

EMALAHLENI LOCAL MUNICIPALITY



PROJECT NO: ELM 09/2020 CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5 TENDER DOCUMENT

NAME OF TENDERER:

PREPARED FOR :

EMALAHLENI LOCAL MUNICIPALITY
CNR Mandela & Arras Street
P.O. Box 3
EMALAHLENI,
1035



Telephone: 013 690 6300
Fax: 013 690 6207
Contact: Mr. Edwin Sedupane
e-mail address: sedupaneme@emalahleni.gov.za

PREPARED BY:

NKP Consulting Engineers (Pty) Ltd.

Plot 76, The Rest Road
P.O Box 11
Nelspruit,
1200



Telephone: 013 492 0492
Fax: 086 554 6578
Contact: Mr Keagan Smith
e-mail address: info@nkpsa.co.za

Tenderer:
CIDB Registration Number:
Total of the prices inclusive of value added tax: R
Amount in words:
B-BBEE level of contribution:
CSD Registration Number:

Preferences claimed for tendered contract participation goal of : NOT APPLICABLE

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020 CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

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Contractor

Witness 1

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Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020 CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

T1.1 PROJECT NOTICE

EMALAHLENI LOCAL MUNICIPALITY MPUMALANGA INVITES TENDERS FOR CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5.

It is estimated that tenderers should have a CIDB contractor grading of 7CE, 6CE Potentially Emerging Enterprises who satisfy criteria stated in the Tender Data may submit Tender offers. Preferences are offered to tenderers who have a grading of 7CE or higher or 6CE PE. In the cases of a Joint Venture every member of the Joint Venture should be registered with the CIDB and the lead partner should have a Contractor grading designation in the CE class of construction work and the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 7CE class of construction work or a value determined in accordance with Regulation 25 (1B) of 25 (7A) of the Construction Industry Development Regulations.

Documents may be collected during work hours after 11h00 on 2020/07/01. A non-refundable tender deposit of R0.00 payable by is required on collection of the Tender documents. To prevent the spread of the Covid-19 virus through interactions a compulsory briefing will not be conducted for this tender and documents will not be available for collection but will be downloadable on the following websites: www.emalahleni.gov.za or www.etenders.gov.za

Fully completed tender documents, clearly marked with the "NAME of the Tenderer" must be placed in a sealed envelope and placed in the tender box situated on the first floor, Emalahleni Local Municipality, Civic Centre, Corner Mandela & Arras Street, eMalahleni 1039 or sent via courier services to the above mentioned address. Couriered documents should be delivered to the First Floor, Supply Chain Management Offices at the aforementioned address. The envelope must be endorsed with the bid number, title of the bid and closing date as indicated in the document.

Tenders will be evaluated in terms of the Supply Chain Management policy of the Emalahleni Local Municipality. The lowest or any tender will not necessarily be accepted and suitably the Emalahleni Local

T1.1.1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Municipality reserves the right not to consider any tender not suitably endorsed or comprehensively completed, as well as the right to accept the tender in whole or part.

The following documents must be attached (Bidders that fail to submit documents indicated as compulsory will be disqualified):

- Original certified copy of valid BBBEE certificate (SANAS accredited or Affidavit) – compulsory
- Copy of bank rating – compulsory
- Copy of current municipal account, for company and individual directors/ stakeholders/ trustees (**not older than 3 months**) – copy of lease agreement - compulsory
- CSD summary report – compulsory

Queries relating to the issues of these documents may be addressed to:

Ms Z. Moroku

Tel No. 013 690 6497

Fax No. 013 690 6207

E-mail. masangonz@emalahleni.gov.za

Or

Mr M.E Sedupane

Tel No. 013 690 6298

Fax No. 013 690 6207

E-mail. sedupaneme@emalahleni.gov.za

Or

NKP Consulting Engineers (Pty) Ltd

Tel No. 013 492 0492

Fax No. 086 554 6578

E-mail. info@nkpsa.co.za

The closing time for receipt of Tenders is 11h00 on Friday, 31 July 2020.

