all reasonable precautions to prevent unauthorised entry to the Engineer's office and to ensure the general security of the offices.

Add the following after the last paragraph:

(b) Offices

Add the following items to the list of equipment under Sub-clause 1403(a):

Provision of floodlights, which are to be controlled by a photocell for security purposes at the offices of the supervisory staff.

White boards (2 m x 1 m)

Microwave (30 litre capacity)

B1404 SERVICES

(a) Water, electricity and gas

Add the following:

"The power supply to the Engineer's office and laboratory shall be regulated by a suitable voltage regulator in order to maintain a constant current and voltage level at all times to prevent damage to the office equipment and related machinery during power surges. Payment for the voltage regulator shall be deemed to be included in the rates tendered for the supply of power. In the event of damage to the office and laboratory equipment and related machinery because of a faulty voltage regulator, the contractor shall be liable for payment of all repair or replacement costs of such damaged items."

B1406 MEASUREMENT AND PAYMENT

Additional payment items to cover the requirements of the project specifications are listed below. Add

the following new payment items:

ITEM		**UNIT**
B14.03	Office and laboratory fittings, installations and equipment (a) Items measured by number	
	White Boards (2m x 2m)	No
	Microwave oven (30 litres min. capacity)	No

ITEM			**UNIT**
B14.11	Sundries		
	(a)	Provisional sum for providing sundries as requested by the engineer.	Prov Sum
	(b)	Handling costs and profit in respect of subitem B14.11(a) above	% Expenditure

under these items will be made in accordance with the General Conditions of Contract.

The tendered percentage is a percentage of the amount actually spent under Item B14.11(a), which shall include full compensation for the handling costs of the contractor, and the profit in connection with providing sundries as requested by the engineer.

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add to Clause 1501 the following:

The scope of this section shall also include the preparation and submission to the Engineer for approval of traffic management plans. The traffic management plans shall demonstrate how the Contractor intends accommodating and controlling traffic through the site. The plans must incorporate all the requirements of the specifications in respect of the accommodation of traffic, including the traffic control devices and the personnel involved. A traffic safety officer shall be specifically named in the Plan together with 24 hour contact details. Copies of the plans shall be made available to the Engineer, the Employer, Local Authorities, the Police and Emergency Services.

The accommodation of traffic shall generally be undertaken in the following manner:

(a) Via gravel diversions, where practical in terms of space and the terrain.
(b) By dealing with traffic under construction where no diversions are possible.
(c) By diverting traffic along the existing road where the route is being realigned

Add the following to the end of clause 1501:

"Throughout the course of the contract the contractor shall ensure that the works do not prevent service owners or the employer's other contractors from gaining access through the site.

The contractor shall be required to accommodate traffic in the vicinity of the points at which he accesses the site from the existing road network. All movements of the contractor's plant to and from the existing access road at these intersections shall be strictly controlled by means of appropriate signage, delineators, stop / go facilities and flagmen."

B1502 GENERAL REQUIREMENTS

(a) Safety

Add to Sub-clause 1502(a) the following:

Information in respect of intersections, accesses, bus stops, traffic volumes, pedestrians etc is given in Part B of these Project Specifications.

(b) Providing Temporary Deviations

Add to Sub-clause 1502(b) the following:

The contractor shall keep the provincial traffic police, the municipal traffic departments and the engineer fully informed with regard to any changes in the normal traffic flow and obtain their approval for these changes.

During the non-working hours, all unnecessary obstructions to the traffic shall be removed and all signs no longer applicable to the situation shall be removed or effectively covered.

It is a condition of this contract that not more than 10 km of deviation should be open to public traffic at any one time, and that not more than three separate deviations should be open at any one time. No additional payments will be made where situations arise that the contractor has deviations cross over the roadway under construction.

(i) Traffic Safety Officer

Add to Sub-clause 1502(i) the following:

The Contractor shall submit a CV of the candidate to the Engineer for approval before the Traffic Safety Officer is appointed. The Traffic Safety Officer shall be made available to discuss road safety and traffic accommodation matters whenever required by the Engineer.

Delete Sub-clause 1502(i), sub-sub-clauses (ii) and (iii) and replace with the following:

(ii) Record on neat and dimensioned sketches and submit to the Engineer the position and sign reference number where applicable of each sign, barricade, delineator, cone, amber flicker light, guardrail and permanent or temporary painted road marking feature.

The position of each unit shall be adequately referenced to identifiable permanent features located along the site of the works.

These records shall also show the date and time at which the recorded traffic accommodation features are certified correct by the Traffic Safety Officer, and shall be signed by the Traffic Safety Officer before being submitted to the Engineer.

The records shall be amended whenever changes are made in the field and the revised detailed sketches shall be submitted to the Engineer. This shall include the recording of the position of flagmen and stop/go control men and their associated traffic accommodation equipment wherever they are used."

(iii) Personally inspect the position and condition of each traffic accommodation feature on the whole site of works twice each day by 9:30 and by 16:30, to record all irregularities discovered and the remedial action taken, and to sign off as correct and submit to the Engineer such record sheets by 10:00 and by 17:00 each day. The traffic Safety Officer shall keep a duplicate book for this specific purpose.

The Traffic Safety Officer shall also submit to the Engineer by 10:00 each morning, a record of all matters pertinent to site safety and traffic accommodation throughout the site of works the previous day. He shall also record the daily labour returns of flagmen, stop/go and traffic signal control men employed.

The traffic safety officer shall be equipped with a cellular telephone and shall have a vehicle and 2 labourers at his disposal 24 hours a day, including public holidays and the shutdown period as instructed by the engineer. He shall also be directly answerable to the Contractor's Site Agent. The Traffic Safety vehicle shall be a truck with a capacity of 1 ton and shall be equipped with a high visibility rear panel. The traffic Safety Officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the Contract.

Add to Sub-clause 1502(i) the following new sub-sub-clauses:

(ix) Ensure that all obstructions, soil and gravel heaps, related to the Contractors activities be removed before nightfall where applicable and as instructed by the Engineer and that the roads are safe for night traffic.

(x) The Traffic Safety Officer shall, in addition to the duties listed in Clause 1502 (i), also be responsible for removal of broken down vehicles off the roadway and implementing actions requested by the traffic authorities with regard to the work to be carried out, and shall be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic."

Add the following new Sub-clauses to Clause 1502:

(j) Public traffic

The contractor must plan and conduct his activities so as to bring about the least possible disruption to the traffic on the road. All halting of traffic will require the prior approval of the engineer and must be pre-arranged with the appropriate traffic authorities. In all dealings with the public the Contractor shall bear in mind the public's right to enjoy the use of the road, and the Employer's desire to interfere as little as possible with this right. At all points of contact with the public, the Contractor shall deal with deliberate courtesy and understanding in any discussions or disputes.

(a) Failure to comply with provisions

The failure or refusal of the Contractor to provide barricades or traffic signs at the proper time, or to take the necessary precautions for the safety and convenience of public traffic as specified or instructed by the Engineer, shall be sufficient cause for the suspension of all work under this Contract without any additional compensation to the Contractor until the required accommodation of traffic has been completed to the satisfaction of the Engineer. The above shall be sufficient cause for the Engineer to deduct penalties as follows:

- **A fixed penalty of R4 600,00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of Section 1500 of the standard specifications and**

section B1500 of the Project Specifications.

- **In addition a time-related penalty of R500,00 per hour over and above the fixed penalty shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within the allowable time after an instruction to this effect has been given by the Engineer. The Engineer's instruction shall state the allowable time, which shall be the time in hours for reinstatement of the defects. Should the Contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.**

- **Furthermore, failure to comply with the provisions of clause B1502(i) will also result in a pro-rata penalty to be deducted from payment item B15.14 by the engineer.**

The penalties shall be deducted from the payment certificate for the month in which the non- compliance occurs.

(b) Access to work area

Construction traffic will only be permitted to enter or leave the work area at points approved by the Engineer and as clearly indicated on the traffic management plans. When any access point is in use, flagmen shall be provided for each such point. At least two flagmen shall be stationed at the access point to control the movement of construction traffic, and to warn public traffic on both lanes of the existing road. It is not the purpose of these flagmen to stop public traffic flow.

(c) Extension of time for completion

Accommodation of public traffic on the works or any delays caused thereby, as well as any suspensions due to failure by the Contractor to comply with the provisions for the accommodation of traffic, will not be regarded as special circumstances for an extension of time.

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

Replace the first sentence of the first paragraph of clause 1503 with the following:

"The contractor shall provide, erect and maintain the necessary traffic-control devices, road signs, channelisation devices, barricades, warning devices and road markings (hereinafter referred to as traffic-control facilities) in accordance with these project specifications and as shown on the drawings and in the South African Road Traffic Signs Manual in conjunction with the latest edition of Road Signs Note No.13 - Roadworks, and shall remove them when no longer required.

The contractor shall replace at his own cost any traffic-control facilities that have been damaged, lost or stolen. The contractor shall also remove all bituminous or other foreign material from the traffic-control facilities to keep them clean and visible at all times. Traffic-control facilities that can no longer be cleaned effectively shall be replaced with new ones at the cost of the contractor."

Replace the first sentence of the third paragraph of clause 1503 with the following:

"The type of construction, spacing and placement of traffic-control facilities shall be in accordance with the latest edition of Road Signs Note No.13 - Roadworks, these project specifications, the drawings and the South African Road Traffic Signs Manual.
The details shown for spacing and placement of traffic-control facilities may, however, be revised at the discretion of the engineer where deemed necessary to accommodate local site geometry and traffic conditions."

(a) Traffic-control devices

Add the following new paragraph after the end of the second paragraph of subclause 1503(a):

"The reduction of the road width to a single lane carrying one-way traffic and controlled by "Stop / Go" boards shall be allowed only during daylight hours in clear weather conditions when work is actively taking place on the road, and such reduction of the road width shall always be accompanied by sufficient on-going watering to keep the dust down at all times on any trafficked gravel surfaces in order to maintain good visibility along the deviation. At least two lanes carrying two-way traffic shall be provided at all other times."

(b) Road signs and barricades

Add the following to the end of subclause 1503(b):

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

The temporary road signs required for this contract shall generally be mounted on poles installed in the ground. Where temporary signs such as delineators are mounted on portable supports, the only permitted method of ballasting such sign supports shall consist of durable sandbags filled with sand of adequate mass to prevent the signs from being blown over by wind. The cost of the sandbags shall be included in the tendered rates for the applicable types of temporary road signs.

The traffic-control devices, temporary signs and devices required in the contract are those designated in Road Signs Note No.13 - Roadworks.

The covering of permanent road signs, if applicable, shall be carried out by utilising a hessian bag which shall be pulled over the sign in the form of a hood and fastened to the sign posts using wire ties. Plastic bags or other materials, and fastening by means of adhesive tape, shall not be permitted for this purpose. The cost of covering permanent road signs shall be deemed to be covered by the tendered rates for items B15.01.

No work may proceed on any section where accommodation of traffic is required until such time as the relevant requirements with regard to signposting are met and the written approval of the engineer has been obtained. The contractor shall keep sufficient surplus signs, delineators and barricades on the site to allow for the replacement of damaged or missing items immediately upon discovery, or within three hours of instructions to such effect having been given by the engineer. Delineators shall be of the flexible plastic / rubber reversible variety and not of the rigid metal variety."

(c) Channelization devices and barricades

Add the following paragraphs at the end of subclause 1503(c):

"Delineators shall be manufactured from plastic / rubber materials and shall be adequately ballasted with sand bags to prevent the signs from being blown over by wind or wind turbulence from moving traffic.
Traffic cones shall be manufactured from fluorescent orange or red plastic material, and shall be used only at short term lane deviations during daylight hours. All traffic cones used on deviations shall be 750mm high. Lane closures which continue into the night time shall be demarcated by delineators only.

The use of steel drums as channelization devices shall not be allowed on this Contract. Channelization shall be effected by the use of delineators or cones as detailed in Road Signs Note No. 13 - Roadworks."

(e) Warning devices

Add the following to subclause 1503(e):

"All construction vehicles and plant used on the works shall be equipped with 200mm diameter rotating amber flashing lights and with "Construction Vehicle" warning signs. All vehicles and plant shall obtain a clearance permit from the engineer before being allowed onto the site.
Rotating lights shall have an amber lens of minimum height of 200mm and shall be mounted to ensure clear visibility from all directions. The lights on construction vehicles shall be switched on as the vehicles decelerate to enter a construction area, while construction vehicles are operating within the accommodation of traffic area, and as the vehicles accelerate to the general speed when entering the road from a construction area. Lights on plant shall operate continuously while the plant is working alongside sections of road open to public traffic.

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

Rotating lights and the "Construction Vehicle" warning signs on the contractor's vehicles and plant shall not be paid for separately but shall be included in the rates covering the use of the vehicles.

The contractor shall apply and maintain to the approval of the engineer such rotating amber lights and warning signs, together with any temporary mounting brackets. Vehicles and plant that do not comply with these requirements shall be removed from the site."

Add the following new subclauses to clause 1503:

(g) Other signs and facilities

The engineer may instruct the contractor to provide any other road sign, reflective tape, etc. not measured in the standard pay items. Such other road signs, reflective tape, etc. shall conform to the requirements of the South African Road Traffic Signs Manual and any other specification provided by the engineer.

The Contractor shall inform the general public of the intended road works, construction period and accommodation of traffic proposal through press releases in local and provincial newspapers. Cones shall be manufactured and positioned in accordance with the details specified on the drawings. All traffic cones and road signs shall be kept clean and visible at all times. All bituminous or other foreign material shall be removed by the Contractor, or the dirty traffic cones and road signs shall be replaced with new ones at the cost of the Contractor, as directed by and to the satisfaction of the Engineer.

(h) High visibility safety vests

The contractor shall ensure that all his own personnel, excluding those who are permanently office bound, all other construction workers on the site, staff of the engineer and visitors are equipped with high visibility reflective safety vests. High visibility reflective safety vests shall be worn at all times when working on or near to the travelled way. High visibility reflective safety vests shall be kept in good condition and any such safety vests that are, in the opinion of the engineer, ineffective shall be replaced immediately by the contractor.

B1505 TEMPORARY DRAINAGE WORKS

Replace the following:

"Clauses 40 and 53" with "Clause 6.4 and 6.5"

B1511 MAINTENANCE OF GRAVEL TEMPORARY DEVIATIONS AND EXISTING GRAVEL ROADS USED AS TEMPORARY DEVIATIONS

Add to Clause 1511 the following:

Where applicable, all references to gravel roads and/or diversions shall also include gravel shoulders used as diversions.

B1517 MEASUREMENT AND PAYMENT

Amend the following payment item:

ITEM		UNIT
B15.01	Accommodating traffic and maintaining temporary deviations.	km

Delete the second sentence of the second paragraph.

The rest of the second paragraph of Payment Item 15.01 shall apply.

Delete the third paragraph and replace with:

The tendered rate shall also include for the preparation of traffic management plans and their submission to the Engineer for approval before the commencement of any construction works. The tendered rate shall also include for all costs associated with constructing the road under traffic and for complying with the restricted working.

ITEM		UNIT
B15.03	Temporary traffic-control facilities:	
	(a) Flagmen	man-day

Add the following:

1) Competent staff must be used for controlling traffic, as their actions can affect the safety of both the road users and road workers.

2) Local labour shall be trained during traffic accommodation workshops prior to works being carried out.

Add the following new payment items:

ITEM		**UNIT**
B15.12	Temporary culverts:	
	(a) Provision and laying of temporary and prefabricated culverts complete (1200mm dia. Spigot and Socket, Class 100D on class C bedding)	m
	(b) Eventual removal of prefabricated culverts	m

Add the following to the end of the first paragraph:

The tendered rate shall also include for the removal of the temporary detour, including all associated earthworks and the rehabilitation of the river channel. Payment shall be regarded as included in the rates tendered for the applicable items for the above-mentioned work.

ITEM		**UNIT**
B15.15	Penalties:	
	(a) (i) Fixed penalty for noncompliance of traffic safety requirements per occurrence	No
	(b) (ii) Time related penalty for B15.15 (a)(i) above	Hour

A fixed penalty deduction of R 4600,00 per occurrence shall be applied in terms of subitem B15.15 (a)(i) for every occurrence of non-compliance with any of the requirements of Section 1500 of the standard specifications and section B1500 of the project specifications.

In addition to the fixed penalty deduction in item B15.15 (a)(i), a time related penalty deduction of R 500,00 per hour shall be applied in terms of subitem B15.15 (b)(ii) for non-compliance in rectifying any defects in the accommodation of traffic within the allowable time after an instruction to this effect was given by the engineer. The engineer's instruction shall state the allowable time, which shall be the time in hours for reinstatement of the defects. Should the contractor fail to comply with this instruction within the allowable time, the time-related penalty shall be applied from the time the instruction was given.

SECTION 1600: OVERHAUL

B1602 DEFINITIONS

(a) Overhaul material

Add the following to the end of subclause 1602(a):

"Overhaul shall not be measured separately for payment for materials obtained from commercial sources, and the rates tendered for such materials shall be fully inclusive of all haul required."

(b) Overhaul

Delete the first two paragraphs of subclause 1602(b) and replace them with the following:

"Restricted overhaul shall not apply to fill material from cut and borrow and to spoil material from excavations when hauled in excess of a free-haul distance of 0,5 km in respect of haul up to and including 1,0 km, and no measurement and payment for restricted overhaul shall be made under any item in respect of material hauled between or over these distances.

Ordinary overhaul only shall apply in respect of haul in excess of 10 km."

Delete the final paragraph of subclause 1602(b) since restricted overhaul shall not apply to the work required under this contract.

i. **(d) Free-haul distance**

Delete the second sentence of subclause 1602(d) and replace it with the following:

"This distance shall be 10 km in the case of all overhaul materials."

ii. **B1603 MEASUREMENT AND PAYMENT**

Delete item 16.01 since restricted overhaul shall not apply to the work required under this contract.

*Refer to the **Note** immediately below the description of the unit of measurement for item 16.02. Delete the first paragraph of this note since restricted overhaul shall not apply to the work required under this contract.*

ITEM		UNIT
B16.02	Overhaul on material hauled in excess of 10 km (ordinary overhaul)	m^3 km

Delete the first paragraph of the first set of notes.

SECTION 1700: CLEARING AND GRUBBING

B1704 MEASUREMENT AND PAYMENT

Add to Payment Item 17.01 the following

ITEM		UNIT
B17.01	Clearing and grubbing	ha

The tendered rate shall also include full compensation for removal of existing fences, pipe culvert inlet and outlet structures and kilometre marker posts as instructed by the engineer. Clearing and grubbing for the construction of camp sites shall not be measured separately. Payment shall be regarded as included in the rates tendered for the applicable items for the above-mentioned work.

Within the road reserves clearing and grubbing will only be measured and paid for where required for road works. All topsoil removed in this process must be stockpiled in heaps not exceeding 1 m height for later use during rehabilitation and landscaping.

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

1) Bush clearing: Medium to Dense Bush
2) Grass clearing: Removal of vegetation to ground surface
3) Destumping: Removal of stumps and major roots.
4) Grubbing: Root removal to 250 mm depth in soft loamy soil.

SECTION 2100: DRAINS

B2107 MEASUREMENT AND PAYMENT

Add the following new Clause after the last paragraph of item 21.01:

ITEM	**UNIT**
B21.01 Excavation for open drains:	
(a) Excavating soft material situated within the following depth ranges below the surface level:	
(i) 0 m up to 1,5 m	m^3
(b) Extra over subitem 21.01(a) for excavation in hard material, irrespective depth	m^3 of

Add the following sentence to the end of paragraph two.

Local labour shall be utilised in the excavation of the soft material to the required lines, levels and grades using hand held tools only up to a depth of 1,5 m.

Add the following new Clause after the last paragraph of item 21.02:

ITEM	**UNIT**
B21.02 Clearing and shaping existing open drains	m^3

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Excavating the material;
b) Protecting the existing drainage structures;
c) Trimming the floors and sides of the open drains and
d) Disposing of material

ITEM	**UNIT**
B21.03 Excavating for subsoil drainage systems:	
(a) Excavating soft material situated within the following depth ranges below the surface level:	
(i) 0 m and up to 1,5 m	m^3
(ii) Exceeding 1,5 m and up to 3,0 m	m^3
(b) Extra over subitem 21.03(a) for excavation in hard material irrespective of depth	m^3

Add the following sentence to the end of paragraph two.

Local labour shall be utilised in the excavation of the soft material to the required lines, levels and grades using hand held tools only up to a depth of 1,5 m.

Add the following new Clause after the last paragraph of item 21.19:

ITEM		**UNIT**
B21.19	Selected backfill material under concrete lined side drains compacted to 93% of modified AASTHO density A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction. Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out. The labour intensive activities shall comprise of the following: (a)Breaking down, placing and compacting the material to 150mm layers	m³

SECTION 2200: PREFABRICATED CULVERTS

B2204 CONSTRUCTION METHODS

Add to Clause 2204 the following:

Generally, prefabricated stormwater drainage pipes and rectangular culverts will be installed using the 'trench method'.

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

HAND EXCAVATEABLE MATERIAL

Hand excavatable material is material:

a. granular materials:
   i. whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
   ii. where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;
b. cohesive materials:
   i. whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
   ii. where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note:

1) A boulder is material with a particle size greater than 200mm, a cobble and gravel is material between 60 and 200mm; and
2) A dynamic cone penetrometer is an instrument used to measure the in-situ 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.

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

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

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

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

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(f) General

Add to Sub-clause 2210(f) the following:

Pipe culverts have been designed to the positions, lengths and elevations shown on the drawings. However, site conditions may dictate that changes are necessary. Any such changes will be agreed with the

Engineer and recorded in writing.

B2211 BACKFILLING OF PREFABRICATED CULVERTS

Add to the fourth paragraph of Clause 2211 the following:

Where backfilling is done in the upper layers of the road formation, the quality and strength of the backfill material shall at least match that of the surrounding layers.

B2218 MEASUREMENT AND PAYMENT

Amend the following payment items:

ITEM		**UNIT**
B22.01	Excavation:	
	(a) Excavating soft material situated within the following depth ranges below the surface level:	
	(i) 0 m up to 1,5 m	m^3
	(ii) Exceeding 1,5 m and up to 3,0 m	m^3
	(b) Extra over subitem 22.01(a) for excavation in hard material, irrespective of depth	m^3

Add the following sentence to the end of paragraph seven.

Local labour shall be utilised for the excavation of soft material, only up to a depth of 1,5m, and the disposal of excavated material unsuitable for backfilling.

Add the following new Clause after the last paragraph of item 22.02:

ITEM		**UNIT**
B22.02	Backfilling:	
	(a) Using the excavated material	m^3

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Backfilling under, alongside and covering of the conduits;
b) Watering and
c) Compacting the backfilling materials to the specified density

Add the following new Clause after the last paragraph of item 22.10:

Add the following new Clause after the last paragraph of item 22.17:

ITEM		**UNIT**
B22.17	Manholes, catchpits, precast inlet and outlet structures complete:	
	(a) Manholes (for grid inlets) – SD 0602/B	
	(i) 1,0 m to 1,5 m deep	No
	(ii) 1,5 m to 2,0 m deep	No
	(iii) 2,0 m to 2,5 m deep	No
	(b) Catchpits – SD 0703/A	
	(1) Brick Manholes for drainage: constructed on all pipes up to	

750mm diam.

(i)	1,0 m to 1,5m deep: Type S1	No
(ii)	1,5 m to 2,0 m deep: Type S1	No

(2) Brick Manholes for drainage: constructed on 750mm dia. pipes

(i)	1, 0 m to 1,5 m deep	No
(ii)	1,5 m to 2,0 m deep:	No

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Laying of brickwork and
b) Plastering and benching

Add the following new Clause after the last paragraph of item 22.18:

ITEM		**UNIT**
B22.18	Brickwork:	m^2
	(a) 230 mm thick	

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

(a) Laying of brickwork for headwalls

SECTION 2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS

B2304 CONSTRUCTION

(b) **Prefabricated concrete kerbing and channelling**

Add to Sub-clause 2304(b) the following:

Kerbing of radius 1m and less shall be cast in situ in accordance with sub-clause 2304(e) and as shown on the drawings.

All precast kerbs shall be provided with continuous in-situ concrete backing (haunching), the cost of which shall be included in the tendered rate.

Dimensions of the triangular-shaped (in cross-section) haunching shall be calculated as follows:

If the difference in levels between the top of the kerb and the sub-base on which the kerb is laid is (h), then the height of the haunch is 2/3h and the width of the haunch is h.

Add the following new Sub-clauses to Clause 2304:

(l) **Shrinkage joints for cast in-situ concrete work.**

Unless shown otherwise on the drawings, cast in situ channels shall be provided with shrinkage joints spaced a maximum of 2m apart. Shrinkage joints shall be constructed so that shrinkage cracks are generated at the joints. Sections of channel which have cracked between shrinkage joints shall be removed and replaced by the contractor at his own cost.

(m) **Formwork and finish**

All visible edges of cast in-situ channels shall be rounded with a rounding tool.

B2307 MEASUREMENT AND PAYMENT

Add the following new Clause after the last paragraph of item 23.05:

ITEM		UNIT
B23.05	Inlet, outlet, transition and similar structures (typical designs):	
	(a) 500mm wide combined precast kerb to SABS 927 (Figure 6) and in situ channel (Refer to SD 0701/A)	m cast
	(b) Pipe to open chute including splash wallls with 1m transition channels and erosion protection as shown in SD 0704	No
	(c) 1000 V-Drain Outlet chute including 5m transition, 2m straight channel and stone pitching erosion protection (As shown on Drawing SD 0603/A and SD 0603/2)	No

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the

training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Placing formwork;
b) Excavating, trimming and backfilling; and
c) Mixing and placing concrete

Add the following new Clause after the last paragraph of item 23.07:

ITEM		**UNIT**
B23.07	Trimming of excavations for concrete-lined open drains:	
	(a) In soft material	m^2

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

(a) Preparing the areas for placing concrete

Add the following new Clause after the last paragraph of item 23.08:

ITEM		**UNIT**
B23.08	Concrete lining for open drains:	
	(a) Cast in situ concrete lining (Class 20/19 for open drains)	m^3
	(b) Class U2 surface finish to cast in situ concrete (Open Drains)	m^2

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Erecting and removing the formwork;
b) Constructing the forms; and
c) Mixing, transporting, placing and compacting concrete

Add the following new Clause after the last paragraph of item 23.08:

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented

by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Erecting and removing the formwork;
b) Constructing the forms; and
c) Mixing, transporting, placing and compacting concrete

Add the following new Clause after the last paragraph of item 23.09:

ITEM		**UNIT**
B23.09	Formwork to cast in situ concrete lining for open drains (class F2 surface finish):	
	(a) To sides with formwork on the internal face only	m^2
	(b) To ends of slabs	m^2

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Erecting and removing the formwork;
b) Constructing the forms; and
c) Mixing, transporting, placing and compacting concrete

Add the following new Clause after the last paragraph of item 23.10:

ITEM		**UNIT**
B23.10	Sealed joints in concrete linings of open drains (Polysulphide sealant):	m

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

(a) Sealing the joints

Add the following new Clause after the last paragraph of item 23.12:

ITEM	**UNIT**
B23.12 Steel reinforcement:	
(a) High-tensile steel bars	t
(b) Welded steel fabric	kg

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Cutting, bending;
b) Welding and
c) Placing and fixing the steel reinforcement

SECTION 3300: MASS EARTHWORKS B3301

SCOPE

Add to Clause 3301 the following:

The Contractor should note the restricted nature of the earthworks in general, and where the widening of existing cuts and fills are required in particular. No extra over rates for widening of cuts, widening of fills or for working in restricted areas shall be applicable to this Contract.

The contractor should not that there is a finished gravel road surface on the existing residential roads. These layers will have to be boxed out and stockpiled as directed by the Engineer on site.

B3303 CLASSIFICATION OF CUT AND BORROW

(a) Classes of excavation

Add to Sub-clause 3303(a) the following:

Cut material for fills will, apart from natural in-situ material, also consist of existing fill and pavement layers from the existing road. Excavation from existing fill and pavement layers varies in depth, but no distinction is made between this excavation and excavation in other materials, except for classification as soft, intermediate and hard materials.

Payment items 33.14 and 33.15 will not apply on this Contract.

B3306 CUT AND BORROW

(a) Dimensions of Cuts

Delete the third paragraph from Clause 3306(a), apart from the first sentence thereof. Add the following:

Cut and borrow to fill will be measured under Item 33.01. The Contractor shall take note of the nature of the earthworks alongside the existing road. No extra over payments will be made in

respect of the nature of the site or due to the dimensions of a particular cutting.

B3312 MEASUREMENT AND PAYMENT

General directions

Delete Note (3) Work in Restricted Areas and replace with the following:

On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Schedule of Quantities.

Amend the payment items under Clause 3312 as follows:

B33.01 In the description of Item 33.01, delete "free-haul up to 0.5 km" and replace with "free-haul up to 10.0 km."

In the fifth paragraph, referring to the tendered rates, delete the words "free-haul distance of 0.5 km" and replace with "free-haul distance of 10.0 km."

Also in the fifth paragraph, after the words "the cutting of benches" insert the words "including benches in existing fill slopes to be widened."

B33.04 In the description of Item 33.04, delete "free-haul up to 0.5 km" and replace with "free-haul up to 10.0 km."

In the fourth paragraph delete "free-haul distance of 0.5 km" and replace with "free-haul distance of 10.0 km."

B33.07 Ditto above.

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

(a) General

Add to Clause 3402(a) the following:

The pavement for the road shall consist of:
2 x 150mm layers of G7 material, from commercial source
Insitu Subgrade Rip, Recompact and shape to designed levels

All layers shall comply with the requirements of Tables 3402/1, 3402/2, 3402/4 and 3402/5 of the Standard Specification. The requirements of Section 3500: Stabilization shall also apply to the relevant layers.

(b) Compaction Requirements

Add to Clause 3402(b) the following:

The compaction requirements of the pavement layers shall be:

AASHTO Base 150mm G7 material from commercial source compacted to 98% MOD
AASHTO Selected Layer 150mm G7 material from commercial source compacted to 93% MOD AASHTO
Cut to fill Insitu Subgrade Material Rip, Recompact 150mm of uppermost road formation material to 90% MOD AASHTO and shape to designed levels

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Add to Clause 3406 the following:

Test results and re-measurements shall be assessed in accordance with the provisions of Section 8200: Quality Control (Scheme 1), Judgement Plan B of the Standard Specifications, as amended in these project specifications.

B3407 MEASUREMENT AND PAYMENT

Delete the note at the start of the measurement and payment clause dealing with work in restricted areas. On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Schedule of Quantities.

SECTION 3500: STABILISATION

B3502 MATERIALS

(a) **Chemical stabilizing agents**

Delete sub-clauses (ii) Ordinary Portland cement *and* (iii) Portland blast-furnace cement *and replace with the following*:

"Cement shall comply with the relevant requirements of SANS 50197-1:2000. The use of strength classes greater than 32,5 shall not be permitted."

B3503 CHEMICAL STABILIZATION

(i) **Construction limitations**

Add to Sub-clause 3503(i) the following:

Cement stabilization shall not be carried out during falling temperatures when the ambient air temperature falls below 7°C or during rising temperatures when the ambient temperature is below 3°C.

The surface temperature of a compacted stabilized layer shall not be allowed to fall below 1°C during the first three (3) days after stabilization. The Contractor shall be responsible for taking all measures necessary in this regard and shall especially refrain from stabilizing when such night temperatures are probable.

All stabilized layers which have been damaged by frost or by the formation of ice in the layer shall be removed and replaced by the Contractor at his expense unless agreed otherwise by the Engineer. The Contractor shall make due allowance for these requirements in his construction programme, and no claims in this regard will be considered.

B3509 QUALITY OF MATERIALS AND WORKMANSHIP

Add to Clause 3509 the following:

Test results and re-measurements shall be assessed in accordance with the provisions of Section 8200: Quality Control (Scheme 1), Judgement Plan B of the standard specifications, as amended in these project specifications.

The Contractor shall advise the Engineer at least 24 hours in advance of any stabilization work to enable him to organise and conduct his own control tests.

Where the stabilising agent is to be spread by hand, the pockets of stabilising agent shall be placed on the layer at regular intervals. However, spreading shall not be carried out before the engineer is satisfied that the correct quantity of stabilising agent can be spread.

Stabilised layers shall be covered for curing within 24 hours, as specified. If the stabilised layer is found to have failed, the cover material shall be removed and the layer rectified if instructed by the engineer. No additional payment shall be made for such removal and remedial work.

B3510 MEASUREMENT AND PAYMENT

Delete the note at the start of the measurement and payment clause dealing with work in restricted areas. On this Contract, no extra over payment will be made due to the nature of the site or the size of the work area available. All costs associated with carrying out the works are deemed to be included in the tendered rates for the items in the Bill of Quantities.

Add the following note to this payment item:

ITEM		**UNIT**
B35.02	Chemical stabilizing agent:	
	(b) CEM IIIA	t

The notation used for Portland cement and Portland blast-furnace cement corresponds with the notation specified in SANS 50197-1:2000.

Add the following new Clause after the last paragraph of item 35.02:

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Placing pockets of the stabilising agent at regular intervals; and
b) Spreading by hand, under supervision.

SECTION 5800: LANDSCAPING AND PLANTING PLANTS

B5801 SCOPE AND DEFINITION

(a) Scope

Add to sub-clause 5801(a) the following:

The Contractor shall also note the requirements of the Environmental Management Procedures in Part C of these Project Specifications, with particular reference to the protection of existing trees and shrubs. Due to the nature of the project site, and the erosion which occurs when trees and grasses are removed, existing vegetation shall be disturbed as little as possible.

B5812 MEASUREMENT AND PAYMENT

Add the following new Clause after the last paragraph of item 58.01:

ITEM		UNIT
B58.01	Trimming:	
	(a) Machine trimming	m^2
	(b) Hand trimming	m^2

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Trimming the areas to the specified requirements;
b) Moving of small quantity material; and
a) Removal of surplus material and stone

Add the following new Clause after the last paragraph of item 58.03:

ITEM		UNIT
B58.03	Preparing the areas for grassing:	
	(a) Topsoiling within the road reserve, where the following materials are used:	
	(i) Topsoil obtained from within the road reserve or borrow areas (free haul 1,0km)	m^3
	(b) Stockpiling of topsoil (free-haul 1,0km)	m^3

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Excavating and loading the topsoil;
b) Placing and spreading the topsoil to required thickness;
c) Levelling the topsoil to smooth surface and removing the stones; and
d) Placing it in the stockpile

Add the following new Clauses after the last paragraph of item 58.04:

ITEM	**UNIT**
B58.04 Grassing:	
(a) Sodding by using the following types of sods:	
(i) Veld sods	m^2

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Excavating, loading, transporting, off-loading, placing and watering sods for replanting dead areas.

B58.04 Grassing: *(continue d)*	
(b) Hydroseeding:	
(i) Hydroseeding	ha

A portion of this work shall include for labour intensive construction. The tenderer shall make allowance for the employment of local labour and/or the labour of local subcontractors, supplemented by the contractor's key personnel for the use of labour intensive construction.

Labour intensive construction specific to these activities shall be carried out subsequent to the training of local labour. Local labour shall be trained during workshops prior to works being carried out.

The labour intensive activities shall comprise of the following:

a) Mixing;
b) Watering,
c) Weeding and re-hydroseeding bare patches

C3.3: PARTICULAR SPECIFICATIONS

PART C: ENVIRONMENTAL MANAGEMENT SPECIFICATION

C.1 General

In order to ensure that the construction work is carried out in an environmentally sensitive manner, strict compliance with the Environmental Management Plan (EMP) guidelines is required. The purpose of the EMP is to:

- Encourage good management practices through planning and commitment to environmental issues,
- Provide rational and practical environmental guidelines to:
  I. Minimise disturbance of the natural environment,
  II. Prevent pollution of land, air and water,
  III. Prevent soil erosion and facilitate re-vegetation.
- Adopt the best practicable means available to prevent or minimise adverse environmental impact,
- Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of wastes,
- Train employees and contractors with regard to environmental obligations.

C.2 Training and Induction of Employees

- The Contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes subcontractors, casual labour, etc.). The EMP shall be part of the terms of reference for all contractors, subcontractors and suppliers.

C.3 Complaints Register and Environmental Incident Book

Any complaints received by the project team from the public will be recorded. The complaint should be brought to the attention of the Construction Manager, who will respond.

The following information must be recorded:

- Time, date and nature of the complaint,
- Type of communication (telephone, letter, etc.,),
- Name, contact address and telephone number of the complainant,
- Response and investigation undertaken and
- Actions taken and by whom.

All complaints received will be investigated and a response given to the complainant within 14 days.

All environmental incidents occurring on the site will be recorded. The following information will be provided:

- Time, date, location and nature of the incident,
- Actions taken and by whom.

C.4 Site Cleanliness and Neatness

- Location of a construction camp is to be approved by the Employer's Agent and is to be restored to its previous condition after completion of construction.
- The construction camp should preferably be fenced with a 1.8m Bonnox fence or similar approved.
- All materials, equipment, plant and vehicles must be stored within the construction camp.
- A dedicated area must be made available for construction staff to change and store their personal belongings.

C.5 Access

- Access to existing roads, schools, buildings, shops and residential properties

- Access roads utilised by the Contractor must be maintained in good condition.

C.6 Borrow Pits

- Mining authorisations (permits) for borrow pits must be obtained from the Department of Minerals and Energy (DME) in consultation with the Department of Water and Sanitation (DWS).
- Spoil dumps resulting from borrow pits must not interfere with any natural surface drainage.
- Borrow pits must be rehabilitated after use in accordance with the requirements of DME and DWS.

C.7 Dust Control / Air Quality

- Dust suppression measures must be implemented during construction by ensuring that all surfaces prone to dust generation are kept damp (e.g. use of water tanker).
- Ensure that vehicles and equipment are in good working condition and that emissions are not excessive.
- Special care must be taken in areas where the route passes close to schools and residential areas.
- The speed of construction vehicles must be reduced.

C.8 Fauna

- Contractors and sub-contractors staff and workers may not chase, catch or kill animals encountered during construction.

C.9 Fire Prevention and Control

- Smoking is prohibited in the vicinity of flammable substances.
- The Contractor must ensure that fire-fighting equipment is available on site, particularly where flammable substances are being stored or used, and that construction staff are aware of where it is kept and how it is operated.
- Fires started for comfort (warmth) are prohibited, due to the risk of veld fires and risk to adjacent property owners' lands.

C.10 Grave Sites

- Gravesites in close proximity to the road must not be disturbed during construction.

C.11 Materials Handling and Spills Management

- Any hazardous materials to be used during construction (e.g. lime, fuel, paint, etc.,) are to be stored in a designated area at the campsite.
- The storage containers/facilities (including any diesel/petrol tanks) must be placed on an impermeable surface and surrounded by a bund wall, in order to ensure that accidental spillage does not pollute the environment.
- Workers must at all times be made aware of the health and safety risks associated with any hazardous substances used (e.g. smoking near fuel tanks), and must be provided with appropriate protective clothing/equipment in case of spillages or accidents.
- Ensure all staff and contractors undergo relevant training in the maintenance of equipment to prevent the accidental discharge or spill of fuel, oil, lubricants and other chemicals.
- Any spill of potentially hazardous materials must be cleaned up immediately (Potentially hazardous materials on site include paint, oil, grease, fuel, turpentine, etc.,).
- The area of contaminated soil or spill must be deposited into the hazardous waste container(s).
- The Contractor should keep Peat Sorb or a similar absorbent on site to clean up any spills. The absorbent must be stored in a designated area and be available for inspection.

- All spills are to be recorded in the environmental incident book.

C.12 Noise

- Noise generating activities must be restricted to between 07h00 and 17h00 Monday to Friday, unless otherwise approved by the appropriate competent person in consultation with adjacent landowners/affected persons.
- All equipment, vehicles and machinery must be in good working condition and be equipped with sound mufflers if necessary.
- Construction staff must be trained and made aware of not creating unnecessary noise such as hooting and shouting.

C.13 Pollution Control

- Soil and water pollution through usage of fuel, oil, paint, bitumen or other hazardous substances must be avoided.
- All construction vehicles are to be maintained in good working order so as to prevent soil or water pollution from oil, fuel or other leaks, and to reduce noise pollution.

C.14 Rivers and Streams

- During construction of bridge structures, there must be no obstruction of the water flow of rivers and streams.
- Excavated material must not be stockpiled on or near riverbanks, in order to prevent sedimentation occurring.
- Erosion control measures must be employed both during and after construction.
- No impediments to natural surface water flow, other than approved erosion control measures, must occur.

C.15 Safety

- Safety measures, such as detour signs, must be implemented during construction to ensure the safety of workers, pedestrians and drivers/passengers in vehicles in the vicinity of construction work.
- Special care must be taken in the vicinity of schools to ensure the safety of children wishing to cross the road under construction.
- The relevant signage (e.g. speed control signs) must be erected alongside the road during the operation phase in order to control traffic.
- Accommodation must be made for pedestrian pathways alongside the road during the construction and operation phases.

C.16 Soil Management

- Storm water drainage pipes must be installed alongside the road in all areas susceptible to soil erosion.
- Erosion should be minimised by the construction of meadow drains and the planting of indigenous vegetation on the side slopes and drains to reduce flow velocity of storm water.
- Spoil from cuts may be used in existing erosion gullies.
- Stone pitching and gabions should be constructed at pipe culvert outlets.
- Accidental spills of contaminants onto the ground e.g. oil, concrete, fuel and chemicals should be removed together with the contaminated soil.
- If necessary an absorbent such as Peat Sorb should be used to aid in cleaning up the spill. The contaminated soil should be disposed of in an appropriate container, depending on its classification.
- Servicing and refuelling of vehicles must only be carried out at the construction camp.

C.17 Worker Conduct

Code of Conduct for Construction Personnel:

- Do not leave the construction site untidy and strewn with rubbish which will attract animal pests.
- Do not set fires.
- Do not cause any unnecessary, disturbing noise at the construction camp/site or at any designated worker collection/drop off points.
- Do not drive a construction-related vehicle under the influence of alcohol.
- Do not exceed the national speed limits on public roads or exceed the recommended speed limits on the site.
- Do not drive a vehicle which is generating excessive noise or gaseous pollution (noisy vehicles must be reported and repaired as soon as possible).
- Do not litter along the roadsides, including both the public and private roads.

- Do not pollute any water bodies (whether flowing or not).
- No member of the construction team is allowed to enter the areas outside the construction site.

C.18 Traffic Disturbances and Diversions

- Any traffic diversions must be undertaken with the approval of all relevant authorities and in accordance with all relevant legislation.
- Wherever possible, traffic diversion must only take place on existing disturbed areas and remain within the existing road reserve.
- Traffic diversion routes must be rehabilitated after use.

C.19 Vegetation

- Only vegetation falling directly on the route must be removed where necessary.
- Alien vegetation within the road reserve must be eradicated, and management measures must be implemented for future control of these species.
- Vegetation that has been removed from large areas (e.g. on traffic diversion routes) during construction must be replaced with indigenous vegetation after construction has been completed.

C.20 Waste Management

- All general, non-hazardous waste must be placed in a skip container and disposed of at a registered waste disposal site.
- The Contractor is to ensure that the portable toilet facilities at the campsite are properly maintained and in working order.
- No disposal, or leakage, of sewage must occur on or near the site.
- All hazardous waste (e.g. oil, paint, empty lime bags, contaminated wash water, etc.,) must be stored in leakproof containers and disposed of at a registered hazardous waste disposal site.
- The contents of waste storage containers must, under no circumstances, be emptied to the surrounding area. In general, littering, discarding or burying of any materials is not allowed on site or along the route.
- Adequate waste receptacles must be available at strategic points around the construction camp and site for all domestic refuse and to minimise the occurrence of littering.
- Concrete rubble must be collected and disposed of as directed by the Employer's Agent.
- Each working area must be cleared of litter and building waste (e.g. rubble, wood, concrete packets, etc.,) on completion of the day's work.

Any spill around the container(s) should be treated as per Section C.11 and C.16.

PART D: DAYWORK

This part of the Particular Specifications deals with the provision for daywork in the Schedule of Quantities. Rates for daywork shall be entered in the Schedule of Quantities in accordance with the following specifications.

D1. SCOPE

According to Clause 6.5 of the General Conditions of Contract 2015, certain work may be carried out using rates tendered in the daywork schedule. A schedule of personnel, plant and equipment which may be necessary to perform work on a daywork basis is included in the Schedule of Quantities. The quantities used in the Schedule of Quantities are for tender evaluation purposes only and the use or not of these items shall not constitute a variation in terms of Clause 6.3 of the General Conditions of Contract 2015.

No work will be paid for as daywork without the written instruction or approval of the Employer's Agent.

D2. TYPE OF WORK

The Employer's Agent may order daywork in certain cases where it is necessary to vary or to extend the works due to new or unforeseen circumstances to such an extent that the tendered rates for specific items of work are no longer applicable, or where no suitable combination of tendered rates can be used to pay for such work.

As a general rule, applicable rates for additional work items will be agreed between the Contractor and the Employer's Agent. Daywork will only be used in exceptional circumstances.

D3. MATERIALS

Materials for use in works carried out under daywork shall be purchased by the Contractor who shall also arrange for delivery to site, and shall be responsible for any other requirements associated with specific materials. A Provisional Sum has been allowed in Section D of the Schedule of Quantities for daywork materials. The Contractor shall enter a tendered percentage in the Schedule of Quantities to cover his handling costs and profit, as per other provisional and prime cost sums in this Contract.

Materials shall be paid for using the method described in C2.1, 'Pricing Instructions'. No contract price adjustment will be applicable to materials.

The Contractor shall submit proof of ownership for any materials used in daywork with his daywork claim to the Employer's Agent. Further, if specific materials are required for daywork, quotations will be called for as per Clause 6.5.2 of the General Conditions of Contract 2015.

D4. CONSTRUCTION PLANT HIRE

Where daywork is ordered, the tendered rates for plant hire in Section D of the Schedule of Quantities shall be used in calculating the payment due for any plant required to execute the daywork. If no rate is included in the Schedule of Quantities for a particular piece of equipment, and where no other rate or combination of rates would provide suitable compensation, then the daywork method of payment described in Clause 6.5.1.3 of the General Conditions of Contract 2015 will be used.

The tendered rates for each item of constructional plant shall include for all operating costs associated with the said item of plant. Such costs are deemed to include fuel, re-fuelling costs, lubrication and routine servicing / maintenance, breakdowns and spares, all overhead costs, site management costs and administration costs. The tendered rates shall also include the plant operator and the general supervision of the plant while it is engaged in the daywork.

D5. SALARIES AND WAGES OF WORKMEN

The salaries and wages of workmen executing daywork shall be paid for using the tendered rates in the Schedule of Quantities. The tendered rates shall include for all costs associated with the employment of personnel, including salaries, wages, allowances, workmen's compensation, medical aid and pension contributions, government levies and taxes, training costs and any costs associated with living on the site. The tendered rates shall also include for the transportation of the workmen to the site of the daywork.

All overhead costs, administration costs, site management costs and the Contractor's profit are deemed to be covered by the daywork rates and no additions or mark ups will be made to the tendered rates.

The tendered rates shall also include any hand tools normally associated with the workmen's job description e.g. picks, shovels, hammers, saws, spirit levels, etc. The tendered rate for labourers shall also include for the casual supervision by a gang boss or foreman. Only when specifically called for by the Employer's Agent, will payment be made for the use of a gang boss or foreman supervising on a continuous basis.

D6. MEASUREMENT AND PAYMENT

The following principles shall also apply to the measurement and payment of daywork.

The unit of measurement for plant shall be the number of Vibroclock hours worked and each item of plant shall be fitted with a Vibroclock, the cost of which shall be included in the rates. Excessive non- productive time when the engine is idling will not be paid for. Where there is ambiguity between the flywheel horsepower and mass of the machine, the flywheel horsepower shall govern the measurement category. Where width and mass are specified, mass shall govern the measurement category.

The Contractor's attention is drawn to the requirements of Clauses 6.5.3 and 6.5.4 of the General Conditions of Contract 2015 with regard to the submission of daywork claims.

PART E: OHSA 1993 HEALTH AND SAFETY SPECIFICATION E1.

SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy working environment for all employees, subcontractors, the Employer, the Employer's Agent, inspectors and all other persons entering the site of works.

This specification shall be read in conjunction with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993 and the corresponding Construction Regulations 2014, and all other safety codes and specifications referred to in the said Act and Construction Regulations.

In terms of the OHSA Agreement in Section C1.4 of the Contract document, the status of the Contractor as mandatary to the Employer (client) is that of an employer in his own right, responsible for compliance with all provisions of OHSA 1993 and the Construction Regulations 2014.

This specification and the Contractor's own Health and Safety Plan as well as the Construction Regulations 2014, shall be displayed on site or made available for inspection by inspectors, the Employer, the Employer's Agent, subcontractors, employees, representatives of trade unions and any other persons entering the site of works.

E1.1 Information based on the Employer's baseline risk assessment

The information presented in this subclause E1.1 is based on the Employer's baseline risk assessment prepared specifically for this contract.

This information describes the type of work required in terms of this contract that will be accompanied by dangers, hazards and risks which the Contractor shall be required to identify, analyse, manage, monitor and review in terms of the Health and Safety Plan and risk assessments.

This information is neither prescriptive nor exhaustive, and is provided as a guideline to Tenderers in preparing their tender submissions, and to the successful Contractor as a basis for the preparation of the site specific risk assessments to be performed by the Contractor in terms of Construction Regulation 9.

Tenderers shall make their own assessment of the dangers, hazards and risks that can be expected during the course of this contract, which may include dangers, hazards and risks not identified in the baseline risk assessment, including those that may arise from specific methods of construction employed by the Contractor, and shall make due allowance in their tendered rates and prices for all costs related to complying with the provisions of the Act and Construction Regulations.

This information is given in good faith for the guidance of Tenderers, and no additional payment shall be made as a result of any inaccuracies, discrepancies or omissions contained therein.

The following aspects of this project carry the risk of possible injuries:

- Operation and maintenance on the site of heavy civil engineering plant such as excavators, bulldozers, front end loaders, tippers, TLBs, compaction equipment, rock breaking plant, water pumps, concrete mixers, ready mixed concrete trucks, batch plants, cranes, concrete pumps, compressors, pneumatic tools, generators, etc.
- Use on the site of power tools and hand tools.
- Handling of materials such as scaffolding, formwork, timber planks, steel wire, reinforcement, cement bags, concrete materials and hand stone.
- Storage and handling of flammable materials such as fuels, oils, adhesives, and painting and cleaning products including bituminous paint.
- Storage and handling of herbicides and ant poisons.
- Presence of open excavations for the box culvert, manholes and stormwater pipe trenches.
- Risks related to general safety and security on site.

Additional risks may arise from specific methods of construction selected by the Contractor which are not necessarily covered in the above.

E2. DEFINITIONS

For the purpose of this contract the following shall apply:

(a) **Employer**" where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract 2015 and it shall have the exact same meaning as "**client**" as defined in the Construction Regulations 2014. "**Employer**" and "**client**" are therefore interchangeable and shall be read in the context of the relevant document.

(b) "**Contractor**" wherever used in the contract documents and in this specification, shall have the same meaning as "**Contractor**" as defined in the General Conditions of Contract 2015.

In this specification the terms "**principal contractor**" and "**contractor**" are replaced with "**Contractor**" and "**subcontractor**" respectively.

For the purpose of this contract the **Contractor** will, in terms of OHSA 1993, be the mandatary, without derogating from his status as an employer in his own right.

(c) "**Employer's Agent**" where used in this specification, means the Employer's Agent as defined in the General Conditions of Contract 2015. In terms of the Construction Regulations the Employer's Agent may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

E3. TENDERS

This Health and Safety Specification forms an integral part of the Contract and Tenderers are required to use it during the tender phase for pricing the preparation of a project specific Health and Safety Plan prior to commencing any work and for pricing the costs of ensuring compliance thereto during construction. Tenderers must forward a copy of this Specification to all other persons or organisations that may be submitting prices to the Tenderer during the tender stage to enable them to include the cost of preparing their own Health and Safety Plan, relevant to their particular operation, and for compliance with the health and safety requirements during construction. Payment items are included in the Schedule of Quantities for compliance with the Occupational Health and Safety Act and Construction Regulations and with this Specification.

Tenderers are required to complete Form J 'Contractor's Health and Safety Declaration' in section T2.2 'Returnable Schedules'.

Failure to submit the foregoing with his tender and/or to provide realistic rates for relevant payment items will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely, in accordance with the Act and Construction Regulations and his tender shall be deemed non-responsive.

E4. NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

Where the contract meets the requirements of Construction Regulation 4, the Contractor shall, before commencement of the work and in accordance with the requirements of Regulation 4, notify the Provincial Director of the Department of Labour of the intention to carry out the construction work, using the pro forma form included as Annexure 2 to this Health and Safety Specification.

A copy of the notification form must be kept on site, available for inspection by inspectors, the Employer, the Employer's Agent, subcontractors, employees, representative trade unions and any other persons on the site. A copy of the notification form shall also be kept on the health and safety file, and a further copy shall be forwarded to the Employer for his records.

E5. HEALTH AND SAFETY PLAN

Before commencement of any construction work, the Contractor shall prepare a project specific Health and Safety Plan complying with the requirements of Construction Regulation 7(1)(a) and this Health and Safety Specification.

The Health and Safety Plan must include a risk assessment performed and recorded in writing by a competent person as required in terms of Construction Regulation 9. The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract,

and it shall include a documented plan and applicable safe work procedures to mitigate, reduce or control the risks and hazards identified.

The Health and Safety Plan shall be available on site for inspection by inspectors, the Employer, the Employer's Agent, subcontractors, employees, representative trade unions, and health and safety representatives and committee members, and must be monitored and reviewed periodically by the Contractor.

E6. APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

E6.1 Appointments

The Contractor shall appoint in writing all employees.

The Contractor shall appoint in writing all subcontractors, and such appointments shall be in compliance with the requirements of Construction Regulation 7 and the Employer's SCM Policy, and any other relevant procurement guidelines as applicable.

E6.2 Health and safety induction training

No person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety induction training pertaining to the hazards prevalent on the site.

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo health and safety induction training by a competent person before commencement of construction work in compliance with Construction Regulations 7(5) and 9(3) and (4).

The Contractor shall ensure that all visitors to the construction site undergo health and safety induction and are provided with the necessary personal protective equipment in compliance with Construction Regulation 7(6).

E6.3 Medical certificate of fitness

The Contractor shall ensure that every employee, including subcontractors and their employees, has a valid medical certificate of fitness issued in compliance with Construction Regulation 7(1)(g) or 7(8) as applicable.

E7. APPOINTMENT OF SAFETY PERSONNEL

E7.1 Construction manager

Refer to Construction Regulation 8(1), (2), (3) and (4).

The Contractor shall appoint a full-time **Construction Manager** with the duty of managing all the construction work on the site, including the duty of ensuring occupational health and safety compliance.

The Contractor may also have to appoint one or more **assistant construction managers** to assist the Construction Manager where justified by the scope and complexity of the works.

E7.2 Construction health and safety officer

Refer to Construction Regulation 8(5) and (6).

Taking into consideration the size of the project and the dangers, hazards or risks that can be expected, the Contractor shall appoint in writing a full-time or part-time **construction health and safety officer** to assist in the control of all health and safety related aspects on the site. The construction health and safety officer shall be registered as required by the Chief Inspector of the Department of Labour and shall have the necessary competence and resources to perform his/her duties diligently.

E7.3 Construction supervisor

Refer to Construction Regulation 8(7), (8), (9) and (10).

The Contractor shall appoint a **construction superintendent** responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

The Contractor may also have to appoint one or more competent employees to assist the construction superintendent where justified by the scope and complexity of the works.

E7.4 Health and safety representatives

In terms of **Sections 17 and 18 of the Act (OHSA 1993)** the Contractor, being the employer in terms of the Act for the execution of the contract, shall appoint a **health and safety representative** whenever he has more than 20 employees in his employment on the site of the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 50 employees.

The function of health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents (in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery, etc. on a regular basis, to participate in consultations with inspectors and to attend meetings of the health and safety committee.

E7.5 Health and safety committee

In terms of Section **19 of the Act (OHSA 1993)**, the Contractor (as employer) shall establish one or more **health and safety committee(s)** where there are two or more health and safety representatives at a workplace. The persons selected by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor and the inspector, to make recommendations regarding health and safety to the Contractor and to keep record of recommendations and reports made by the committee.

E7.6 Competent persons

The Contractor shall appoint in writing designated competent employees and/or other competent persons as required by the Act and Regulations. Such appointments shall be in accordance with the relevant applicable sections of the Act and Regulations as determined by the requirements of the contract.

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work in all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities for compliance with **all** requirements of the Construction Regulations.

E8. RECORDS AND REGISTERS

The Contractor is bound to keep records and registers related to health and safety on site as required by the relevant applicable sections of the Act and Regulations as determined by the requirements of the contract. Such records and registers shall be available for periodic inspection by inspectors, the Employer, the Employer's Agent, subcontractors, employees and representatives of trade unions.

E9. CONTRACTOR'S RESPONSIBILITIES

For this contract the Contractor will be the mandatary of the Employer (Client), as defined in the Act (OHSA 1993), which means that the Contractor has the status of employer in his own right in respect of the contract. The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHSA 1993) and the Construction Regulations 2014.

Before commencement of work under the contract, the Contractor shall enter into an agreement with the Employer (Client) in terms of C1.4 'Agreement in terms of Section 37(2) of the Occupational Health and Safety Act No. 85 of 1993', to confirm his status as mandatary (employer) for the contract under consideration.

The Contractor is advised in his own interest to make a careful study of the Act and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings

***related to non-conformance to the Act and the Regulations*.**

E10. MEASUREMENT AND PAYMENT

It is a condition of this contract that contractors who submit tenders for this contract shall make provision in their various tendered rates and prices for all costs related to the health and safety measures required in terms of the Act and Regulations during the construction process.

(a) Safety appointments

No separate additional payment will be made to cover the costs related to persons appointed as required in terms of the Act and Regulations to fulfil the various health and safety functions. Such persons include the Construction Manager, any assistant construction managers, the construction health and safety officer, the construction superintendent, any assistant construction superintendents, health and safety representatives, health and safety committee members and competent persons, all as referred to in subclauses E7.1 to E7.6 above. The Contractor shall therefore make provision in the various tendered rates and prices for all costs related to such persons.

(b) Records and registers

The keeping of records and registers related to health and safety on site as described in clause E8 above shall be regarded as a normal duty of the Contractor for which payment shall be deemed to be included in the Contractor's various tendered rates and prices, and for which no separate additional

payment will be made except to the extent provided in item B13.02 of the Schedule of Quantities.

(c) Medical certificates

No separate additional payment will be made to cover the costs related to obtaining the medical certificates of fitness required for every employee, including subcontractors and their employees, issued in compliance with Construction Regulation 7(1)(g) or 7(8) as applicable. The Contractor shall therefore make provision in the various tendered rates and prices for all costs related to such medical certificates.

PART F: REQUIREMENTS OF THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) F1.

INTRODUCTION

The Expanded Public Works Programme (EPWP) is a multi-sectoral government initiative to create jobs. In the case of the infrastructure sector, existing government expenditure is realigned using labour intensive technologies to create job opportunities. This involves the use of plant and labour, where labour is preferred and plant is used appropriately.

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

F1.1. Employment of Unskilled and Semi-Skilled Workers in Labour Intensive Works

Requirements for the sourcing and engagement of labour.

1.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

1.1.2. The rate of pay set for the EPWP is as per latest Department of Labour hourly rates at the times of "the commencement of the works".

1.1.3. Tasks established by the contractor must be such that:

a) The average worker completes 5 tasks per week in 40 hours or less; and
b) the weakest worker completes 5 tasks per week in 55 hours or less.

1.1.4. The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.

1.1.5. The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

a) Where the head of the household has less than a primary school education;
b) That have less than one full time person earning an income;
c) Where subsistence agriculture is the source of income; and
d) Those who are not in receipt of any social security pension income.

1.1.6. The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

a) 55 % women;
b) 55% youth who are between the ages of 18 and 35; and
c) 2% on persons with disabilities.

Note: The Contractor shall not be required to employ NYS youth workers in terms of this contract.

F1.2. Payment for the Labour-Intensive Component of the Works

Those parts of the works to be constructed using labour-intensive methods are marked in the bill of quantities with the letters LI either in a separate column or as a prefix or suffix against every item so designated. The works, or parts of the works so designated are to be constructed using labour- intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a deviation from the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.

Where minimum labour intensity is specified in the design, the contractor is expected to use their initiative to identify additional activities that can be done labour-intensively in order to comply with the set minimum

labour intensity targets.

Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

F1.3. Linkage of Payment for Labour-Intensive Component of Works to Submission of Project Data

The Contractor's payment invoices shall be accompanied by labour information for the corresponding period in a format specified by the employer. If the contractor chooses to delay submitting payment invoices, labour returns shall still be submitted as per frequency and timeframes stipulated by the Employer. The contractor's invoices shall not be paid until all pending labour information has been submitted. The client may institute a penalty relating to outstanding labour information.

The following information shall be maintained on site and submitted monthly in electronic/hard copy formats:

- Certified ID copies of all locally employed labour;
- Signed Contracts between the employer and the EPWP Participants;
- Attendance Registers for the EPWP Participants;
- Proof of Payment of EPWP Employees; and
- Monthly Reporting Template as per EPWP requirements.

F1.4. Training of EPWP workers

All EPWP workers will be placed on an extensive training programme that will include:

(a) an induction into EPWP;
(b) life skills training;
(c) technical training focusing on a vocational skill to be used on the project (e.g., painting, carpentry, etc.);
(d) entrepreneurship and business skills training.

All training will be arranged by the EPWP programme manager, with whom the Contractor will be required to work closely to schedule the training sessions so that the timing of the training is aligned with the Contractor's work schedule and his demand for workers with specific skills. The EPWP programme manager will make full details of the training programme available to the Contractor.

The Contractor shall maintain comprehensive records of the training received by each EPWP worker throughout the course of the contract, and shall submit to the Employer at each monthly site meeting a summary of the accumulated training received by each EPWP worker.

The training venue facility to be provided by the Contractor shall be constructed, furnished and fully serviced for the duration of the contract in accordance with section 1400 of the COLTO standard specifications. The facility shall accommodate a class of up to 10 learners and shall comprise the following:

(a)	Lecture room (interior area)	=	24 m^2
(b)	Ablutions (male)	=	6 m^2
(c)	Ablutions (female)	=	6 m^2
(d)	Chairs for learners (individual chairs, with backs)	=	10 off
(e)	Desk area for 10 learners (500 mm width)	=	5 m^2
(f)	Chairs for trainers and management (individual chairs, with backs)	=	3 off
(g)	Table area for trainers and management	=	3 m^2
(h)	220/250 volt power points	=	4 off
(i)	Double 80 watt fluorescent light fittings complete with ballast and tubes	=	4 off
(j)	Single incandescent light fittings complete with 100 watt globes	=	4 off
(k)	Wash hand basins complete with taps and drains	=	2 off
(l)	Fire extinguishers, 9,0 kg, all purpose dry powder type, complete, mounted on wall with brackets	=	2 off
(m)	Air conditioning units with 2,2 kW minimum capacity, mounted and with own power connection	=	2 off
(n)	Voltage stabilizers	=	2 off
(o)	Floodlights complete with poles and 500 Watt minimum globes and controlled by photocells	=	2 off
(p)	White boards (3 m x 1,5 m)	=	1 off
(q)	Venetian blinds	=	6 m^2

F1.5. Contractor's obligations towards persons employed under the EPWP programme

All persons employed under the EPWP programme are to comply with the Ministerial Determination 4: Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment act of 1997 by the Minister of Labour in Government Notice NR347 of 4 May 2012. This document notes that the sector rates for labour do not apply to employees under the EPWP programme. Over and above implementing in accordance with the Ministerial Determination 4: Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment act of 1997 by the Minister of Labour in Government Notice NR347 of 4 May 2012, it shall be the responsibility of the Contractor to carry out the following functions with respect to the EPWP programme worker beneficiaries:

(a) ensure that all beneficiaries receive induction on site safety prior to commencing with work on site;
(b) ensure that all beneficiaries are covered by the Compensation for Occupational Injuries and Diseases Act, 1993 for as long as they are contracted to the Contractor, and to pay in full to the Compensation Commissioner such amounts as are due in terms of the Act;
(c) implement health and safety procedures with respect to the beneficiaries, ensuring that the health and safety regulations are adhered to;
(d) provide all beneficiaries with the necessary protective clothing and equipment as required by law for the specific trades in which the beneficiaries are involved, in addition to the overalls stipulated for EPWP workers;
(e) assist in the assessment of beneficiaries with regards to their competencies in their respective trades;
(f) provide overall supervision and day-to-day management of beneficiaries;
(g) implement strict quality control to ensure that the work carried out by the beneficiaries is of the required standard, and, where necessary, to train and mentor the beneficiaries to assist them in achieving the standards required;
(h) ensure that all beneficiaries are paid their wages on time through the pre-agreed payment method as stipulated in the beneficiary contract;
(i) provide safe on-site storage facilities for tools and apparel issued to the beneficiaries.

F1.6. Apparel and tools for EPWP workers

The Contractor will provide each EPWP worker with two orange overalls with markings as specified in

F5. EPWP BRANDING SPECIFICATION.

The Contractor shall also provide the EPWP workers with all such listed tools and apparel necessary for their on-site work, including appropriate safety apparel, as well as with safe storage facilities on site, the cost of which shall be refunded to the Contractor through the provisional sums included in the Schedule of Quantities for this purpose. The EPWP workers shall be responsible for the safe on-site storage of all tools and apparel issued to them, using the storage facilities provided on site by the Contractor.

Certain specified apparel and tools issued to the EPWP workers will become the property of the EPWP workers after the completion of their cycle of work on the project, in order to enable them to continue to practise their trade on future projects. Such apparel and tools shall be specified and authorised by the Employer's Agent.

F2. JOB CREATION REPORTING FOR EPWP

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

F2.1 Type of project data required per project

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

F2.1.1 Participant data

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

(a) Participant identity – name, surname, initials, date of birth and identity number (or other unique identifier) plus certified copy of ID book, certified in the calendar year, address and contact number.
(b) Participant profiles – nationality, gender, age, education level, language(s), government grant and disability status.
(c) Monthly work data for participants – daily wage to be received, number of calendar days training attended and number of calendar days worked. Participants cannot work more than 23 days in any given month.

F2.1.2 Project work data

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

(a) Daily attendance register – register for each day showing all the workers that were registered as being at work on that day. Attendance registers shall be completed on site on a daily basis and signed off by the Contractor on a weekly basis.
(b) Summary of monthly attendance.
(c) Training register for each training course undertaken. This includes both formal and informal training such as induction, toolbox talks and on-the-job training. The training register must detail:

- Training course
- The accreditation of the course (accredited or non-accredited)
- Training provider
- ID number of participant trained
- Name and Surname of participant trained
- Gender of participant trained
- Signature of participant
- Duration of training

F2.1.3 Project payment data

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

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

Alternatively,

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

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

F2.1.4 Employment output data

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

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

The above information is to be compiled and submitted to the Employer by the 2nd of each month in addition to a completed latest revision of the EPWP reporting tool received from the Employer.

F3. PROVISION OF TRAINING

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

F3.1. Generic Training

3.1.1. The contractor shall, from the commencement of the contract, implement a structured progressive training programme for local workers who meet the minimum criteria for the training courses.

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

Course Description	Estimated No. of Trainees	Estimated Duration (Days)
1. Road safety for construction workers		……
2. Flagmen		……..
3. Concrete handling, placing and finishing		……
4. Guardrails		……
5. Bituminous road surfacing		……

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

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

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

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

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

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

3.1.6. Generic training courses shall commence within one month of possession of site and be completed before the end of the contract period.

3.1.7. The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

3.1.8. The contractor shall keep comprehensive records of the training given to each student and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form is illustrated in Section C4.7 of this document.

F4. PERSONAL & OTHER PROTECTIVE EQUIPMENT (SECTIONS 8/15/23 OR THE OHS ACT)

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

Personal Protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of PPE is considered.
Where it is not possible to create an absolutely safe and healthy workplace the Contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

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

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

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

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

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

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

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

- Protective overalls
- Reflective vests
- Protective headwear

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

F5. EPWP BRANDING SPECIFICATION



Printing on PPE: PPE (Overalls) shall be orange with/without reflective tape and shall be branded as follows:

- EPWP logo (printed or embroidered) on the left front pocket location i.e. over the heart position (full colour).
- GKM's Logo on the right front pocket (printed or embroidered) location (full colour).
- The height of the departmental logo (including text) shall not exceed the height of the EPWP logo (including text).
- The letters EPWP on the back of the PPE in BLACK.
- The program/project name i.e. REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGE is to be printed on the left sleeve of short sleeved apparel and may not have to be placed on long sleeved apparel.
- Where required orange safety vests are to be branded with similar specification above. In this instance the Overalls may not necessarily be branded provided that the works never allow for labour to work without high visibility vests.
- All artwork and PPE samples shall be approved and signed off by the consultant prior to printing/embroidering.

F6. MEASUREMENT AND PAYMENT

The following payment items shall be used to effect the payments for EPWP.

Item Unit

F6.01 Payments associated with the EPWP programme:

(a) COIDA payments to the Compensation Commissioner for EPWP workers Prov Sum

(b) Provision for specified EPWP branding on PPE for EPWP workers Prov Sum

(c) Additional supervision during practical training L/Sum

The provisional sums provided under subitems F6.01(a) and (b) shall be expended in accordance with

Clause 6.6 of the General Conditions of Contract 2015.

The provisional sum under subitem F6.01(a) shall be used to cover the cost of the COIDA payments made by the Contractor to the Compensation Commissioner for EPWP workers, all as authorised by the Employer's Agent.

No payment shall be made for time spent during any other on-site liaison, telephonic liaison, e-mail or written correspondence liaison between these parties, or for liaison conducted with the training service provider by any other member of the Contractor's site staff or head office personnel, the cost of all of which shall be deemed to be included in the Contractor's time-related obligations under subitem B13.01(c).

The provisional sum under subitem F6.01(b) shall be used to cover all costs associated with the provision of the necessary EPWP branded PPE including safety apparel for the EPWP workers as determined in the risk assessments and as required for full duration of the contract. See F5. EPWP BRANDING SPECIFICATION.

The lump sum tendered under subitem F6.01(c) shall include full compensation for the provision of additional supervisory staff to manage the output generated from the learners during practical training.

The Contractor shall note that no direct payment will be made to cover the Contractor's costs associated with implementing the on-site work programme for the EPWP employees, for planning, organising, directing, controlling and administrating their day to day activities, including the setting of daily tasks, record keeping and any on-site liaison, training and mentoring required, and for the associated job creation reporting, and such costs shall therefore be built into the other rates tendered for the various items of work scheduled throughout the Schedule of Quantities.

EXPANDED PUBLIC WORKS PROGRAMME - EMPLOYEE CONTRACT

1. THE PARTIES

This agreement is made between
The Employer……...
Represented by.....and
The Employee ……..
Employee Identity Number: ……..
Gender: Male or Female …… Age: …….

1.1. This contract must be read in conjunction with the Basic Conditions of Employment as well as the Ministerial Determination 4: Expanded Public Works Programme.

1.2. The Employer hereby appoints the Employee to work on the project:

EPWP Project No: ……...
Project Name: ……..

1.3. The Employee is appointed as a: …… and will be paid by the Employer: R_____ for every day task properly completed to the satisfaction of the Employer.

1.4. The Employee shall be paid by _____ for day tasks completed properly between _____ and _____.

2. OBLIGATIONS OF EMPLOYEE

2.1. The Employee is required to carry out the work assigned by the Employer/his representative carefully, properly and within the required time for the tasks assigned, and will only be paid for completed day tasks and not on a daily wage;
2.2. The Employee is required to abide by the decisions of the Employer at all time; and
2.3. Notwithstanding the date of signature of this contract the employment relationship is deemed to have commenced on _____ and shall continue until the completion of this contract _____ OR OTHERWISE STATED.

3. POOR WORKMANSHIP

3.1. Should the quality of the work produced by the Employee be considered to be poor by the Employer/representative, then the Employer will not pay the Employee for the work done until the Employee has completed the work to his/her satisfaction.

4. OBLIGATIONS OF THE EMPLOYER

4.1. The Employer shall pay the Employee for all work assigned to the Employee which is completed satisfactorily and shall provide the Employee with the necessary tools, materials and training for the Employee to carry out the assigned work.

5. TERMINATION OF CONTRACT

5.1. The employer may terminate the employment of an Employee for good cause after following a fair procedure.
5.2. The Employer may terminate this agreement at its sole discretion in the following circumstances:
a) If funding for the project is stopped for whatever reason;
b) If the Employee continues to provide poor workmanship after being issued on warning in writing to rectify poor workmanship;
c) If the Employee refuses to carry out the work assigned by the Employer/representative;
d) If the Employee is drunk or disorderly or troublesome at work on the project;
e) If the Employee is found to have stolen tools or materials from the project;
f) If the Employee is absent from work without permission or good reason for more than three successive days.

g) If an Employee does not attend required training events, without good reason.

5.3. A worker will not receive severance pay upon termination.

6. SETTLING OF DISPUTES

6.1. Any dispute or claim arising out of this agreement, which cannot be settled between the parties, shall be referred, without legal representation, to the Project Programme Manager for resolution. The Project Programme Manager shall investigate the dispute and shall decide fairly on the matter. The parties shall comply with the decision of the Programme Manager with respect to settlement of the dispute. Should either party fail to comply with the decision of the Programme Manager, the Programme Manager may take whatever measures he/she considers necessary to enforce compliance, including inter alia withholding further funding to the project until such time as compliance has occurred.

7. MEAL BREAKS

7.1. An Employee may not work for more than five hours without taking a meal break of at least thirty minutes duration.

7.2. An employer and Employee may agree on longer meal breaks.

7.3. An Employee may not work during a meal break. However, an employer may require an Employee to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another Employee. An employer must take reasonable steps to ensure that an Employee is relieved of his or her duties during the meal break.

7.4. An Employee is not entitled to payment for the period of a meal break. However, an Employee who is paid on the basis of time worked must be paid if the Employee is equired to work or to be available for work during the meal break.

8. DAILY REST PERIOD

Every Employee is entitled to a daily rest period of at least twelve consecutive hours. The daily rest period is measured from the time the Employee ends work on the day until the time the Employee starts work on the next day.

9. WEEKLY REST PERIOD

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

10. KEEPING RECORDS

10.1. The Employee must provide to the Employer the following:

10.1.1. Certified copy of ID

10.1.2. Signed contract

10.1.3. Standard ID picture

10.1.4. Banking details corresponding to the details on the ID document

11. PAYMENT

11.1. Wages paid to the Employee will be deposited into the Employee’s bank account. Cash payments will not be made.

11.2. The Employee will only be paid for tasks that have been completed.

11.3. The Employee will be paid within five weeks of the work being completed and the work having been approved by the manager.

11.4. An Employee will be entitled to payment only if he/she completes the assigned task to the satisfaction of the employer’s site representative.

11.5. Employees given due notice of inclement weather will not be paid.

11.6. Employees will be paid if inclement weather forces work to stop while on site.

11.7. The Employee will be provided with the following information in writing –
- 11.7.1. The period for which payment is made;
- 11.7.2. The numbers of tasks completed or hours worked;
- 11.7.3. The Employee's earnings;
- 11.7.4. Any money deducted from the payment;
- 11.7.5. The actual amount paid to the Employee.

11.8. The quantity of task rate will vary from depending on the type of activity to be performed. The Employee will be informed at the beginning of each task or group of tasks how much to be completed as a daily task work (individual or group of tasks).

11.9. If an Employee's employment is terminated, the employer must pay all monies owing to that Employee within one month of the termination of employment.

12. DEDUCTIONS

12.1. An employer may not deduct money from an Employee's payment unless the deduction is required in terms of a law.

12.2. An employer must deduct and pay to the SA Revenue Services any income tax that the Employee is required to pay.

12.3. An employer who deducts money from an Employee's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

12.4. An employer may not require or allow an Employee to

12.4.1. Repay any payment except an overpayment previously made by the employer by mistake;

12.4.2. State that the Employee received a greater amount of money than the employer actually paid to the Employee; or

12.4.3. Pay the employer any other person for having been employed.

13. HEALTH AND SAFETY

13.1. The employer will take all reasonable steps to ensure that the working environment is healthy and safe.

13.2. An Employee must:
- 13.2.1. Work in a way that does not endanger his/her health and safety or that of any other person;
- 13.2.2. Obey any health and safety instruction;
- 13.2.3. Obey all health and safety rules of the EPWP;
- 13.2.4. Use any personal protective equipment or clothing issued by the employer;
- 13.2.5. Report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

14. COMPENSATION FOR INJURIES AND DISEASES

14.1. It is the responsibility of the employer to arrange for all persons employed on EPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 pf 1993.

14.2. An Employee must report any work-related injury or occupational disease to the employer or designated representative.

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

14.4. The employer will pay an Employee who is unable to work because of any injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

15. CERTIFICATE OF SERVICE

15.1. On termination of employment, an Employee is entitled to a certificate stating:

15.1.1. The Employee's full name;
15.1.2. The name and address of the employer;
15.1.3. The EPWP on which the Employee worked;
15.1.4. The work performed by the Employee;
15.1.5. Any training received by the Employee as part of the EPWP;
15.1.6. Any other information agreed on by the employer and Employee.

In addition to the above conditions all the terms and conditions of employment on EPWP and the Basic Conditions of Employment apply to your employment as well. If you are found in breach of any of these terms you contract may be terminated.

16. SIGNATURES

Signed on this day …… of …….....

Employer: …….. Date: ……

Employee: …….. Date: ……

Witness: …….. Date: ……

Annexure A: Form - Participant Details

Participant details must be filled out and attached to contract with certified copy of ID
This form must be used to complete the latest EPWP reporting template obtained from the Employer.

Field	**Response**	
First Name on certified ID document		
Initials on certified ID document		
Surname on certified ID document		
ID number on certified ID document		
Date Of Birth on certified ID document		
Gender (Mark with X)	M	F
Disability (Mark with X)	Y	N

Highest level of education

Code	**Education Levels**	**Mark with X**
1	Unknown	
2	No Schooling	
3	Grade 1-3 (Sub A_Std 1)	
4	Grade 4 (Std 2) Abet 1	
5	Grade 5-6 (Std 3-4) Abet 2	
6	Grade 7-8(Std) 5-6 Abet 3	
7	Grade 9 Abet 4	
8	Grade 10-11 (Std 8-9)	
9	Grade 12 (Std 12)	
10	Post Matric	

Date work starts	
Date work ends	

Mark up to 3 languages spoken (Mark with X)

Code	**Language ID**	**Mark with X**
1	Afrikaans	
2	English	
3	IsiNdebele	
4	IsiXhosa	
5	IsiZulu	
6	Sesotho sa Leboa	
7	Sesotho	
8	Setswana	
9	siSwati	
10	Tshivenda	
11	Xitsonga	
12	Other	

Address		
Contact Number		
Government Grant (Mark with X)	Y	N
		Social
		Disability
		Child
Province – completed by official		
District Municipality– completed by		

official		
Local Municipality – completed by official		
The contractor must note the target local labour area and provide preference to participants in close proximity to the project		
Nationality	RSA	Non-RSA
If non-RSA, provide details		
Work Permit number		
Country of origin		
Number of people in Household		
Number of Dependents in Household		
Number of Children attending school		

PART G: SMALL CONTRACTOR DEVELOPMENT G1001

SCOPE

This section covers construction aspects relating to the processes by which the construction industry develops emerging small contractors.

In terms of this contract, the Contractor shall effect such development by subcontracting portions of the Works to Targeted Enterprises (as defined in clause G1002(a) below) such that the combined accumulated monetary value of the work undertaken and achieved by such Targeted Enterprises equals or exceeds the monetary value of the target set by the Employer for such work.

G1002 DEFINITIONS AND APPLICABLE LEGISLATION

(a) Definitions

Unless inconsistent with the context, in these specifications the following terms, words or expressions shall have the meanings hereby assigned to them:

Contract Participation

Contract Participation in terms of this contract is a process by which the Employer implements Government's objectives by setting a target relating to small contractor development which the Contractor shall achieve as a minimum.

Contract Participation Goal (CPG)

Contract Participation Goal is the monetary value of the target set by the Employer in the Contract Participation process.

Contract Participation Performance (CPP)

Contract Participation Performance is the measure of the Contractor's progress in achieving the CPG.

Project Management Team (PMT)

A team established at the commencement of the contract, comprising a representative from each of the Employer, the Employer's Agent and the Contractor, that will be responsible for various functions related to the implementation of the Contract Participation process.

Targeted Enterprise

A Targeted Enterprise is any company engaged by the Contractor as a subcontractor and which is registered with the Construction Industry Development Board (CIDB) in a contractor grading designation equal to 1CE to 3CE and which is also registered by the CIDB as Potentially Emerging (PE).

The CPG scope in terms of Part G of this contract has been reserved for execution using only the following prescribed numbers of Targeted Enterprises registered with the CIDB in each of the contractor grading designations indicated:

- Grade 1CE PE (3 x Targeted Enterprise subcontractors prescribed)
- Grade 2CE PE (2 x Targeted Enterprise subcontractors prescribed)
- Grade 3CE PE (1 x Targeted Enterprise subcontractors prescribed)

(b) Applicable Legislation

The following Acts, as amended from time to time, are predominant amongst those which apply to the construction industry and are listed here for reference purposes only:
- The Constitution of South Africa;
- Public Finance Management Act No. 1 of 1999;
- Preferential Procurement Policy Framework Act No. 5 of 2000;
- Construction Industry Development Board Act No. 38 of 2000;
- Broad-Based Black Economic Empowerment Act No. 53 of 2003.

G1003 CONTRACT PARTICIPATION

(a) Objective

Government's objective for this contract in terms of its broad-based black economic empowerment initiatives is to develop emerging small contractors that qualify as Targeted Enterprises as defined above.

(b) Contract Participation Targets

Contract participation is the process by which the Employer Implements Government's objectives. The Employer sets a target for construction by specified entities, the rand value of which is based on the services and work undertaken by the specified entities. The target rand value will be measured as that specified target percentage of the Contractor's final certified value of work completed (excluding VAT) measured at the date of issue of the Certificate of Completion. The Contractor is obliged to commit to or exceed the target stated in section C1.2.2 Contract Data, Part A: Data Provided by the Employer.

(c) Contract Participation Goal (CPG)

The CPG is the monetary value of the target set by the Employer and will be calculated as follows:

CPG = final contract value (excluding VAT) x (target % set by the Employer for Targeted Enterprises)

The final contract value is the total value of certified work measured at the date of issue of the Certificate of Completion.

The value of the Provisional Sums scheduled under item G10.02 of Part G of the schedule of quantities shall not necessarily make up the full value of the works required to meet the CPG target set by the Employer. It is the Contractor's responsibility to assess the work required to meet the CPG target and, if necessary, to engage Targeted Enterprises to execute work on the main contract as well to ensure that the CPG target is achieved.

(d) Contract Participation Performance (CPP)

The CPP is the monetary value of the Contractor's actual progress towards achievement of the CPG calculated as follows:

CPP = total value (excluding VAT) of contribution by Targeted Enterprises

The Contractor's Contract Participation Performance will be measured monthly in order to monitor the extent to which he is striving to reach the CPG. The basis of monitoring shall be the levels of the individual contributions for Targeted Enterprises. Monthly returns, in a format approved by the Employer, are required from the Contractor and shall be submitted with each interim payment certificate. Failure to adhere to this requirement shall result in the delay of any payment due until the Employer's Agent confirms that the information has been received.

To assist in the measurement of CPP, the Contractor shall include in his contract programme details of how he will achieve the CPG. This shall include CPG achievement details for both the specific work indicated for CPG in terms of this contract for completion by Targeted Enterprises as well as details for any other work that the Contractor may use towards achieving the CPG. The detail shall be provided not later than one month after the Employer's Agent has accepted the original construction programme and shall be updated with every subsequent revision of the programme.

In the event that the Contractor fails to substantiate that any failure to achieve the Contract Participation Goal (CPG) is due to quantitative under runs, the elimination of items contracted to Targeted Enterprises, or any other reason beyond the Contractor's control which may be acceptable to the Employer, the Contractor shall be liable for a penalty as prescribed in clause SCC 4.1.1 of section C1.2.1.2 Special Conditions of Contract. The penalty shall be calculated as follows:

Penalty = 5% of the monetary value by which the achieved monetary value (CPP) falls short of the target monetary value (CPG)

= 5% of (CPG – CPP)

The penalty shall be applied on a pro rata basis according to a monthly evaluation of achievements against the programmed utilisation.

(e) Accredited Registration

CPP for Targeted Enterprises shall only be accepted if the respective Targeted Enterprises for which services or work is being claimed as having been performed are registered with the CIDB in one of the defined categories. In addition, documentary evidence that such Targeted Enterprises are registered with the South African Revenue Services (SARS) shall be lodged with the Employer's Agent before the work or service may be considered as having been performed by a Targeted Enterprise. The responsibility for producing evidence of such registration documentation shall rest with the Contractor.

(f) Record keeping and Portfolio of Evidence

The Contractor shall assume responsibility for the compilation and maintenance of comprehensive records detailing each Targeted Enterprise's progress during construction, starting from the award of a subcontract to a Targeted Enterprise until the successful completion of the subcontract work or termination of the subcontract.

The Contractor shall keep comprehensive records of the training given to each trainee and, at the successful completion of each training course, each trainee shall be issued with a certificate indicating the course content as proof of attendance and completion. The Contractor shall keep a register of certificates issued. Whenever required, the Contractor shall provide copies of such records to the Employer's Agent.

The Contractor is also required to develop and/or maintain a portfolio of evidence for each Targeted Enterprise as described in clause G1009.8 below.

G1004 TENDER PROCESS FOR TARGETED ENTERPRISE SUBCONTRACTOR PROCUREMENT

The Contractor shall refer to the schedule of quantities contained in these Particular Specifications and to any other construction activities required to execute the Works in terms of this contract to determine how he intends to unbundle or package specific subcontracts for Targeted Enterprises and shall present his proposal to the Employer or its agent for approval.

The Contractor shall be responsible for compiling the tender documents that will enable him to engage the Targeted Enterprises.

It shall be a condition of tender that the subcontractors appointed as Targeted Enterprises are registered with the Construction Industry Development Board (CIDB) in a contractor grading designation equal to 1CE to 3CE and are also registered by the CIDB as Potentially Emerging (PE).

It shall also be a condition of tender that Targeted Enterprises shall include in their tender submission the following documentation:

1. Valid letter of good standing from the Department of Labour.
2. A tax compliance status report.
3. A BEE verification certificate
4. Bank account details certified by the bank.
5. Certificate of registration of the tenderer in the required CIDB contractor grading designation, confirming the tenderer's registration Status as "Active" at the closing date of tender.

The tender documents shall also contain the proposed subcontract agreement, which shall also include for:

(a) An entitlement of the subcontractor to receive such training as is contemplated in this contract.
(b) An obligation on the Targeted Enterprise to participate and co-operate in such training as is provided for in this contract.
(c) The allowable sources from which workers may be drawn in terms of the contract.
(d) The terms and conditions relating to the recruitment, employment and remuneration of workers engaged on the contract.
(e) The training to be provided to the temporary workforce.
(f) The terms and conditions relating to payment of the Targeted Enterprise subcontractor..

G1005 PROJECT MANAGEMENT TEAM (pmt)

(a) Appointment

A Project Management Team (PMT) is to be set up comprising a representative from each of the Employer, the Employer's Agent and the Contractor.

(b) Duties and functions of the PMT

The duties and functions of the PMT are as follows:

(i) determine the scope and extent of the works to be included in any particular subcontract;
(ii) determine the target tender price according to the scope of work, and adjust the target rates where relevant;
(iii) monitor the management of the tender process for the subcontracts to be executed by the Targeted Enterprises;
(iv) adjudicate and approve tenders for Targeted Enterprise subcontracts;
(v) monitor the management of the subcontracts involving Targeted Enterprises;
(vi) monitor the training, mentoring and development of Targeted Enterprises.

G1006 general responsibilities of the contractor towards TARGETED ENTERPRISE SUBCONTRACTORs

(a) Obligations

The Contractor shall ensure that he complies with the following obligations:

(i) institute a quality assurance system;
(ii) provide adequate training, coaching, guidance, mentoring and assistance to Targeted Enterprises;
(iii) provide financial support and other assistance to ensure that the Targeted Enterprises are able to meet their obligations and commitments with respect to their subcontracts, including acquisition of labour, equipment and materials; and
(iv) ensure that the contract participation goals and objectives are achieved.

G1007 management of targeted enterprise subcontracts

The Contractor shall conclude the subcontract agreements and provide the necessary management support to the Targeted Enterprise subcontractors. Failure by the subcontractor to comply with the terms and conditions of the subcontract agreement shall result in penalties being applied or the subcontract terminated.

G1007.1 Compilation of Subcontract conclusion agreement

(a) The Contractor in liaison with the PMT shall be responsible for the conclusion of each subcontract agreement. The agreement shall be in accordance with the provisions of subclause 4.4 of the General Conditions of Contract for Construction Works 3rd Edition 2015 and shall be consistent with the terms and conditions in this contract. The agreement shall be subject to approval by the Project Management Team.

(b) The terms and conditions of the subcontract agreement shall also specify the following:

(i) an entitlement of the subcontractor to receive such training as is contemplated in this contract;
(ii) an obligation on the Targeted Enterprise to participate and co-operate in such training as is provided for in this contract;
(iii) the allowable sources from which workers may be drawn in terms of the contract;
(iv) the terms and conditions relating to the recruitment, employment and remuneration of workers engaged on the contract;
(v) the training to be provided to the temporary workforce; and
(vi) the terms and conditions relating to payment of the Targeted Enterprise subcontractor.

G1007.2 Quality of work and performance of the subcontractor

(a) The Contractor shall closely monitor and supervise all Targeted Enterprises and shall train, mentor, guide and assist each Targeted Enterprise in all aspects of management, execution and completion of his subcontract. This shall typically include assistance with planning of the works, sourcing and ordering of materials, labour relations, monthly measurements and invoicing procedures. The extent and level of such

training, mentoring, guidance and assistance to be provided by the Contractor shall be commensurate with the basic level of subcontract applicable and shall be directed at enabling the Targeted Enterprise to achieve the successful execution and completion of their subcontract.

(b) The Contractor shall closely monitor and supervise all Targeted Enterprises and shall give reasonable warning to the Targeted Enterprise when any contravention of the terms and conditions of the subcontract has occurred or appears likely to occur. The Contractor shall, whenever feasible, give the Targeted Enterprise reasonable opportunity to make good any such contravention, or to avoid such contravention, and shall render all reasonable assistance to the Targeted Enterprise in this regard.

G1007.3 Dispute avoidance and resolution procedures

(a) When taking any disciplinary action or imposing a penalty as provided for in the subcontract, the Contractor shall explain fully to the Targeted Enterprise that such actions are provided for in the subcontract. If such action is contemplated this shall be discussed with the PMT before any action is taken.

(b) If the subcontractor, in the opinion of the Employer's Agent, fails to comply with any of the criteria listed below, the Employer's Agent shall issue a written warning to the Contractor, stating all the areas of non-compliance. A copy of the letter of warning shall be forwarded to the Employer. The criteria are as follows:

(i) acceptable standard of work as set out in the specifications;
(ii) progress in accordance with the time constraints in the subcontractor's tender document;
(iii) punctual and full payment of the workforce and suppliers;
(iv) site safety; and
(v) accommodation of traffic.

(c) The subcontractor shall have 21 days from the date of receipt of the letter of warning by the Contractor to address and rectify the issues raised by the Employer's Agent, with the exception of the above subclauses (b)(iv) and (v) for which the reaction time shall be in accordance with the relevant specifications for those aspects of the Works but shall not be longer than 24 hours. Failure by the subcontractor to comply with deadline set, will be sufficient grounds for the Contractor to apply a penalty, or terminate the subcontract provided that the PMT is satisfied that the Contractor has made every effort to correct the performance of the subcontractor.

(d) The Targeted Enterprise shall have the right to dispute any ruling given or deemed to have been given by the Contractor, Employer's Agent or Employer. Provided that, unless the Targeted Enterprise shall, within 21 days after his receipt of a ruling or after a ruling shall have been deemed to be have been given, give written notice (hereinafter referred to as a Dispute Notice) to the Contractor, referring to this clause, disputing the validity or correctness of the whole or a specified part of the ruling, he shall have no further right to dispute that ruling or the part thereof not disputed in the said notice.