Telephonic, Telegraphic, Telex, Facsimile, Emailed and Late Tenders will not be accepted.

Tenders may only be submitted on the tender documentation that is issued.

Requirements for sealing, addressing, delivering, opening and assessment of Tenders are stated in the Tender Data.

T1.1.2

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement (Feb 2008) as published in Government Gazette No: 30692, Board Notice 9 of 2008 of 1 February 2008. (See www.cidb.org.za).

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause Number	
F.1.1	The Employer is: <i>Emalahleni Local Municipality</i> <i>P.O Box 3</i> <i>Emalahleni</i> <i>1035</i>

T1.2.1

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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F.1.2	<p>The Tender documents issued by the Employer comprise the following documents:</p> <p>THE TENDER</p> <p>Part T1 : Tendering Procedures</p> <p>T1.1 Project Notice</p> <p>T1.2 Tender Data</p> <p>Part T2: Returnable Documents</p> <p>T2.1 List of Returnable documents</p> <p>T2.2 Returnable schedules</p> <p>THE CONTRACT</p> <p>Part C1: Agreements and Contract Data</p> <p>C1.1 Form of offer and acceptance</p>	
F.1.2	<p>C1.2 Contract Data</p> <p>C1.3 Performance guarantee</p> <p>Part C2: Pricing Data</p> <p>C2.1 Pricing Instructions</p> <p>C2.2 Bill of Quantities</p> <p>Part C3: Scope of Work</p> <p>C3 Scope of Work</p> <p>Part C4: Site Information</p> <p>C4 Site Information</p> <p>Part C5 : Relevant Documentation</p> <p>Health and Safety Specifications</p> <p>Pro-forma agreement in terms of Occupational Health and Safety Act</p> <p>Notification of construction work</p> <p>Pro-forma contract between contractor and worker</p> <p>Pro-forma attendance register</p> <p>Contract person days calculation format</p> <p>Contractor's monthly report format</p>	
F.1.3	<p>Interpretation</p> <p>The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these tender conditions.</p>	
F.1.4	<p>The Employer's Agent is:</p>	
	<p>NKP Consulting Engineers (Pty) Ltd Tel: 087 285 7788 Fax: 086 554 6578</p>	<p>Portion 76, The Rest Road P.O. Box 11 Nelspruit, 1200</p>
F.1.5	<p>The Employer's right to accept or reject any tender offer</p> <p>The employer has the right not to accept the lowest tender and to accept the whole or part of any tender or not to consider any tender not suitably endorsed is fully reserved by EMALAHLENI LOCAL MUNICIPALITY.</p>	
F.2.2	<p>Compensation of tendering</p> <p>Accept that the Employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.</p>	

T1.2.2

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

F.2.3	Check documents Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.
F.2.4	Confidentiality and copyright Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.
F.2.5	Reference documents Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.
F.2.6	Acknowledge Addenda Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary, apply for an extension of the closing time stated in the tender data, in order to take the addenda into account.
F.2.7	Site briefing meeting A compulsory clarification meeting will be held on: Date: Refer to T1.1 TENDER NOTICE AND INVITATION TO TENDER for date and time. Location: EMALAHLENI LOCAL MUNICIPALITY CNR Mandela & Arras Street EMALAHLENI, 1035
F.2.11	Alterations to documents Not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