G1008 specific work to be carried out by targeted enterprise subcontractors

For this particular contract, the following listed work has been identified in terms of this Particular Specification, Part G, as suitable for execution by Targeted Enterprises in order to assist the Contractor in achieving his CPG:

1. Accommodation of Traffic
2. Clearing and grubbing.
3. Construction and clearing of drains.
4. Installation of prefabricated culverts including inlet and outlet structures.
5. Concrete channelling and concrete linings for open drains.
6. Mass Earthworks
7. Pavement Layerworks
8. Breaking up and stockpiling of Existing Pavement Layers
9. Surfacing
10. Pitching, stonework and protection against erosion.
11. Construction of gabions, as applicable and determined on site.
12. Erection of guardrails, as applicable and determined on site.
13. Erection of road signs.
14. Road Marking
15. Landscaping.
16. Finishing the road and road reserve.

17. Other work identified by the Employer to be executed in the community area.

The work to be carried out by Targeted Enterprises is not limited to the work listed above, and the Contractor may need to engage Targeted Enterprises on other aspects of the main contract work in order to achieve his CPG.

G1009 training, coaching, guidance and mentoring

G1009.1 Obligations

This section provides details of the Contractor's obligations of implementing the National Skills Development Strategy. This strategy sets priorities for the skills development of workers. The Sector Education and Training Authorities (SETA) and provincial offices of the Department of Labour will play key roles in transforming the vision of the strategy into reality.

Supervision is included as part of the contractor's general obligations for the administration and management of the Targeted Enterprises. However training, coaching, guidance and mentoring are not included as part of the Contractor's general obligations unless specific provision to that effect has been made in the project specifications.

The Contractor shall, from the commencement of the contract, provide a structured development programme designed to improve the entrepreneurial and basic business management skills of identified Targeted Enterprises and hired labour that show initiative, as well as to improve their specific task skills (engineering skills) commensurate with the applicable levels of subcontract that will enable the Targeted Enterprises to achieve the successful execution and completion of their subcontracts. The ultimate objective of training, coaching, guidance and mentoring is to develop the Targeted Enterprise subcontractors as far as their potential allows.

G1009.2 Definitions

(a) Training:
Training refers to the process of teaching a learner – usually in a classroom or simulated work environment situation. Training usually takes place with one teacher/trainer and several learners. Principles and theory are taught. Demonstrations are given. Assignments are then set to ensure that the learner is able to apply what has been taught. Training is done by a specialist in the subject, who is also qualified to train.

Example: Use of a dumpy level
Training would involve the theory of how a dumpy level works and how to calculate levels. A demonstration of how to set up and read a level could be given.

(b) Coaching:
Coaching refers to hands-on training and is mostly on a one-on-one basis of tangible and measurable skills. It is typically on-site training, or learning-on-the-job. Coaching is training by the process of "watch-do-correct-practice". The coach does the task while the learner watches and asks questions. Then the learner does the same task while the coach watches. The learner is corrected until the coach feels that he has the gained competence in the function. The learner is then left to practise the task or skill, which the coach oversees. Coaching is imparting a skill – usually manual or physical. A coach is usually a person doing the same type of work on a higher or more competent level, or a person who has a mastery of the skill/task. While training gives the theory or shows/explains the principles, coaching helps the learner become competent and master a skill. A coach is often in the direct reporting line, i.e. someone in authority. Coaching could be part of the management function and would make the job run more smoothly.

Example: Use of a dumpy level

Coaching would involve taking the learner onto site, setting up a dumpy level, reading levels. Then the coach would get the learner to do the job, while the coach checked the setting up and reading. Once the learner understands and can do the tasks, the coach checks periodically to ensure the learner is still doing the job properly.

The desired outcome of coaching is for the learner to "fit-the-mould", and to do things the same way and to the same standard as the coach.

(c) Guidance:
Guidance is anticipating where one might go wrong, or where one is doing a task in a complicated, inefficient

or ineffective way, and giving advice as to how to achieve a better result. Guidance is mostly given by a person in the direct reporting line, but can be given by anyone. Guidance is not imparting skills, but suggesting ways to improve performance.

Example: Use of a dumpy level

A person who knows how to use a dumpy level would be given guidance as to where he would next set up the level to limit the number of set-ups. Guidance could be an extension of coaching.

(d) Mentoring:

Mentoring is developing a person on a long-term career path. It is mostly about imparting skills that are often intangible and non-measurable. A mentor is seldom anyone in the direct reporting line – although he could be a person several levels higher in that reporting line. Mentoring is more about developing a relationship and taking a personal interest in an individual. A mentor looks out for that individual and gives him advice that cannot be found in a book or in the normal course of business. The sort of issues a mentor discusses with the protégé include company politics, how to pick up work before others get wind of it, how to position one's company to get a better competitive advantage, how to tender such that the tender is lowest but the profit is as good as or better than the next person, how to determine and assess risk. Mentoring helps the protégé think strategically, sharpen entrepreneurial skills and grow – both personally and in terms of the company. A mentor helps the protégé to develop insight and shrewdness. It is more about business skills to survive long-term than the technical, tactical or day-to-day activities of doing business.

The desired outcome of mentoring is for the protégé to develop his own style, i.e., to shape his own "mould".

(e) Supervision:

Supervision is instruction regarding the work to be performed,and ensuring it is carried out to specification and to the satisfaction of the supervisor. It is not instruction on how the work is to be performed, but rather on what work has to be performed, and usually has specific time frames.

G1009.3 Assessment of Targeted Enterprise potential

It is the responsibility of the Contractor to determine the level of development required by each Targeted Enterprise. This will require that the Contractor determine the level at which the Targeted Enterprise can operate competently and determine the skills already acquired by the Targeted Enterprise subcontractor in terms of training and on-the-job experience. In some circumstances Adult Basic Education Training (ABET) will need to be started before any formal training can commence. The assessment of each appointed Targeted Enterprise is to be produced by the Contractor for discussion at the first Project Management Team meeting following the appointment of the Targeted Enterprise.

G1009.4 Development Plan

Within a month of the first PMT meeting on the Targeted Enterprise assessments, the Contractor is to present a development plan, specific to each Targeted Enterprise. The development plan is to be reviewed by the PMT for appropriateness before being implemented.

The development plan is to include the following:

- specify the development needs of each Targeted Enterprise contracting entity – the systems the entity lacks;
- specify the development needs of the individuals comprising the entity – the skills the individuals within the entity lack;
- the level to which that activity will be developed within the period of the contract;
- whether training, coaching, guidance and/or mentoring is to be given in each activity;
- the person/s responsible for each activity.

G1009.5 Identification and general training of potential Targeted Enterprises

(a) The progression of training, coaching and mentorship may need to start with the identification and general training of potential Targeted Enterprises and hired labour that show initiative, and should end with their acquisition of sufficient management skills that will equip them to compete confidently for subcontract work beyond the duration of this contract. In addition, generic skills shall be taught where the need for these

has been identified as being necessary amongst Targeted Enterprise workforces and hired labour.

(b) Before commencing with any structured training the Contractor shall submit his intended programme to the Project Management Team for approval of its subject content and proposed trainers, and the Contractor shall, if so instructed by the PMT, alter or amend the programme and/or course content.

The Contractor shall be responsible for the provision of everything necessary for the delivery of the various training workshops and modules including:

(i) Provision of a suitable fully serviced training venue facility as specified in this Part G;
(ii) Procurement of suitable accredited trainers;
(iii) Provision, in conjunction with the accredited trainers, of all the necessary training materials, including stationery and study materials; and
(iv) transportation of the learners to and from the training venue facility (it is therefore in the Contractor's interest that the training venue facility be provided on the site in order to reduce these transportation costs).

Payment to the Contractor for carrying out the training function shall be effected through the pay items provided in this Part G.

G1009.7 Activities

The tasks for each of the activities making up the development plan are described below in further detail.

G1009.7.1 Technical

G1009.7.1(a) Technical Administrative Functions

General Tasks

(i) Understanding and interpreting drawings:

On Roadwork Construction Contracts, the reading of drawings is required at high levels of Targeted Enterprise development. The relevant drawings that would need to be understood include all relevant roadwork and concrete brick wall details for construction. Understanding and interpreting drawings includes the following:

- Understanding the cross referencing to drawings from the contract documents and the bill of quantities;
- Understanding the layout of the drawings;
- Understanding the plan view and elevations and cross sections;
- How to interpret, accurately lay out and construct the details.

(ii) Setting out construction works:

This skill requires an understanding of the function and use of instruments such as the dumpy level, the theodolite, and procedures such as stringing a line.

(iii) Technical know-how of all relevant Roadwork construction activities, and typically includes:

- Traffic control/safety precautions;
- Environmental management;
- Clearing and grubbing;
- Excavations and backfilling;
- Pre-cast and in-situ cast concrete works (including reinforcing where applicable);
- Storm water channelling and catch pits / chutes;
- Mass earthworks and pavement layers;
- Asphalt paving;
- Concrete block paving;
- Concrete brick laying;
- Plastering and bag washing;
- Guardrails;
- Fencing;
- Finishing up and tidying of works.

The development plans shall maximise the exposure of each Targeted Enterprise to as many activities as is practicable.

(iv) Task organization:

This activity involves the correct supervision of labour and organisation of tasks to ensure that labour is

utilised most effectively. This includes the following:

- Allocation of the appropriate number of people for the task;
- Availability on site of the correct type and amount of material and equipment at the point of use;
- Planning tasks ahead so that labour does not stand around waiting.

(v) Task prioritization:
Task prioritization must cover an understanding of critical paths, including identifying which tasks can be postponed and which are urgent. It includes planning and monitoring so that time targets are achieved. It must also cover gaining an understanding of the penalties applicable to late completion of tasks.

(vi) Work schedule:
This is the ability to produce daily work plans and will assist with task organization. Daily work plans need to be developed into weekly and monthly work plans and vice versa. These plans assist in material ordering, plant scheduling, labour allocation, timeous completion of the work, and keeping track of profits/losses.

(vii) Effectiveness:
Effectiveness is ensuring that a job gets done right, or properly.
Effectiveness is doing the right things.

(viii) Efficiency:
Efficiency is ensuring that the job is done with the least effort and cost possible.
Efficiency is doing things right.

(ix) Quality control:
Quality control requires knowledge of specifications and tolerances and ensuring that the work adheres to these, as well as understanding the requirements of the Employer.

(x) Measuring work done for payment certificates:
This is the ability to measure actual work done and to translate these measurements into a payment certificate. Knowledge must be gained of how to calculate escalation, how to claim for VOs and how to handle other claims.

(xi) Site meetings:
Knowledge needs to be gained of the following:

- The importance of site meetings;
- Identifying the relevant personnel to attend site meetings;
- Preparing for a site meeting;
- Understanding progress reports including why they are important and how to prepare them;
- Recording issues discussed at the meeting;
- Implementing and follow through of issues recorded;
- Understanding the process of the meeting and when to bring up various concerns is needed.

(xii) Handling site instructions and VOs:
This is the ability to distinguish between site instructions and variation orders and how to respond to such instructions.

<u>Materials Tasks</u>

(xiii) Materials planning:
This includes the following:

- Determining the quantity of materials required for each task and planning ordering;
- Determine appropriate lead times to ensure that everything required to do a job is on hand;
- Quantity take-offs for pricing a bill at higher levels of development.

(xiv) Receiving, storing and handling materials:
Receiving includes checking materials delivered against the delivery note and the order placed. Storage involves knowing what quantities and type of materials to store, planning accessibility, and safety of materials from theft, the weather, etc. Handling of materials needs to be carried out to ensure no wastage or damage.

(xv) Waste control:
This includes the importance of waste control to reduce costs and the management of reducing waste of materials in storage and in use.

(xvi) The handling/installation of precast units:
Knowledge of precast units, handling and installation must be gained.

Equipment Tasks

(xvii) Machine Analysis:
This is the analysis of the use of equipment. It includes calculating fuel and hourly costs. This will enhance an understanding of the effective use of equipment, how to reduce costs and provide a background for pricing of equipment for tenders.

(xviii) Maintenance Schedule:
This covers the importance of maintenance of equipment and how to schedule this so that there is minimal disruption in day-to-day work.

(xix) Appropriate and correct use of tools and equipment:
Provide coaching on the correct use of tools and equipment.

(xx) Care of tools and equipment:
Care of tools and equipment includes the proper handling, cleaning, storage, stacking, etc.

The coaches of the above listed activities are generally the Foreman, Site Clerk, Mechanic, Construction Manager, Plant Manager or Contracts Manager.

G1009.7.1(b) Technical Management Functions

General Tasks

(i) Site set-up:
This involves gaining an understanding of site set-up procedures and principles, including establishing a site office and facilities, providing access to the site, initial layout of the works, storage facilities, security, etc.

(ii) Construction program / work plan:
Knowledge of how to develop a construction program / work plan, monitor and assess the production, and correct the programme where necessary.

(iii) Understanding tests:
Understanding what tests are required, reading and interpreting results relating to specifications and quality, and how to make the corrections required.

(iv) Productivity:
Recording productivity and understanding the principles. Knowing where to make corrections and how to implement solutions.

Material Tasks

(v) Materials schedule:
This involves gaining knowledge of how to develop a materials schedule from a Bill of Quantities, the Drawings and any other relevant contractual document. It also includes linking the works program to an ordering schedule, and sourcing of suitable materials.

Equipment

(vi) Determine appropriate levels of equipment:
The determination of the appropriate type and number of tools, and equipment required.

(vii) Proper use of equipment:
This is gaining knowledge, understanding and competency in the proper use of equipment.

(viii) Productivity of equipment:
The productivity of equipment must be understood to know how this affects his ability to perform.

(ix) Allocation of equipment:
This involves the ability to competently allocate equipment to the various tasks.

(x) Waste control:
Waste control is an essential aspect of running a site well and making a profit. The principles of this, together with the practical ways to control waste need to be understood.

The coach/mentor of these activities is generally the Construction Manager, Contracts Manager, or Equipment Supplier.

G1009.7.2 Financial

G1009.7.2(a) Financial Administrative Functions

(i) Basic Finance:
This includes knowledge of the definition and difference between debtors and creditors as well as gaining competency in basic bookkeeping. Knowledge of keeping and managing accounts and other financial documents also needs to be developed. A basic financial course may be appropriate to develop in this area.

(ii) Bank account:
The opening of a bank account, making deposits, the difference between stop-orders and debit-orders, overdraft facilities and generally managing a bank account needs to be understood. This can also be done through a course, and/or with a supportive bank manager, and/or with the appointed coach/mentor.

(iii) Orders and systems:
This will require the setting up of systems and procedures that will take into consideration delivery lead-times, non-availability of items, alternate sources, preparation of storage areas ready for delivery, and the area/volume of storage space.

(iv) Invoices:
The development of systems within the Targeted Enterprise entity that will check materials received versus what was ordered, check quantities delivered, and check actual prices paid against quotes/tender prices.

(v) Stock Control:
The importance of controlling stock needs to be understood. Systems to implement stock control need to be imparted.

(vi) Payroll:
This involves the establishment of a payroll system within the Targeted Enterprise entity. This could include developing an internal system, outsourcing the payroll or learning a commercially acquired payroll system. The system needs to record days worked, pay rate, legal deductions and a leave register.

(vii) Legal requirements:
The financial requirements of legal obligations of companies must be imparted to the Targeted Enterprise subcontractor. This includes payment of company tax, VAT (Value Added Tax), Skills Development Levy (SDL), Work Unemployment Insurance Fund (UIF), Workman's' Compensation (WC), and any applicable municipal levies as well as the applicable minimum wages for the area (also refer below to G1009.7.5 Legislative).

(viii) Payment certificates:
This includes the compilation and submission of a payment certificate. As well as knowing how to determine work done to date, how to present it in terms of the Bill of Quantities, and how to claim for materials on site.

G1009.7.2(b) Financial Management Functions

(i) Claims and VOs:
The following types of claims may be applicable: Claims for additional work done, inclement weather, etc., claims for Variation Orders implemented. Understanding claims includes knowing when a claim can be submitted, the procedure and paperwork for the submission of a claim and which claims are worth pursuing.

(ii) Cash Flow:
The concept of cash flow, as well as the development of cash flow projections and the monitoring of the cash flow are vital aspects of running a business. Included under this topic is knowing how long it takes from placing an order for material until payment is due, and time lags between ordering materials and using the materials and receiving payment for work done. The concept of sufficient working capital also needs to be imparted.

(iii) Costing System:
Costing systems must be set up and understood. Aspects include capturing costs, monitoring profit, analysing costs and using this information to determine productivity levels.

(iv) Tendering:
A knowledge is required of how to build up rates, how to obtain prices, how to negotiate better discounts, how to be creative to achieve the desired result more cost effectively, how to calculate and accommodate P&Gs, and what Provisional Sums are and how they are handled.

(v) Budgeting:
The difference between tendering and budgeting must be understood as well as gaining skills on how to develop a budget. Knowledge of how to monitor actual expenses against budgeted expenses, how to analyse the differences, and the value budgeting is needed.

(vi) Risk assessment:
This involves learning how to assess the financial risks associated with the job in terms of his performance and profitability and the management of these risks. This becomes increasingly important as the Targeted Enterprise grows.

(vii) Insurance:
This includes an understanding of why insurance is required, how to obtain insurance, the benefits and costs, insurance providers and what can be claimed from different types of insurance. The different types of insurance to be included are Short term insurance, Public Liability and Contractors All Risk insurance.

(viii) Interest Rates:
Interest Rates can have a dramatic impact on the profit margins. Therefore an understanding must be gained of what interest rates are, how they impact on profit margins, how to cater for fluctuating interest rates in preparing a tender, and how to find and/or negotiate the best interest rates.

(ix) Bridging Finance:
This includes understanding what bridging finance is and the different forms of bridging finance. Guidance should be given on when bridging finance should be used, where it can be obtained, what securities are needed, and how to go about securing funds.

(x) Sureties:
This involves understanding what Sureties are, why and when they are needed, how they can be obtained, what they cost and how they can be redeemed.

(xi) Procurement of Plant and Equipment:
The difference between purchasing, leasing, hire purchase and hiring plant needs to be understood. Also included is gaining knowledge of all aspects of these options as well as the benefits and implications for the business for each option.

(xii) Procurement:
Procurement of materials includes sourcing suppliers, getting quotes, placing an order and negotiating discounts. The managing contractor can assist in introducing higher level Targeted Enterprises to the relevant materials suppliers.

(xiii) Subcontract:
At the lower levels, this will involve the Targeted Enterprise understanding the subcontract agreement between himself and the managing contractor and the obligations of this document. With a Targeted Enterprise operating at a higher level, this will include sourcing other subcontractors, as well as interpreting the tender/quote, adjudication and awarding of subcontracts.

(xiv) Productivity:
This includes taking production rates and translating them into financial terms to help build up rates for tendering and to monitor profit margins.

The coach and/or mentor for these functions are typically the Bookkeeper, Site Clerk, Foreman, Construction Manager, Contracts Manager, Accountant, Estimator and Buyer.

G1009.7.3 Human Resources

G1009.7.3.(a) Human Resource Administrative Functions

(i) Labour Supervision:
This involves the supervising of labour effectively. This includes knowing the level of competencies of labour, being able to motivate workers to ensure that productivity levels are achieved and maintained. It also includes the allocation of tasks to labour.

(ii) Team Sizes:
This is ensuring the size of the work team is appropriate for the matching activity and understanding that teams that are too large are unproductive and teams that are too small are not effective.

(iii) Productivity:
The principles of productivity and how it is best achieved for various tasks is to be understood and applied. It also involves being able to determine realistic productivity levels, such as square meters of grass cut with a machine per hour, length of guardrail installed per day, etc.

(iv) Time sheet:
A system of time sheets which accurately records the time each employee spends on the job needs to be in place.
(v) Leave Registers:

A system for recording leave needs to be in place, which includes the dates that leave was taken, what type of leave it was and whether the employee qualifies for paid or unpaid leave in terms of legislation.

(vi) Employee records:

This involves knowing and complying with legislation for conditions of employment. Employment contracts must be in place for all labour employed and a formal system of keeping employee records must be established. Employee records must be in line with legislation including recording of employee details and copies of identification documents, termination of service procedures, certificates of service etc.

(vii) Disciplinary procedure:
Knowledge of the legal aspects of Disciplinary procedures is essential. The ability to set up these procedures and ensure that all staff understand and adhere to them is required. Warning systems must include records of verbal warnings, warning forms, disciplinary hearings, dispute resolutions and termination procedures.

(viii) Training:
This involves understanding the concept of the Skills Development Levy, and how to claim from CETA for training provided. Service Providers have CETA funded Skills Facilitators available to assist Targeted Enterprises in identifying training needs and compiling workplace skills plans (WPSP) at no cost to the Targeted Enterprise. An understanding of the importance of providing training for staff with regards to AIDS awareness, Safety, Productivity, Development and Accountability is essential.

(ix) Community Liaison:
The management and importance of Community Liaison must be understood.

G1009.7.3(b) <u>Human Resource Management Functions</u>

(i) Labour recruitment:
Employment of labour with the appropriate skills is essential. Therefore sourcing appropriate labour and knowledge of how to assess the range of skills and level of competency in potential employees needs to be gained.

(ii) Labour allocation:
Allocation of labour is a skill that needs continual refining. It requires knowing the specific strengths of staff employed, the numbers of labourers and level of skill required for specific tasks, as well as being able to build effective cohesive teams that understand their roles without continual supervision.

(iii) Labour schedules / planning:
This involves learning how to compile labour schedules from the works program and the consequent allocation of staff to the work planned.

(iv) Histogram / manpower plan:
A manpower plan includes establishing how many people are needed on the job at what times. This is an important skill even at the most elementary level. As the Targeted Enterprise develops, the management of moving people from site to site in such a way that there are neither too many nor too few labourers and/or

supervision becomes an important skill to obtain.

(v) Management of supervision:
This activity involves understanding the principles of supervision, and how to effectively manage to ensure that these principles are applied and/or developed by the appointed supervisor.

(vi) Productivity:
Productivity applies to labour as well as tasks and plant. Skills must be developed on how to determine appropriate levels of labour productivity and how to ensure that staff achieves these levels.

(vii) Labour Law:

A basic understanding of labour legislation, specifically Labour Relations Act (LRA), and Basic Conditions of Employment Act (BCEA), Employment Contracts, and Termination of Service is essential as well as an understanding of the implications of these laws on business.

(viii) Accountability systems:
This requires that accountability systems are developed and implemented for supervisory staff.

Coaching, guidance and mentoring on the above listed functions are typically undertaken by the Foreman, Construction Manager, Site Clerk, HR Manager, Trainer and Contracts Manager.

G1009.7.4 Contractual

G1009.7.4(a) Contractual Administrative Functions

(i) Relationships and communication:
This involves the development and maintenance of good relationships and the establishment of good communication systems within the Targeted Enterprise business. This includes communication between the Targeted Enterprise and the other role players such as the Managing contractor, the Employer's Agent and the Employer. An understanding of the importance of good communication is also important. Good communication starts with the right attitude, and involves listening as well as talking. It is also listening to what is not being said. Allowances need to be made for differences in culture and economic backgrounds.

(ii) Setting up contractual administration requirement (systems):
Contractual administration systems need to be established and implemented. This includes the use and importance of site dairies and keeping rainfall/weather records, as well as developing progress reports.

(iii) Implementing EMP:
This activity involves understanding the design and implementation of an Environmental Management Plan.

G1009.7.4(b) Contractual Management Functions

(i) Contract Law:
Knowing and understanding the content and implications (including costs) of the Conditions of Contract and the Specifications that will be required. This will include understanding the content and implications of penalty clauses.

(ii) Risk Assessment:
This activity involves being able to assess the contractual risks associated with the contract both in terms of performance and in terms of the risks associated with the Employer.

(iii) Managing Contract Administration:
Managing Contract Administration ensures that all the required reports, such as accident reports and progress reports are completed and submitted.

(iv) Administration of subcontractors:
Identification and separation of the responsibilities of the managing contractor from the responsibilities of the subcontractors needs to be understood and applied. The management of subcontractors to ensure that contractual obligations are met is essential knowledge to be gained by higher level Targeted Enterprises.

(v) Subcontractor agreements:

Understanding the contents of the subcontract agreement between the Targeted Enterprise and the contractor is an important skill to be learnt.

(vi) Disputes:

This activity involves understanding the procedures used in handling disputes or disagreements with the Contractor and/or the Employer.

The Contracts Manager and Construction Manager would normally be involved in this function.

G1009.7.5 Legislative

G1009.7.5(a) Legislative Administrative Functions

(i) Legal Registrations:
The legal requirements for registration of companies must be imparted to the Targeted Enterprise subcontractor. This includes company tax, VAT (Value Added Tax), PAYE, Skills Development Levy (SDL), Unemployment Insurance Fund (UIF), Workman's' Compensation (WC), and any applicable municipal levies. An understanding of what each registration is, what benefits he gets from being registered, and how to register must be developed.

G1009.7.5(b) Legislative Management Functions

(i) Labour Law:
Knowledge of the labour legislation and the implications for the business is required. This includes Skills Development Levy (SDL), Work Place Skills Plans (WPSP), Unemployment Insurance Fund UIF), Workman's' Compensation (WC), Labour Relations Act (LRA), Basic Conditions of Employment Act (BCEA), and the applicable minimum wages for the area.

(ii) OHS Act:
All aspects of the OHS Act (dealing with safety and health) and the implications must be understood. A safety officer who has the appropriate level of understanding and knowledge must be appointed within each Targeted Enterprise.

(iii) Environmental Management Plan:
An environmental management plan needs to be submitted regarding how the environment will be managed for the duration of the contract, and what restoration will take place at the end of the contract. An understanding of the importance and content of this plan must be gained.

(iv) Adjudication/Arbitration:
This activity involves knowing what legal recourse is available when disputes/disagreements are not resolved. This knowledge must include the processes to be followed and where to go to implement proceedings.

These functions will generally require the input of the company lawyer, company accountant, HR manager, Health and Safety Specialist, and Environmental Specialist.

G1009.7.6 General

G1009.7.6(a) Administrative Functions

(i) Filing systems:
This activity includes establishing company filing systems that are efficient and effective. It also includes knowing the importance of filing, what must be filed and how it should be filed.

(ii) Office set-out:
Knowledge of the layout of the site office buildings position and the organisation of the offices and systems within the buildings is to be imparted.

(iii) Record keeping:

This activity involves developing knowledge of what records need to be kept and how best to keep them.

(vi) Good housekeeping:

Good housekeeping is about developing a work approach of keeping the site tidy, cleaning putting away tools and working in an orderly way. Developing good housekeeping assists a company in working efficiently and improving profit margins.

(v) Communications with staff:

The importance of good communication with staff needs to be understood as well as the effects of good relations with the staff in terms of loyalty and productivity. An understanding must also be gained that good communication enhances supervision and management of the work.

(vi) Communications on site:

This activity involves establishing communication systems between the site and the office and understanding that effective communication on site leads to good relations and contributes to the smooth running of the site.

The Construction Manager, site clerk and HR Manager will train/coach or mentor the above listed functions.

G1009.8 Portfolio of Evidence

The Contractor is to develop and/or maintain a portfolio of evidence for each Targeted Enterprise. The Portfolio of Evidence is a collection of proof of the training, coaching, guidance and mentoring inputs provided to the Targeted Enterprise and is similar to a log book used by technical students completing experiential training. It is a living document which records the development progress of the Targeted Enterprise and will need to be updated continually throughout the duration of the contract. It remains the property of the Targeted Enterprise and they take it with them to their next contract.

The Portfolio of Evidence should include the following documentation:

- The development path designed for each Targeted Enterprise;
- The training courses completed by the Targeted Enterprise;
- The hours of guiding, coaching and mentoring received for each activity listed in the development plan;
- A list of outcomes achieved at each level for each activity;
- Six-monthly progress reports on the development provided (inputs) versus the actual progress made (output) by the Targeted Enterprise;
- A list of competencies.

G1009.9 Training Requirements

Only qualified trainers employed by training agencies that are accredited by the relevant Sector Education and Training Authorities (SETA), or other institutions recognised by the Department of Labour shall deliver any training. “Accredited training” refers to both the trainers as well as to the training material. Certificates affirming the successful participation in the various courses shall be presented to each attendant.

The Contractor shall facilitate in the delivery of training by instructing and motivating the hired labour and relevant Targeted Enterprises regarding attendance and participation. All training shall take place within normal working hours, or as agreed with the trainees.

G1009.10 Development training

The Contractor will arrange training to support the development of the Targeted Enterprise. This training must be provided by training providers accredited with the relevant SETA pertaining to the course material being presented. The training will take place at hours agreed with the trainees, possibly on a part time basis after hours.

The following training courses are recommended to support the development programme detailed in the contract document:

- NQF Level 2: Construction Contractor - Business owner and administration officer;
- Tender training NQF Level 3 – Business owner / Technical expert;
- Computer literacy training - Business owner and admin officer – Microsoft Windows, email, Microsoft Word and Microsoft Excel;
- General bookkeeping relevant to construction - Business owner and admin officer;
- Tendering NQF Level 4 and 5 – Business owner / Technical expert;
- Construction supervision (Roadworks) NQF Level 4 – Business owner / Technical expert.

G1009.11 Safety Training

The Targeted Enterprise safety representative is to be fully trained in all aspects of safety and his duties in this regard. The owner of the Targeted Enterprise is to be trained on their responsibilities regarding safety regulations.

G1009.12 Engineering skills training

The focus of training provided on the contract should be to support the development of the Targeted Enterprise. Engineering skills training will only be approved by the PMT when appropriate.

The Targeted Enterprise, their workforce and hired labour that show initiative will be entitled to receive structured training that will improve on-task skills necessary for the execution and successful completion of the works. The Contractor, in conjunction with the Employer's Agent, shall monitor the progress of the hired labour and each Targeted Enterprise closely and shall identify those who, in their collective opinion, will benefit from structured engineering skills training as may be provided for in the contract, and where required by the Employer's Agent shall make recommendations in this regard. The final list of candidates shall be decided between the Contractor and the Employer's Agent, and those selected shall receive formal engineering skills training in a programmed and progressive manner throughout the duration of the contract.

The training programme shall offer complete courses that could comprise some or all of the following modules:

(i) Use and maintenance of hand tools;
(ii) Operation of equipment;
(iii) Manufacture and installation of minor precast concrete units;
(iv) Erect, dismantle and maintain formwork;
(v) Basic concrete skills;
(vi) Excavation, backfill and compaction;
(vii) Bricklaying;
(viii) Erosion protection using stone pitching, gabions or renos.

G1009.13 Training venue facility

The training venue facility to be provided by the Contractor shall be constructed, furnished and fully serviced for the duration of the contract in accordance with section 1400 of the COLTO standard specifications. The facility shall accommodate a class of up to 25 learners and shall comprise the following:

(a) Lecture room (interior area) = 48 m^2
(b) Ablutions (male) = 6 m^2
(c) Ablutions (female) = 6 m^2
(d) Chairs for learners (individual chairs, with backs) = 25 off
(e) Desk area for 25 learners (500 mm width) = 12,5 m^2
(f) Chairs for trainers and management (individual chairs, with backs) = 5 off
(g) Table area for trainers and management = 3 m^2
(h) 220/250 volt power points = 6 off
(i) Double 80 watt fluorescent light fittings complete with ballast and tubes = 6 off
(j) Single incandescent light fittings complete with 100 watt globes = 4 off
(k) Wash hand basins complete with taps and drains = 4 off
(l) Fire extinguishers, 9,0 kg, all-purpose dry powder type, complete, mounted on wall with brackets = 2 off
(m) Air conditioning units with 2,2 kW minimum capacity, mounted and with own power connection = 4 off
(n) Voltage stabilizers = 2 off
(o) Floodlights complete with poles and 500-Watt minimum globes and controlled by photocells = 2 off
(p) White boards (3 m x 1,5 m) = 1 off
(q) Venetian blinds = 12 m^2

C4: SITE INFORMATION

TABLE OF CONTENTS **Page**

C4.1 LOCALITY PLAN C142
C4.2 EXAMPLE OF CONTRACT SIGNBOARD DETAIL C143
C4.3 DRAWINGS C145

C4.1 LOCALITY PLAN

See attached drawing WMMLM/LOC/01 Locality Plan.

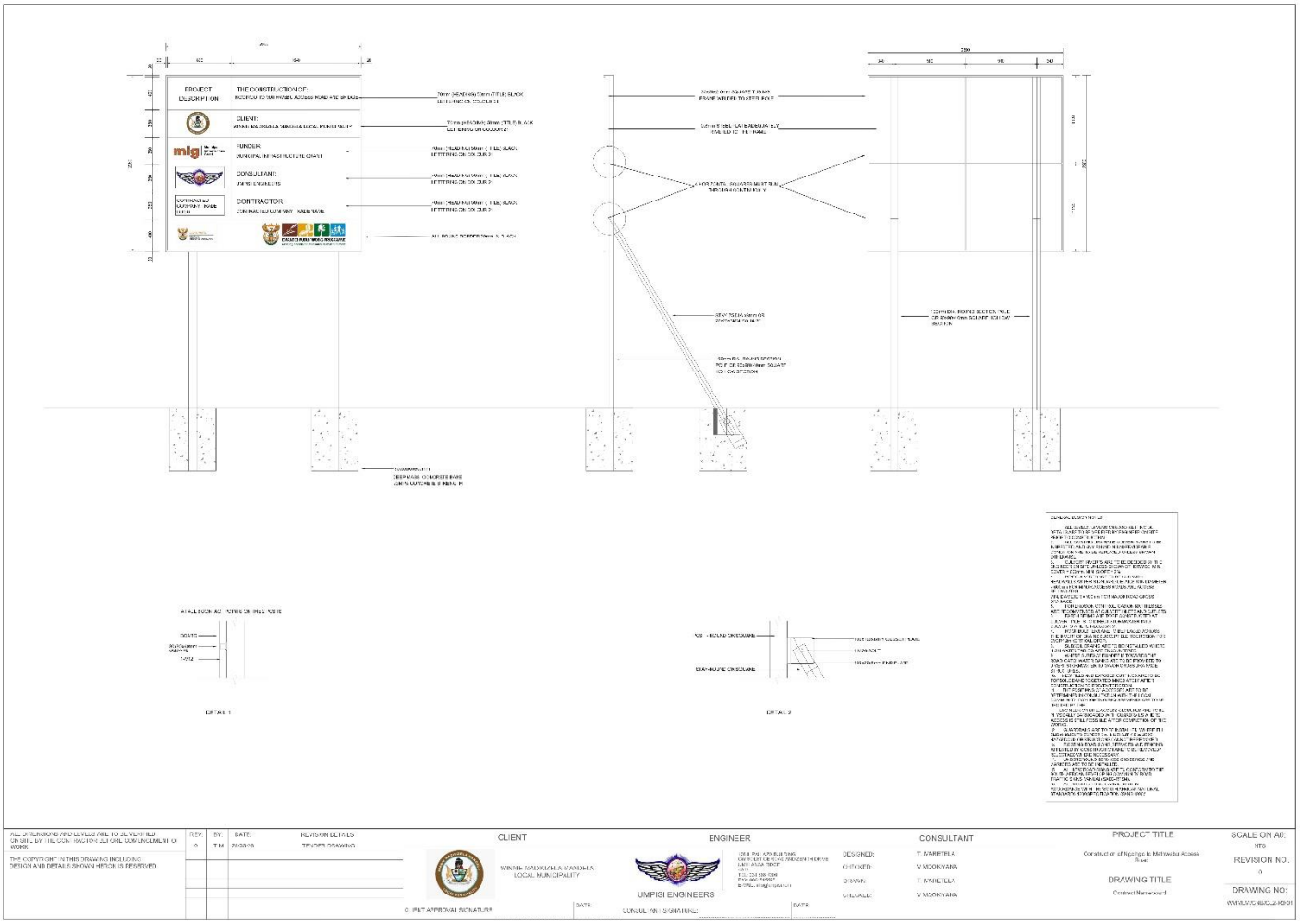


The following are the co-ordinates of the project area

	Start of Road 1	**End of Road 1**
Lat	31° 3'43.17"S	31° 3'39.00"S
Long	30° 8'39.27"E	30° 7'54.10"E

C4.2 EXAMPLE CONTRACT SIGNBOARD DETAIL

See attached drawing WMMLM/CNB/MXH/00 for Signboard or Name Board Detail.



C4.3 DRAWINGS

The drawings issued to tenders as part of the tender documents must be regarded as provisional and preliminary for the tenderer's benefit to generally assess the scope of work. The work shall be carried out in accordance with the latest available revision of the drawings Approved for Construction (AFC).

At commencement of the contract, the Engineer shall deliver to the Contractor copies of the AFC drawings and any instructions required for the commencement of the works. From time to time thereafter during the progress of the works, the Engineer may issue further drawings for construction purposes as may be necessary for adequate construction, completion and defects correction of the works.

All drawings and specifications and copies thereof remain the property of the Employer, and the Contractor shall return all drawings and copies thereof to the Employer at the completion of the contract.

LIST OF DRAWINGS:

DRAWING No.	DESCRIPTION
	Cover Page
WMMLM/CNB/MXH/00	Name or Sign Board
WMMLM1/R1/LP/01	Locality Plan
WMMLM/OLP/01	Overall Layout Plan
WMMLM/CL1-R1/LS/01	Mxhantini Access Road - Longitudinal Section 1 of 5
WMMLM/CL1-R1/LS/02	Mxhantini Access Road - Longitudinal Section 2 of 5
WMMLM/CL1-R1/LS/03	Mxhantini Access Road - Longitudinal Section 3 of 5
WMMLM/CL1-R1/LS/04	Mxhantini Access Road - Longitudinal Section 4 of 5
WMMLM/CL1-R1/LS/05	Mxhantini Access Road – Longitudinal Section 5 of 5
WMMLM/CL1-R1/CS1/00	Cross-Sections for Chainage 10 – 280 XSect 1 of 7
WMMLM/CL1-R1/CS2/00	Cross-Sections for Chainage 290 – 560 XSect 2 of 7
WMMLM/CL1-R1/CS3/00	Cross-Sections for Chainage 570 – 840 XSect 3 of 7
WMMLM/CL1-R1/CS4/00	Cross-Sections for Chainage 850 – 1100 XSect 4 of 7
WMMLM/CL1-R1/CS5/00	Cross-Sections for Chainage 1110 – 1380 XSect 5 of 7
WMMLM/CL1-R1/CS6/00	Cross-Sections for Chainage 1390 – 1630 XSect 6 of 7
WMMLM/CL1-R1/CS7/00	Cross-Sections for Chainage 1640 – 1674 XSect 7 of 7
WMMLM/CL1-R1/CS1/00	Cross-Sections for Chainage 10 – 280 XSect 1 of 2
WMMLM/CL1-R1/CS2/00	Cross-Sections for Chainage 290 – 378 XSect 2 of 2
WMMLM/STD/RSD/00	Typical Road Section Details
WMMLM/STD/ID/00	Typical Intersection
WMMLM/STD/PBD/00	Typical Pipe Bedding Details
WMMLM/STD/HWD/00	Typical Headwall Details
WMMLM/STD/PCD/00	Typical Pipe Crossing Details
WMMLM/STD/SD/00	Typical Subsoil Drainage
WMMLM/STD/SDD/00	Typical side Drain
WMMLM/STD/RS/00	Typical Road Signs
WMMLM/STD/KCD/00	Typical Kerb and Channel Drains
WMMLM/STD/HBC/00	Headwall Bridge Crossing detail
WMMLM/STD/SID/00	Typical Stormwater Inlet Details
WMMLM /STD/SPR/00	Sign Posting For Roadworks
WMMLM /STD/PDL/00	Sign Posting For Detours and Lane closures
WMMLM /STD/PRS/00	Typical Positioning of Road Signs
WMMLM STD/EMS/00	Typical Erection Of Metal Signs
WMMLM STD/GRD/00	Typical Gabion Retaining Wall Details
WMMLM /STD/RDD/00	Typical Road Drainage Details
WMMLM/PCB/01	1500 x 1500 Portal Culvert Bridge Reinforced Concrete Layout Plan
WMMLM/PCB/02	1500 x 1500 Portal Culvert Bridge Reinforcement Details Layout Plan

C4.3 DRAWINGS

See attached Drawings Annexure A

Curve List

Road1

No	Radius	TR.In	TR.Out	TAN.In	TAN.Out	Deflection
0	0.00	0.00	0.00	0.00	0.00	0:00:00
1	100.00	0.00	0.00	16.43	16.43	18:39:42
2	50.00	0.00	0.00	13.09	13.09	29:21:00
3	20.00	0.00	0.00	10.47	10.47	55:14:30
4	20.00	0.00	0.00	6.11	6.11	33:57:36
5	40.00	0.00	0.00	9.51	9.51	26:44:05
6	50.00	0.00	0.00	0.40	0.40	0:55:37
7	68.45	0.00	0.00	8.18	8.18	13:37:15
8	150.00	0.00	0.00	14.78	14.78	11:15:23
9	0.00	0.00	0.00	0.00	0.00	1:12:09
10	20.00	0.00	0.00	20.70	20.70	91:57:42
11	34.71	0.00	0.00	32.77	32.77	86:42:31
12	50.00	0.00	0.00	22.43	22.43	48:19:33
13	50.00	0.00	0.00	10.97	10.97	24:44:46
14	50.56	0.00	0.00	20.42	20.42	43:59:13
15	100.00	0.00	0.00	13.62	13.62	15:30:28
16	40.52	0.00	0.00	36.41	36.41	83:52:50
17	35.98	0.00	0.00	68.71	68.71	124:43:36
18	0.00	0.00	0.00	0.00	0.00	0:00:00

Road2

No	Radius	TR.In	TR.Out	TAN.In	TAN.Out	Deflection
0	0.00	0.00	0.00	0.00	0.00	0:00:00
1	40.00	0.00	0.00	5.72	5.72	16:17:06
2	50.00	0.00	0.00	14.81	14.81	33:00:25
3	40.00	0.00	0.00	14.60	14.60	40:05:37
4	20.00	0.00	0.00	9.82	9.82	52:17:44
5	0.00	0.00	0.00	0.00	0.00	0:00:00

Road List

Road1

Position	SV	Y-Coord	X-Coord	Radius
PI0	0	81660.39	3438144.14	0.00
BCC1	42.80	81699.13	3438162.33	
PI1	59.09	81714.01	3438169.32	100.00
ECC1	75.38	81730.33	3438171.17	
BCC2	88.87	81743.74	3438172.70	
PI2	101.68	81756.75	3438174.18	50.00
ECC2	114.49	81767.37	3438181.84	
BCC3	117.29	81769.64	3438183.49	
PI3	126.93	81778.13	3438189.61	20.00
ECC3	136.57	81788.00	3438186.14	
BCC4	156.08	81806.39	3438179.66	
PI4	162.00	81812.15	3438177.63	20.00
ECC4	167.93	81815.80	3438172.73	
BCC5	187.76	81827.63	3438156.81	
PI5	197.09	81833.30	3438149.19	40.00
ECC5	206.43	81841.80	3438144.93	
BCC6	344.29	81965.04	3438083.13	
PI6	344.69	81965.40	3438082.95	50.00
ECC6	345.10	81965.76	3438082.77	
BCC7	381.25	81997.81	3438066.04	
PI7	389.39	82005.06	3438062.26	68.45
ECC7	397.52	82012.99	3438060.29	
BCC8	477.51	82090.63	3438041.03	
PI8	492.25	82104.97	3438037.47	150.00
ECC8	506.98	82119.74	3438036.78	
BCC9	613.31	82225.95	3438031.80	
PI9	613.31	82225.95	3438031.80	0.00
ECC9	613.31	82225.95	3438031.80	
BCC10	634.35	82246.94	3438030.38	
PI10	650.40	82267.59	3438028.98	20.00
ECC10	666.45	82268.28	3438049.66	
BCC11	861.08	82274.80	3438244.19	
PI11	887.35	82275.90	3438276.94	34.71
ECC11	913.61	82308.66	3438277.73	
BCC12	960.74	82355.78	3438278.85	
PI12	981.82	82378.20	3438279.39	50.00
ECC12	1002.91	82393.51	3438263.00	
BCC13	1004.90	82394.87	3438261.54	
PI13	1015.70	82402.36	3438253.53	50.00
ECC13	1026.49	82405.80	3438243.11	
BCC14	1061.40	82416.76	3438209.97	
PI14	1080.81	82423.18	3438190.58	50.56
ECC14	1100.22	82441.25	3438181.08	
BCC15	1196.15	82526.18	3438136.47	
PI15	1209.69	82538.24	3438130.14	100.00
ECC15	1223.22	82548.16	3438120.81	
BCC16	1387.70	82668.02	3438008.17	
PI16	1417.36	82694.55	3437983.24	40.52
ECC16	1447.03	82722.17	3438006.96	
BCC17	1568.23	82814.12	3438085.94	
PI17	1607.39	82866.24	3438130.70	35.98
ECC17	1646.55	82873.34	3438062.36	
PI18	1673.68	82876.15	3438035.38	

Road2

Position	SV	Y-Coord	X-Coord	Radius
PI0	2.70	81972.44	3438082.32	0.00
BCC1	76.20	82009.49	3438145.80	
PI1	81.89	82012.38	3438150.75	40.00
ECC1	87.57	82016.53	3438154.68	
BCC2	155.40	82065.77	3438201.32	
PI2	169.80	82076.53	3438211.51	50.00
ECC2	184.20	82091.10	3438214.19	
BCC3	210.51	82116.97	3438218.96	
PI3	224.50	82131.32	3438221.60	40.00
ECC3	238.50	82144.01	3438214.38	
BCC4	248.76	82152.93	3438209.30	
PI4	257.89	82161.46	3438204.44	20.00
ECC4	267.02	82170.52	3438208.22	
PI5	378.08	82273.03	3438250.97	

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DRAWING KEY

- Typical Road Crossing (Catchpit-and-headwall)
- Typical Road Crossing (Catchpit)
- 110mmØ subsoil drainage pipe
- Stormwater drainage pipe
- 6m wide Asphalt Surface

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: | Date:

UMPISI ENGINEERS
ADRESS :108 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND ZENITH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: | Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