T1.2.3

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

F2.13	<p>Submitting tender offer:</p> <p>No Tender document will be considered unless submitted on Council's Official Tender Document. Return all the returnable documents to the employer after completing them. Tenders must be deposited in the tender box clearly marked with project description.</p> <p>Tender No: ELM 09/2020-CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5.</p> <p>Location of tender Box: Main Entrance Ground Floor Emalahleni Local Municipality Building Physical Address: EMALAHLENI LOCAL MUNICIPALITY, CNR Mandela & Arras Street EMALAHLENI, 1035</p> <p>Telephonic, telegraphic, telex, facsimile or emailed tenders will not be considered</p> <p>All tender received by the EMALAHLENI LOCAL MUNICIPALITY will remain in the Municipality's possession until after the stipulated closing date and time.</p> <p>Accept that a tender submitted to the employer cannot be withdrawn or substituted. No substitute tenders will be considered</p>
F.2.16	The Tender offer validity period is 90 Days.
F.2.18	The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the Labour Intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
F2.20	<p>The tenderer is required to submit a Performance Guarantee from an approved insurer within 14 days from appointment. A format is included in Part C1.3 of this document.</p> <p>The tenderer is to submit to the employer before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.</p>

T1.2.4

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

F.3.11

Tender evaluation points

The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 system shall be applicable.

Preference points for this bid shall be awarded for:

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

The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTION	20
Total points for Price and B-BBEE must not exceed	100

Evaluation of Tenders

The Tenderers notice is drawn to the fact that the evaluation, adjudication and awarding of this tender will be in terms of the Supply Chain Management Policy of the ELM.

The following steps will be followed in evaluation;

1. Determination of whether or not tender offers are complete.
2. Determination of whether or not tender offers are responsive.
3. Determination of the reasonableness of tender offers.
4. Confirmation of the eligibility of preferential points claimed by tenderers.
5. Determination of expertise and experience of tenderers.
6. Awarding of points for financial offer.
7. Ranking of tenderers according to the total points
8. Performance of risk analysis by checking the credit record of the tenderers

Evaluation Criteria

Tenders are adjudicated in terms of ELM Supply Chain Management Policy, and the following framework is provided as a guideline in this regard.

T1.2.5

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

	<p>Size of enterprise and current workload</p> <ul style="list-style-type: none"> ▪ Evaluation of the Tenderer's position in terms of: ▪ Previous and expected current annual turnover ▪ Current contractual obligations ▪ Capacity to execute the contract <p>Staffing profile</p> <p>Evaluation of the Tenderer's position in terms of:</p> <ul style="list-style-type: none"> ▪ Staff available for this contract being Tendered for ▪ Qualifications and experience of key staff to be utilised on this contract. <p>Proposed Key Personnel</p> <p>In this part of the tender, the Tenderer shall also supply Curriculum Vitae (CV's) for the Staff available named and working on full time basis for the Tenderer. The CV should follow the normal Professional Format.</p> <p>Each CV should give at least the following:</p> <ul style="list-style-type: none"> • Position in the firm and within the organisation of this assignment • PDI status (describing population group, gender and disabilities) • Educational qualifications • Professional Registrations • Relevant experience (actual duties performed, involvement and responsibility), including locations, dates and durations of assignments, starting with the latest. • Language proficiency and • References (company name, individual name, position held, contact details) <p>Much importance will be placed on the experience of the staff proposed. The Tender must ensure that, if selected, the nominated staff will be assigned as proposed. Failure to do so may result in the annulment of any acceptance of the Tenders' proposal and/ or Agreement entered into by the Client for the execution of the services</p> <p>Previous experience</p> <p>The procedure for the evaluation of responsive Bids will be on the previous projects where the firm was involved for EMALAHLENI LOCAL MUNICIPALITY (ELM) projects or other clients. Reference of clients other than ELM MUST be provided.</p> <p>The tenderer shall list in the appropriate Forms the appropriate related projects undertaken by the member firms of the tenderer within the last five (5) years.</p> <p>Evaluation of the Tenderer's position in terms of his previous experience. Emphasis will be placed on the following:</p> <ul style="list-style-type: none"> • Experience in the relevant technical field • Experience of contracts of similar size • Some or all of the references will be contacted to obtain their input. <p>The tenderer shall provide documentation of company experience of each member of the Consortium/Joint Venture related projects</p>
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T1.2.6