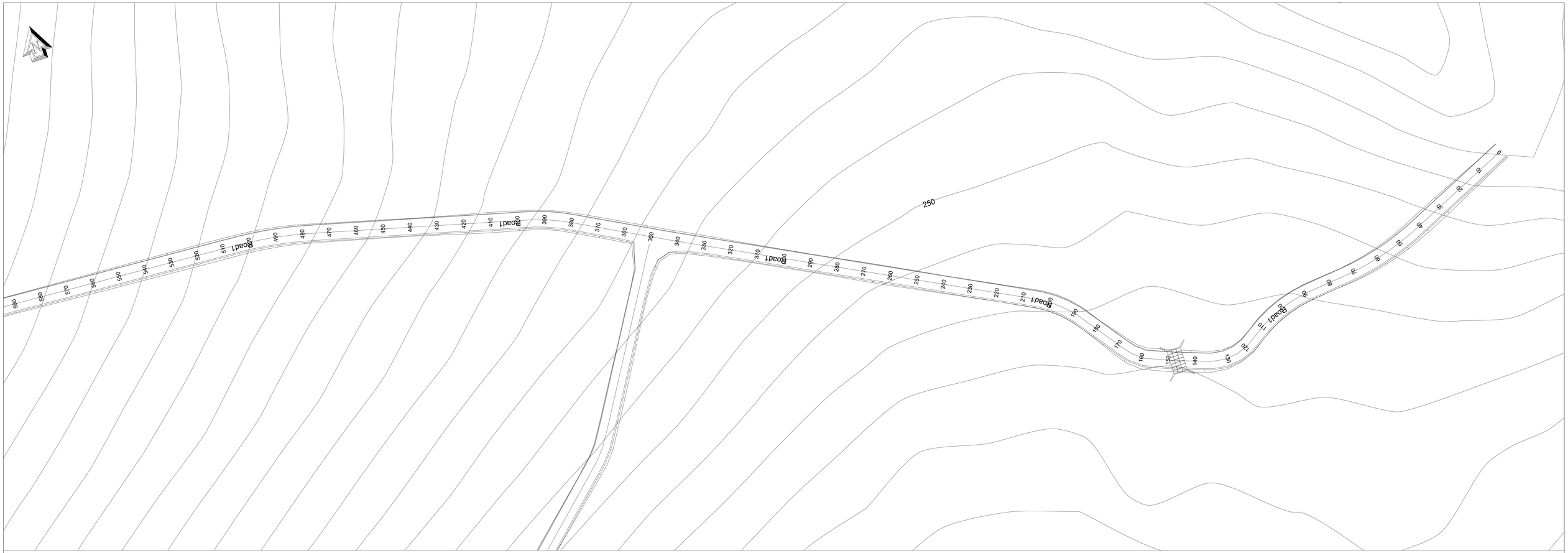
Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

Drawing Title:

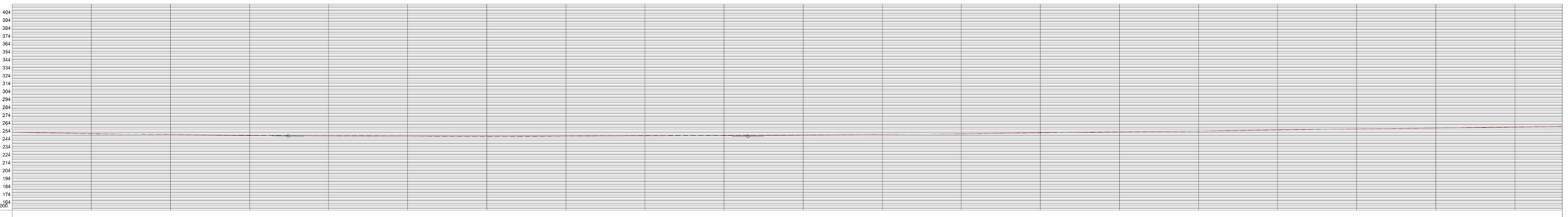
OVERALL LOCALITY PLAN

Scale:	Date:
NTS	14 October 2026
Drawing No. WMMLM/OLP/01	Rev No. 0

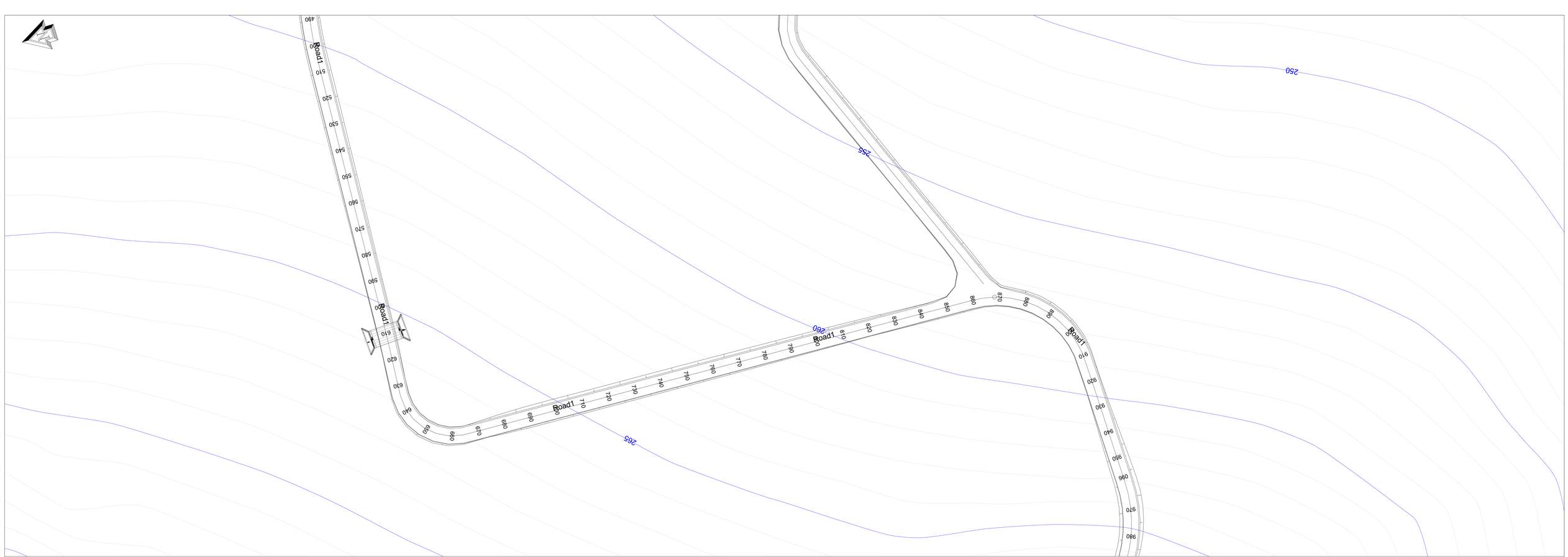


DRAWING KEY

- Typical Road Crossing (Catchpit-and-headwall)
- 110mmØ subsoil drainage pipe
- Stormwater drainage pipe

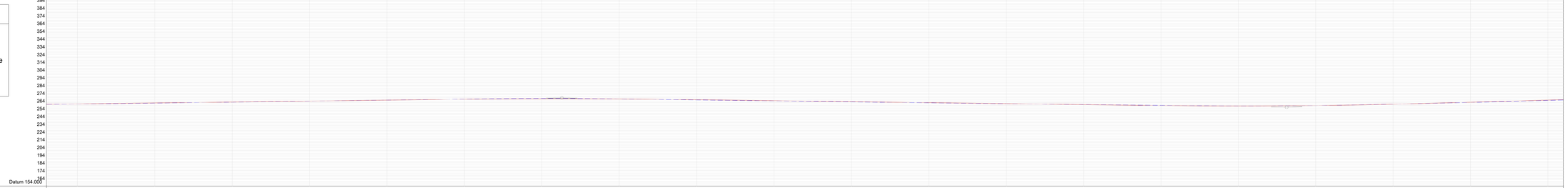


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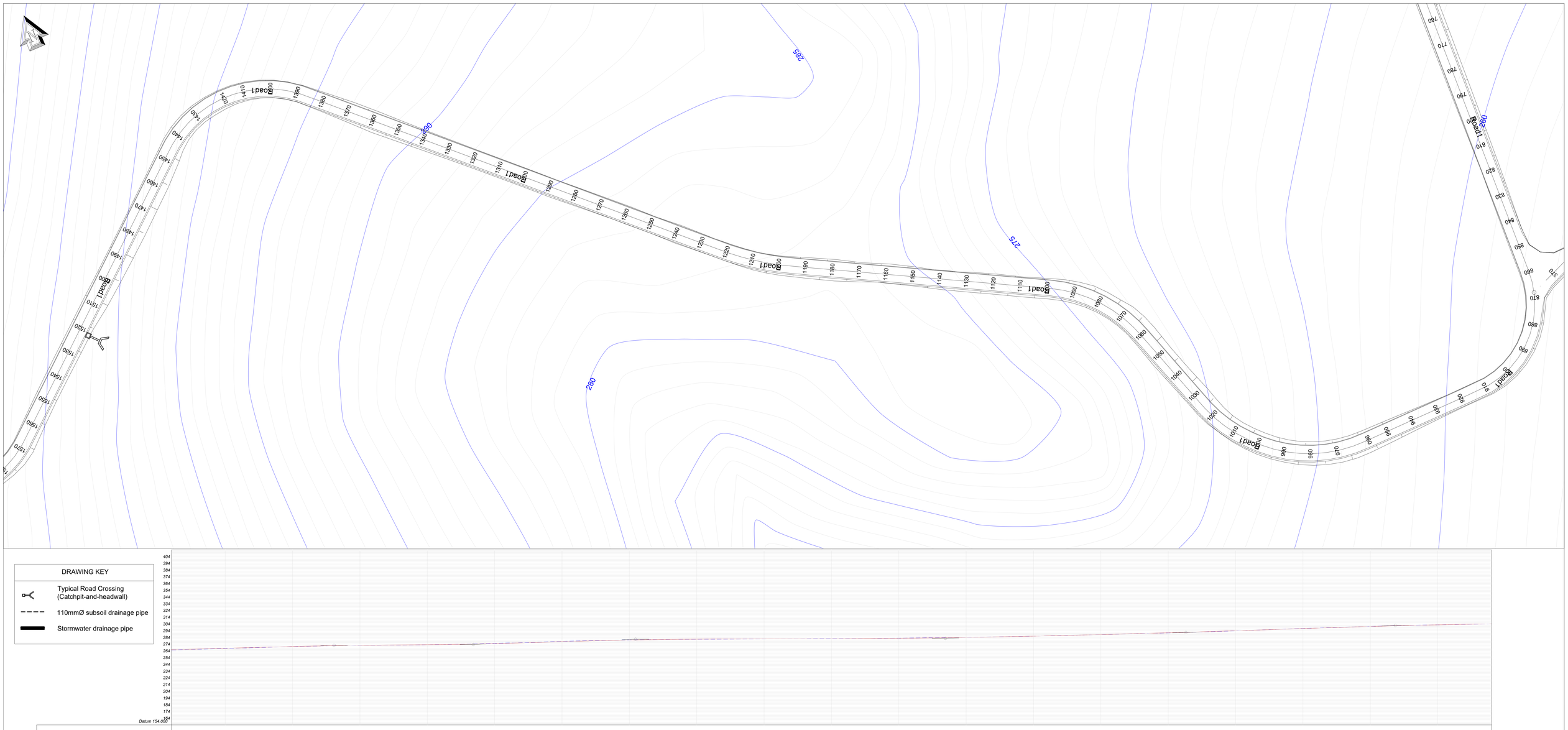


DRAWING KEY

- Typical Road Crossing (Catchpit-and-headwall)
- 110mmØ subsoil drainage pipe
- Stormwater drainage pipe



| | | |



LONGSECTION FROM CHAINAGE 980 TO 1470

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0	T.M	14/10/26	DRAWING ISSUED FOR CONSTRUCTION

CLIENT

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

CLIENT APPROVAL SIGNATURE: ..... DATE: .....

ENGINEER

UMPISI ENGINEERS

108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT

DESIGNED:	T. MARETELA
CHECKED:	V MQOKIYANA
DRAWN:	T. MARETELA
CHECKED:	V MQOKIYANA

CONSULTANT SIGNATURE: ..... DATE: .....

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

DRAWING TITLE

Longitudinal Section 3 of 5

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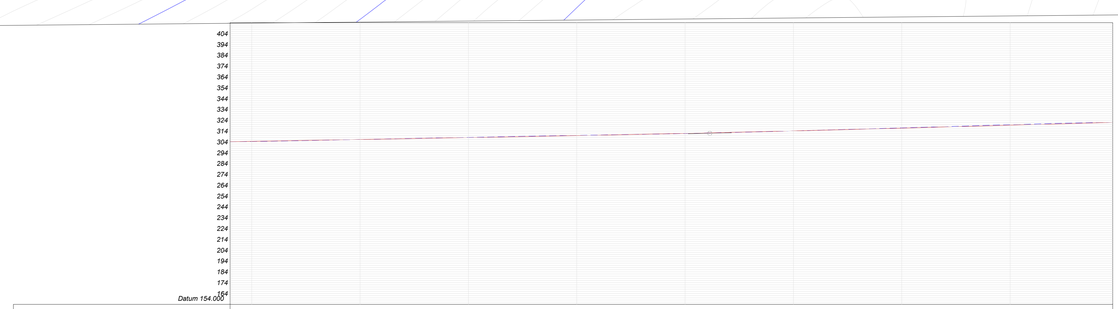
REVISION NO. 0

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DRAWING KEY

- Typical Road Crossing (Catchpit-and-headwall)
- 110mmØ subsoil drainage pipe
- Stormwater drainage pipe



			1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1575	1580	1585	1590	1595	1600	1605	1610	1615	1620	1625	1630	1635	1640	1645	1650	1660	1670	1673.68
C/L/ Peg Levels			304.00	304.67	305.40	306.16	306.99	307.81	308.52	309.27	310.04	310.65	311.29	311.72	312.24	312.66	313.08	313.66	314.08	314.64	315.21	315.78	316.35	316.90	317.44	318.02	318.67	319.29	319.86	320.98	321.72	321.998
Vertical Alignment	Design Road Levels	Left Edge	304.07	304.77	305.47	306.16	306.86	307.55	308.25	308.96	309.71	310.50	311.33	311.76	312.21	312.66	313.12	313.59	314.07	314.56	315.06	315.56	316.08	316.61	317.15	317.70	318.24	318.79	319.34	320.43	321.62	321.92
		Centre Line	304.13	304.82	305.52	306.21	306.91	307.61	308.30	309.01	309.77	310.56	311.39	311.82	312.26	312.71	313.17	313.64	314.12	314.61	315.11	315.62	316.14	316.67	317.21	317.75	318.30	318.84	319.39	320.48	321.67	321.97
		Right Edge	304.19	304.88	305.58	306.27	306.97	307.67	308.36	309.07	309.83	310.62	311.45	311.88	312.32	312.77	313.23	313.70	314.18	314.67	315.17	315.68	316.20	316.73	317.27	317.81	318.36	318.90	319.45	320.54	321.63	322.03
	Grades		1580.700 311.827 1673.677 6.955 % 10.912 % 321.973																													
	Vertical Curves		B.V.C. 1520.700 151.700	100.000m VC K = 25.267																												E.V.C. 1630.700 B.V.C. 1673.677
	Superelevation		2.000 -2.000																													
	Horizontal Curves		Direction 49.20.26																													
	Chainages		1470	1480	1490	1500	1510	1520	1530	1540	1550	1560	1570	1575	1580	1585	1590	1595	1600	1605	1610	1615	1620	1625	1630	1635	1640	1645	1650	1660	1670	1673.68

LONGSECTION FROM CHAINAGE 1470 TO 1673

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REV:	BY:	DATE:	REVISION DETAILS
0	T.M	14/10/26	DRAWING ISSUED FOR CONSTRUCTION

CLIENT
Longsection for 1470 to 1673

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

CLIENT APPROVAL SIGNATURE: ..... DATE: .....

ENGINEER

UMPISI ENGINEERS
108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT

DESIGNED:	T. MARETELA
CHECKED:	V MQOKIYANA
DRAWN:	T. MARETELA
CHECKED:	V MQOKIYANA

CONSULTANT SIGNATURE: ..... DATE: .....

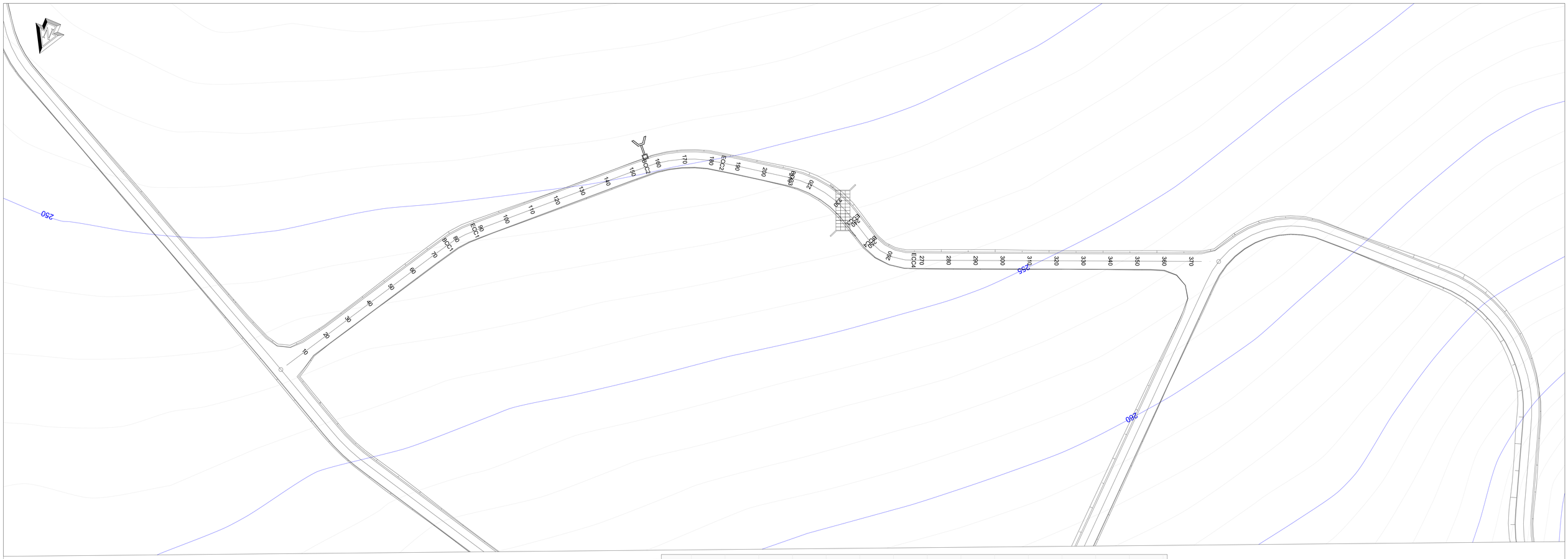
PROJECT TITLE
REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

DRAWING TITLE
Longitudinal Section 4 of 5

SCALE ON A0: NTS

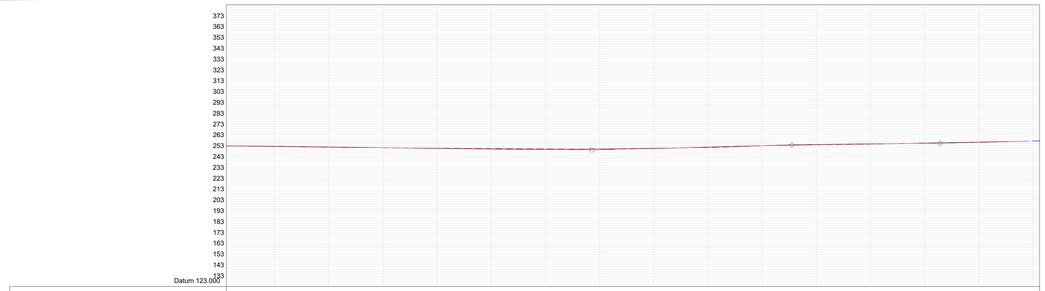
REVISION NO. 0

DRAWING NO: WMMLM/CL1-R1/LS/04



DRAWING KEY

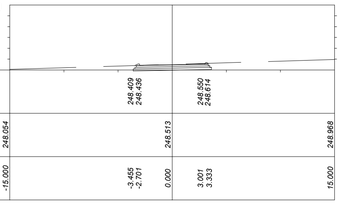
- Typical Road Crossing (Catchpit-and-headwall)
- 110mmØ subsoil drainage pipe
- Stormwater drainage pipe



| | | |

CHAINAGE 70

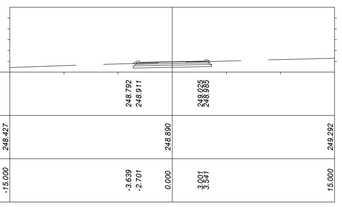
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED		248.409 248.436		248.550 248.614		
GROUND	248.054		248.513			248.968
OFFSET	-15.000	-3.455 -2.701	0.000	3.001 3.333		15.000

CHAINAGE 60

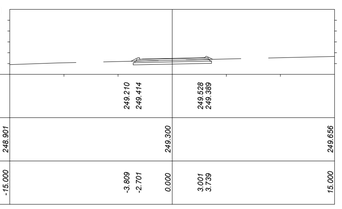
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED		248.792 248.911		249.025 249.095		
GROUND	248.427		248.890			249.292
OFFSET	-15.000	-3.639 -2.701	0.000	3.001 3.541		15.000

CHAINAGE 50

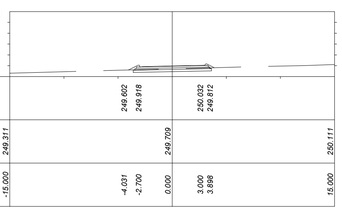
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED		249.210 249.414		249.528 249.389		
GROUND	248.901		249.300			249.556
OFFSET	-15.000	-3.809 -2.701	0.000	3.001 3.739		15.000

CHAINAGE 40

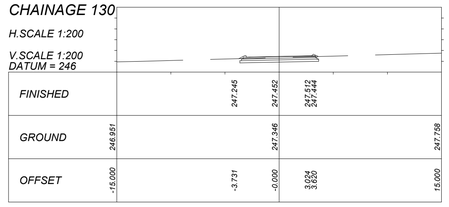
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED		249.602 249.918		250.032 249.912		
GROUND	249.311		249.709			250.111
OFFSET	-15.000	-4.031 -2.700	0.000	3.000 3.898		15.000

CHAINAGE 130

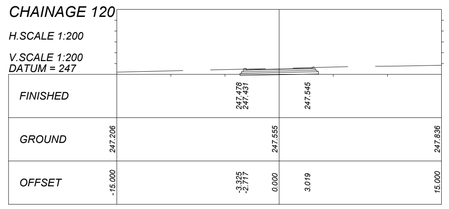
H.SCALE 1:200
V.SCALE 1:200
DATUM = 246



FINISHED		247.245	247.452	247.512 247.448		
GROUND	246.951		247.346			247.758
OFFSET	-15.000	-3.731	-0.000	3.004 3.004		15.000

CHAINAGE 120

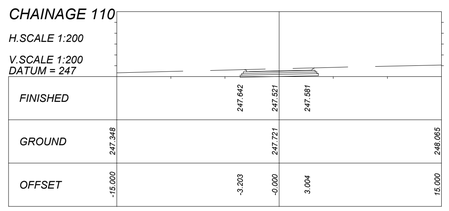
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.478 247.447		247.545		
GROUND	247.206		247.555			247.836
OFFSET	-15.000	-3.315 -2.717	0.000	3.019		15.000

CHAINAGE 110

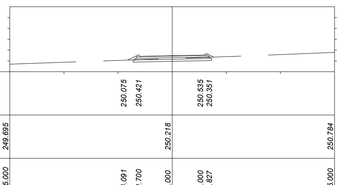
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.642	247.521	247.581		
GROUND	247.348		247.721			248.065
OFFSET	-15.000	-3.203	-0.000	3.004		15.000

CHAINAGE 30

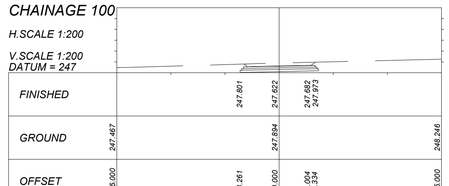
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED		250.075 250.421		250.535 250.351		
GROUND	249.695		250.218			250.784
OFFSET	-15.000	-4.091 -2.700	0.000	3.000 3.827		15.000

CHAINAGE 100

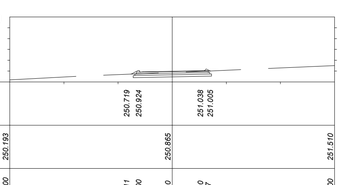
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.801	247.622	247.682 247.610		
GROUND	247.467		247.894			248.246
OFFSET	-15.000	-3.261	-0.000	3.004 3.334		15.000

CHAINAGE 20

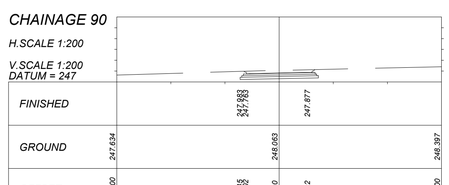
H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED		250.719 250.924		251.038 251.005		
GROUND	250.193		250.865			251.510
OFFSET	-15.000	-3.811 -2.700	0.000	3.000 3.527		15.000

CHAINAGE 90

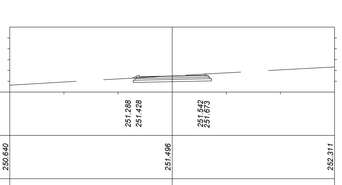
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.883 247.793		247.877		
GROUND	247.634		248.083			248.397
OFFSET	-15.000	-3.245 -2.702	0.000	3.002		15.000

CHAINAGE 10

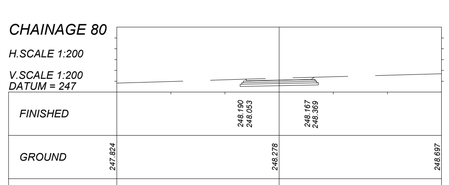
H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED		251.288 251.428		251.642 251.673		
GROUND	250.640		251.496			252.311
OFFSET	-15.000	-3.678 -2.700	0.000	3.000 3.198		15.000

CHAINAGE 80

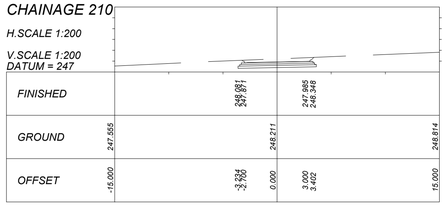
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		248.190 248.053		248.167 248.099		
GROUND	247.824		248.278			248.697
OFFSET	-15.000	-3.162 -2.700	0.000	3.001 3.201		15.000

CHAINAGE 210

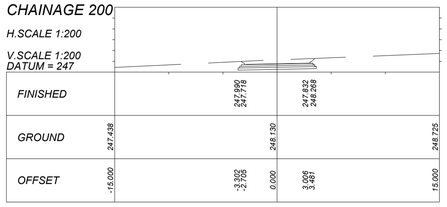
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		248.681 248.891		247.985 246.346		
GROUND	247.555		248.211			248.814
OFFSET	-15.000	-3.704 -2.700	0.000	3.000 3.402		15.000

CHAINAGE 200

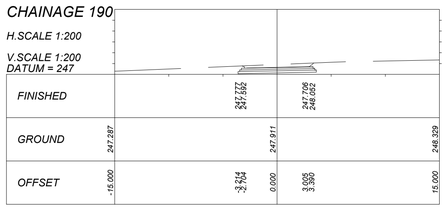
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.990 247.718		247.832 248.268		
GROUND	247.438		248.130			248.725
OFFSET	-15.000	-3.393 -2.700	0.000	3.006 3.481		15.000

CHAINAGE 190

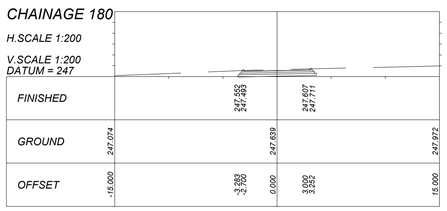
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.777 247.592		247.726 248.022		
GROUND	247.387		247.911			248.329
OFFSET	-15.000	-3.744 -2.700	0.000	3.005 3.900		15.000

CHAINAGE 180

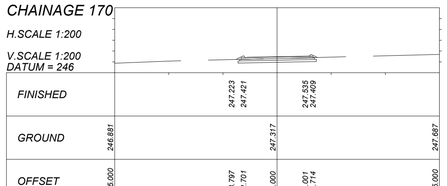
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		247.582 247.393		247.607 247.711		
GROUND	247.074		247.639			247.972
OFFSET	-15.000	-3.783 -2.700	0.000	3.000 3.252		15.000

CHAINAGE 170

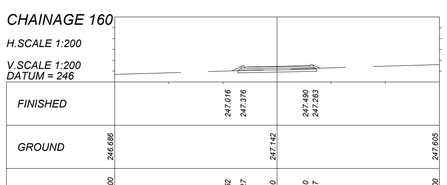
H.SCALE 1:200
V.SCALE 1:200
DATUM = 246



FINISHED		247.233	247.421	247.535 247.409		
GROUND	246.881		247.317			247.687
OFFSET	-15.000	-3.797 -2.701	0.000	3.001 3.714		15.000

CHAINAGE 160

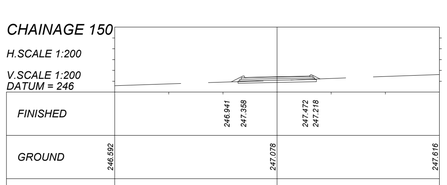
H.SCALE 1:200
V.SCALE 1:200
DATUM = 246



FINISHED		247.016	247.376	247.490 247.263		
GROUND	246.686		247.142			247.605
OFFSET	-15.000	-4.152 -2.727	0.000	3.030 3.947		15.000

CHAINAGE 150

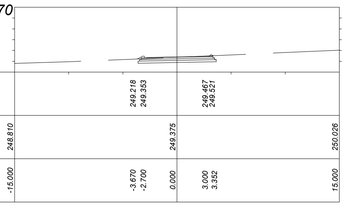
H.SCALE 1:200
V.SCALE 1:200
DATUM = 246



FINISHED		246.941	247.358	247.472 247.218		
GROUND	246.592		247.078			247.616
OFFSET	-15.000	-4.235 -2.700	0.000	3.001 3.969		15.000

CHAINAGE 270

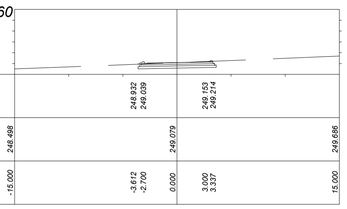
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED		249.218 249.333		249.467 249.521		
GROUND	248.810		249.375			250.026
OFFSET	-15.000	-3.670 -2.700	0.000	3.000 3.352		15.000

CHAINAGE 260

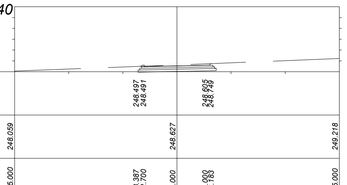
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED		248.932 249.039		249.153 249.214		
GROUND	248.498		249.079			249.686
OFFSET	-15.000	-3.612 -2.700	0.000	3.000 3.337		15.000

CHAINAGE 240

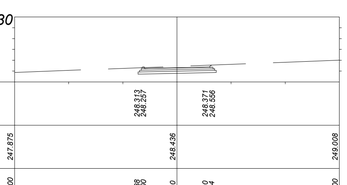
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED		248.497 248.491		248.908 248.908		
GROUND	248.059		248.627			249.218
OFFSET	-15.000	-3.587 -2.700	0.000	3.000 3.193		15.000

CHAINAGE 230

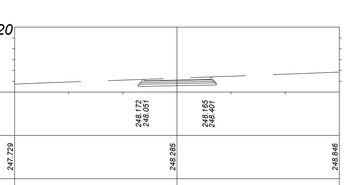
H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		248.313 248.297		248.371 248.368		
GROUND	247.675		248.436			249.008
OFFSET	-15.000	-3.788 -2.700	0.000	3.000 3.224		15.000

CHAINAGE 220

H.SCALE 1:200
V.SCALE 1:200
DATUM = 247



FINISHED		248.172 248.051		248.465 248.467		
GROUND	247.729		248.285			248.846
OFFSET	-15.000	-3.156 -2.700	0.000	3.000 3.206		15.000

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: Date:

UMPISI ENGINEERS
ADRESS :108 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

ROAD CROSS SECTION 1 OF 7

Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS1/00	Rev No. 0

CHAINAGE 350

H.SCALE 1:200

V.SCALE 1:200
DATUM = 252

FINISHED		252.832 252.779		252.893 252.742	
GROUND	252.463		252.686		252.970
OFFSET	-15.000	-3.894 -2.700	0.000	3.000 3.162	15.000

CHAINAGE 340

H.SCALE 1:200

V.SCALE 1:200
DATUM = 251

FINISHED		252.150 252.292		252.406 252.261	
GROUND	251.979		252.205		252.463
OFFSET	-15.000	-3.893 -2.700	0.000	3.000 3.148	15.000

CHAINAGE 330

H.SCALE 1:200

V.SCALE 1:200
DATUM = 251

FINISHED		251.686 251.804		251.918 251.784	
GROUND	251.475		251.739		252.019
OFFSET	-15.000	-3.655 -2.700	0.000	3.000 3.168	15.000

CHAINAGE 320

H.SCALE 1:200

V.SCALE 1:200
DATUM = 250

FINISHED		251.286 251.226		251.442 251.434	
GROUND	250.952		251.360		251.679
OFFSET	-15.000	-3.485 -2.700	0.000	3.000 3.016	15.000

CHAINAGE 310

H.SCALE 1:200

V.SCALE 1:200
DATUM = 250

FINISHED		250.890 250.819		250.993 251.009	
GROUND	250.508		250.973		251.314
OFFSET	-15.000	-3.398 -2.700	0.000	3.000 3.247	15.000

CHAINAGE 300

H.SCALE 1:200

V.SCALE 1:200
DATUM = 250

FINISHED		250.439 250.457		250.571 250.551	
GROUND	250.053		250.543		250.958
OFFSET	-15.000	-3.454 -2.700	0.000	3.000 3.209	15.000

CHAINAGE 290

H.SCALE 1:200

V.SCALE 1:200
DATUM = 249

FINISHED		250.048 250.062		250.176 250.200	
GROUND	249.609		250.178		250.651
OFFSET	-15.000	-3.429 -2.700	0.000	3.000 3.213	15.000

CHAINAGE 420

H.SCALE 1:200

V.SCALE 1:200
DATUM = 255

FINISHED		256.004 256.191		256.305 256.269	
GROUND	255.595		256.141		256.478
OFFSET	-15.000	-3.774 -2.700	0.000	3.000 3.331	15.000

CHAINAGE 410

H.SCALE 1:200

V.SCALE 1:200
DATUM = 255

FINISHED		255.454 255.703		255.818 255.700	
GROUND	255.102		255.578		255.969
OFFSET	-15.000	-3.898 -2.700	0.000	3.000 3.695	15.000

CHAINAGE 400

H.SCALE 1:200

V.SCALE 1:200
DATUM = 254

FINISHED		255.030 255.216		255.390 255.380	
GROUND	254.648		255.159		255.583
OFFSET	-15.000	-3.771 -2.700	0.000	3.000 3.380	15.000

CHAINAGE 390

H.SCALE 1:200

V.SCALE 1:200
DATUM = 254

FINISHED		254.600	254.783	254.843 254.822	
GROUND	254.299		254.713		255.147
OFFSET	-15.000	-3.659	-0.000	3.002 3.602	15.000

CHAINAGE 380

H.SCALE 1:200

V.SCALE 1:200
DATUM = 253

FINISHED		254.088 254.241		254.365 254.251	
GROUND	253.861		254.170		254.502
OFFSET	-15.000	-3.706 -2.700	0.000	3.000 3.688	15.000

CHAINAGE 370

H.SCALE 1:200

V.SCALE 1:200
DATUM = 253

FINISHED		253.678 253.754		253.868 253.716	
GROUND	253.408		253.647		253.921
OFFSET	-15.000	-3.751 -2.700	0.000	3.000 3.764	15.000

CHAINAGE 360

H.SCALE 1:200

V.SCALE 1:200
DATUM = 252

FINISHED		253.110 253.266		253.380 253.230	
GROUND	252.938		253.166		253.444
OFFSET	-15.000	-3.713 -2.700	0.000	3.000 3.759	15.000

CHAINAGE 490

H.SCALE 1:200

V.SCALE 1:200
DATUM = 259

FINISHED		259.439 259.603		259.717 259.605	
GROUND	259.123		259.522		259.856
OFFSET	-15.000	-3.728 -2.700	0.000	3.000 3.684	15.000

CHAINAGE 480

H.SCALE 1:200

V.SCALE 1:200
DATUM = 258

FINISHED		259.026 259.115		259.329 259.194	
GROUND	258.678		259.112		259.491
OFFSET	-15.000	-3.574 -2.700	0.000	3.000 3.531	15.000

CHAINAGE 470

H.SCALE 1:200

V.SCALE 1:200
DATUM = 258

FINISHED		258.588 258.628		258.742 258.768	
GROUND	258.187		258.679		259.071
OFFSET	-15.000	-3.479 -2.700	0.000	3.000 3.407	15.000

CHAINAGE 460

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257

FINISHED		258.119 258.141		258.255 258.287	
GROUND	257.680		258.204		258.573
OFFSET	-15.000	-3.443 -2.700	0.000	3.000 3.394	15.000

CHAINAGE 450

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257

FINISHED		257.664 257.653		257.767 257.815	
GROUND	257.180		257.750		258.038
OFFSET	-15.000	-3.378 -2.700	0.000	3.000 3.364	15.000

CHAINAGE 440

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256

FINISHED		257.175 257.166		257.280 257.372	
GROUND	256.669		257.322		257.546
OFFSET	-15.000	-3.381 -2.700	0.000	3.000 3.374	15.000

CHAINAGE 430

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256

FINISHED		256.600 256.678		256.792 256.866	
GROUND	256.120		256.749		257.024
OFFSET	-15.000	-3.557 -2.700	0.000	3.000 3.313	15.000

CHAINAGE 560

H.SCALE 1:200

V.SCALE 1:200
DATUM = 262

FINISHED		262.824 263.015		263.129 263.080	
GROUND	262.432		262.966		263.482
OFFSET	-15.000	-3.781 -2.700	0.000	3.000 3.566	15.000

CHAINAGE 550

H.SCALE 1:200

V.SCALE 1:200
DATUM = 261

FINISHED		262.319 262.327		262.641 262.587	
GROUND	261.947		262.447		262.954
OFFSET	-15.000	-3.815 -2.700	0.000	3.000 3.668	15.000

CHAINAGE 540

H.SCALE 1:200

V.SCALE 1:200
DATUM = 261

FINISHED		261.817 262.040		262.154 262.065	
GROUND	261.460		261.939		262.426
OFFSET	-15.000	-3.845 -2.700	0.000	3.000 3.657	15.000

CHAINAGE 530

H.SCALE 1:200

V.SCALE 1:200
DATUM = 260

FINISHED		261.308 261.553		261.657 261.541	
GROUND	260.967		261.427		261.894
OFFSET	-15.000	-3.889 -2.700	0.000	3.000 3.711	15.000

CHAINAGE 520

H.SCALE 1:200

V.SCALE 1:200
DATUM = 260

FINISHED		260.795 261.065		261.179 261.025	
GROUND	260.448		260.913		261.364
OFFSET	-15.000	-3.939 -2.700	0.000	3.000 3.766	15.000

CHAINAGE 510

H.SCALE 1:200

V.SCALE 1:200
DATUM = 259

FINISHED		260.301 260.578		260.692 260.538	
GROUND	259.953		260.417		260.887
OFFSET	-15.000	-3.962 -2.700	0.000	3.000 3.766	15.000

CHAINAGE 500

H.SCALE 1:200

V.SCALE 1:200
DATUM = 259

FINISHED		259.876 260.090		260.204 260.075	
GROUND	259.544		259.977		260.370
OFFSET	-15.000	-3.977 -2.700	0.000	3.000 3.717	15.000

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: | Date:

UMPISI ENGINEERS
ADRESS :108 iL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND ZENITH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: | Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

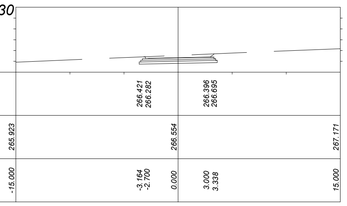
ROAD CROSS SECTION SHEET 2 OF 7

Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS2/00	Rev No. 0

CHAINAGE 630

H.SCALE 1:200

V.SCALE 1:200
DATUM = 265

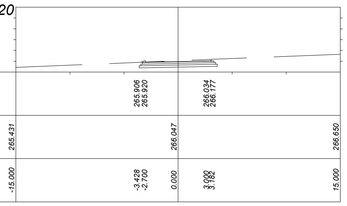


FINISHED		266.421	266.396		
		266.282	266.695		
GROUND	265.923		266.554		267.171
OFFSET	-15.000	-3.164 -2.700	0.000	3.000 3.338	15.000

CHAINAGE 620

H.SCALE 1:200

V.SCALE 1:200
DATUM = 265

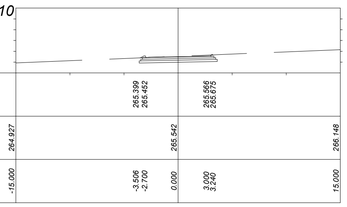


FINISHED		265.906	266.034		
		265.920	266.177		
GROUND	265.431		266.047		266.650
OFFSET	-15.000	-3.428 -2.700	0.000	3.000 3.192	15.000

CHAINAGE 610

H.SCALE 1:200

V.SCALE 1:200
DATUM = 264

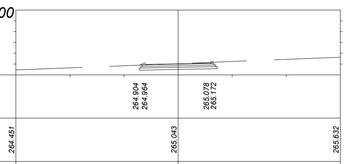


FINISHED		265.399	265.566		
		265.462	266.015		
GROUND	264.927		265.542		266.148
OFFSET	-15.000	-3.506 -2.700	0.000	3.000 3.446	15.000

CHAINAGE 600

H.SCALE 1:200

V.SCALE 1:200
DATUM = 264

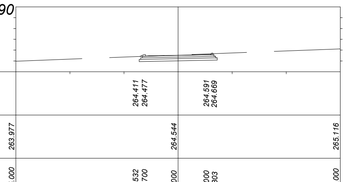


FINISHED		264.904	265.078		
		264.964	265.172		
GROUND	264.451		265.043		265.632
OFFSET	-15.000	-3.821 -2.700	0.000	3.000 3.275	15.000

CHAINAGE 590

H.SCALE 1:200

V.SCALE 1:200
DATUM = 263

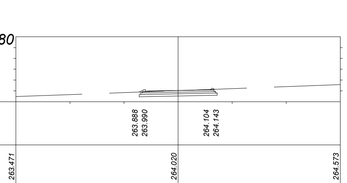


FINISHED		264.411	264.591		
		264.477	264.689		
GROUND	263.977		264.544		265.116
OFFSET	-15.000	-3.532 -2.700	0.000	3.000 3.303	15.000

CHAINAGE 580

H.SCALE 1:200

V.SCALE 1:200
DATUM = 263

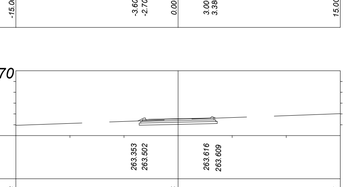


FINISHED		263.888	264.104		
		263.990	264.143		
GROUND	263.471		264.020		264.573
OFFSET	-15.000	-3.603 -2.700	0.000	3.000 3.380	15.000

CHAINAGE 570

H.SCALE 1:200

V.SCALE 1:200
DATUM = 262

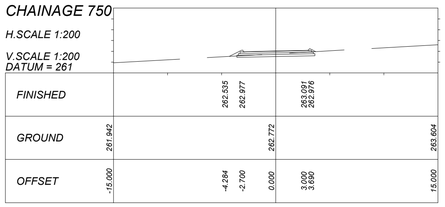


FINISHED		263.353	263.616		
		263.502	263.609		
GROUND	262.948		263.485		264.024
OFFSET	-15.000	-3.898 -2.700	0.000	3.000 3.473	15.000

CHAINAGE 750

H.SCALE 1:200

V.SCALE 1:200
DATUM = 261

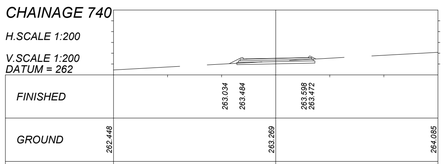


FINISHED		262.635	263.091		
		262.977	263.976		
GROUND	261.942		262.772		263.604
OFFSET	-15.000	-4.284 -2.700	0.000	3.000 3.680	15.000

CHAINAGE 740

H.SCALE 1:200

V.SCALE 1:200
DATUM = 262

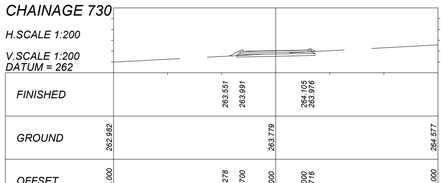


FINISHED		263.034	263.598		
		263.484	263.472		
GROUND	262.448		263.269		264.085
OFFSET	-15.000	-4.299 -2.700	0.000	3.000 3.710	15.000

CHAINAGE 730

H.SCALE 1:200

V.SCALE 1:200
DATUM = 262

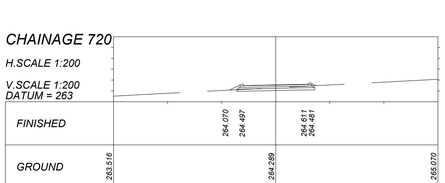


FINISHED		263.501	264.105		
		263.991	263.976		
GROUND	262.982		263.779		264.577
OFFSET	-15.000	-4.278 -2.700	0.000	3.000 3.716	15.000

CHAINAGE 720

H.SCALE 1:200

V.SCALE 1:200
DATUM = 263

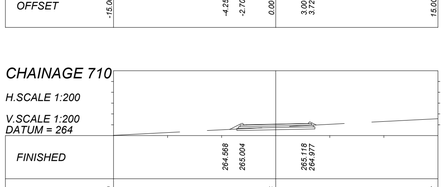


FINISHED		264.070	264.611		
		264.497	264.481		
GROUND	263.516		264.289		265.070
OFFSET	-15.000	-4.255 -2.700	0.000	3.000 3.721	15.000

CHAINAGE 710

H.SCALE 1:200

V.SCALE 1:200
DATUM = 264

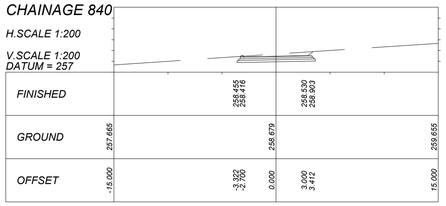


FINISHED		264.568	265.118		
		265.004	264.977		
GROUND	264.020		264.786		265.557
OFFSET	-15.000	-4.272 -2.700	0.000	3.000 3.741	15.000

CHAINAGE 840

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257

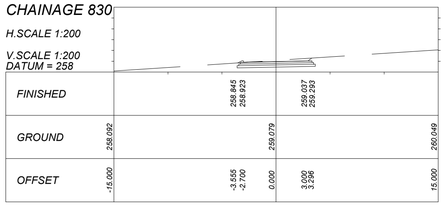


FINISHED		258.416	258.530		
		258.479	258.903		
GROUND	257.665		258.679		259.655
OFFSET	-15.000	-3.327 -2.700	0.000	3.000 3.412	15.000

CHAINAGE 830

H.SCALE 1:200

V.SCALE 1:200
DATUM = 258

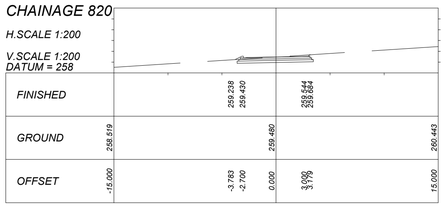


FINISHED		258.845	259.037		
		258.923	259.293		
GROUND	258.092		259.079		260.049
OFFSET	-15.000	-3.555 -2.700	0.000	3.000 3.396	15.000

CHAINAGE 820

H.SCALE 1:200

V.SCALE 1:200
DATUM = 258

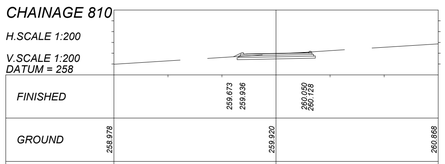


FINISHED		259.238	259.544		
		259.430	259.664		
GROUND	258.619		259.480		260.443
OFFSET	-15.000	-3.783 -2.700	0.000	3.000 3.176	15.000

CHAINAGE 810

H.SCALE 1:200

V.SCALE 1:200
DATUM = 258

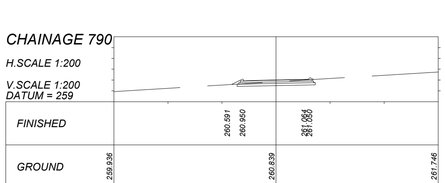


FINISHED		259.673	260.050		
		259.936	260.128		
GROUND	258.978		259.920		260.868
OFFSET	-15.000	-3.925 -2.700	0.000	3.000 3.304	15.000

CHAINAGE 790

H.SCALE 1:200

V.SCALE 1:200
DATUM = 259

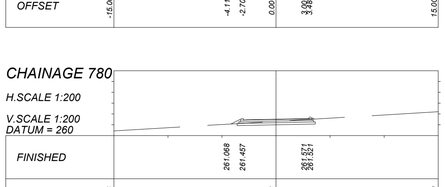


FINISHED		260.591	261.064		
		260.950	261.055		
GROUND	259.936		260.839		261.746
OFFSET	-15.000	-4.116 -2.700	0.000	3.000 3.288	15.000

CHAINAGE 780

H.SCALE 1:200

V.SCALE 1:200
DATUM = 260

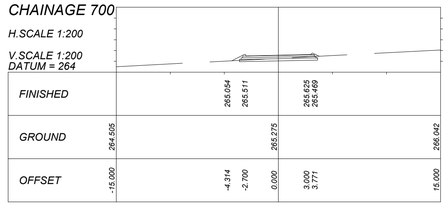


FINISHED		261.068	261.571		
		261.457	261.521		
GROUND	260.436		261.313		262.200
OFFSET	-15.000	-4.176 -2.700	0.000	3.000 3.559	15.000

CHAINAGE 700

H.SCALE 1:200

V.SCALE 1:200
DATUM = 264

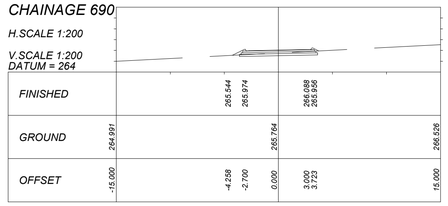


FINISHED		265.054	265.625		
		265.511	265.469		
GROUND	264.595		265.275		266.042
OFFSET	-15.000	-4.314 -2.700	0.000	3.000 3.771	15.000

CHAINAGE 690

H.SCALE 1:200

V.SCALE 1:200
DATUM = 264

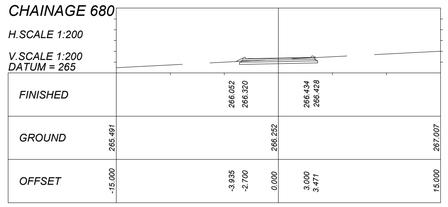


FINISHED		265.544	266.088		
		265.974	265.956		
GROUND	264.991		265.764		266.526
OFFSET	-15.000	-4.258 -2.700	0.000	3.000 3.733	15.000

CHAINAGE 680

H.SCALE 1:200

V.SCALE 1:200
DATUM = 265

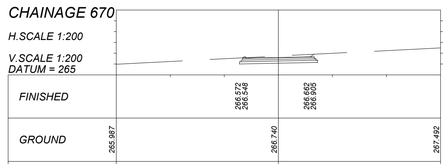


FINISHED		266.052	266.434		
		266.320	266.428		
GROUND	265.491		266.252		267.007
OFFSET	-15.000	-3.935 -2.700	0.000	3.000 3.471	15.000

CHAINAGE 670

H.SCALE 1:200

V.SCALE 1:200
DATUM = 265

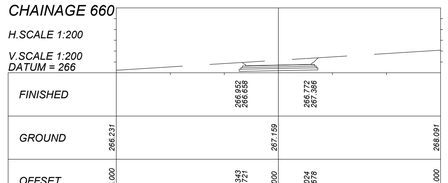


FINISHED		265.572	266.662		
		265.846	266.805		
GROUND	265.987		266.740		267.492
OFFSET	-15.000	-3.351 -2.700	0.000	3.000 3.282	15.000

CHAINAGE 660

H.SCALE 1:200

V.SCALE 1:200
DATUM = 266

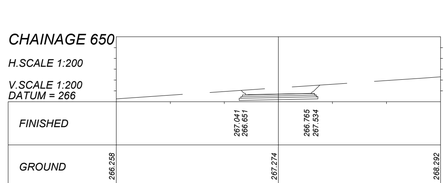


FINISHED		266.850	267.772		
		266.858	267.386		
GROUND	266.231		267.159		268.091
OFFSET	-15.000	-3.243 -2.721	0.000	3.024 3.678	15.000

CHAINAGE 650

H.SCALE 1:200

V.SCALE 1:200
DATUM = 266

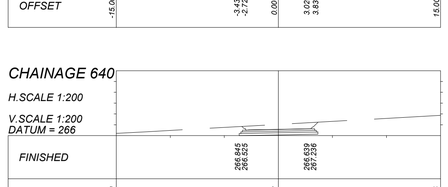


FINISHED		267.041	266.765		
		266.651	267.534		
GROUND	266.298		267.274		268.292
OFFSET	-15.000	-3.439 -2.721	0.000	3.024 3.634	15.000

CHAINAGE 640

H.SCALE 1:200

V.SCALE 1:200
DATUM = 266



FINISHED		266.845	266.639		
		266.825	267.336		
GROUND	266.200		267.032		267.865
OFFSET	-15.000	-3.389 -2.721	0.000	3.024 3.681	15.000

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: Date:

UMPISI ENGINEERS
ADRESS :108 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

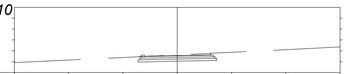
ROAD CROSS SECTION SHEET 3 OF 7

Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS3/00	Rev No. 0

CHAINAGE 910

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257

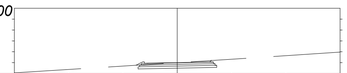


FINISHED			258.451 258.502		258.616 258.712	
GROUND	257.805		258.618			259.350
OFFSET	-15.000	-3.511 -2.708	0.000	3.008 3.104		15.000

CHAINAGE 900

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257



FINISHED			257.759 257.951		258.065 258.202	
GROUND	257.655		257.997			258.976
OFFSET	-15.000	-3.792 -2.707	0.000	3.008 3.104		15.000

CHAINAGE 890

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256

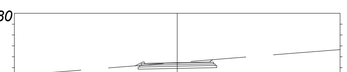


FINISHED			257.334 257.581		257.695 257.866	
GROUND	256.512		257.626			258.747
OFFSET	-15.000	-3.901 -2.707	0.000	3.008 3.218		15.000

CHAINAGE 880

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256



FINISHED			257.186 257.393		257.507 257.730	
GROUND	256.273		257.471			258.658
OFFSET	-15.000	-3.863 -2.707	0.000	3.008 3.270		15.000

CHAINAGE 870

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256



FINISHED			257.264 257.387		257.501 257.604	
GROUND	256.385		257.546			258.699
OFFSET	-15.000	-3.854 -2.707	0.000	3.008 3.351		15.000

CHAINAGE 860

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256



FINISHED			257.134 257.362		257.476 257.702	
GROUND	256.813		257.662			258.899
OFFSET	-15.000	-3.326 -2.707	0.000	3.001 3.466		15.000

CHAINAGE 850

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257

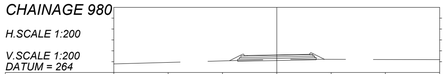


FINISHED			258.066 257.919		258.033 258.506	
GROUND	257.246		258.271			259.269
OFFSET	-15.000	-3.165 -2.707	0.000	3.008 3.972		15.000

CHAINAGE 980

H.SCALE 1:200

V.SCALE 1:200
DATUM = 264

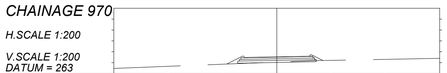


FINISHED			265.091 265.562		265.676 265.211	
GROUND	264.790		265.205			265.191
OFFSET	-15.000	-4.345 -2.703	0.000	3.004 4.393		15.000

CHAINAGE 970

H.SCALE 1:200

V.SCALE 1:200
DATUM = 263

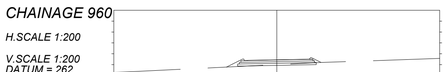


FINISHED			263.873 264.476		264.590 264.196	
GROUND	263.471		264.051			264.394
OFFSET	-15.000	-4.609 -2.703	0.000	3.004 4.251		15.000

CHAINAGE 960

H.SCALE 1:200

V.SCALE 1:200
DATUM = 262



FINISHED			262.776 263.390		263.504 263.199	
GROUND	262.267		263.002			263.573
OFFSET	-15.000	-4.629 -2.700	0.000	3.000 4.070		15.000

CHAINAGE 950

H.SCALE 1:200

V.SCALE 1:200
DATUM = 261



FINISHED			261.840 262.304		262.418 262.215	
GROUND	261.348		262.040			262.607
OFFSET	-15.000	-4.326 -2.700	0.000	3.000 3.964		15.000

CHAINAGE 940

H.SCALE 1:200

V.SCALE 1:200
DATUM = 260



FINISHED			260.960 261.218		261.332 261.331	
GROUND	260.482		261.129			261.718
OFFSET	-15.000	-3.914 -2.700	0.000	3.000 3.960		15.000

CHAINAGE 930

H.SCALE 1:200

V.SCALE 1:200
DATUM = 259



FINISHED			260.074 260.150		260.264 260.049	
GROUND	259.617		260.216			260.831
OFFSET	-15.000	-3.554 -2.700	0.000	3.000 3.289		15.000

CHAINAGE 920

H.SCALE 1:200

V.SCALE 1:200
DATUM = 258

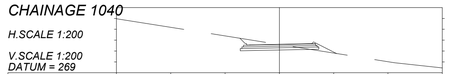


FINISHED			259.078 259.210		259.249 259.345	
GROUND	258.823		259.413			260.039
OFFSET	-15.000	-3.714 -2.700	0.000	3.000 3.205		15.000

CHAINAGE 1040

H.SCALE 1:200

V.SCALE 1:200
DATUM = 269



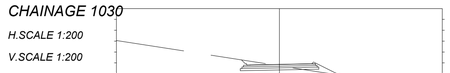
FINISHED			272.176 271.565		271.679 270.766	
GROUND	273.972		271.601			269.450
OFFSET	-15.000	-3.635 -2.700	0.000	3.000	5.284	15.000

CHAINAGE 1030

H.SCALE 1:200

V.SCALE 1:200

DATUM = 268

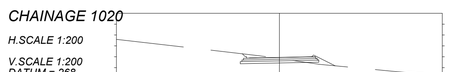


FINISHED			271.273 270.811		270.925 269.870	
GROUND	273.058		270.733			268.779
OFFSET	-15.000	-3.486 -2.700	0.000	3.000	5.570	15.000

CHAINAGE 1020

H.SCALE 1:200

V.SCALE 1:200
DATUM = 268

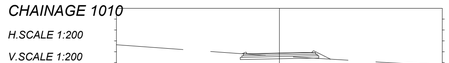


FINISHED			270.273	269.942	270.002	269.163
GROUND	271.593		269.828			268.221
OFFSET	-15.000	-3.412	0.000	3.004	5.142	15.000

CHAINAGE 1010

H.SCALE 1:200

V.SCALE 1:200
DATUM = 267



FINISHED			268.811	268.674	268.934 268.312	
GROUND	269.643		268.594			267.652
OFFSET	-15.000	-3.421	-0.000	3.004	4.707	15.000

CHAINAGE 1000

H.SCALE 1:200

V.SCALE 1:200
DATUM = 266



FINISHED			267.568 267.734		267.848 267.227	
GROUND	267.983		267.417			266.811
OFFSET	-15.000	-3.735 -2.703	0.000	3.003	4.706	15.000

CHAINAGE 990

H.SCALE 1:200

V.SCALE 1:200
DATUM = 266

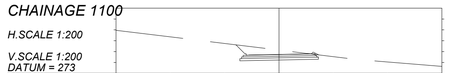


FINISHED			266.406 266.648		266.762 266.238	
GROUND	266.243		266.328			266.029
OFFSET	-15.000	-3.888 -2.703	0.000	3.004	4.511	15.000

CHAINAGE 1100

H.SCALE 1:200

V.SCALE 1:200
DATUM = 273

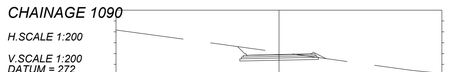


FINISHED			275.619 274.686		274.800 274.694	
GROUND	276.958		275.139			273.632
OFFSET	-15.000	-3.958 -2.701	0.000	3.001 3.873		15.000

CHAINAGE 1090

H.SCALE 1:200

V.SCALE 1:200
DATUM = 272

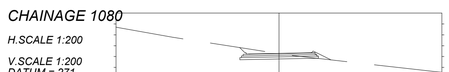


FINISHED			274.647 273.856		273.970 273.534	
GROUND	276.173		274.126			272.170
OFFSET	-15.000	-3.819 -2.703	0.000	3.004	4.335	15.000

CHAINAGE 1080

H.SCALE 1:200

V.SCALE 1:200
DATUM = 271



FINISHED			273.830 273.238		273.362 272.700	
GROUND	275.706		273.275			271.543
OFFSET	-15.000	-3.619 -2.703	0.000	3.004	4.768	15.000

CHAINAGE 1070

H.SCALE 1:200

V.SCALE 1:200

DATUM = 270



FINISHED			273.315 272.833		272.947 271.932	
GROUND	275.427		272.767			270.638
OFFSET	-15.000	-3.510 -2.703	0.000	3.004	5.493	15.000

CHAINAGE 1060

H.SCALE 1:200

V.SCALE 1:200

DATUM = 270



FINISHED			273.104 272.562		272.676	271.584
GROUND	275.214		273.515			270.040
OFFSET	-15.000	-3.587 -2.700	0.000	3.000	5.643	15.000

CHAINAGE 1050

H.SCALE 1:200

V.SCALE 1:200

DATUM = 269



FINISHED			272.956 272.148		272.262	271.369
GROUND	274.957		272.283			269.738
OFFSET	-15.000	-3.832 -2.700	0.000	3.000	5.265	15.000

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: | Date:

UMPISI ENGINEERS
ADRESS :106 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: | Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

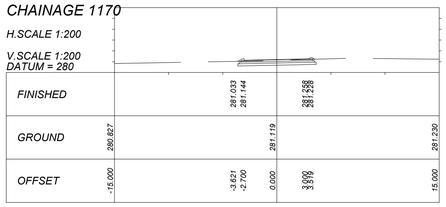
ROAD CROSS SECTION SHEET 4 OF 7

Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS4/04	Rev No. 0

CHAINAGE 1170

H.SCALE 1:200

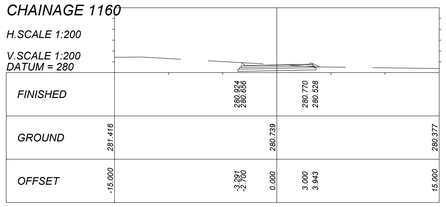
V.SCALE 1:200
DATUM = 280



CHAINAGE 1160

H.SCALE 1:200

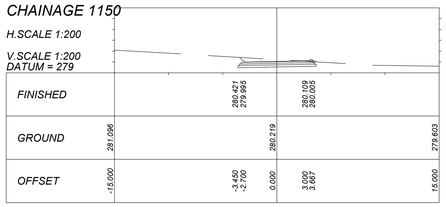
V.SCALE 1:200
DATUM = 280



CHAINAGE 1150

H.SCALE 1:200

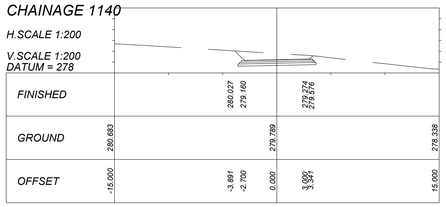
V.SCALE 1:200
DATUM = 279



CHAINAGE 1140

H.SCALE 1:200

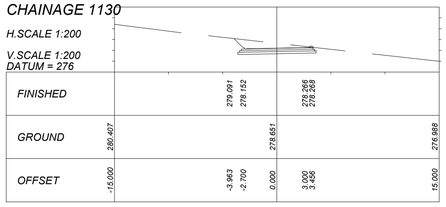
V.SCALE 1:200
DATUM = 278



CHAINAGE 1130

H.SCALE 1:200

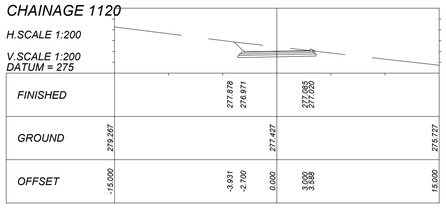
V.SCALE 1:200
DATUM = 276



CHAINAGE 1120

H.SCALE 1:200

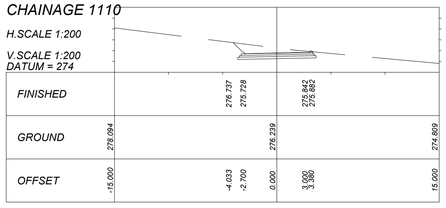
V.SCALE 1:200
DATUM = 275



CHAINAGE 1110

H.SCALE 1:200

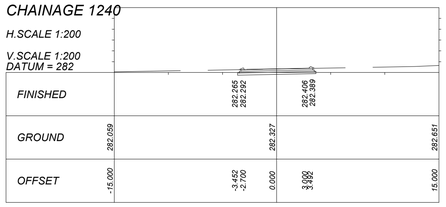
V.SCALE 1:200
DATUM = 274



CHAINAGE 1240

H.SCALE 1:200

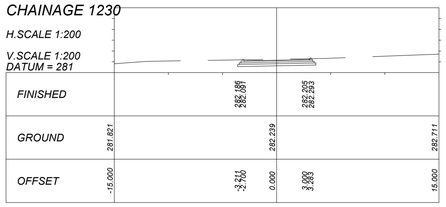
V.SCALE 1:200
DATUM = 282



CHAINAGE 1230

H.SCALE 1:200

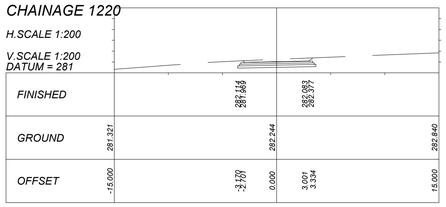
V.SCALE 1:200
DATUM = 281



CHAINAGE 1220

H.SCALE 1:200

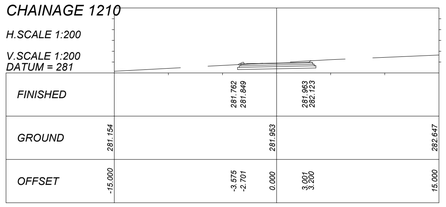
V.SCALE 1:200
DATUM = 281



CHAINAGE 1210

H.SCALE 1:200

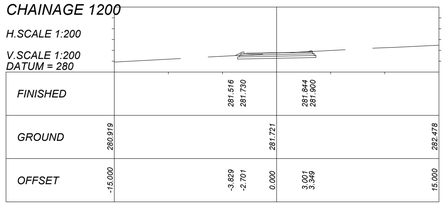
V.SCALE 1:200
DATUM = 281



CHAINAGE 1200

H.SCALE 1:200

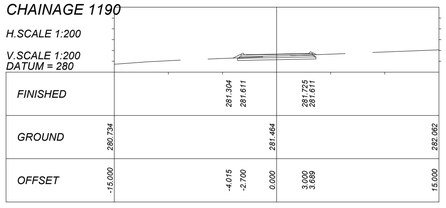
V.SCALE 1:200
DATUM = 280



CHAINAGE 1190

H.SCALE 1:200

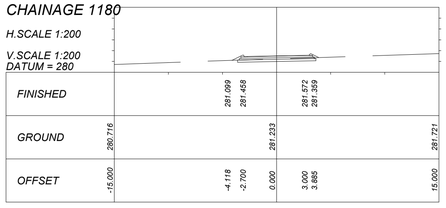
V.SCALE 1:200
DATUM = 280



CHAINAGE 1180

H.SCALE 1:200

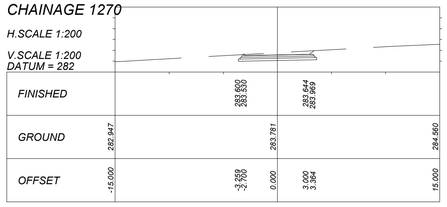
V.SCALE 1:200
DATUM = 280



CHAINAGE 1270

H.SCALE 1:200

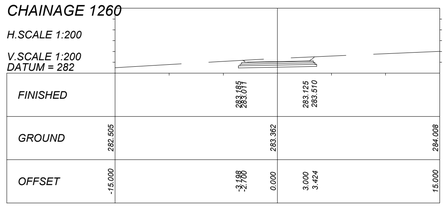
V.SCALE 1:200
DATUM = 282



CHAINAGE 1260

H.SCALE 1:200

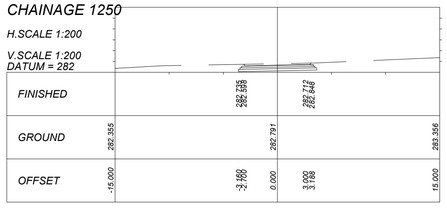
V.SCALE 1:200
DATUM = 282



CHAINAGE 1250

H.SCALE 1:200

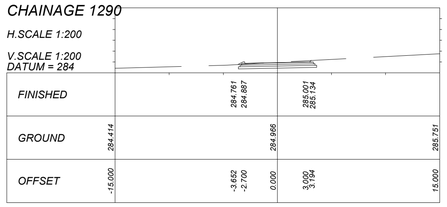
V.SCALE 1:200
DATUM = 282



CHAINAGE 1290

H.SCALE 1:200

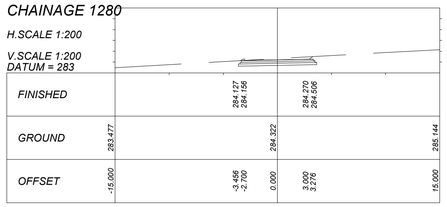
V.SCALE 1:200
DATUM = 284



CHAINAGE 1280

H.SCALE 1:200

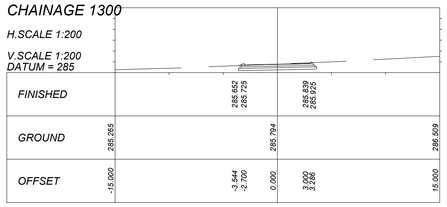
V.SCALE 1:200
DATUM = 283



CHAINAGE 1300

H.SCALE 1:200

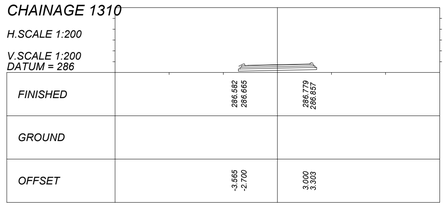
V.SCALE 1:200
DATUM = 285



CHAINAGE 1310

H.SCALE 1:200

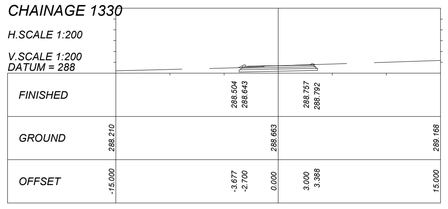
V.SCALE 1:200
DATUM = 286



CHAINAGE 1330

H.SCALE 1:200

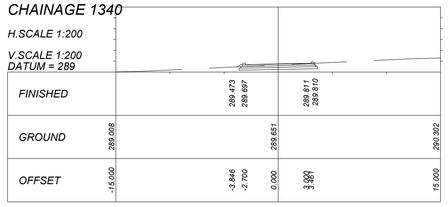
V.SCALE 1:200
DATUM = 288



CHAINAGE 1340

H.SCALE 1:200

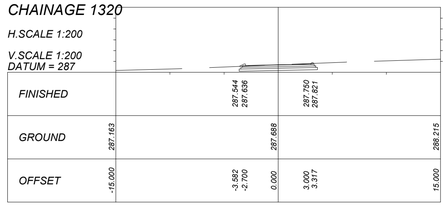
V.SCALE 1:200
DATUM = 289



CHAINAGE 1350

H.SCALE 1:200

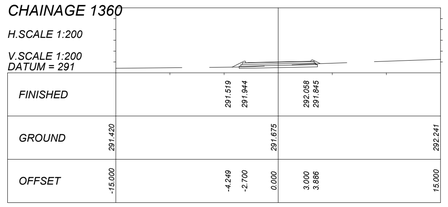
V.SCALE 1:200
DATUM = 290



CHAINAGE 1360

H.SCALE 1:200

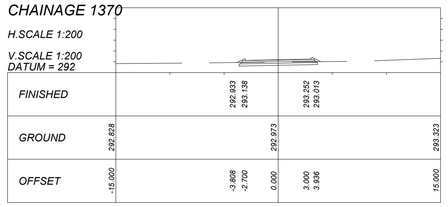
V.SCALE 1:200
DATUM = 291



CHAINAGE 1370

H.SCALE 1:200

V.SCALE 1:200
DATUM = 292



CHAINAGE 1320

H.SCALE 1:200

V.SCALE 1:200
DATUM = 287

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: Date:

UMPISI ENGINEERS
ADRESS :108 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

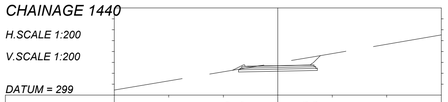
Drawing Title:

ROAD CROSS SECTION SHEET 5 OF 7

Scale:	Date:
	10 October 2026
Drawing No. WMMLM/CL1-R1/CS5/00	Rev No. 0

CHAINAGE 1440

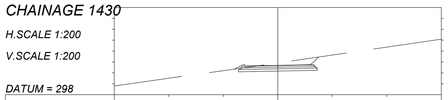
H.SCALE 1:200
V.SCALE 1:200
DATUM = 299



FINISHED			301.274	301.651	301.705 302.600	
GROUND	299.466			301.968		304.515
OFFSET	-15.000		-4.160 -2.705	0.000	3.000 3.600	15.000

CHAINAGE 1430

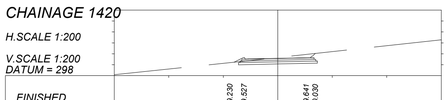
H.SCALE 1:200
V.SCALE 1:200
DATUM = 298



FINISHED			300.352	300.641	300.705 301.491	
GROUND	298.808			300.916		303.095
OFFSET	-15.000		-3.983 -2.705	0.000	3.000 3.792	15.000

CHAINAGE 1420

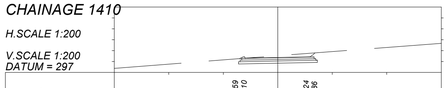
H.SCALE 1:200
V.SCALE 1:200
DATUM = 298



FINISHED			299.230	299.527	299.641 300.000	
GROUND	298.065			299.658		301.282
OFFSET	-15.000		-3.999 -2.705	0.000	3.000 3.454	15.000

CHAINAGE 1410

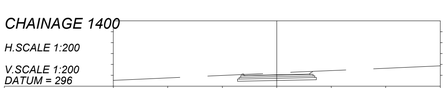
H.SCALE 1:200
V.SCALE 1:200
DATUM = 297



FINISHED			298.569 298.310		298.748 298.498	
GROUND	297.370			298.527		299.667
OFFSET	-15.000		-5.999 -2.705	0.000	3.000 3.407	15.000

CHAINAGE 1400

H.SCALE 1:200
V.SCALE 1:200
DATUM = 296



FINISHED			297.907 297.647		297.109 297.493	
GROUND	296.533			297.220		297.864
OFFSET	-15.000		-3.753 -2.705	0.000	3.000 3.299	15.000

CHAINAGE 1390

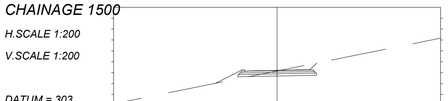
H.SCALE 1:200
V.SCALE 1:200
DATUM = 295



FINISHED			296.848 296.588		296.774 296.874	
GROUND	295.583			295.811		296.041
OFFSET	-15.000		-3.705 -2.705	0.000	3.000 3.275	15.000

CHAINAGE 1500

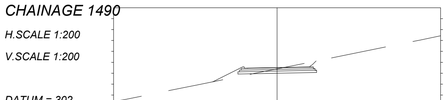
H.SCALE 1:200
V.SCALE 1:200
DATUM = 303



FINISHED			305.018	305.161	305.275 305.691	
GROUND	303.128			304.158		309.165
OFFSET	-15.000		-5.684	-2.700	0.000 3.655	15.000

CHAINAGE 1490

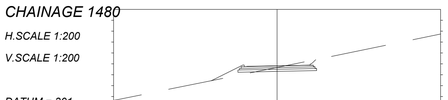
H.SCALE 1:200
V.SCALE 1:200
DATUM = 302



FINISHED			304.214	305.465	305.578 306.123	
GROUND	302.379			305.492		308.428
OFFSET	-15.000		-5.902	-2.700	0.000 3.583	15.000

CHAINAGE 1480

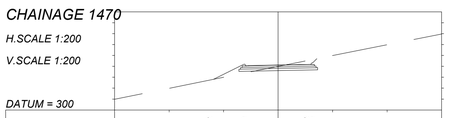
H.SCALE 1:200
V.SCALE 1:200
DATUM = 301



FINISHED			303.454	304.770	304.884 305.388	
GROUND	301.644			304.671		307.721
OFFSET	-15.000		-6.031	-2.700	0.000 3.541	15.000

CHAINAGE 1470

H.SCALE 1:200
V.SCALE 1:200
DATUM = 300



FINISHED			302.822	304.074	304.188 304.704	
GROUND	300.881			304.000		306.972
OFFSET	-15.000		-5.904	-2.700	0.000 3.688	15.000

CHAINAGE 1460

H.SCALE 1:200
V.SCALE 1:200
DATUM = 300



FINISHED			302.157	303.363	303.477 304.016	
GROUND	300.412			303.307		306.276
OFFSET	-15.000		-5.811	-2.700	0.000 3.677	15.000

CHAINAGE 1450

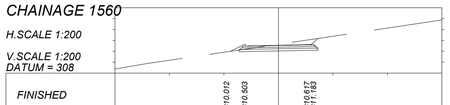
H.SCALE 1:200
V.SCALE 1:200
DATUM = 299



FINISHED			301.681	302.569	302.673 303.314	
GROUND	299.930			302.603		305.573
OFFSET	-15.000		-5.154	-2.700	0.000 3.680	15.000

CHAINAGE 1560

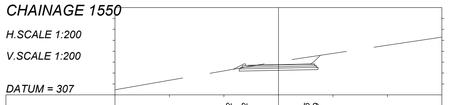
H.SCALE 1:200
V.SCALE 1:200
DATUM = 308



FINISHED			310.012 310.503		310.617 311.183	
GROUND	308.381			310.655		312.880
OFFSET	-15.000		-4.362 -2.700	0.000	3.000 3.605	15.000

CHAINAGE 1550

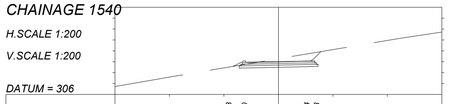
H.SCALE 1:200
V.SCALE 1:200
DATUM = 307



FINISHED			309.342 309.712		309.826 310.619	
GROUND	307.466			310.043		312.297
OFFSET	-15.000		-4.139 -2.700	0.000	3.000 3.633	15.000

CHAINAGE 1540

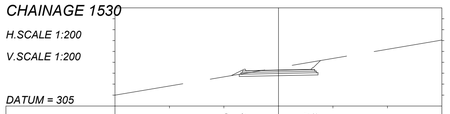
H.SCALE 1:200
V.SCALE 1:200
DATUM = 306



FINISHED			308.573	308.960	309.074 309.928	
GROUND	306.723			309.274		311.726
OFFSET	-15.000		-4.172	-2.700	0.000 3.894	15.000

CHAINAGE 1530

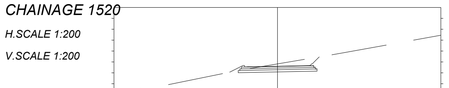
H.SCALE 1:200
V.SCALE 1:200
DATUM = 305



FINISHED			307.790	308.247	308.361 309.165	
GROUND	305.989			308.517		311.051
OFFSET	-15.000		-4.313	-2.700	0.000 3.843	15.000

CHAINAGE 1520

H.SCALE 1:200
V.SCALE 1:200
DATUM = 304



FINISHED			307.055	307.551	307.665 308.459	
GROUND	304.891			307.813		310.451
OFFSET	-15.000		-4.392	-2.700	0.000 3.833	15.000

CHAINAGE 1510

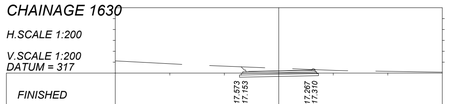
H.SCALE 1:200
V.SCALE 1:200
DATUM = 303



FINISHED			306.912	306.886	306.970 307.764	
GROUND	303.906			306.988		309.892
OFFSET	-15.000		-5.288	-2.700	0.000 3.824	15.000

CHAINAGE 1630

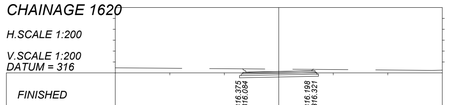
H.SCALE 1:200
V.SCALE 1:200
DATUM = 317



FINISHED			317.573 317.153		317.267 317.310	
GROUND	316.119			317.440		317.079
OFFSET	-15.000		-3.462 -2.707	0.000	3.007 3.981	15.000

CHAINAGE 1620

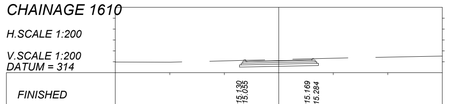
H.SCALE 1:200
V.SCALE 1:200
DATUM = 316



FINISHED			316.375 316.084		316.198 316.321	
GROUND	316.470			316.348		316.255
OFFSET	-15.000		-3.322 -2.707	0.000	3.007 3.221	15.000

CHAINAGE 1610

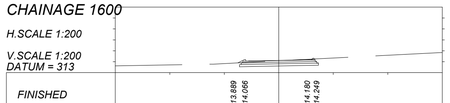
H.SCALE 1:200
V.SCALE 1:200
DATUM = 314



FINISHED			315.130 315.055		315.169 315.284	
GROUND	314.980			315.208		315.527
OFFSET	-15.000		-3.257 -2.707	0.000	3.007 3.236	15.000

CHAINAGE 1600

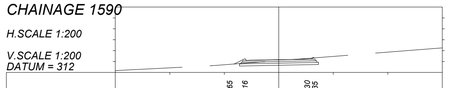
H.SCALE 1:200
V.SCALE 1:200
DATUM = 313



FINISHED			313.889 314.066		314.180 314.249	
GROUND	313.611			314.080		314.841
OFFSET	-15.000		-3.760 -2.707	0.000	3.007 3.328	15.000

CHAINAGE 1590

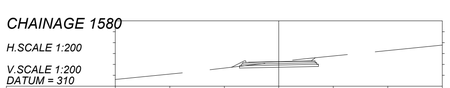
H.SCALE 1:200
V.SCALE 1:200
DATUM = 312



FINISHED			312.765	313.116	313.230 313.335	
GROUND	312.164			313.083		314.245
OFFSET	-15.000		-4.108	-2.707	0.000 3.256	15.000

CHAINAGE 1580

H.SCALE 1:200
V.SCALE 1:200
DATUM = 310



FINISHED			311.742	312.205	312.319 312.616	
GROUND	310.619			312.245		313.789
OFFSET	-15.000		-4.334	-2.707	0.000 3.343	15.000

CHAINAGE 1570

H.SCALE 1:200
V.SCALE 1:200
DATUM = 310



FINISHED			310.603	311.334	311.448 311.770	
GROUND						
OFFSET			-4.868	-2.704	3.005 3.366	

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: | Date:

UMPISI ENGINEERS
ADRESS :106 iL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E.MAIL : info@umpisi.com

Consultant's Signature: | Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

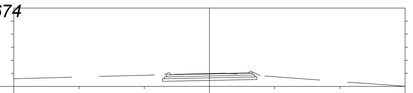
ROAD CROSS SECTION SHEET 6 OF 7

Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS6/00	Rev No. 0

CHAINAGE 1674

H.SCALE 1:200

V.SCALE 1:200
DATUM = 321

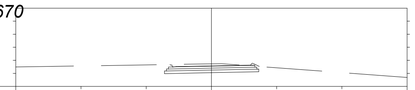


FINISHED		321.692 321.919		322.033 321.915		
GROUND	321.584		321.984		321.004	
OFFSET	-15.000	-3.453 -2.700	0.000	3.000 3.896	15.000	

CHAINAGE 1670

H.SCALE 1:200

V.SCALE 1:200
DATUM = 320

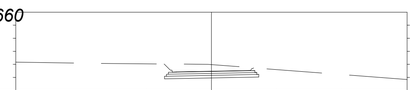


FINISHED		321.698 321.918		321.632 321.529		
GROUND	321.492		321.730		320.691	
OFFSET	-15.000	-3.166 -2.700	0.000	3.000 3.665	15.000	

CHAINAGE 1660

H.SCALE 1:200

V.SCALE 1:200
DATUM = 319

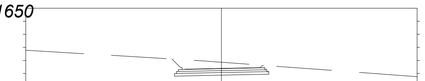


FINISHED		321.032 320.427		320.741 320.736		
GROUND	321.176		320.982		319.838	
OFFSET	-15.000	-3.630 -2.700	0.000	3.000 3.004	15.000	

CHAINAGE 1650

H.SCALE 1:200

V.SCALE 1:200
DATUM = 318



FINISHED		320.111 319.335		319.449 319.426		
GROUND	320.784		319.864		318.751	
OFFSET	-15.000	-3.800 -2.700	0.000	3.000 3.111	15.000	

CHAINAGE 1640

H.SCALE 1:200

V.SCALE 1:200
DATUM = 317



FINISHED		318.896 318.244		318.308 318.300		
GROUND	320.015		318.670		317.870	
OFFSET	-15.000	-3.684 -2.707	0.000	3.107 3.189	15.000	

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: | Date:

UMPISI ENGINEERS
ADRESS :108 iL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E.MAIL : info@umpisi.com

Consultant's Signature: | Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

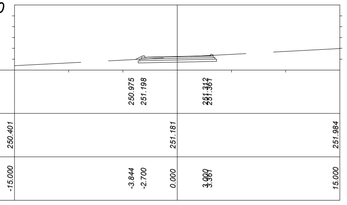
Drawing Title:

ROAD CROSS SECTION SHEET 7 OF 7

Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS7/00	Rev No. 0

CHAINAGE 70

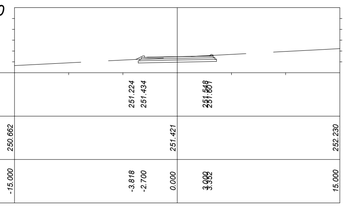
H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED			250.975	251.198	251.347	
GROUND	250.401			251.181		251.984
OFFSET	-15.000		-3.844	-2.700	0.000	3.997	15.000

CHAINAGE 60

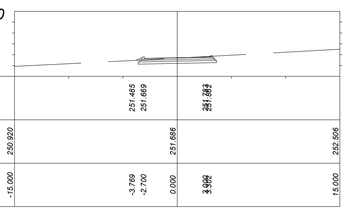
H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED			251.224	251.434	251.581	
GROUND	250.662			251.421		252.230
OFFSET	-15.000		-3.818	-2.700	0.000	3.992	15.000

CHAINAGE 50

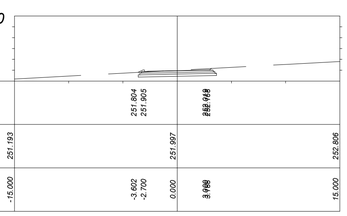
H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED			251.485	251.669	251.812	
GROUND	250.920			251.686		252.506
OFFSET	-15.000		-3.769	-2.700	0.000	3.992	15.000

CHAINAGE 40

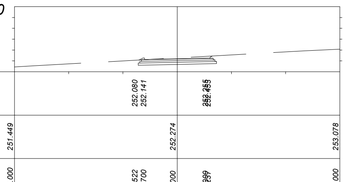
H.SCALE 1:200
V.SCALE 1:200
DATUM = 251



FINISHED			251.804	251.905	252.049	
GROUND	251.193			251.997		252.806
OFFSET	-15.000		-3.602	-2.700	0.000	3.998	15.000

CHAINAGE 30

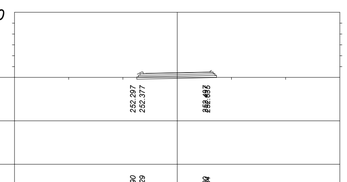
H.SCALE 1:200
V.SCALE 1:200
DATUM = 251



FINISHED			252.080	252.141	252.285	
GROUND	251.449			252.274		253.078
OFFSET	-15.000		-3.532	-2.700	0.000	3.999	15.000

CHAINAGE 20

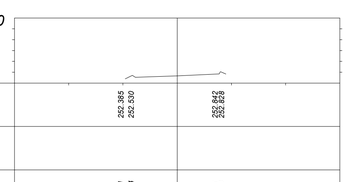
H.SCALE 1:200
V.SCALE 1:200
DATUM = 252



FINISHED			252.297	252.377	252.513	
GROUND						
OFFSET			-3.690	-2.829		3.994	

CHAINAGE 10

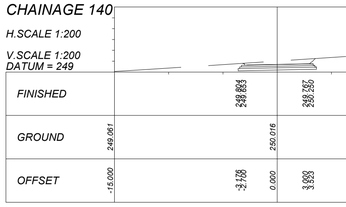
H.SCALE 1:200
V.SCALE 1:200
DATUM = 252



FINISHED			252.385	252.530	252.642	
GROUND						
OFFSET			-4.791	-3.664		3.881	4.484

CHAINAGE 140

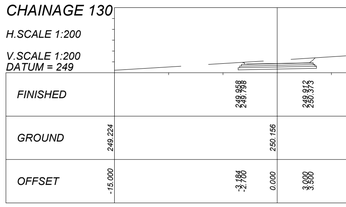
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			249.804	249.893	249.987	
GROUND	249.061			250.016		251.014
OFFSET	-15.000		-3.176	-2.700	0.000	3.993	15.000

CHAINAGE 130

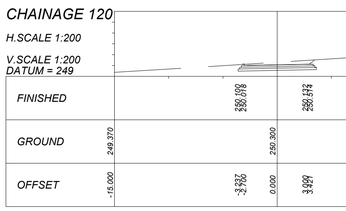
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			249.908	249.998	250.113	
GROUND	249.224			250.156		251.140
OFFSET	-15.000		-3.184	-2.700	0.000	3.999	15.000

CHAINAGE 120

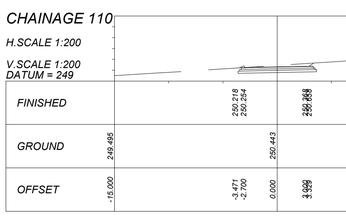
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.100	250.078	250.132	
GROUND	249.370			250.300		251.264
OFFSET	-15.000		-3.337	-2.700	0.000	3.997	15.000

CHAINAGE 110

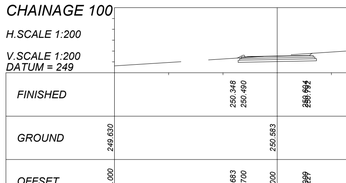
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.218	250.254	250.368	
GROUND	249.495			250.443		251.412
OFFSET	-15.000		-3.471	-2.700	0.000	3.999	15.000

CHAINAGE 100

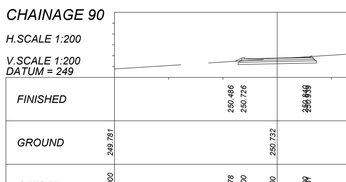
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.348	250.490	250.624	
GROUND	249.630			250.583		251.552
OFFSET	-15.000		-3.663	-2.700	0.000	3.999	15.000

CHAINAGE 90

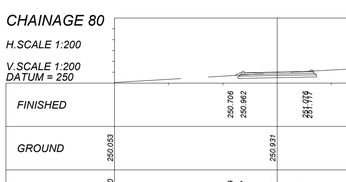
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.486	250.726	250.849	
GROUND	249.781			250.732		251.660
OFFSET	-15.000		-3.878	-2.700	0.000	3.997	15.000

CHAINAGE 80

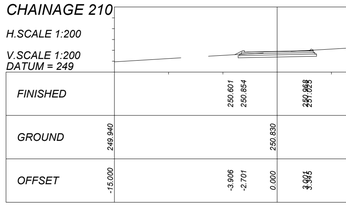
H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED			250.706	250.962	251.079	
GROUND	250.053			250.931		251.756
OFFSET	-15.000		-3.919	-2.707	0.000	3.992	15.000