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

	<p>If the Tender does not meet the requirements contained in the ELM Procurement Policy, and the mentioned framework, it will be rejected by the Council, and may not subsequently be made acceptable by correction or withdrawal of the non-conforming deviation or reservation.</p> <p>Penalties</p> <p>The EMALAHLENI LOCAL MUNICIPALITY will if upon investigation it is found that a preference in terms of the Act and these regulations has been obtained on a fraudulent basis, or any specified goals are not attained in the performance of the contract, on discretion of the Municipal Manager, one or more of the following penalties will be imposed:</p> <ul style="list-style-type: none"> • Cancel the contract and recover all losses or damages incurred or sustained from the Tenderer. • Impose a financial penalty at the discretion of Council <p>Restrict the contractor, its shareholders and directors on obtaining any business from the EMALAHLENI LOCAL MUNICIPALITY for a period of 5 years</p>
F.3.11.5	<p>Evaluation Method 4</p> <p>Which entails the balance between financial offer, preferences and Quality and 80-20 points system, will be adopted.</p>
F.3.18	<p>The number of paper copies of the signed contract to be provided by the Employer is one.</p>
	<p>The additional conditions of Tender are:</p> <ol style="list-style-type: none"> 1 Emalahleni Local Municipality may also request that the Tenderer provide written evidence that his financial, labour and resources are adequate for carrying out the project. 2 The Emalahleni Local Municipality reserves the right to appoint a firm of chartered accountants and auditors and / or execute any other financial investigations on the financial resources of any Tenderer. The Tenderer shall provide all reasonable assistance in such investigations. 3 The Emalahleni Local Municipality reserves the right to appoint a different Contractor for each project. The Tenderer shall be required to complete the form of offer (C1.1) and the Bill of Quantities (C2.2) for each project.
	<p>The tenderer is to note that the following Additional Relevant Documents attached into Part 5 of this document will form part of this contract:</p> <ol style="list-style-type: none"> (i) Health and Safety Specifications (ii) Pro-forma agreement in terms of Occupational Health and Safety Act (iii) Notification of construction work (iv) Pro-forma contract between contractor and worker (v) Pro-forma attendance register (vi) Contract person days calculation format (vii) Contractor's monthly report format

T1.2.7

[Signature Box]
Contractor

[Signature Box]
Witness 1

[Signature Box]
Witness 2

[Signature Box]
Employer

[Signature Box]
Witness 1

[Signature Box]
Witness 2

F.3.11.6	Evaluation Criteria The Construction Firm's tender responsiveness in relation to points is therefore summarized as follows: <table> <tr> <td>Organising and Staffing</td><td style="text-align: right;">20</td></tr> <tr> <td>Plant</td><td style="text-align: right;">10</td></tr> <tr> <td>Experience of Firm</td><td style="text-align: right;">30</td></tr> <tr> <td>Bank Ratings</td><td style="text-align: right;">10</td></tr> <tr> <td style="text-align: right;">Sub-Total</td><td style="text-align: right;">70</td></tr> </table>	Organising and Staffing	20	Plant	10	Experience of Firm	30	Bank Ratings	10	Sub-Total	70
Organising and Staffing	20										
Plant	10										
Experience of Firm	30										
Bank Ratings	10										
Sub-Total	70										

A firm must obtain a minimum of 50 points out of the 70 points above to be considered for price and BBB-EE evaluation.

T1.2.8

Contractor

Witness 1

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Employer

Witness 1

Witness 2

Organising and Staffing (Maximum points obtainable 20)

Project Manager / Team Leader:

Evaluation Criteria	Minimum Required	Elimination Factor	Points obtainable	Points Claimed
Academic Qualifications	Diploma in Civil or equivalent	No	3	
Academic Qualifications	Diploma in Project Management or equivalent	No	2	
	Matric		0	
Sub-total			5	
Experience of Team Leader in similar projects		Elimination Factor		
Involvement in comparable projects (Technical)	0 - 1	Yes	0	
	1 - 2	No	1	
	3 - 4	No	2	
	5 upwards	No	3	
Sub-total			3	
Total			8	

Site Agent: *(Maximum Points obtainable 4, minimum 2)*

Name:

Evaluation Criteria	Minimum Required	Elimination Factor	Points obtainable	Points Claimed
Academic Qualifications	Diploma in civil works or equivalent	No	2	
Academic Qualifications	No formal Education in Construction	Yes	0	
Sub-total			2	
Years of experience in similar projects	0 - 1	Yes	0	
	1 - 2	No	1	
	3 and above	No	2	
Sub-total			2	
Total			4	

Note: Should the Site Agent be the same as Contractor Manager zero points will be allocated.

T1.2.9

Contractor

Witness 1

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Employer

Witness 1

Witness 2

Site Foreman: **(Maximum Points obtainable 4; minimum 1)**

Name:

Evaluation Criteria	Minimum Required	Elimination Factor	Points obtainable	Points Claimed
Academic Qualifications (Note 10)Form L	N6 in Civil or equivalent	No	2	
Sub-total			2	
Years of experience after qualification	0-1	Yes	0	
	1 – 2	No	1	
	3 upwards	No	2	
Sub-total			2	
Total			4	

Note: Should the Site Foremen be the same Site Agent and Team leader zero points will be allocated

Safety Officer: **(Maximum Points obtainable 4; minimum 2)**

Name:

Evaluation Criteria	Minimum Required	Elimination Factor	Points obtainable	Points Claimed
Academic Qualifications	Occupational Health and Safety Certificate or equivalent (SAMTRAC)	No	2	
Sub-total			2	
Years of experience after qualification	0-1	Yes	0	
	1-2	No	1	
	3 upwards	No	2	
Sub-total			2	
Total			4	

Note: Should the Safety Officer be the same as Team leader, Site Agent, Site Foreman zero points will be allocated.

T1.2.10

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

ORGANISING AND STAFFING/PERSONNEL		
PERSONNEL	TOTAL	SCORES
Construction Manager/Team Leader	8	
Site Agent	4	
Health and Safety Officer	4	
Site Foreman	4	
TOTAL	20	

PLANT (Maximum Points obtainable 10)

It must be noted that total points of **10** are obtainable by the Construction Firm in relation to the requirements as mentioned on the table below, failure to submit evidential supporting documents is not an eliminating factor **BUT** a zero point will be scored. Letter of intent or quotation from the lessor must be attached.

Evaluation Criteria	Minimum Required	Elimination Factor	Points obtainable (Own)	Points obtainable (leased)	Points Claimed
Firm's plant and equipment – Note: Proof of ownership the firm's equipment must be attached and failure to do so will result in forfeiting the plant points	Firm's number of Grader x 1	No	2.5	1.5	
	Firm's number of TLBs x 2	No	2.5	1.5	
	Firm's number of Tipper Trucks x 2	No	2.5	1.5	
	Water tanker x 1	No	2.5	1.5	
Sub-total			10	6	
Total			10	6	

EXPERIENCE OF FIRM (Maximum Points obtainable 30)

Note: Company's previous completed projects

It must be noted that the experience of the firm carries a maximum of **30 points** as indicated in the table below. If proof of testimonials and appointment letters, in reference to Form E not provided, then the bidder shall obtain zero points on the experience of the firm.

Provide proof of the company's previous completed projects which is in the form appointment letters and completion certificates. Verifiable references (appointment letters and completion certificates) with contact details must be attached.