CHAINAGE 210

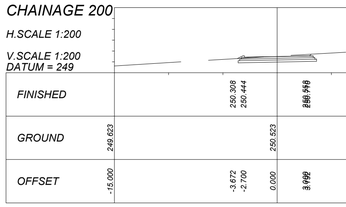
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.601	250.854	250.958	
GROUND	249.940			250.830		251.707
OFFSET	-15.000		-3.906	-2.701	0.000	3.994	15.000

CHAINAGE 200

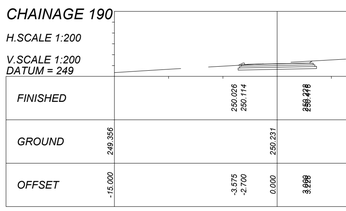
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.308	250.444	250.549	
GROUND	249.623			250.523		251.403
OFFSET	-15.000		-3.872	-2.700	0.000	3.998	15.000

CHAINAGE 190

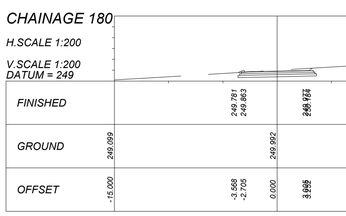
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			250.026	250.114	250.218	
GROUND	249.356			250.231		251.091
OFFSET	-15.000		-3.578	-2.700	0.000	3.998	15.000

CHAINAGE 180

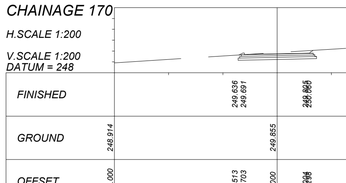
H.SCALE 1:200
V.SCALE 1:200
DATUM = 249



FINISHED			249.781	249.863	249.974	
GROUND	249.099			249.992		250.887
OFFSET	-15.000		-3.388	-2.706	0.000	3.998	15.000

CHAINAGE 170

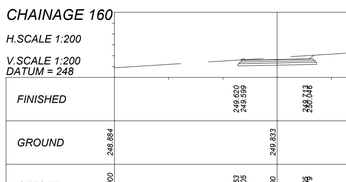
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED			249.636	249.697	249.805	
GROUND	248.914			249.855		250.809
OFFSET	-15.000		-3.513	-2.700	0.000	3.994	15.000

CHAINAGE 160

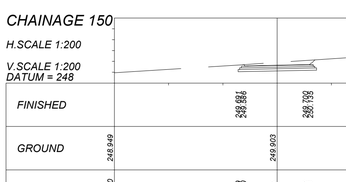
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED			249.620	249.699	249.748	
GROUND	248.884			249.833		250.815
OFFSET	-15.000		-3.383	-2.700	0.000	3.995	15.000

CHAINAGE 150

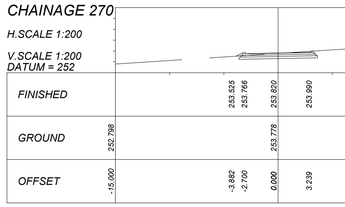
H.SCALE 1:200
V.SCALE 1:200
DATUM = 248



FINISHED			249.684	249.804	249.920	
GROUND	248.949			249.903		250.903
OFFSET	-15.000		-3.168	-2.700	0.000	3.992	15.000

CHAINAGE 270

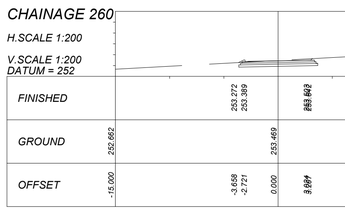
H.SCALE 1:200
V.SCALE 1:200
DATUM = 252



FINISHED			253.525	253.766	253.820	253.990
GROUND	252.798			253.778		254.773
OFFSET	-15.000		-3.882	-2.700	0.000	3.239	15.000

CHAINAGE 260

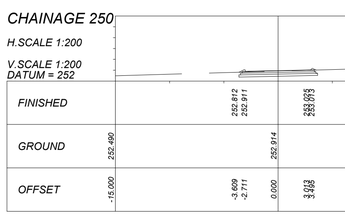
H.SCALE 1:200
V.SCALE 1:200
DATUM = 252



FINISHED			253.272	253.389	253.642	
GROUND	252.662			253.469		254.319
OFFSET	-15.000		-3.658	-2.721	0.000	3.997	15.000

CHAINAGE 250

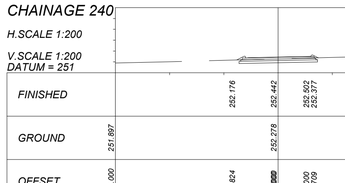
H.SCALE 1:200
V.SCALE 1:200
DATUM = 252



FINISHED			253.812	253.911	253.975	
GROUND	252.490			253.914		253.380
OFFSET	-15.000		-3.609	-2.711	0.000	3.013	3.998	15.000

CHAINAGE 240

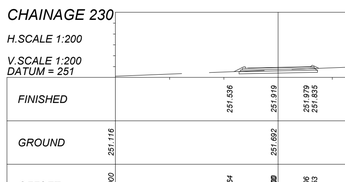
H.SCALE 1:200
V.SCALE 1:200
DATUM = 251



FINISHED			252.176	252.442	252.502	252.377
GROUND	251.897			252.278		253.680
OFFSET	-15.000		-3.824	-2.700	0.000	3.000	3.709	15.000

CHAINAGE 230

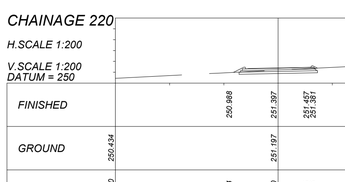
H.SCALE 1:200
V.SCALE 1:200
DATUM = 251



FINISHED			251.536	251.919	251.979	251.835
GROUND	251.116			251.692		252.266
OFFSET	-15.000		-4.064	-2.700	0.000	3.006	3.793	15.000

CHAINAGE 220

H.SCALE 1:200
V.SCALE 1:200
DATUM = 250



FINISHED			250.988	251.397	251.457	251.381
GROUND	250.434			251.197		251.960
OFFSET	-15.000		-4.114	-2.700	0.000	3.006	3.618	15.000

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: Date:

UMPISI ENGINEERS
ADRESS :108 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA NEW TOWN
CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

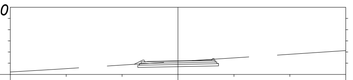
ROAD 2 CROSS SECTION SHEET 1 OF 2

Scale:	Date:
	10 October 2026
Drawing No. WMMLM/CL1-R1/CS1/00	Rev No. 0

CHAINAGE 350

H.SCALE 1:200

V.SCALE 1:200
DATUM = 255

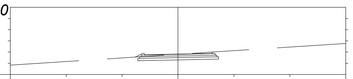


FINISHED			255.905 256.157		255.271 256.362	
GROUND	255.210		256.153			257.132
OFFSET	-15.000		-3.903 -2.700	0.000	3.000 3.277	15.000

CHAINAGE 340

H.SCALE 1:200

V.SCALE 1:200
DATUM = 254

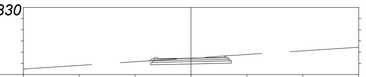


FINISHED			255.555 255.706		255.680 256.008	
GROUND	254.836		256.602			256.787
OFFSET	-15.000		-3.821 -2.700	0.000	3.000 3.204	15.000

CHAINAGE 330

H.SCALE 1:200

V.SCALE 1:200
DATUM = 254

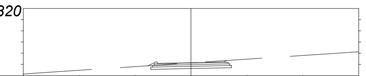


FINISHED			255.220 255.412		255.526 255.874	
GROUND	254.484		255.486			256.440
OFFSET	-15.000		-3.783 -2.700	0.000	3.000 3.168	15.000

CHAINAGE 320

H.SCALE 1:200

V.SCALE 1:200
DATUM = 254

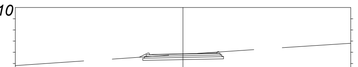


FINISHED			254.884 255.093		255.207 255.348	
GROUND	254.143		255.137			256.126
OFFSET	-15.000		-3.817 -2.700	0.000	3.000 3.180	15.000

CHAINAGE 310

H.SCALE 1:200

V.SCALE 1:200
DATUM = 253

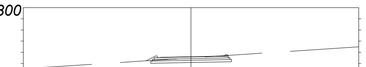


FINISHED			254.568 254.810		254.924 255.034	
GROUND	253.812		254.820			255.808
OFFSET	-15.000		-3.904 -2.700	0.000	3.000 3.241	15.000

CHAINAGE 300

H.SCALE 1:200

V.SCALE 1:200
DATUM = 253

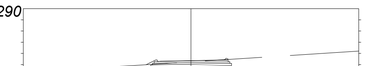


FINISHED			254.240 254.554		254.668 254.724	
GROUND	253.530		254.503			255.496
OFFSET	-15.000		-4.027 -2.700	0.000	3.000 3.347	15.000

CHAINAGE 290

H.SCALE 1:200

V.SCALE 1:200
DATUM = 253



FINISHED			253.991 254.299		254.413 254.462	
GROUND	253.282		254.248			255.195
OFFSET	-15.000		-4.015 -2.700	0.000	3.000 3.362	15.000

CHAINAGE 378

H.SCALE 1:200

V.SCALE 1:200
DATUM = 257



FINISHED			257.124 257.215			
GROUND						
OFFSET			-4.412 -3.982			

CHAINAGE 370

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256



FINISHED			256.783 256.976			257.726
GROUND						
OFFSET			-3.785 -2.700			13.589

CHAINAGE 360

H.SCALE 1:200

V.SCALE 1:200
DATUM = 256



FINISHED			256.312 256.580		256.696 256.811	
GROUND						
OFFSET			-3.936 -2.700		3.306 3.555	

ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.

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DRAWING KEY

Rev:	By:	Date:	Revision Details:
0	TM	14/10	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

Client Approved: Date:

UMPISI ENGINEERS
ADRESS :108 iL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND ZENITH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN, 4001
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultant's Signature: Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

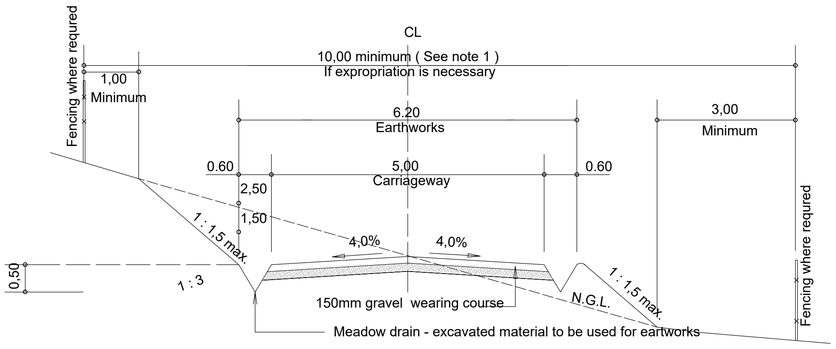
Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

Drawing Title:

ROAD 2 CROSS SECTION SHEET 2 OF 2

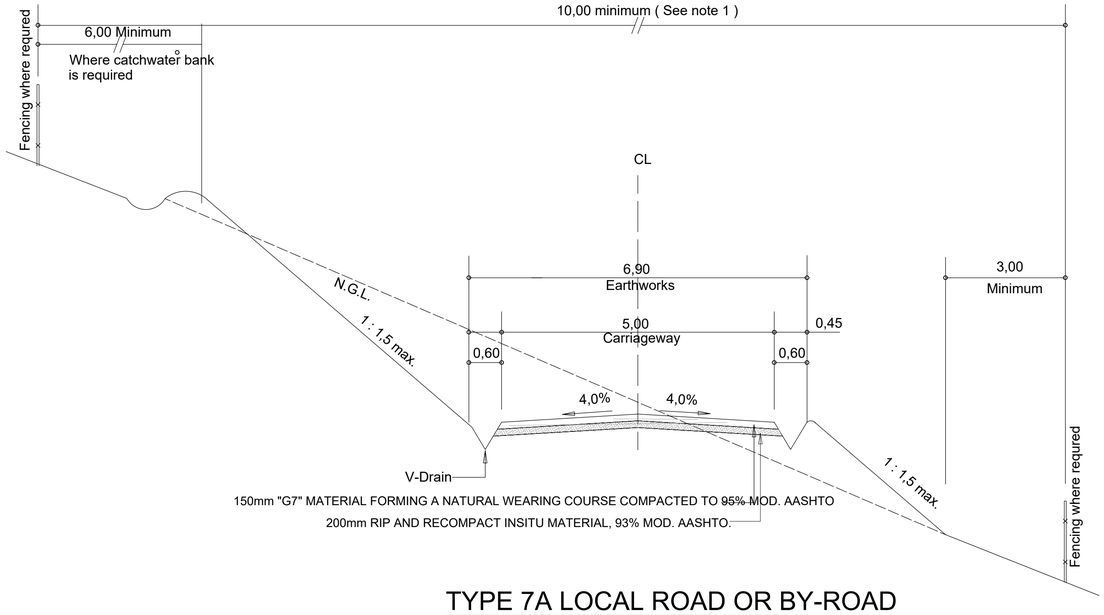
Scale:	Date: 10 October 2026
Drawing No. WMMLM/CL1-R1/CS2/00	Rev No. 0



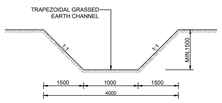
TYPE 7A LOCAL ROAD OR BY-ROAD (ROLLING TERRAIN)

GENERAL DESIGN NOTES

1. ALL LEVELS, DIMENSIONS AND SETTING OUT DETAILS ARE TO BE VERIFIED BY ENGINEER ON SITE PRIOR TO CONSTRUCTION.
2. ALL EXISTING DRAINAGE CULVERTS ARE TO BE INSPECTED, AND ANY FOUND IN UNSERVICEABLE CONDITION ARE TO BE REPLACED UNLESS SHOWN OTHERWISE.
3. CULVERT INVERTS ARE TO BE DECIDED BY THE ENGINEER ON SITE UNLESS SHOWN OTHERWISE. MIN. COVER = 600mm. MIN. SLOPE = 2%.
4. PIPE CULVERTS ARE TO BE LAID WITH HEADWALLS AS PER STANDARD DETAILS. MIN DIAMETER = 600mm FOR MINOR ACCESS ROADS AND ACCESS BELLMOUTHS,
MIN. DIAMETER = 900mm FOR MAJOR ROAD CROSS DRAINAGE.
5. FOR EROSION CONTROL, GABION MATTRESSES ARE RECOMMENDED AT CULVERT INLETS AND OUTLETS.
6. EARTH BERMS ARE TO BE CONSTRUCTED AT CULVERT INLETS TO DIRECT STORMWATER INTO CULVERTS WHERE NECESSARY.
7. ROCK BOLSTERS ARE TO BE PLACED ACROSS THE INVERT OF DRAINS SUSCEPTIBLE TO EROSION FOR EVERY 2m VERTICAL DROP
8. SUBSOIL DRAINS ARE TO BE INSTALLED WHERE HIGH WATER TABLES ARE ENCOUNTERED.
9. WHERE SURFACE RUNOFF IS TOWARDS THE ROAD, CATCHWATER BANKS ARE TO BE PROVIDED TO DIVERT STORMWATER TO MAJOR CROSS DRAINAGE STRUCTURES.
10. NEW FILLS AND EXPOSED CUTTINGS ARE TO BE TOPSOILED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
11. THE POSITIONS OF ACCESSES ARE TO BE DETERMINED IN CONSULTATION WITH THE LOCAL COMMUNITY. DAYLIGHTING REQUIREMENTS ARE TO BE DECIDED BY THE
ENGINEER ON SITE. ACCESS CLOSURES ARE TO BE PHYSICALLY BARRICADED WITH GUARDRAILS WHERE ACCESS IS STILL POSSIBLE AFTER COMPLETION OF THE WORKS.
12. GUARDRAILS ARE TO BE INSTALLED WHERE FILL EMBANKMENTS EXCEED 3m IN HEIGHT OR WHERE HAZARDOUS OBSTRUCTIONS CANNOT BE REMOVED.
13. EXISTING ROAD SIGNS, SERVICES AND FENCING AFFECTED BY CONSTRUCTION ARE TO BE REMOVED / RELOCTAED WHERE NECESSARY.
14. UNDERGROUND SERVICES CROSSINGS AND MARKERS ARE TO BE INSTALLED.
15. ALL NEW ROAD SIGNS ARE TO CONFORM TO THE SOUTH AFRICAN DEVELOPING COMMUNITY ROAD TRAFFIC SIGNS MANUAL (SADC-RTSM).
16. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE 'SOUTH AFRICAN NATIONAL STANDARDS 1200 SPECIFICATION (SANS 1200)'.

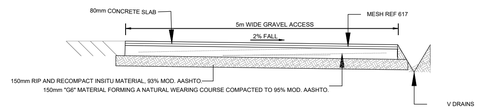


TYPE 7A LOCAL ROAD OR BY-ROAD (MOUNTAINOUS TERRAIN)



TYPICAL SECTION THROUGH MODIFIED EARTH FORMED CHANNEL (TRAPEZOIDAL)

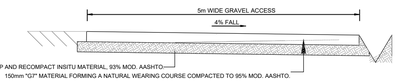
SCALE 1: 1



TYPICAL SECTION THROUGH 5m WIDE CONCRETE SURFACED ROAD (CROSSFALL)

SCALE 1:1000

CHAINAGE 250 TO CHAINAGE 600



TYPICAL SECTION THROUGH 5m WIDE GRAVEL ROAD (CROSSFALL)

SCALE 1:1000

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REV:	BY:	DATE:	REVISION DETAILS
0	M.K	20/08/26	DETAILED DESIGN

CLIENT

WINNIE MADIKIZELA MANDELA LOCAL MUNICIPALITY

CLIENT APPROVAL SIGNATURE: ..... DATE: .....

ENGINEER

UMPISI ENGINEERS
108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT SIGNATURE: ..... DATE: .....

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

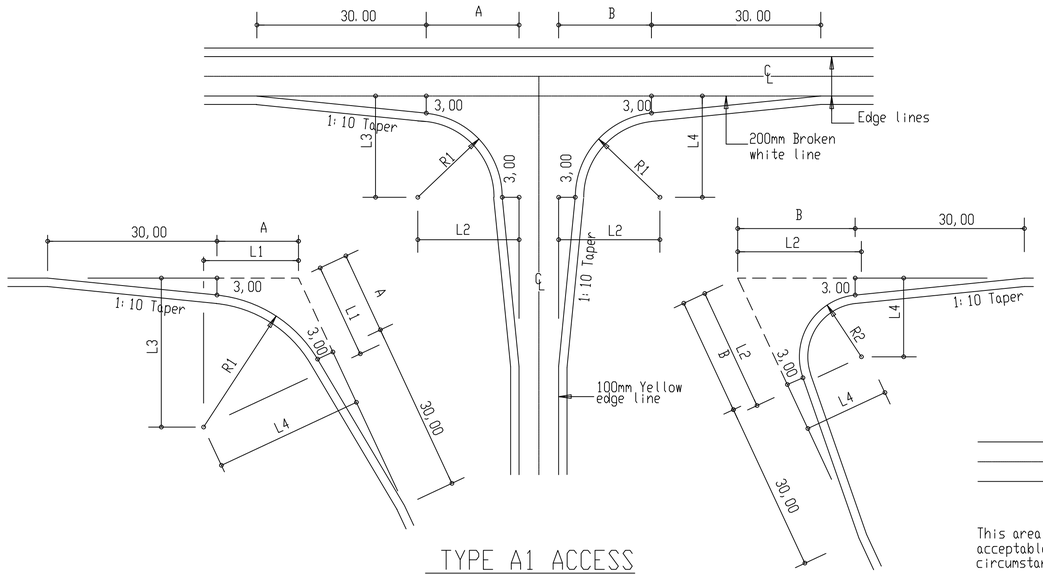
DRAWING TITLE

TYPICAL ROAD SECTION DETAILS

SCALE ON A0: AS SHOWN

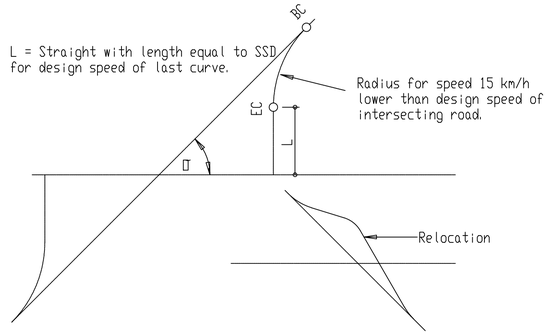
REVISION NO. 0

DRAWING NO: WMMLM/STD/RSD/00

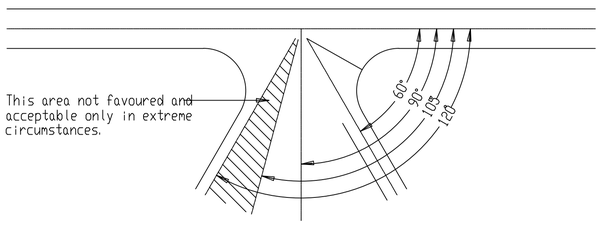


TYPE A1 ACCESS
60° < △ < 105°

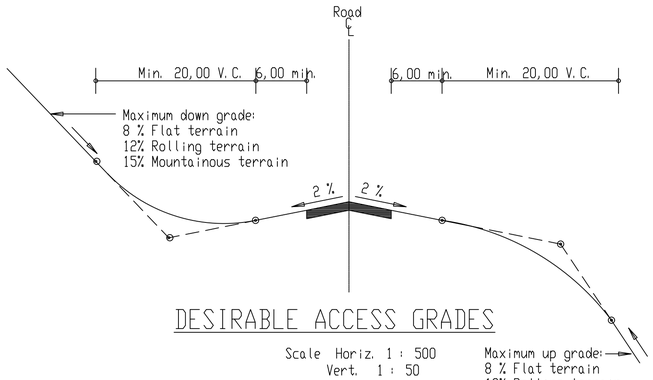
△	A	B	R1	R2	L1	L2	L3	L4
60	13,60	21,45	25,00	10,00	16,10	22,45	27,90	12,95
65	14,45	20,80	23,50	11,00	16,80	21,90	26,40	13,95
70	14,95	20,10	21,50	12,00	17,10	21,35	24,40	14,95
75	15,60	18,90	20,00	12,50	17,60	20,10	22,90	15,45
80	15,75	17,70	18,00	13,00	17,55	19,00	20,90	15,95
85	16,15	17,10	16,50	14,00	17,80	18,50	19,40	16,95
90	16,45	16,45	15,00	15,00	17,95	17,95	17,95	17,95
95	17,10	16,15	14,00	16,50	18,50	17,80	16,95	19,40
100	17,70	15,75	13,00	18,00	19,00	17,55	15,95	20,90
105	18,90	15,60	12,50	20,00	20,10	17,60	15,45	22,90



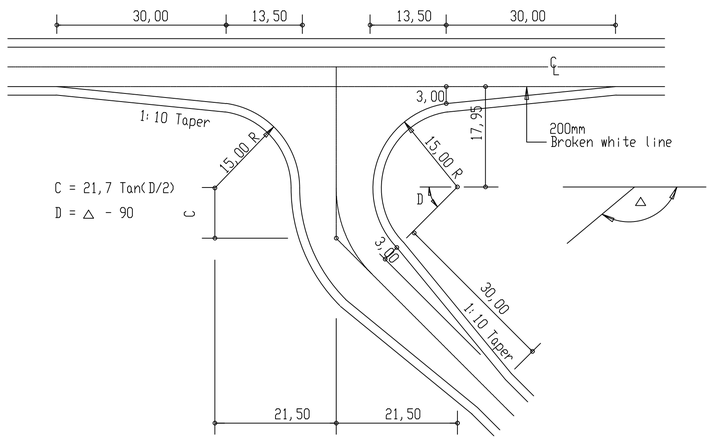
PREFERRED ARRANGEMENT FOR SKEW INTERSECTIONS



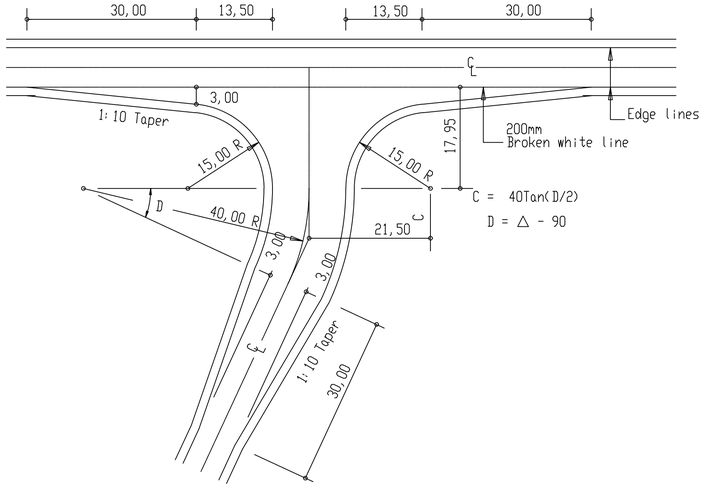
ACCEPTABLE ANGLES OF SKEW (△)



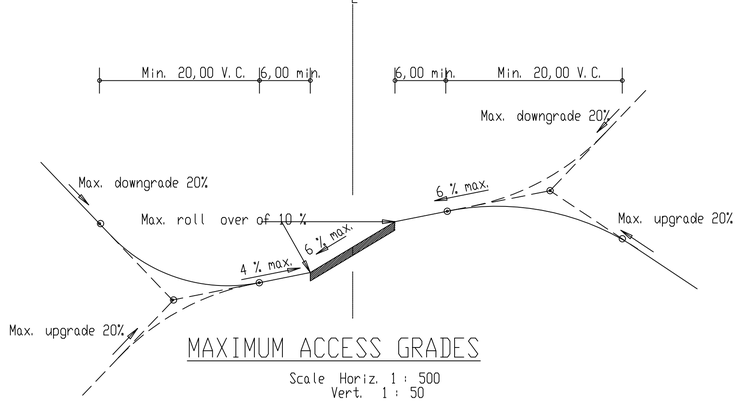
DESIRABLE ACCESS GRADES



TYPE A1 ACCESS
120° <△ < 180° ; 0° < ° < 60°



TYPE A1 ACCESS
105° <△ < 120°



MAXIMUM ACCESS GRADES

Scale Horiz. 1 : 500
Vert. 1 : 50

NOTES :

1. Road markings to be in accordance with S.A. Road Traffic Signs Manual.
2. For setting out details of T - junctions with painted refuge island. See SD 0302.
3. Type A1 accesses are recommended for primary road intersections and roads serving major developments.
4. Where two roads intersect the numerical difference of the gradients (roll over) should not exceed 10% with a maximum super of 6% on the main road.
5. Maximum approach gradient to be 4% on upgrade and 6% on down grade.
6. Maximum access grades are to be determined in conjuction with the planning Engineer

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REV:	BY:	DATE:	REVISION DETAILS
0	M.K	20/08/26	DETAILED DESIGN

CLIENT

WINNIE MADIKIZELA-MANDELA LOCAL MUNICIPALITY

CLIENT APPROVAL SIGNATURE: ..... DATE: .....

ENGINEER

UMPISI ENGINEERS
108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT SIGNATURE: ..... DATE: .....

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

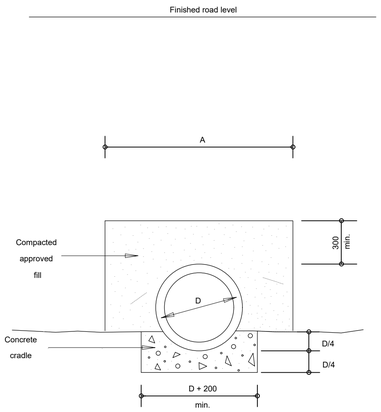
DRAWING TITLE

TYPICAL INTERSECTION DETAILS

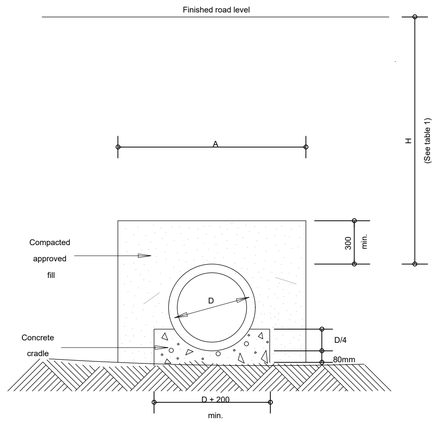
SCALE ON A0: AS SHOWN

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DRAWING NO: WMMLM/STD/ID/00



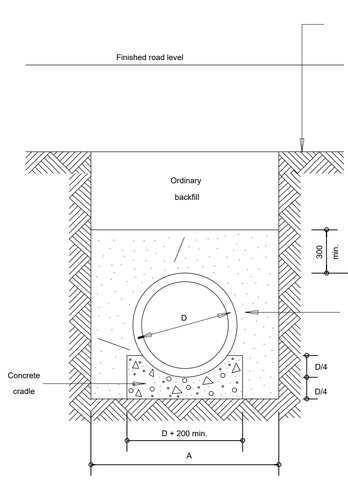
PIPE CULVERT ON SOIL



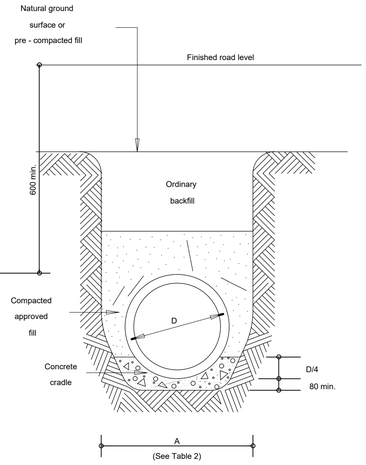
PIPE CULVERT ON ROCK

CLASS A BEDDING

(EMBANKMENT CONDITION)



TRENCH IN SOIL



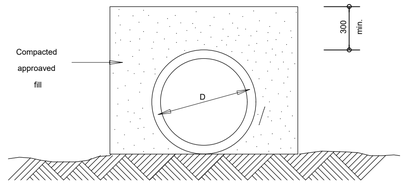
TRENCH IN ROCK

CLASS A BEDDING

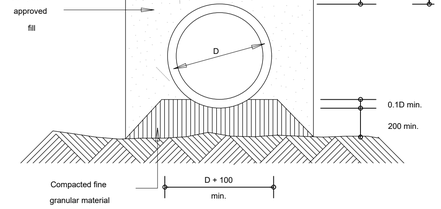
(TRENCH CONDITION)

NOTES:

1. When possible pipes shall be laid by first constructing the required compacted fill to allow a pipe trench to be excavated into it, thereby satisfying requirements for negative projecting pipeline.The recommended trench widths are listed in Table 2. The maximum trench widths apply to deep trenches where shoring is required.
2. All pipes shall comply with SABS 667-1986, "Standard specifications for concrete non-pressure pipes", and shall be installed in accordance with SABS 0102-1987, "Code of practice for design and installation of precast concrete pipes."
3. Joints shall be ogee with rubber collar or modified ogee with rubber ring seal.
4. For fill heights exceeding 10m or pipeline length exceeding 40m a mimimum nominal pipe diameter of 900mm is recommended.
5. Construction joints in concrete cradle to coincide with pipe joints. All insitu concrete shall be 15MPa
6. The following minimum nominal pipe diameters shall apply : 450mm for minor access roads and bellmouths. 600mm for other roads.
7. The minimum cover over any pipe culvert shall be 600mm. In excepticonal cases pipes may be encased in concrete and the cover reduced to 200mm.
8. All pipe lifting holes must be plugged to the satisfaction of the Engineer.
9. Pipes to be laid to a minimum grade of 2%.



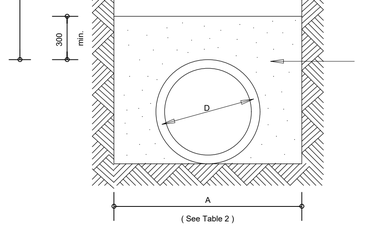
PIPE CULVERT ON SOIL



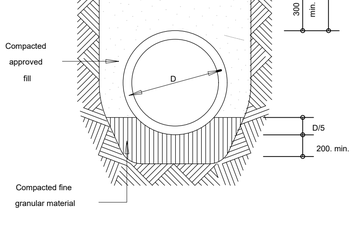
PIPE CULVERT ON ROCK

CLASS C BEDDING

(EMBANKMENT CONDITION)



TRENCH IN SOIL



TRENCH IN ROCK

CLASS C BEDDING

(TRENCH CONDITION)

'D' Load	Permissible Maximum Height (H) of Fill in metres	
	Class A Bedding	Class C Bedding
25 D	3.0	1.5
50 D	6.0	3.0
75 D	9.0	4.5
100 D	12.0	6.0
125 D	15.0	7.5
150 D	18.0	9.0
200 D	24.0	12.0

TABLE 1

Trench width		
Norminal Pipe Diameter (D) (mm)	Recommended Dimension (A)(mm)	Maximum Trench Width (mm)
450	1100	1100
600	1300	1300
750	1500	1500
900	1600	1700
1050	1800	2200
1200	2000	2400

TABLE 2

ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE COMENCEMENT OF WORK

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REV:	BY:	DATE:	REVISION DETAILS
0	M.K	20/08/26	DETAILED DESIGN

CLIENT

WINNIE MADIKIZELA-MANDELA LOCAL MUNICIPALITY

CLIENT APPROVAL SIGNATURE: ..... DATE: .....

ENGINEER

UMPISI ENGINEERS

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TEL: 031 566 4209
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E-MAIL: info@umpisi-engineers.com

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

CONSULTANT SIGNATURE: ..... DATE: .....

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

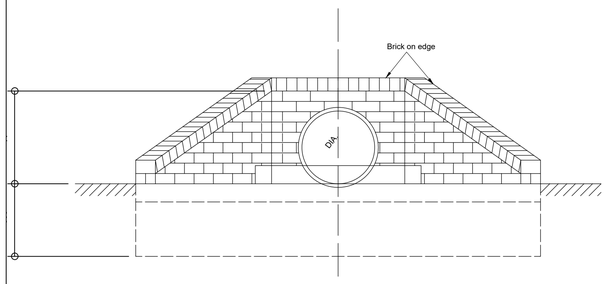
DRAWING TITLE

TYPICAL PIPE BEDDING DETAILS

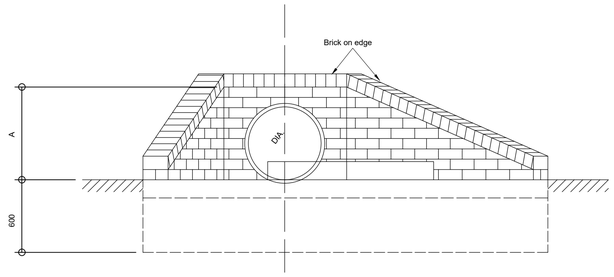
SCALE ON A0: AS SHOWN

REVISION NO. 0

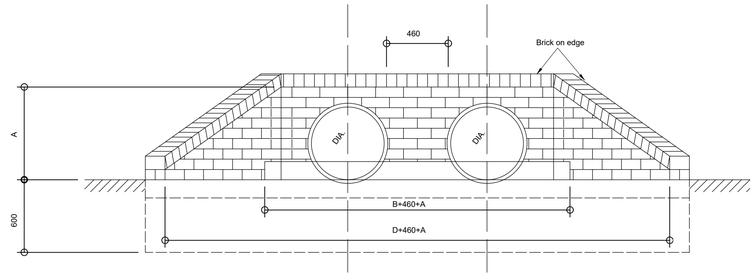
DRAWING NO: WMMLM/STD/PBD/00



FRONT ELEVATION - SINGLE PIPE



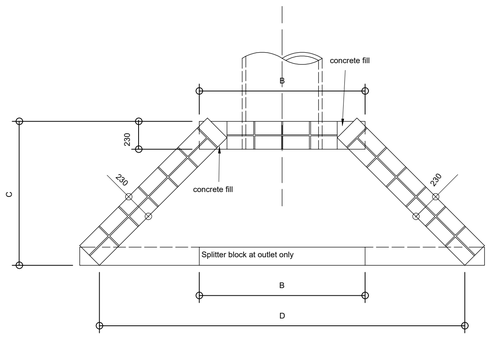
FRONT ELEVATION - SKEW PIPE



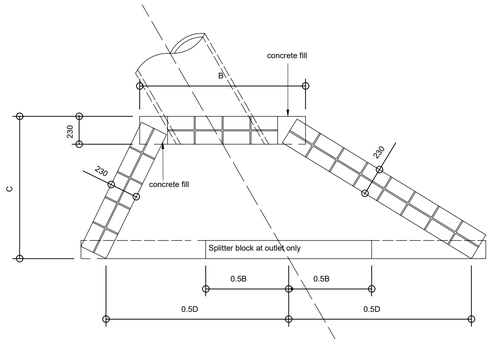
FRONT ELEVATION - DOUBLE PIPE

NOTES :

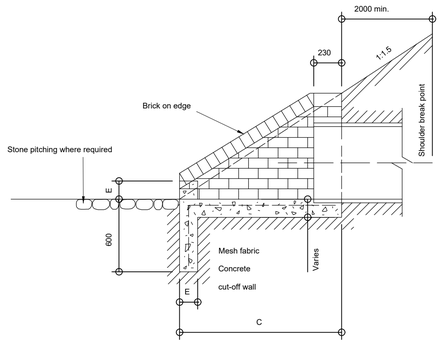
1. Splitter block and pitching to be provided at all outlets where erosion is likely to occur.
2. Splitter block may be omitted if discharge velocity is less than 0.9 m/s.
3. Cut-off walls may be omitted if structure is founded on rock.
4. For multiple pipe culverts increase dimensions 'E' and 'F' by (n-1)(A+460)mm : Where n = number of pipes and A = nominal diameter of pipes
5. Pipes to be cut flush with headwall.
6. For skew pipe culverts the headwall shall be parallel to the centre line of the road.
7. All concrete is to be 20MPa.
8. Square mesh fabric (Reference S.M.F.193) is to be placed 50mm from top in all apron slabs and centrally in cut-off walls.
9. Brickwork is to consist of good quality burnt clay common bricks in accordance with SABS 227 Specification, or cement bricks in accordance with SABS 987 Specification, uniform in size and shape layed in stretcher bond style with the skins tied together with galvanised crimped wire wall ties.
10. Brickforce is to be placed every 4th course.
11. Jointing on all visible faces to be pointed
12. No in-fill shall be larger than a half standard brick size unless 15MPa concrete is used.



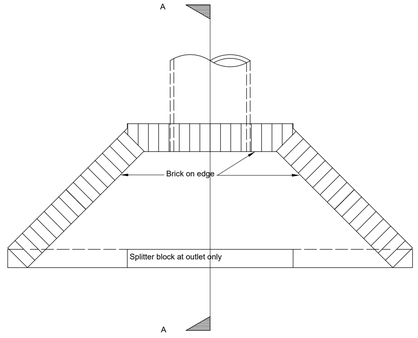
LAYOUT OF BRICKWORK



LAYOUT OF BRICKWORK

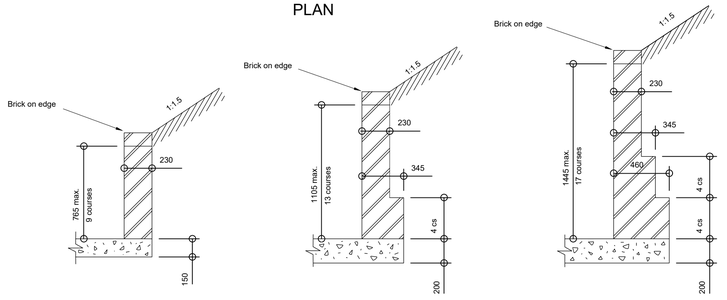


SECTION A-A



PLAN

PLAN OF SKEW CULVERT



TYPICAL RETAINING WALL DETAILS

Dimensions (mm)					
Nominal Dia.	A	B	C	D	E
450	595	1 150	1 050	2 700	150
600	765	1 380	1 200	3 000	150
750	935	1 610	1 350	3 300	150
900	1 105	1 840	1 500	3 600	230
1 050	1 275	2 070	1 750	3 900	230
1 200	1 445	2 300	1 900	4 200	230

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ENGINEER

UMPISI ENGINEERS
108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

CONSULTANT SIGNATURE: ..... DATE: .....

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

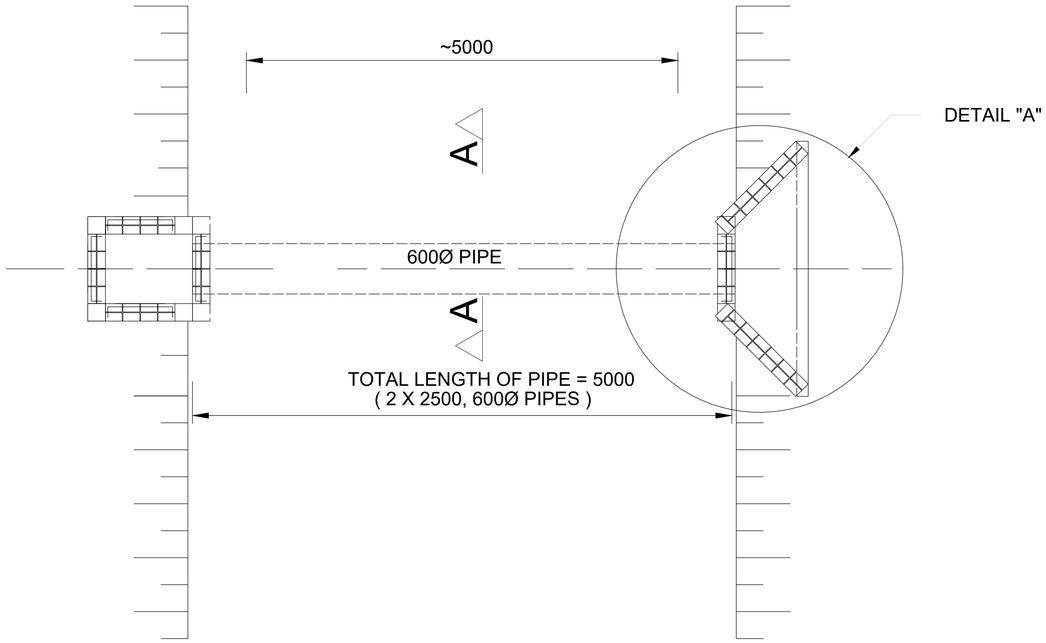
DRAWING TITLE

TYPICAL HEADWALL DETAILS

SCALE ON A0: AS SHOWN

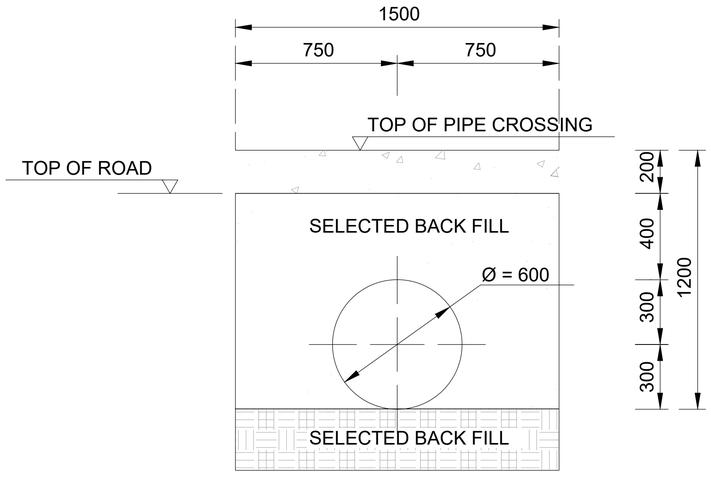
REVISION NO. 0

DRAWING NO: WMMLM/STD/HWD/00



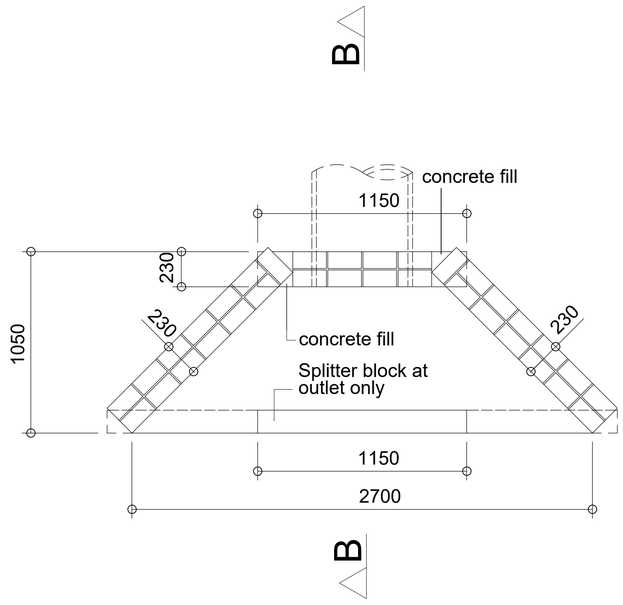
TYPICAL LAYOUT PIPE CROSSING WITH DOUBLE HEAD WALL

SCALE 1 : 50



SECTION A-A

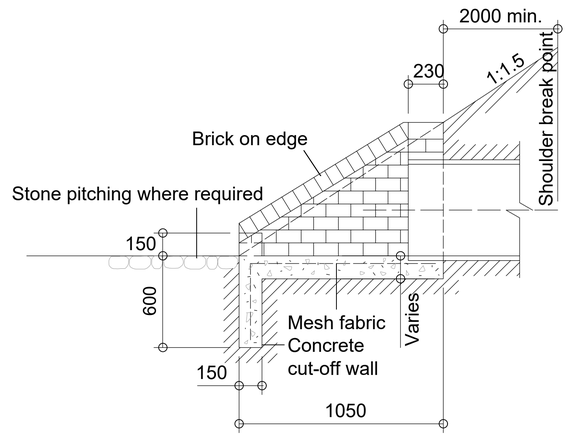
SCALE 1 : 25



DETAIL A

GENERAL DESIGN NOTES

1. ALL LEVELS, DIMENSIONS AND SETTING OUT DETAILS ARE TO BE VERIFIED BY ENGINEER ON SITE PRIOR TO CONSTRUCTION.
2. ALL EXISTING DRAINAGE CULVERTS ARE TO BE INSPECTED, AND ANY FOUND IN UNSERVICEABLE CONDITION ARE TO BE REPLACED UNLESS SHOWN OTHERWISE.
3. CULVERT INVERTS ARE TO BE DECIDED BY THE ENGINEER ON SITE UNLESS SHOWN OTHERWISE. MIN. COVER = 600mm. MIN. SLOPE = 2%.
4. PIPE CULVERTS ARE TO BE LAID WITH HEADWALLS AS PER STANDARD DETAILS. MIN DIAMETER = 600mm FOR MINOR ACCESS ROADS AND ACCESS BELLMOUTHS,
MIN. DIAMETER = 900mm FOR MAJOR ROAD CROSS DRAINAGE.
5. FOR EROSION CONTROL, GABION MATTRESSES ARE RECOMMENDED AT CULVERT INLETS AND OUTLETS.
6. EARTH BERMS ARE TO BE CONSTRUCTED AT CULVERT INLETS TO DIRECT STORMWATER INTO CULVERTS WHERE NECESSARY.
7. ROCK BOLSTERS ARE TO BE PLACED ACROSS THE INVERT OF DRAINS SUSCEPTIBLE TO EROSION FOR EVERY 2m VERTICAL DROP.
8. SUBSOIL DRAINS ARE TO BE INSTALLED WHERE HIGH WATER TABLES ARE ENCOUNTERED.
9. WHERE SURFACE RUNOFF IS TOWARDS THE ROAD, CATCHWATER BANKS ARE TO BE PROVIDED TO DIVERT STORMWATER TO MAJOR CROSS DRAINAGE STRUCTURES.
10. NEW FILLS AND EXPOSED CUTTINGS ARE TO BE TOPSOILED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
11. THE POSITIONS OF ACCESSES ARE TO BE DETERMINED IN CONSULTATION WITH THE LOCAL COMMUNITY. DAYLIGHTING REQUIREMENTS ARE TO BE DECIDED BY THE
ENGINEER ON SITE. ACCESS CLOSURES ARE TO BE PHYSICALLY BARRICADED WITH GUARDRAILS WHERE ACCESS IS STILL POSSIBLE AFTER COMPLETION OF THE WORKS.
12. GUARDRAILS ARE TO BE INSTALLED WHERE FILL EMBANKMENTS EXCEED 3m IN HEIGHT OR WHERE HAZARDOUS OBSTRUCTIONS CANNOT BE REMOVED.
13. EXISTING ROAD SIGNS, SERVICES AND FENCING AFFECTED BY CONSTRUCTION ARE TO BE REMOVED / RELOCTAED WHERE NECESSARY.
14. UNDERGROUND SERVICES CROSSINGS AND MARKERS ARE TO BE INSTALLED.
15. ALL NEW ROAD SIGNS ARE TO CONFORM TO THE SOUTH AFRICAN DEVELOPING COMMUNITY ROAD TRAFFIC SIGNS MANUAL (SADC-RTSM).
16. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE 'SOUTH AFRICAN NATIONAL STANDARDS 1200 SPECIFICATION (SANS 1200)'.



SECTION B-B

SCALE 1 : 25

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ENGINEER

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CONSULTANT SIGNATURE: ..... DATE: .....

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
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PROJECT TITLE

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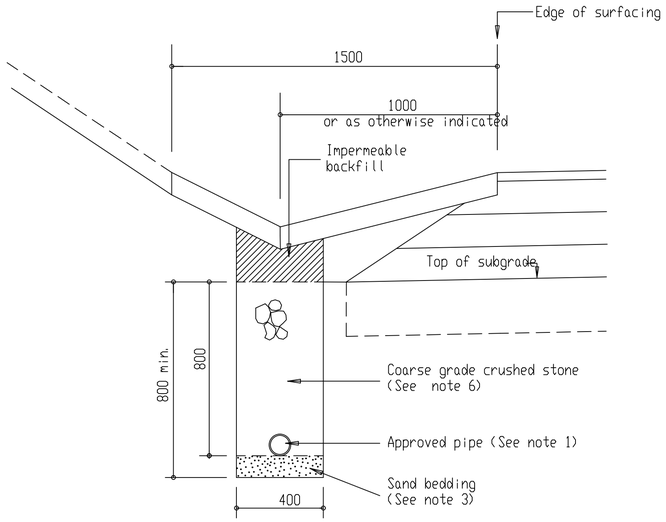
DRAWING TITLE

TYPICAL PIPE CROSSING DETAILS

SCALE ON A0: AS SHOWN

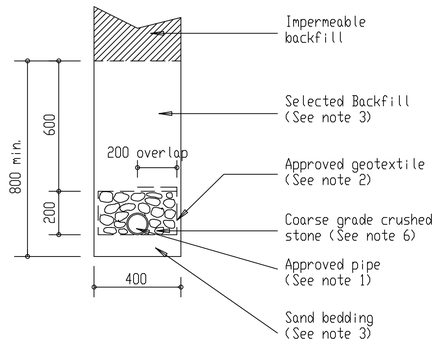
REVISION NO. 0

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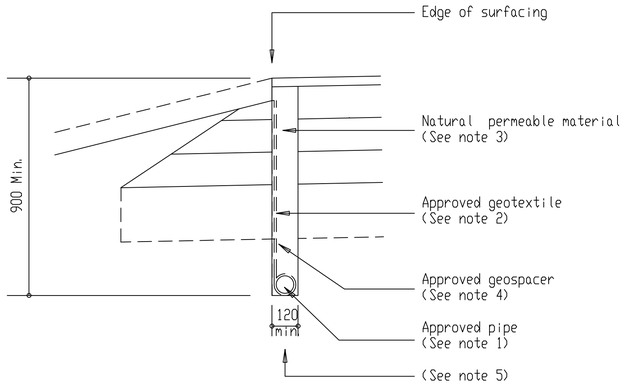
SD 0501/1 : TYPE A CONVENTIONAL DRAIN

Scale 1 : 20



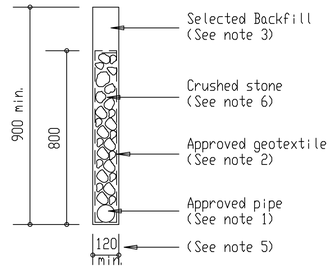
SD 0501/2 : TYPE B ALTERNATIVE DRAIN

Scale 1 : 20



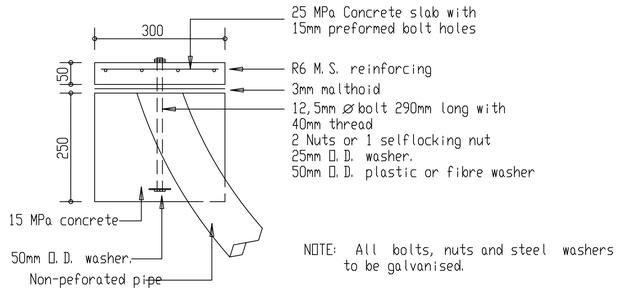
SD 0501/3 : TYPE C FIN DRAIN

Scale 1 : 20



SD 0501/4 : TYPE D NARROW DRAIN

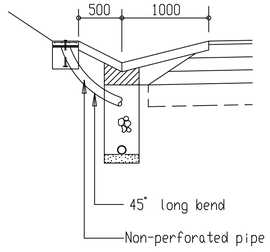
Scale 1 : 20



NOTE: All bolts, nuts and steel washers to be galvanised.

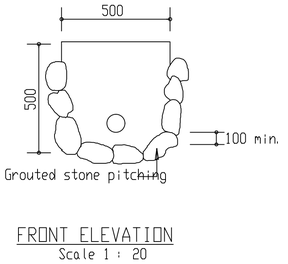
SECTIONAL ELEVATION

Scale 1 : 10



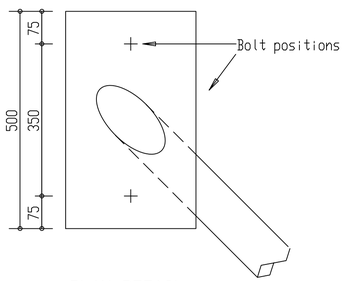
TYPICAL CROSS SECTION

Scale 1 : 50



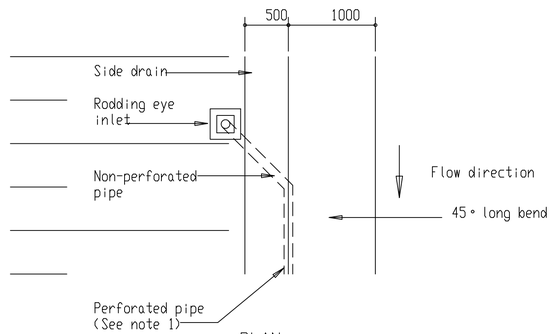
FRONT ELEVATION

Scale 1 : 20



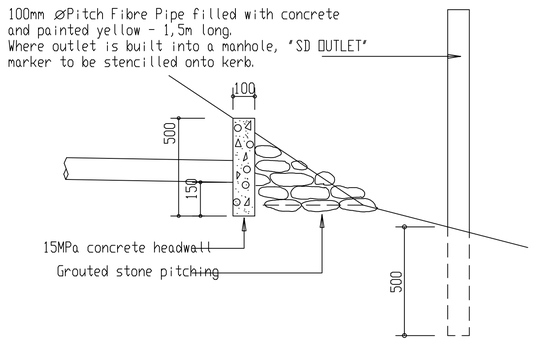
PLAN DETAIL

Scale 1 : 10



PLAN

Scale 1 : 50



SECTIONAL ELEVATION

Scale 1 : 20

SD 0501/5 : RODDING EYE INLET

SD 0501/6 : OUTLET HEADWALL

NOTES :

1. The drainage pipe shall be not less than 100mm in diameter, perforated or slotted, and manufactured from pitch fibre, high-density polyethylene or uPVC. No openings shall be provided in the pipe invert.
2. The geotextile shall conform with grade E of Natal Roads Branch specification for Geotextiles. A stronger grade may be used at the Engineer's discretion.
3. Selected backfill and bedding shall be natural permeable material as specified in 2104 of CSRA Standard Specifications.
4. The Engineer must be satisfied that the geospacer has sufficient capacity to transmit the quantity of water discharged from the surrounding soil.
5. Trench width can vary from 120 mm to 400mm according to type of excavation equipment available and the condition of the insitu material.
6. Crushed stone shall conform with coarse-grade stone as specified in 2104 of CSRA Standard Specifications.
7. The higher end of each subsoil drain pipe shall be sealed off with a rodding eye inlet. Additional rodding eye inlets may be required as instructed by the Engineer.
8. For new works the pipe shall be at least 800mm below top of subgrade whereas for rehabilitation of existing roads it shall be at least 900mm below road surface.
9. Rodding eye inlets to be positioned at head of pipe run only.
10. In shallow cuttings it is desireable to use a 3200 wide drain as indicated on SD 0601 without a subsoil drain.

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UMPISI ENGINEERS

108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT SIGNATURE: ..... DATE: .....

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
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PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

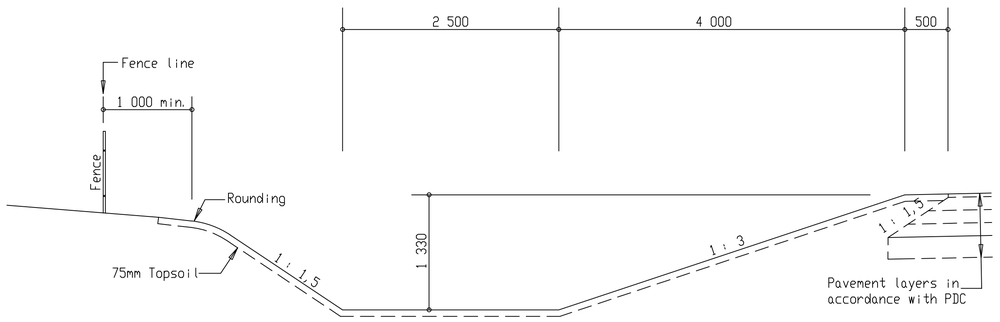
DRAWING TITLE

TYPICAL SUBSOIL DRAINAGE
ROAD EDGE SUBSOIL DRAIN DETAILS

SCALE ON A0: AS SHOWN

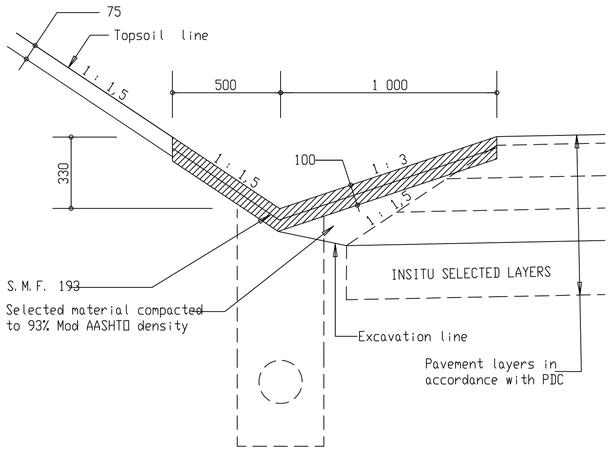
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DRAWING NO: WMMLM/STD/SD/00



SD 0601/1 : MEADOW - DRAIN

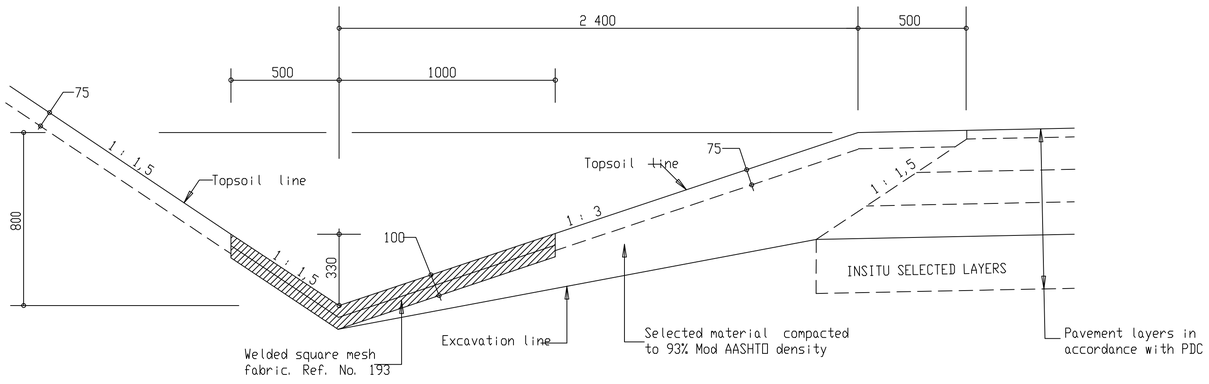
Scale 1 : 50



SD 0601/2 : GRASSED OR CONCRETE-LINED 1000 V - DRAIN

(NOTE : For use with subsoil drains in deep cuttings)

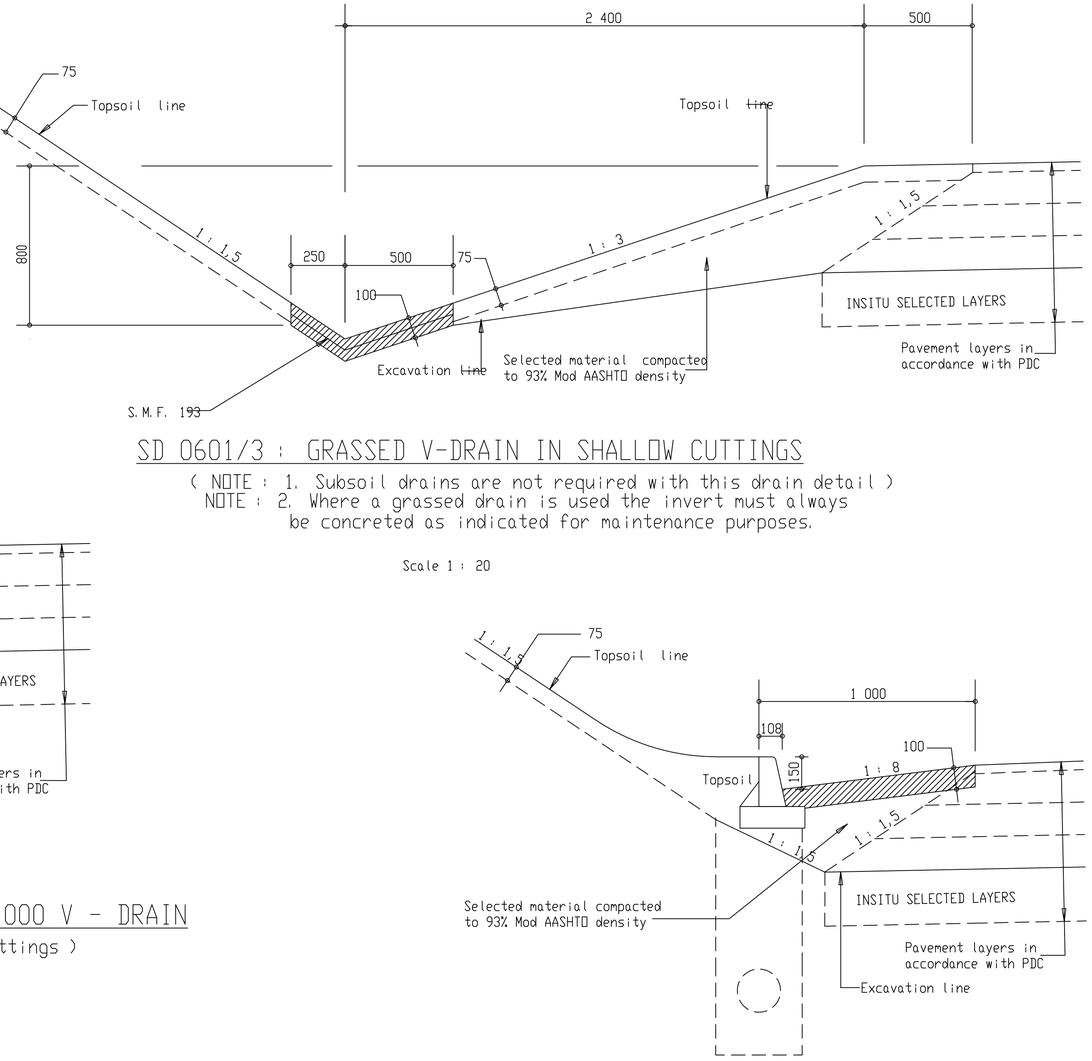
Scale 1 : 20



SD 0601/4 : CONCRETE-LINED V-DRAIN IN SHALLOW CUTTINGS.

(NOTE : 1. Subsoil drains are not required with this drain detail)
(NOTE : 2. Concrete dimensions may be increased as required)

Scale 1 : 20



SD 0601/3 : GRASSED V-DRAIN IN SHALLOW CUTTINGS

(NOTE : 1. Subsoil drains are not required with this drain detail)
NOTE : 2. Where a grassed drain is used the invert must always be concreted as indicated for maintenance purposes.

Scale 1 : 20

SD 0601/5 : KERB AND CHANNEL SIDE DRAIN IN CUT

(Alternative to concrete lined 1000 V - Drain in deep cuttings)

Scale 1 : 20

NOTES :

1. A V-drain as detailed on SD 0601/3 & 4 is recommended for shallow cuttings of depth not exceeding 5,00m measured at a point 6,00m from edge of carriageway.
2. The 1000 V-drain is concrete lined and recommended for deep cuttings of depth greater than 5,00m measured at a point 6,00m from edge of carriageway.
3. Construction joints shall be provided at 4,00m intervals All panel ends shall be painted with a coat of approved bituminous emulsion containing 60% pure bitumen by mass before any adjoining panels are cast. 10mm wide expansion joints sealed with a closed cell expanded polyethylene joint filler over the full panel depth shall be provided every 12,00m
4. The meadow drain is recommended for use in flat terrain.
5. See SD 0501 for subsoil drain details.
6. See SD 0701 for kerb details.
7. Concrete to be 20MPa minimum.

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DESIGNED:	M. KWAPA
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DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

DRAWING TITLE

TYPICAL DRAINAGE IN A CUT - SIDE DRAIN DETAILS

SCALE ON A0: AS SHOWN

REVISION NO. 0

DRAWING NO: WMMLM/STD/SDD/00

CODE	SIZE	NAME	NO. OF SIGNS	SIGNFACE
R1	600mm	STOP	AS PER ENGINEER INSTRUCTION	
W405 & W406	450 x 450mm	SHARP CURVE CHEVRONS	AS PER ENGINEER INSTRUCTION	
W205	600mm	SHARP CURVE (LEFT)	AS PER ENGINEER INSTRUCTION	
W204	600mm	SHARP CURVE (RIGHT)	AS PER ENGINEER INSTRUCTION	
W202	600mm	GENTLE CURVE (RIGHT)	AS PER ENGINEER INSTRUCTION	
W203	600mm	GENTLE CURVE (LEFT)	AS PER ENGINEER INSTRUCTION	
R201	600mm	SPEED LIMIT	AS PER ENGINEER INSTRUCTION	
W409	400 x 2400mm	T-JUNCTION CHEVRONS	AS PER ENGINEER INSTRUCTION	
W208	600mm	WINDING ROAD (RIGHT TO LEFT)	AS PER ENGINEER INSTRUCTION	
W209	600mm	WINDING ROAD (LEFT TO RIGHT)	AS PER ENGINEER INSTRUCTION	
W210	600mm	COMBINED CURVES (RIGHT TO LEFT)	AS PER ENGINEER INSTRUCTION	
W211	600mm	COMBINED CURVES (LEFT TO RIGHT)	AS PER ENGINEER INSTRUCTION	

NOTES:

1. QUANTITIES SCHEDULED ON DRAWING ARE APPROXIMATE
   EXACT QUANTITIES TO BE CONFIRMED BY ENGINEER ON SITE.
2. NUMBER OF SIGNS SCHEDULED IN TABLE APPLIES TO ENTIRE ROAD.

GENERAL DESIGN NOTES

1. ALL LEVELS, DIMENSIONS AND SETTING OUT DETAILS ARE TO BE VERIFIED BY ENGINEER ON SITE PRIOR TO CONSTRUCTION.
2. ALL EXISTING DRAINAGE CULVERTS ARE TO BE INSPECTED, AND ANY FOUND IN UNSERVICEABLE CONDITION ARE TO BE REPLACED UNLESS SHOWN OTHERWISE.
3. CULVERT INVERTS ARE TO BE DECIDED BY THE ENGINEER ON SITE UNLESS SHOWN OTHERWISE. MIN. COVER = 600mm. MIN. SLOPE = 2%.
4. PIPE CULVERTS ARE TO BE LAID WITH HEADWALLS AS PER STANDARD DETAILS. MIN DIAMETER = 600mm FOR MINOR ACCESS ROADS AND ACCESS BELLMOUTHS.
MIN. DIAMETER = 900mm FOR MAJOR ROAD CROSS DRAINAGE.
5. FOR EROSION CONTROL, GABION MATTRESSES ARE RECOMMENDED AT CULVERT INLETS AND OUTLETS.
6. EARTH BERMS ARE TO BE CONSTRUCTED AT CULVERT INLETS TO DIRECT STORMWATER INTO CULVERTS WHERE NECESSARY.
7. ROCK BOLSTERS ARE TO BE PLACED ACROSS THE INVERT OF DRAINS SUSCEPTIBLE TO EROSION FOR EVERY 2m VERTICAL DROP.
8. SUBSOIL DRAINS ARE TO BE INSTALLED WHERE HIGH WATER TABLES ARE ENCOUNTERED.
9. WHERE SURFACE RUNOFF IS TOWARDS THE ROAD, CATCHWATER BANKS ARE TO BE PROVIDED TO DIVERT STORMWATER TO MAJOR CROSS DRAINAGE STRUCTURES.
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14. UNDERGROUND SERVICES CROSSINGS AND MARKERS ARE TO BE INSTALLED.
15. ALL NEW ROAD SIGNS ARE TO CONFORM TO THE SOUTH AFRICAN DEVELOPING COMMUNITY ROAD TRAFFIC SIGNS MANUAL (SADC-RTSM).
16. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE 'SOUTH AFRICAN NATIONAL STANDARDS 1200 SPECIFICATION (SANS 1200)'.

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ENGINEER

UMPISI ENGINEERS
108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
UMHLANGA NEW TOWN CENTRE
UMHLANGA RIDGE
DURBAN 4001
TEL: 031 566 4209
FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT SIGNATURE: ..... DATE: .....

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

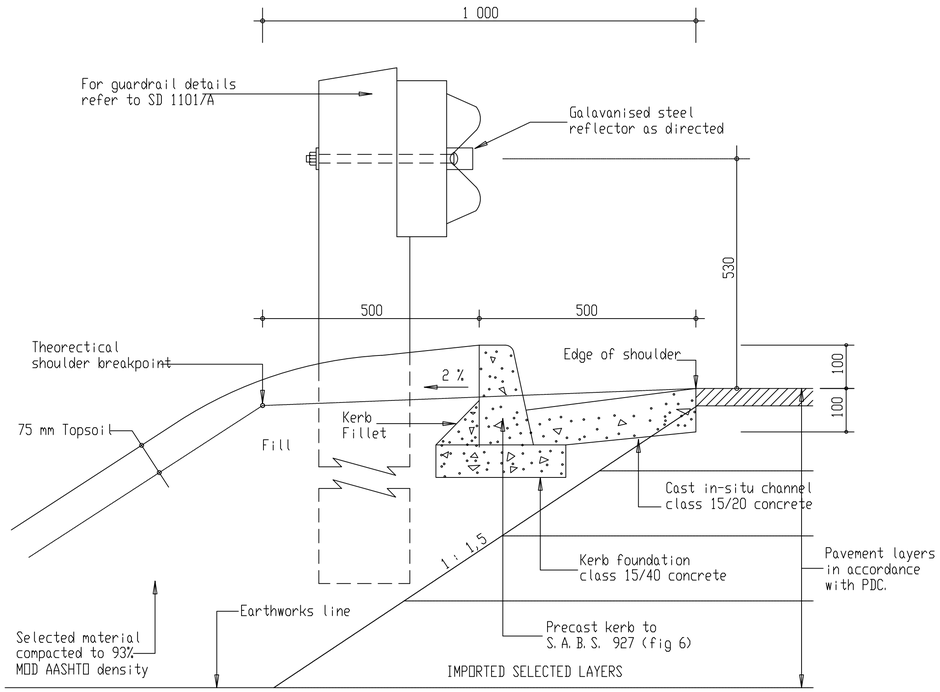
DRAWING TITLE

TYPICAL ROAD SIGNS

SCALE ON A0: AS SHOWN

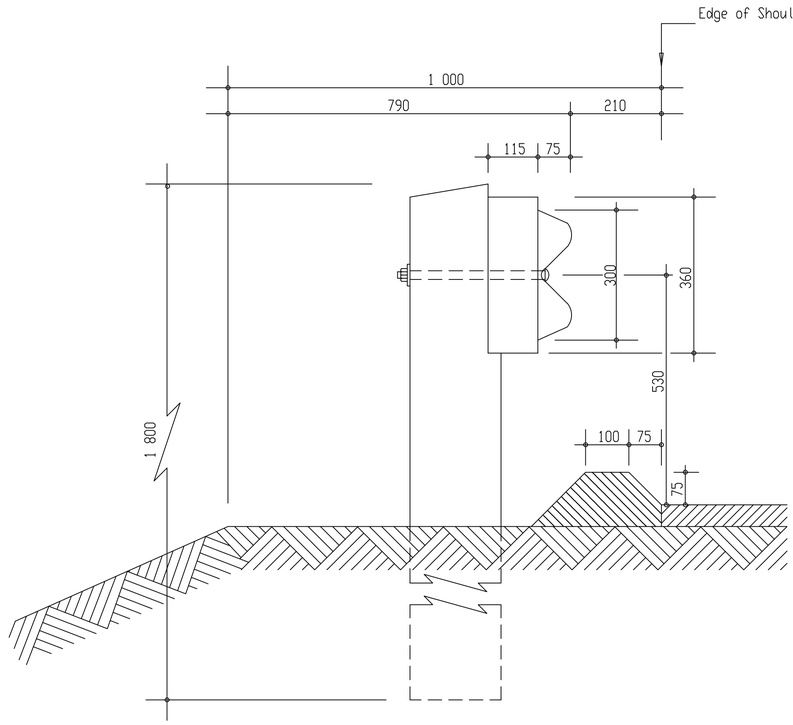
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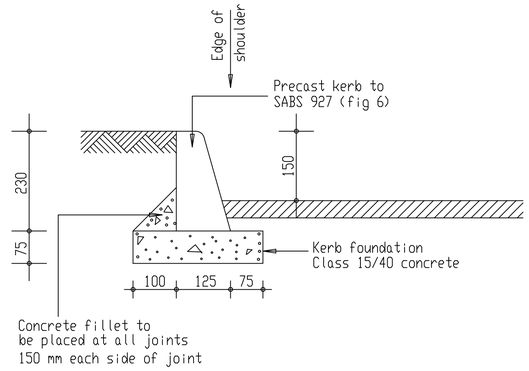
GUARDRAIL INSTALLATION WITH KERB AND CHANNEL

Scale : 1 : 10



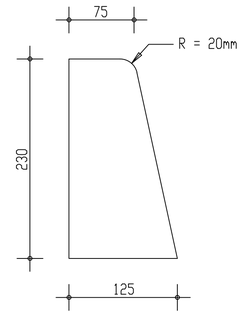
DETAIL OF ASPHALT BERM

Scale : 1 : 10



KERB ONLY

Scale : 1 : 10

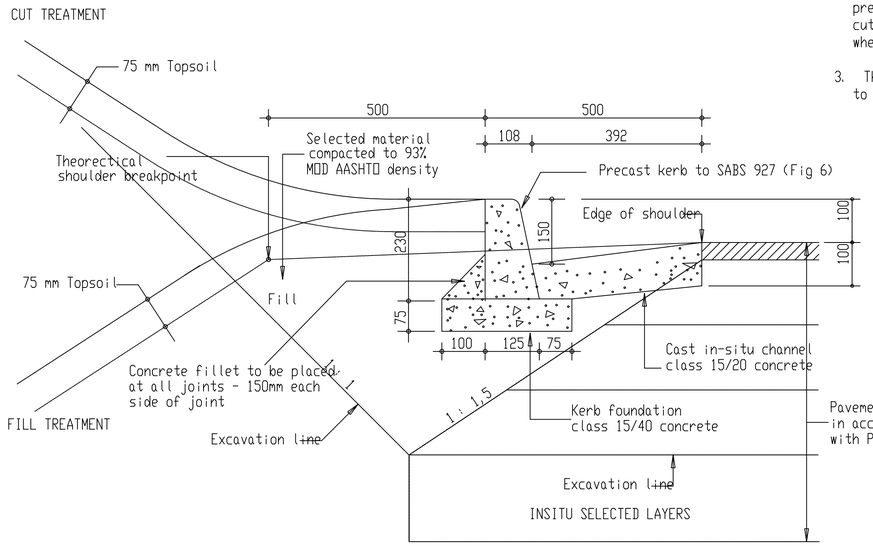


PRECAST KERB TO SABS 927 (Fig. 6)

Scale 1 : 5

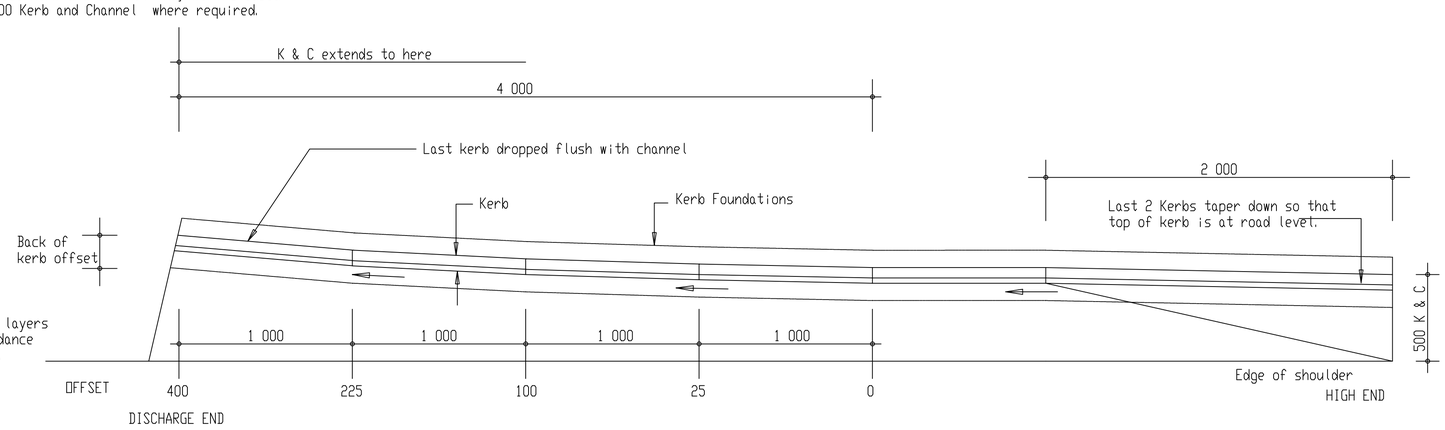
NOTES :

1. Construction joints to be provided in cast in-situ work at 2,00m intervals.
2. Expansion joints consisting of approved preformed joint filler board 13mm thick cut to required shape to be provided where indicated.
3. The 500 Kerb and Channel may be increased to 1000 Kerb and Channel where required.



KERB AND CHANNEL

Scale : 1 : 10



PLAN OF 500 KERB & CHANNEL END

Scale : 1 : 25

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REHABILITATION OF MXHANTINI ACCESS ROAD AND BRIDGES

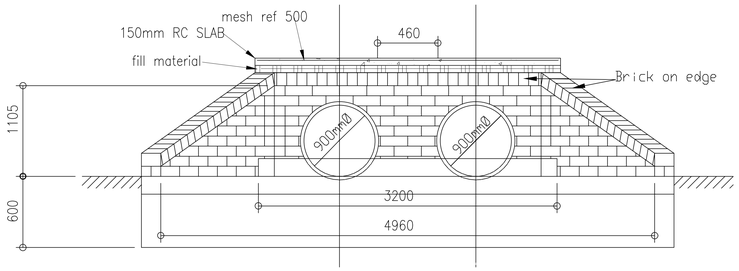
DRAWING TITLE

TYPICAL KERB AND CHANNEL DRAIN DETAILS

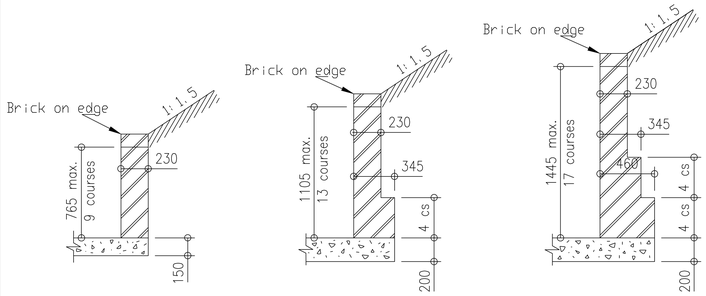
SCALE ON A0: AS SHOWN

REVISION NO. 0

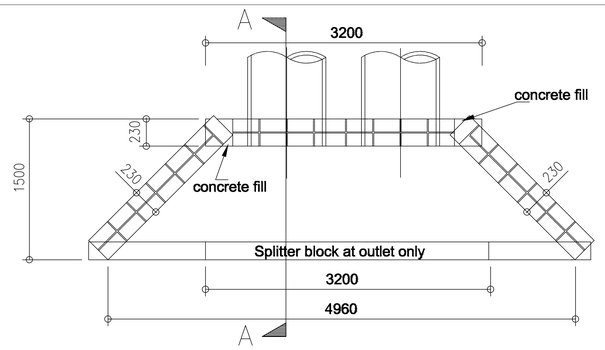
DRAWING NO: WMMLM/STD/KCD/00



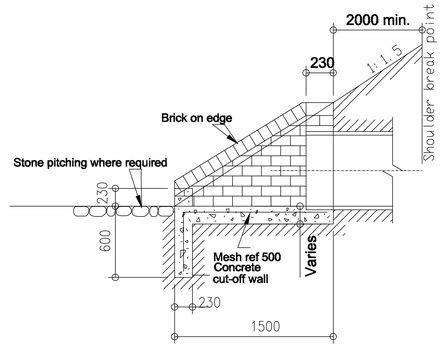
FRONT ELEVATION - DOUBLE PIPE



TYPICAL RETAINING WALL DETAILS



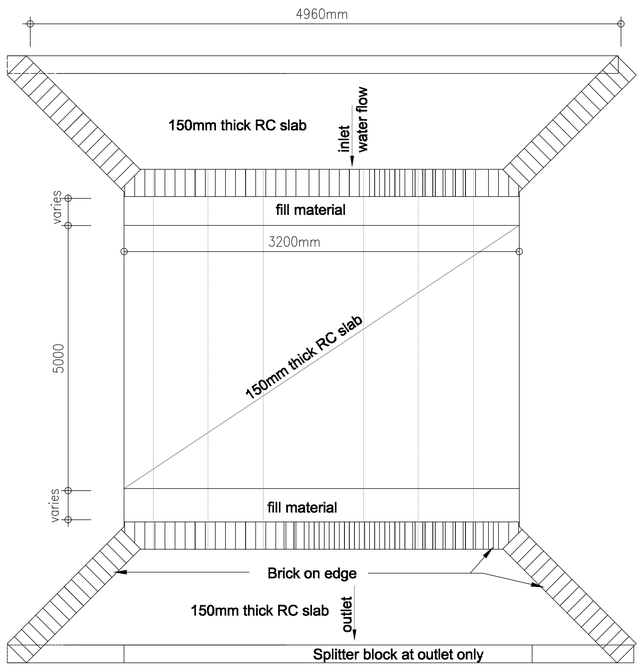
LAYOUT OF BRICKWORK



SECTION A-A

NOTES :

1. Splitter block and pitching to be provided at all outlets where erosion is likely to occur.
2. Splitter block may be omitted if discharge velocity is less than 0.9 m/s.
3. Cut-off walls may be omitted if structure is founded on rock.
4. Pipes to be cut flush with headwall.
5. For skew pipe culverts the headwall shall be parallel to the centre line of the road.
6. If corrugated metal pipes are used 4x20mmx150mm long galvanised anchor bolts in the hollows of the corrugation are to be used.
7. All concrete is to be 20MPa.
8. Square mesh fabric (Reference S.M.F.193) is to be placed 50mm from top in all apron slabs and centrally in cut-off walls.
9. Brickwork is to consist of good quality burnt clay common bricks in accordance with SABS 227 Specification, or cement bricks in accordance with SABS 987 Specification, uniform in size and shape layed in stretcher bond style with the skins tied together with galvanised crimped wire wall ties.
10. Brickforce is to be placed every 4th course.
11. Jointing on all visible faces to be pointed
12. No in-fill shall be larger than a half standard brick size unless 15MPa concrete is used.



PLAN

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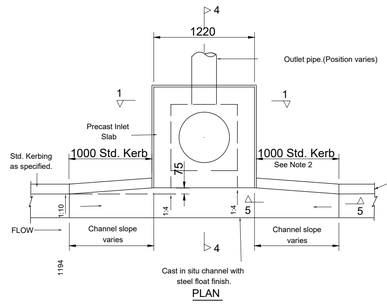
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TYPICAL PIPE CULVERT BRIDGE WITH TYPICAL MASONRY HEADWALL

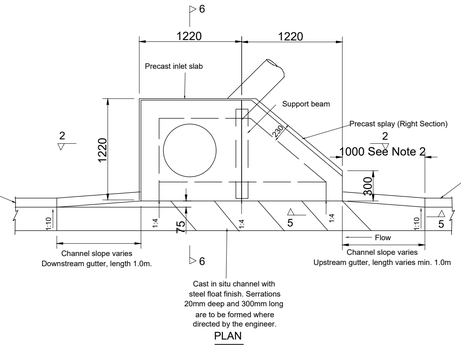
SCALE ON A0: AS SHOWN

REVISION NO. 0

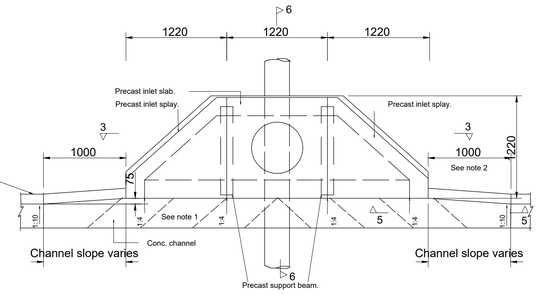
DRAWING NO: WMMLM/STD/HBC/00



PLAN



PLAN



PLAN



DETAIL OF CHANNEL SERRATIONS

NOTES:

1. THE DRAINAGE PIPE SHALL NOT BE LESS THAN 110mm DIAMETER.
   PERFORATED OR SLOTTED, AND MANUFACTURED FROM PITCH FIBRE.
   HIGH-DENSITY POLYETHYLENE OR uPVC. NO OPENINGS SHALL BE PROVIDED IN THE PIPE INVERT.
2. THE GEOTEXTILE SHALL CONFORM WITH GRADE A2 (1.6mm THICK) SPECIFICATION.
   A STRONGER GRADE MAY BE USED AT THE ENGINEER'S DISCRETION.
3. SELECTED BACKFILL OR BEDDING SHALL BE NATURAL PERMEABLE MATERIAL AS SPECIFIED IN 2104 OF THE COLTO SPECIFICATIONS.
4. CRUSHED STONE SHALL CONFORM WITH COARSE-GRADE STONE AS SPECIFIED IN 2104 OF THE COLTO SPECIFICATIONS.

THE INSTALLATION OF SUBSOIL DRAINS WILL ONLY BE UNDERTAKEN UPON WRITTEN INSTRUCTION BY THE ENGINEER ON SITE.

BENDING SCHEDULE DETAILS
(SQUARE OPENING)

BARØ	CODE	No.	A	B	LENGTH	TOTAL LENGTH	SHAPE
Y16	01	8	50	1194	1294	10352	A, B
Y16	02	4	50	270	370	1480	A, B

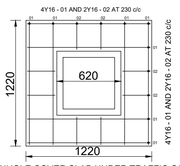
BENDING SCHEDULE DETAILS
(CIRCULAR OPENING)

BARØ	CODE	No.	A	B	LENGTH	TOTAL LENGTH	SHAPE
Y16	01	8	50	1194	1294	10352	A, B
Y16	02	4	50	270	370	1480	A, B
Y12	03	4		600	600	2400	B

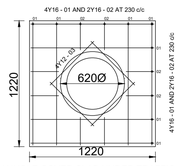
NOTES:

1. CLEAR COVER TO MAIN STEEL - 25mm
2. HEAVY DUTY MANHOLE COVER AND FRAME TO BE USED.
3. CONCRETE TO SLAB TO CONSIST OF 30/26 WITH CUBE CRUSHING STRENGTH OF 30MPa AT 28 DAYS.
4. ALL DIMENSIONS AND STEEL REINFORCING TO BE VERIFIED BY ENGINEER ON SITE.

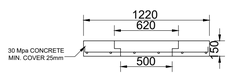
DETAIL OF MANHOLE COVER SLAB UNDER TRAFFIC CONDITIONS
(SQUARE OPENING)



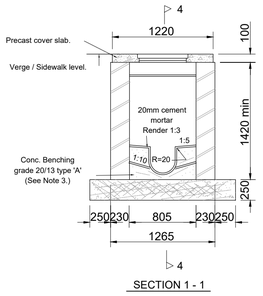
DETAIL OF MANHOLE COVER SLAB UNDER TRAFFIC CONDITIONS
(SQUARE OPENING)



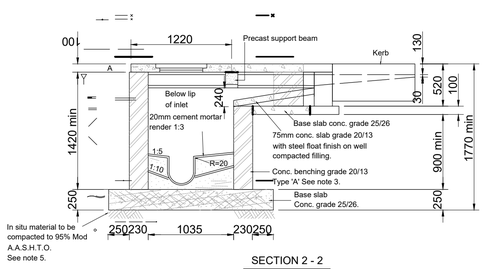
DETAIL OF MANHOLE COVER SLAB UNDER TRAFFIC CONDITIONS
(CIRCULAR OPENING)



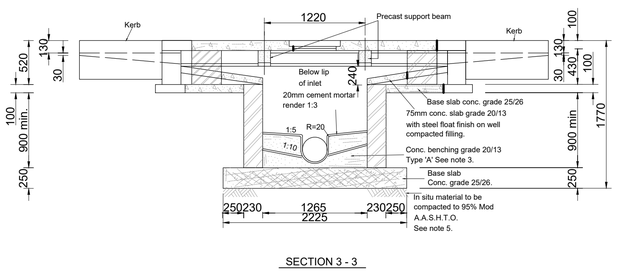
SECTION OF MANHOLE COVER SLAB UNDER TRAFFIC CONDITIONS



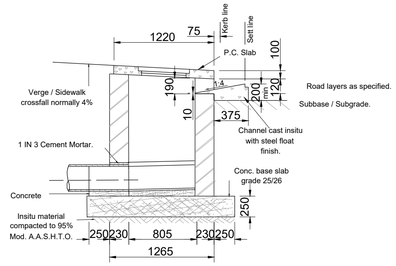
SECTION 1 - 1



SECTION 2 - 2



SECTION 3 - 3



SECTION 4 - 4

GRADED CHANNEL SINGLE S.W. INLET
TYPE 'S1'

1) Catchpit face to be set back 75mm from kerb line.
2) 1.0m transition from kerb line to catchpit line.
3) Type A benching to be used for S.W. on continuous pipelines.
   For S.W. inlets located at the head of the pipeline, the benching need only be dished at a grade of 1:10 to the outlet.
4) Max. depth of inlet after which a manhole type structure is to be detailed.

Inlet Type	Max. depth (F.R.L. Invert)
GS	2.0 3.0

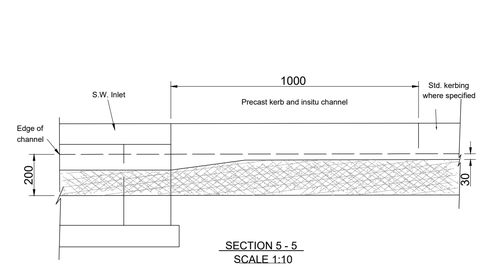
5) The insitu ground must be compacted to 95% Mod. A.A.S.H.T.O. prior to the inlet base slab being cast. If this density cannot be attained the insitu material must be removed to a depth of 300mm and replaced with a selected backfill.

6)

PRECAST CONCRETE UNIT
Inlet cover support beam.
Inlet slab.
Plain inlet slab.
Standard inlet splay.
Light duty M.H. Cover.

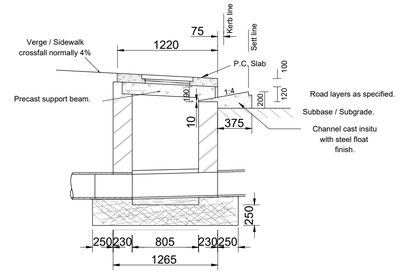
7) Gutter lengths:
In roads without full kerb and channel, minimum gutter lengths of 1.0m are to be provided on both upstream and downstream sides, Where additional upstream lengths are required this will not be indicated on the road S.W. drawing.
Upstream gutter lengths shall not be less than the following :-

Road Grade	Upstream Gutter Length
0 - 2%	1 m
2 - 4%	2 m
4 - 6%	3 m
6 - 8%	4 m
> 8%	5 m



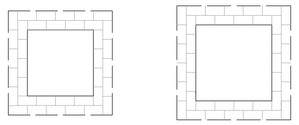
SECTION 5 - 5
SCALE 1:10

SINGLE S.W. INLET - RIGHT TYPE 'S2'
(MIRRORED FOR LEFT)



SECTION 6 - 6

DOUBLE SPLAY SINGLE S.W. INLET TYPE "D3"
SCALE 1:25

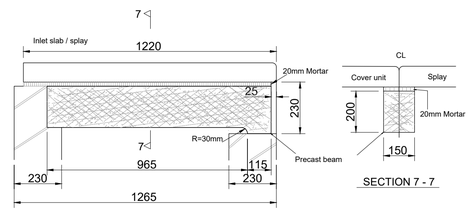


PATTERN A PATTERN B

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS.

805mm	920mm
1035mm	1150mm
1265mm	1380mm
1495mm	1610mm

BRICK LAYING PATTERNS
SCALE 1:25



SECTION 7 - 7

BEAM POSITION DETAILS
SCALE 1:10

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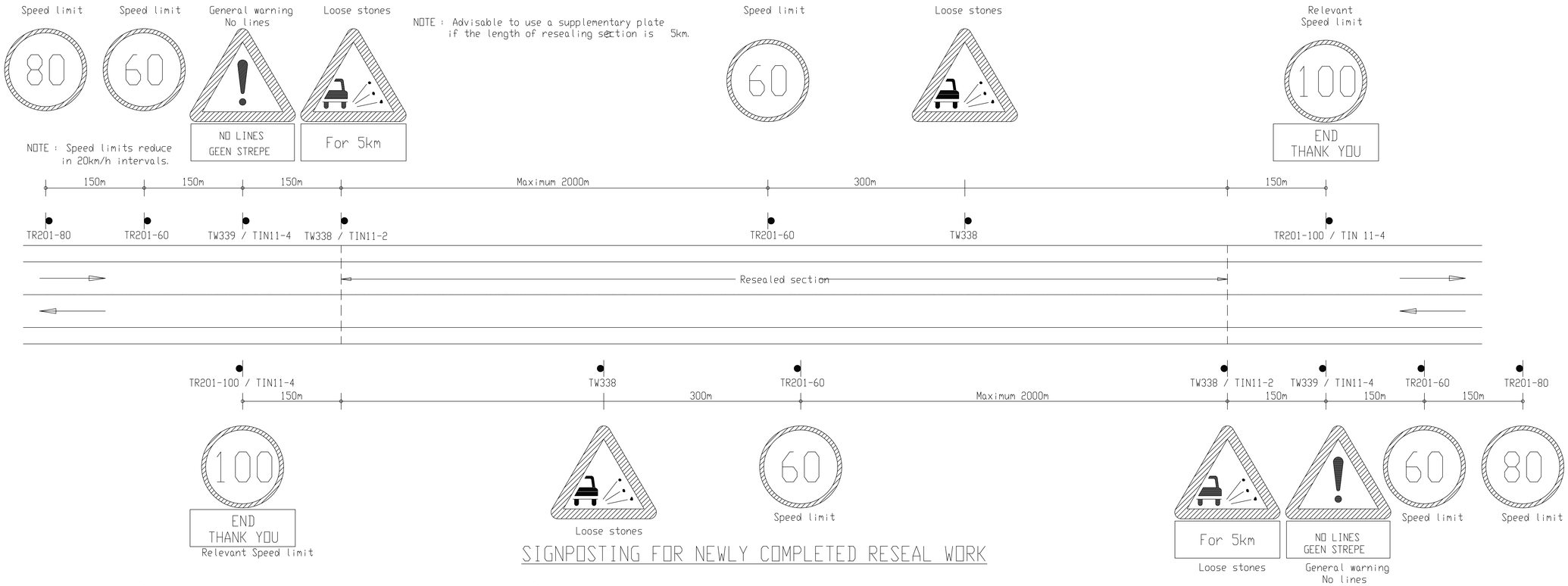
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TYPICAL STORMWATER INLET DETAILS

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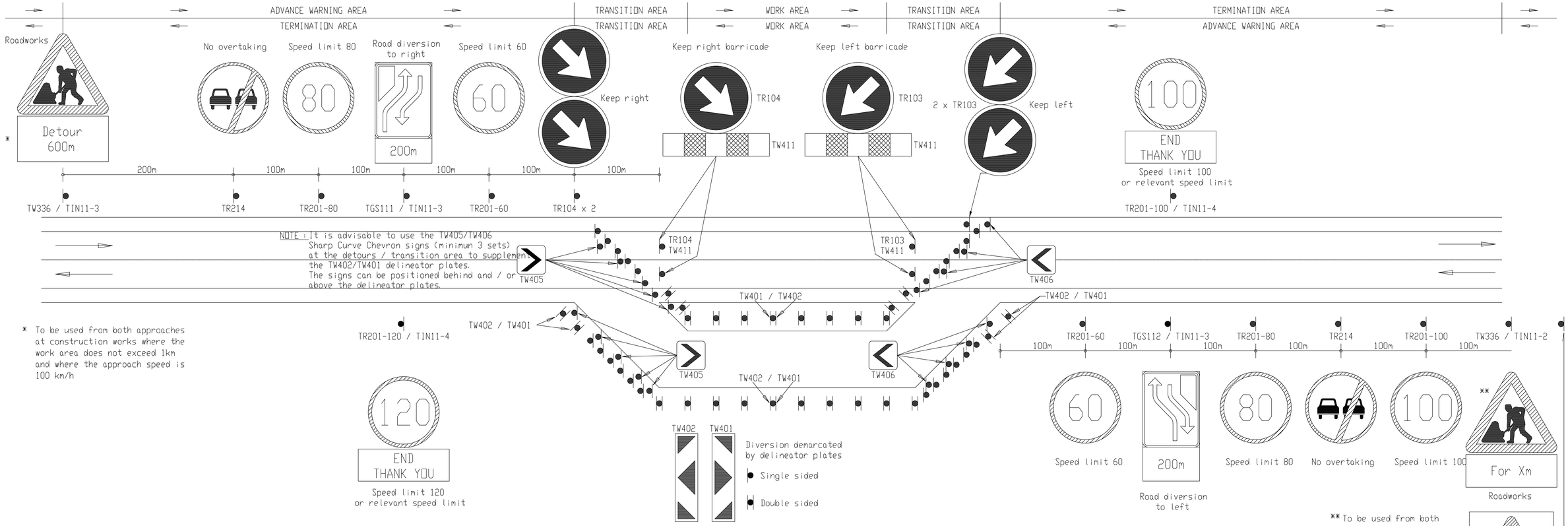
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TYPICAL SIGN POSTING AT ROADWORKS

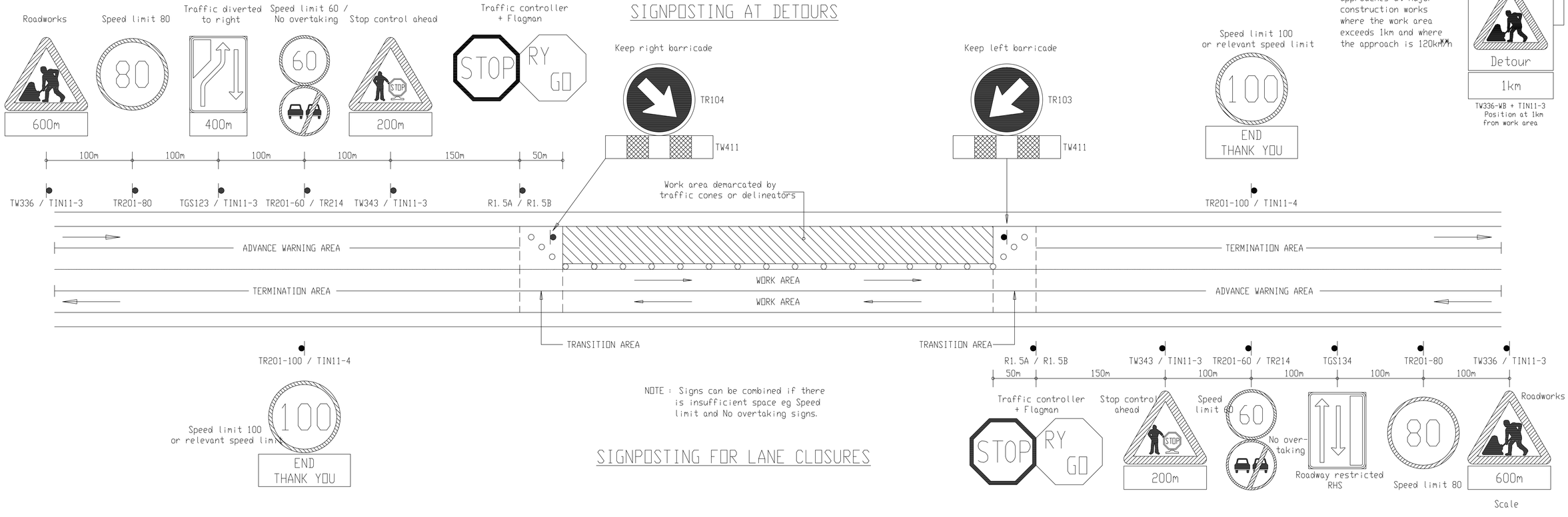
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SIGNPOSTING AT DETOURS



NOTE : Signs can be combined if there is insufficient space eg Speed limit and No overtaking signs.

SIGNPOSTING FOR LANE CLOSURES

Scale

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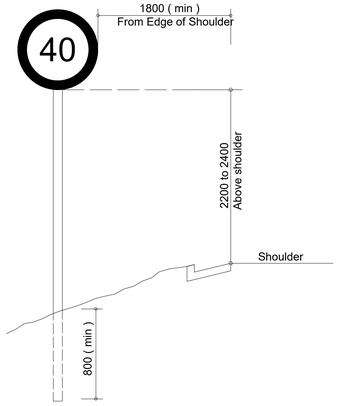
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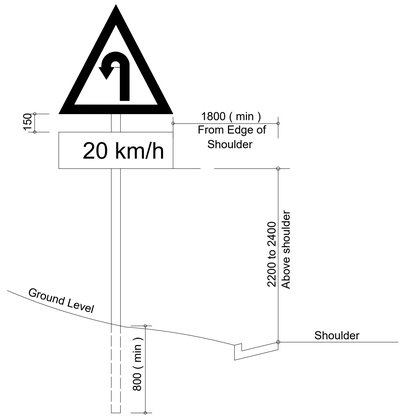
TYPICAL SIGN POSTING FOR DETOURS AND LANE CLOSURES

SCALE ON A0: AS SHOWN

REVISION NO. 0

DRAWING NO: WMMLM/STD/PDL/00





TYPICAL SIGNPOSTING ERECTION DIMENSIONS
REGULATORY AND WARNING SIGN

N.T.S

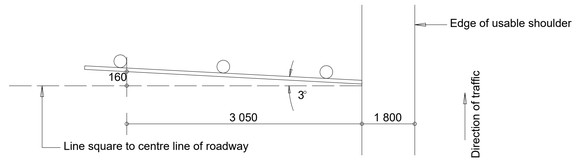
NOTES:
1. Signs to be placed at the positions indicated on the design drawings.

2. Ground mounted shoulder signs :
 2 200mm is minimum - 2 200mm to 2 400mm is desirable for height clearance.
 1 800mm is minimum from edge of shoulder.

3. Ground mounted gore signs :
 1 200mm is minimum - 1 800mm from edge of shoulder is desirable.

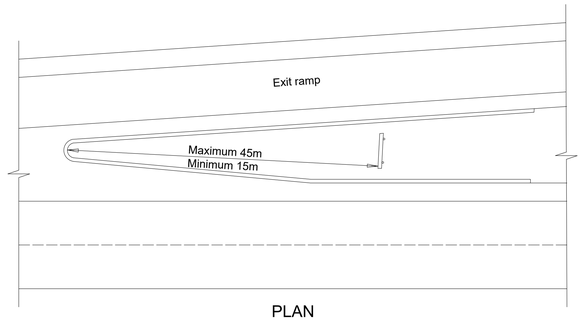
4. 3 degrees offset of signs to be adjusted to suit horizontal curves.

5. All signs to be in accordance with the latest South African Roads Traffic Signs manual.



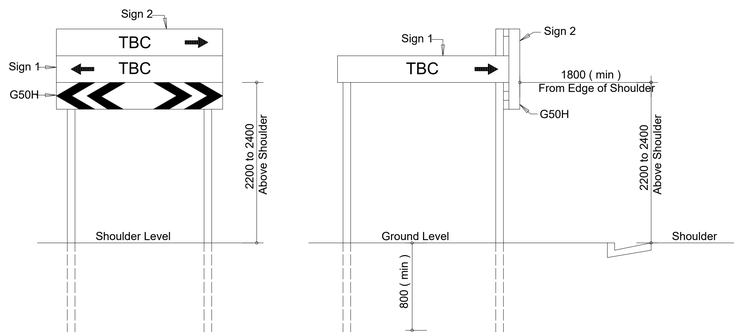
GROUND MOUNTED SHOULDER SIGN

NOTE : 2 x 25m holes are to be drilled perpendicular to the traffic flow direction at 75mm and 600mm above ground level, in all creosoted wooden poles, to faciliate breakaway in the event of impact.



PLAN

GROUND MOUNTED GORE SIGN



TYPICAL SIGNPOSTING ERECTION DIMENSIONS
T - JUNCTION BOX

Scale 1 : 50

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REV:	BY:	DATE:	REVISION DETAILS
0	M.K	20/08/26	DETAILED DESIGN

CLIENT

WINNIE MADIKIZELA-MANDELA LOCAL MUNICIPALITY

CLIENT APPROVAL SIGNATURE: ..... DATE: .....

ENGINEER

UMPISI ENGINEERS
108 iL PALLAZO BUILDING
Cnr SOLSTICE ROAD AND ZENNETH DRIVE
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E-MAIL: info@umpisi-engineers.com

CONSULTANT SIGNATURE: ..... DATE: .....

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

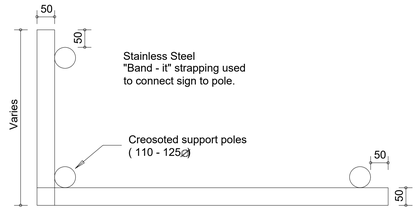
DRAWING TITLE

TYPICAL POSITIONING OF ROAD SIGNS

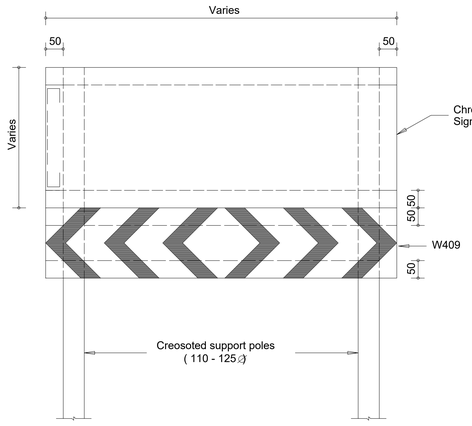
SCALE ON A0: AS SHOWN

REVISION NO. 0

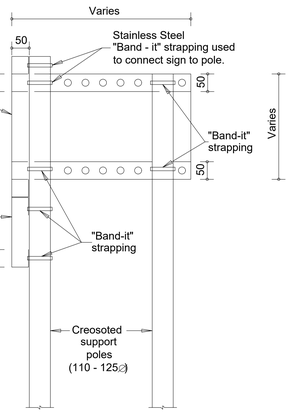
DRAWING NO: WMMLM/STD/PRS/00



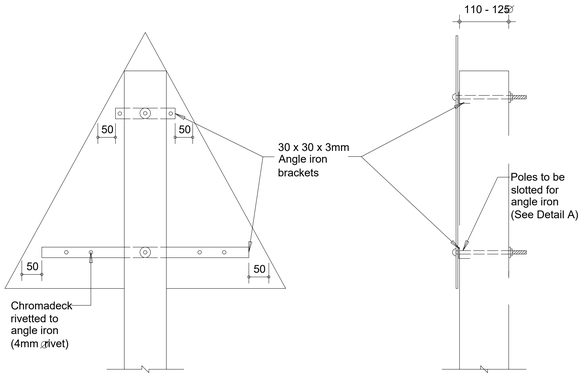
PLAN



FRONT ELEVATION

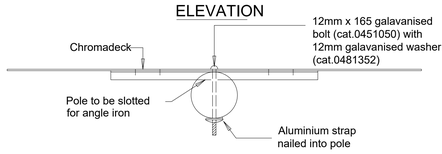


SIDE ELEVATION

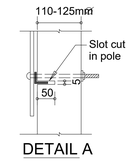


ELEVATION

END ELEVATION



PLAN



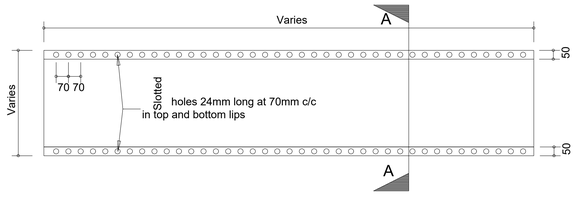
DETAIL A

FIXING OF STOCK TYPE SIGNS ON SINGLE SUPPORT POLES

GENERAL DESIGN NOTES

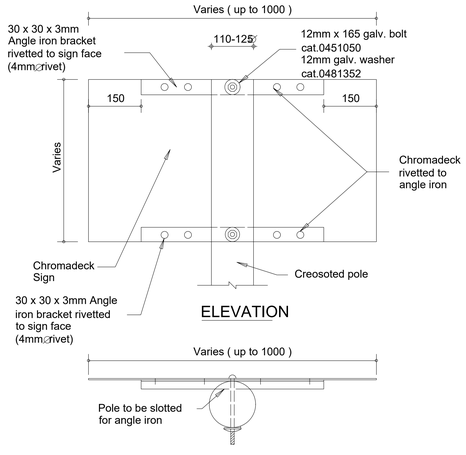
1. ALL LEVELS, DIMENSIONS AND SETTING OUT DETAILS ARE TO BE VERIFIED BY ENGINEER ON SITE PRIOR TO CONSTRUCTION.
2. ALL EXISTING DRAINAGE CULVERTS ARE TO BE INSPECTED, AND ANY FOUND IN UNSERVICEABLE CONDITION ARE TO BE REPLACED UNLESS SHOWN OTHERWISE.
3. CULVERT INVERTS ARE TO BE DECIDED BY THE ENGINEER ON SITE UNLESS SHOWN OTHERWISE. MIN. COVER = 600mm. MIN. SLOPE = 2%.
4. PIPE CULVERTS ARE TO BE LAID WITH HEADWALLS AS PER STANDARD DETAILS. MIN DIAMETER = 600mm FOR MINOR ACCESS ROADS AND ACCESS BELLMOUTHS,
MIN. DIAMETER = 900mm FOR MAJOR ROAD CROSS DRAINAGE.
5. FOR EROSION CONTROL, GABION MATTRESSES ARE RECOMMENDED AT CULVERT INLETS AND OUTLETS.
6. EARTH BERMS ARE TO BE CONSTRUCTED AT CULVERT INLETS TO DIRECT STORMWATER INTO CULVERTS WHERE NECESSARY.
7. ROCK BOLSTERS ARE TO BE PLACED ACROSS THE INVERT OF DRAINS SUSCEPTIBLE TO EROSION FOR EVERY 2m VERTICAL DROP.
8. SUBSOIL DRAINS ARE TO BE INSTALLED WHERE HIGH WATER TABLES ARE ENCOUNTERED.
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10. NEW FILLS AND EXPOSED CUTTINGS ARE TO BE TOPSOILED AND VEGETATED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
11. THE POSITIONS OF ACCESSES ARE TO BE DETERMINED IN CONSULTATION WITH THE LOCAL COMMUNITY. DAYLIGHTING REQUIREMENTS ARE TO BE DECIDED BY THE
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16. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE 'SOUTH AFRICAN NATIONAL STANDARDS 1200 SPECIFICATION (SANS 1200)'.

NOTE : 2 x 25m holes are to be drilled perpendicular to the traffic flow direction at 75mm and 600mm above ground level, in all creosoted wooden poles, to faciliate breakaway in the event of impact.



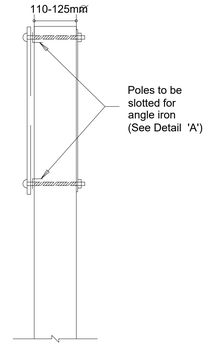
VIEW ON BACK ON SIGN PANNEL





ELEVATION

PLAN



END ELEVATION

FIXING OF SIGNS OF 1 METRE AND LESS ON ONE SUPPORT POLE

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FAX: 0861515555
E-MAIL: info@umpisi-engineers.com

CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

CONSULTANT SIGNATURE: ..... DATE: .....

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

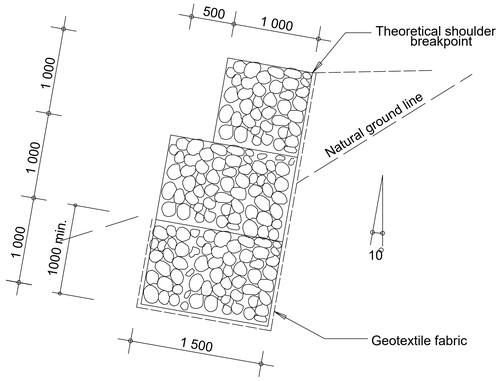
DRAWING TITLE

TYPICAL ERECTION OF METAL SIGNS ON CREOSOTED POLES

SCALE ON A0: AS SHOWN

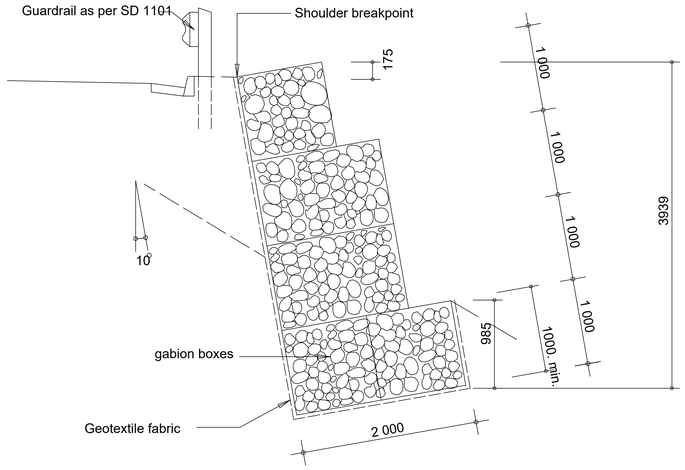
REVISION NO. 0

DRAWING NO: WMMLM/STD/EMS/00



3m GABION RETAINING WALL

Scale 1 : 50



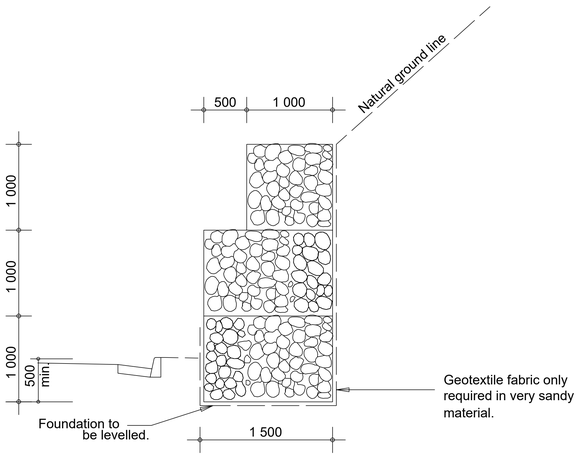
4m GABION RETAINING WALL

Scale 1 : 50

NOTES:

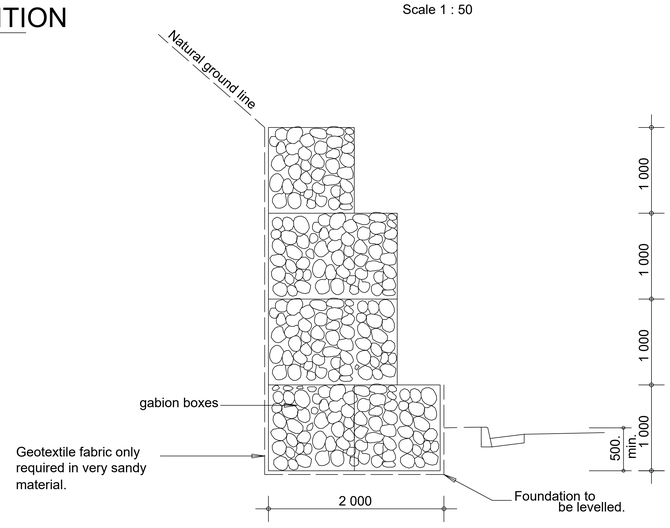
1. The gabion design shown is typical. Each application of gabion boxes shall be designed by the planning or bridge Engineer to suit the specific conditions prevailing.
2. Foundations to be stepped and prepared as instructed by the Engineer.
3. Geotextile fabric to be grade C or similar as instructed by the Engineer.
4. All wire used in the making of gabions shall be galvanised in accordance with the provisions S.A.B.S. 1580:1993 for Class A heavy galvanised mild-steel wire.
5. The standard sizes of gabions are as follows :
   Length : 1,0m , 2,0m , 3,0m & 4,0m
   Width : 1,0m 1,5m.
   Depth : 0,5m & 1,0m
   Diaphragm spacing : 1,0m
6. Lacing and bracing to be done in accordance with manufactures recommendations.

FILL CONDITION



3m GABION RETAINING WALL

Scale 1 : 50



4m GABION RETAINING WALL

Scale 1 : 50

Depth of gabion (m)		Nominal mesh dimensions (mm)		Nominal wire diameter (mm)	
Exceeding	Not exceeding	Cross dimension b Tolerances: -2 +5	Long dimension l Tolerances: +-25	Mesh wire	Selvedge
-	0,3	80	100	2,5	3,0
0,3	1,0	80	100	2,7	3,4

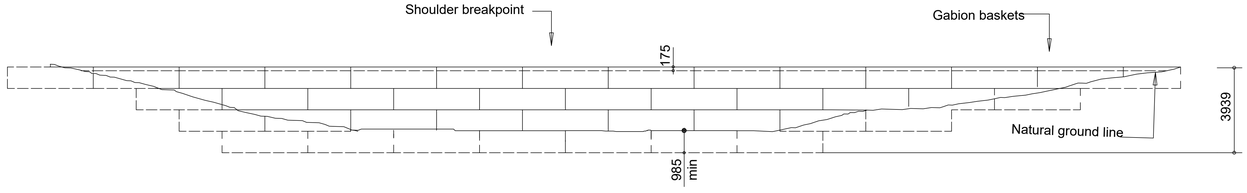
(As per SABS 1580 / 1993)

Depth of cage (m)	Rock size according to the largest dimension of rock	
	Minimum (mm)	Maximum (mm)
0,2	100	125
0,3	100	200
0,5	100	250
1,0	100	250

Nominal diameter of wire mm		Minimum mass of zinc coating per unit area (g/m ²)
Exceeding	Not exceeding	
2,40	2,50	260
2,51	3,50	275
3,51	5,00	290

(As per SABS 1580 / 1993)

CUT CONDITION



TYPICAL SIDE ELEVATION IN FILL CONDITION (4,0m WALL)

Scale 1 : 200

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0	T.M	20/08/26	DETAILED DESIGN

CLIENT

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108 iL PALLAZO BUILDING
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CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
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PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

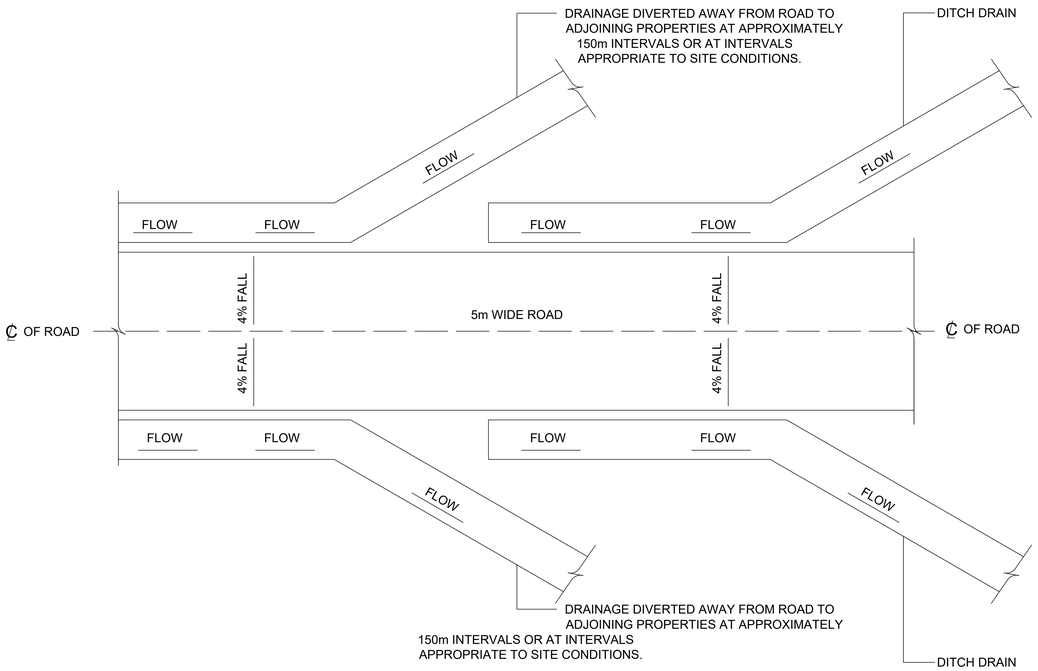
DRAWING TITLE

TYPICAL GABION RETAINING WALL DETAILS

SCALE ON A0: AS SHOWN

REVISION NO. 0

DRAWING NO: WMMLM/STD/GRD/00



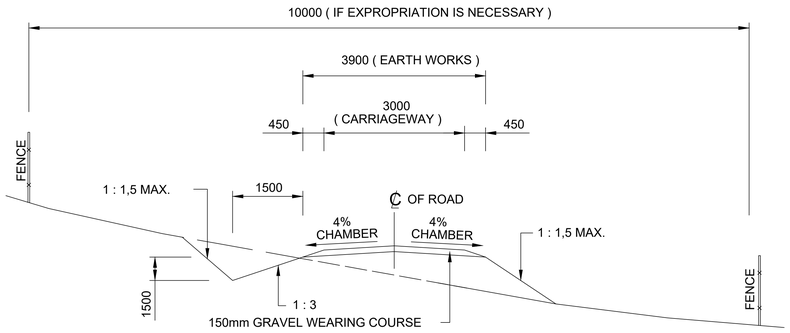
NOTE :

ROAD MAY FALL IN ONE DIRECTION
IN SOME PLACES TO SUIT SITE CONDITIONS

GENERAL DESIGN NOTES

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PART PLAN OF ROAD
TYPICAL DETAIL OF EARTH DRAINS
(DIAGRAMMATIC REPRESENTATION)



TYPE 7 BY ACCESS ROAD
(DIAGRAMMATIC REPRESENTATION)

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CONSULTANT

DESIGNED:	M. KWAPA
CHECKED:	V MQOKIYANA
DRAWN:	M. KWAPA
CHECKED:	V MQOKIYANA

PROJECT TITLE

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

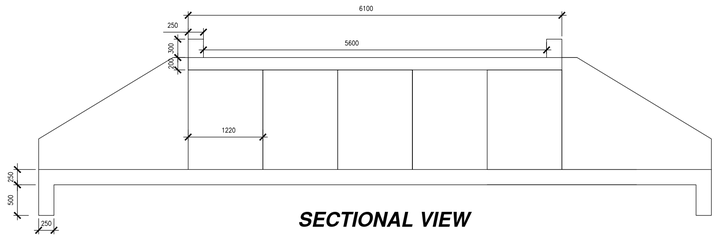
DRAWING TITLE

TYPICAL PLAN AND SECTION OF ROAD AND DRAINAGE DETAILS

SCALE ON A0: AS SHOWN

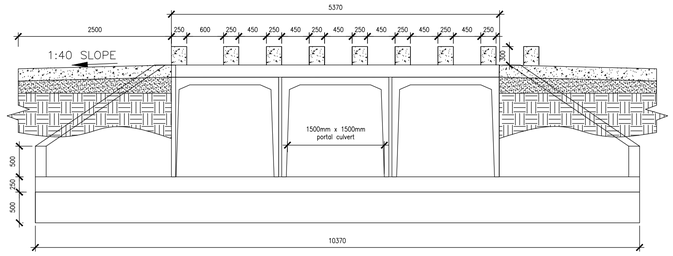
REVISION NO. 0

DRAWING NO: WMMLM/STD/RDD/00



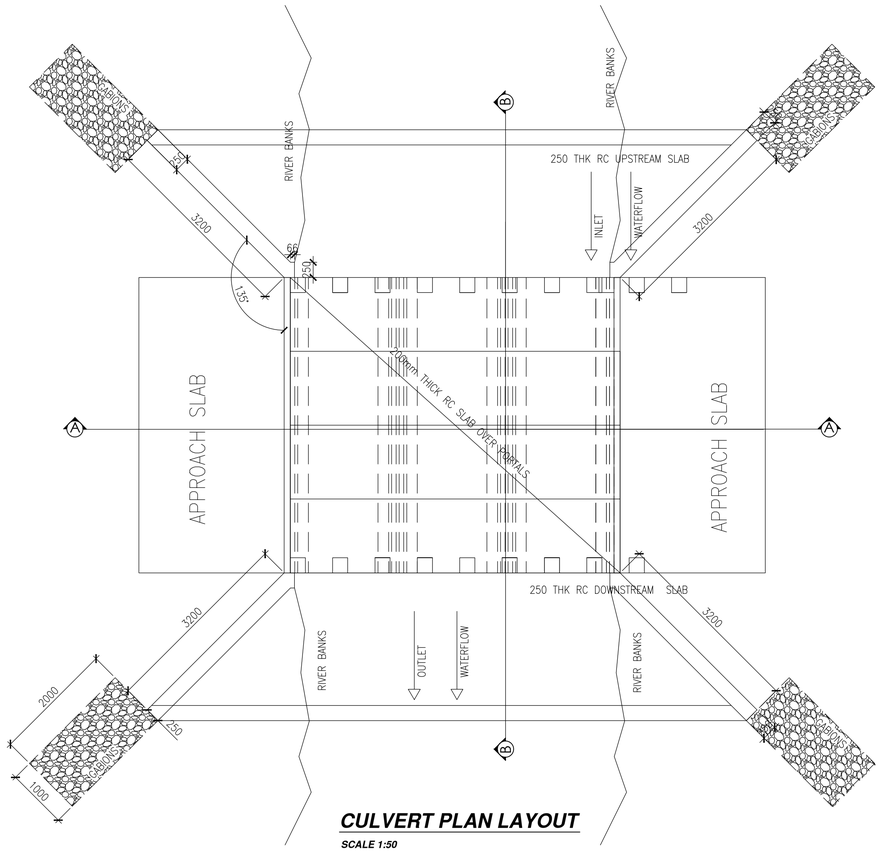
SECTIONAL VIEW

SCALE 1:50



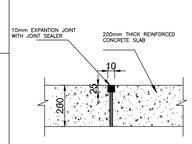
CULVERT PLAN LAYOUT

SCALE 1:50

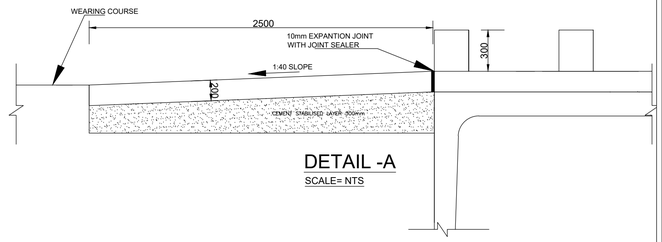


CULVERT PLAN LAYOUT

SCALE 1:50

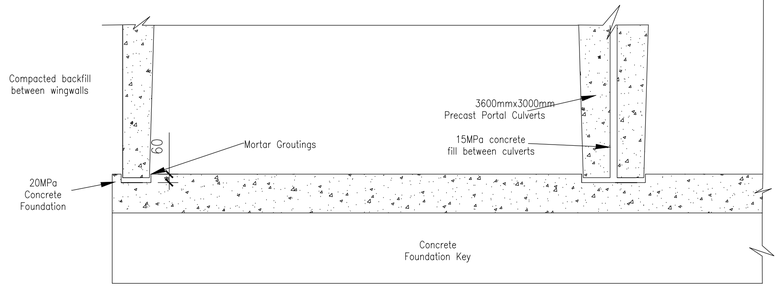


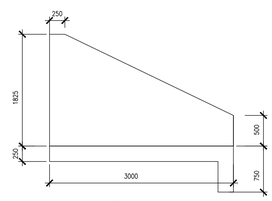
EXPANSION JOINT
TYPICAL DETAIL
SCALE= NTS



DETAIL -A

SCALE= NTS





WING WALL

SCALE 1:50

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General Notes/Legend

NOTES

2. THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAST 24 HOURS ADVANCE NOTICE FOR INSPECTIONS.
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8. REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER PRIOR TO CASTING CONCRETE.
9. CONCRETE STRENGTH AT 28 DAYS
   BLINDING – 15MPa
   FOUNDATIONS – 20MPa
   SLABS – 20MPa
10. COVER
   FOUNDATIONS – 50mm
   SLABS – 25mm
11. ALL DIMENSIONS AND LEVELS TO BE CHECKED CHECKED ON SITE.

Rev:	By:	Date:	Revision Details
0	TM	26/06/26	ISSUED FOR TENDERING PURPOSES

Client:

WINNIE MADIKIZELA MANDELA
LOCAL MUNICIPALITY

Client Approved: | Date:

UMPISI ENGINEERS
109 IL PALAZZO BUILDING
Cnr SOLSTICE ROAD AND
ZENITH DRIVE
UMHLANGA RIDGE
4319
TEL : 031 566 4209
FAX : 0866151555
E:MAIL : info@umpisi.com

Consultants Signature: | Date:

Designed:	T MARETELA
Checked:	V MQOKIYANA
Drawn:	T MARETELA
Checked:	V MQOKIYANA

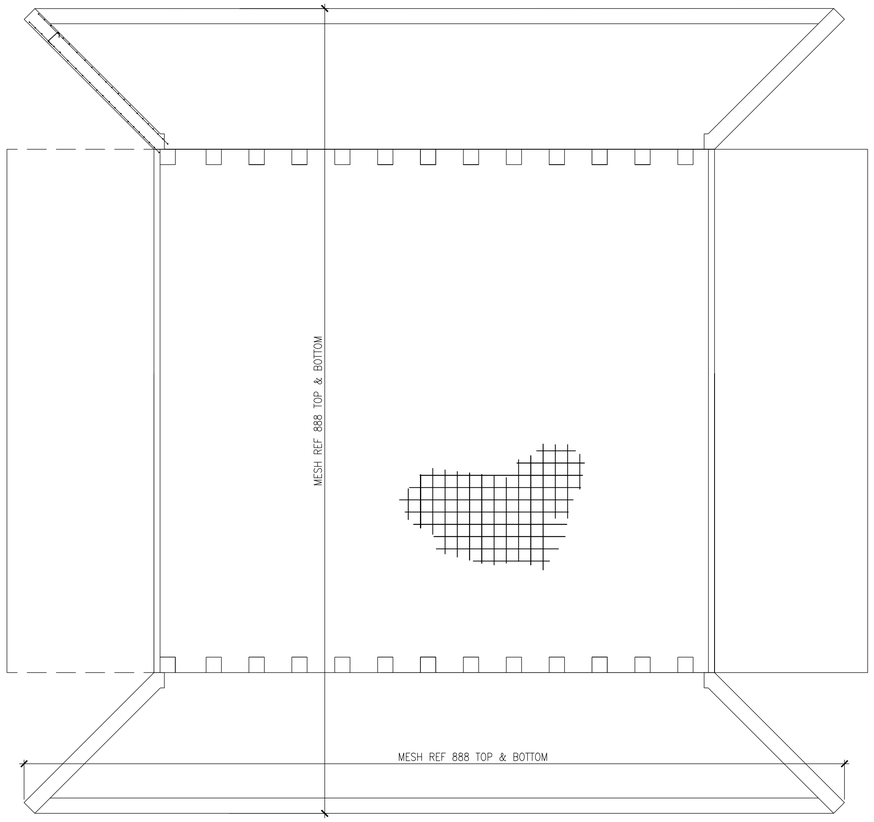
Project Title:

REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

Drawing Title:

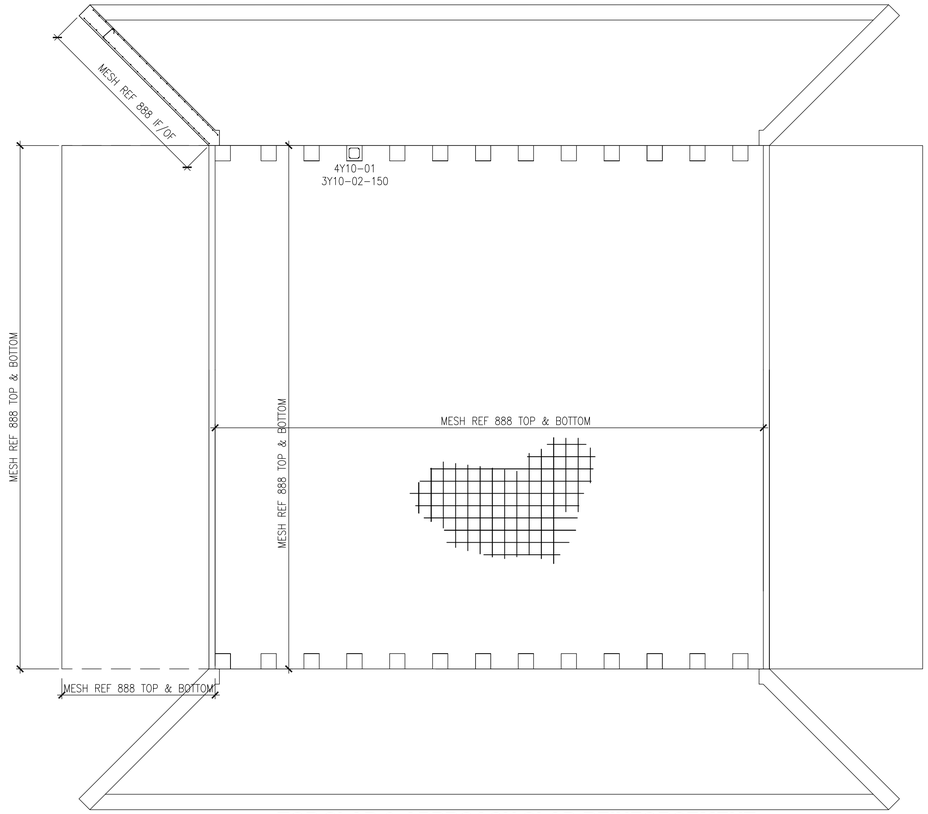
1500 x 1500 PORTAL CULVERT BRIDGE REINFORCED CONCRETE LAYOUT PLAN

Scale:	Date:
AS SHOWN	26 JUNE 2026
Drawing No: WMMLM/PCB01	Rev No: 0



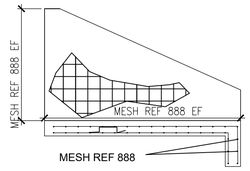
BASE REINFORCEMENT

SCALE 1:50



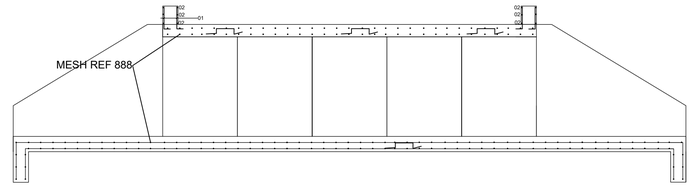
TOP SLAB & APPROACH SLAB REINFORCEMENT

SCALE 1:50



WING WALL

SCALE 1:50



SECTIONAL VIEW

SCALE 1:50

BENDING SCHEDULE

MEM	BARS PER MEMB	TYPE SIZE	MARK	TOTAL No.	LENGTH	SHAPE CODE	BENDING A	B	C	D	E/r	
BOLLARDS		Y10	01	104	600	37	300					
		Y10	02	78	900	60	190	190				
STOOLS		Y10	03	280	950	83	300	110	250	(STOOLS)		
MESH REF 888				670m²		47 SHEETS OF MESH REF. 888 (450mm OVERLAP)						

ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.

THE COPYRIGHT IN THIS DRAWING,INCLUDING THE DESIGN AND DETAILS SHOWN HEREON,IS RESERVED BY THE ENGINEERS.

General Notes/Legend

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REHABILITATION OF MXHANTINI ACCESS ROAD & BRIDGES

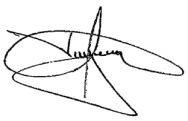
Drawing Title:

1500 x 1500 PORTAL CULVERT BRIDGE REINFORCEMENT DETAILS LAYOUT PLAN

Scale:	Date:
AS SHOWN	26 JUNE 2026
Drawing No: WMMLM/PCB/02	Rev No: 0

Approval of Tender Document

APPROVAL BY IMPLEMENTING AGENT:

ACTION BY:	PERSON	INITIALS	SIGNATURE	DESIGNATION
Compiled by	T Maretela	TM		Assistant Project Engineer & Designer
Checked and approved by	Mr Vuyisa Mqokiyana Pr. No. 20070020	VM		Project Engineer

ENDORSEMENT BY CLIENT

ACTION BY:	PERSON	INITIALS	SIGNATURE	DESIGNATION
Checked by	Mr VVO. Nontanda	VVON		PMU Manager
Endorsed by	Mr C. Ndzungu	CN		I & E Director