T1.2.11

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Evaluation Criteria	Evaluation Criteria	Elimination Factor	Points obtainable	Points Claimed
Company experience in terms of road and stormwater projects completed	1 Roads & Stormwater related project with min value of R 10m	Yes	5	
	2 Roads & Stormwater with min value of R 10m	No	10	
	1 Roads & Stormwater related project with min value of R 20m	No	20	
	2 Roads & Stormwater related projects with min value of R 20m	No	30	
Sub-Total			30	
TOTAL			30	

Bank Ratings – Financial Performance	
10 point – Points are allocated for the cash flow management demonstrated by the tenderer from bank rating	
Rating	Points
C	10
D	6
E	4
F	0

TOTAL SCORE: _____/70

T1.2.12

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

T2.1 LIST OF RETURNABLE DOCUMENTS
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The Tenderer must complete the following returnable Schedules:

Returnable Schedules required for Tender evaluation purposes

Form A	Compulsory Enterprise Questionnaire
Form B	Record of Addenda to Tender Documents
Form C	Authority for Signatory
Form D	Preference Schedule
Form E	Schedule of Previous Experience
Form F	Schedule of Current Projects
Form G	Certificate of Attendance at Site Meeting
Form H	Proposed Key Personnel
Form I	Schedule of Plant and Equipment
Form J	Schedule of Proposed Sub-Contractors
Form K	Financial References

MBD1	Tax compliance requirements
MBD4	Declaration of Interest
MBD8	Declaration of bidder's past supply chain management practices
MBD9	Certificate of Independent bid determination

Returnable Documents that will be incorporated into the contract

C1.1	Form of Offer and Acceptance
C1.2	Contract Data (Part 2)
C1.3	Form of Guarantee
C2.2	Bill of Quantities

T2.1.1

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENTION 5

T2.2 RETURNABLE DOCUMENTS

RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

FORM A COMPULSORY ENTERPRISE QUESTIONNAIRE

In the case of a Joint Venture – This questionnaire is to be completed and submitted in respect of each partner.

1. **Name of Enterprise:**
2. **VAT Registration number, if any:**
3. **CIDB Registration number:**
4. **Particulars of sole proprietors and partners in partnership:**

Name	Identity Number	Personal Income Tax Number

* Complete only if sole proprietor or partnership and attach separate page if more than 4 partners.

5. **Particulars of companies and close corporations:**

Company Registration Number:

Close Corporation Number:

Tax reference Number:

T2.2.1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

6. Record in the service of the state:

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership of director, manager, principal stakeholder or stakeholder in a company or close corporation is currently of has been within the last 12 months in the service of any of the following:

- a member of any municipal council
- a member of any provincial legislature
- a member of the National Assembly or the National Council of Province
- a member of the board of Directors of any Municipal entity
- an official of any municipality or municipal entity
- an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
- a member of an accounting authority of any national or provincial public entity
- an employee of Parliament or a provincial legislature

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

Name of sole proprietor, partner, director, manager or principal stakeholder or stakeholder	Name of Institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within the last 12 months

Name of Tenderer: Date:

Signature : Position:

Full name of signatory:

T2.2.2

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

ATTACH THE FOLLOWING DOCUMENTS HERETO

1. For Closed Corporations

CK1 or CK2 as applicable (Founding Statement)

2. For Companies

Shareholders register

3. For Joint Venture Agreements

Copy of the Joint Venture Agreement between all the parties, as well as the documents in (1) or (2) of each Joint Venture member.

4. Audited Financial Statements for the past three (3) years

5. CSD Audit Report

T2.2.3

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM B RECORD OF ADDENDA TO TENDER DOCUMENTS

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

	Date	Title of Details

Name of Tenderer: Date:

Signature : Position:

Full name of signatory:

T2.2.4

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM C AUTHORITY OF SIGNATORY

Details of person responsible for tender process:

Name : _____

Contact number : _____

Office address : _____

Signatories for close corporations and companies shall confirm their authority by attaching to this form a **duly signed and dated original or certified copy on the Company Letterhead** of the relevant resolution of their members or their board of directors, as the case may be.

PRO-FORMA FOR COMPANIES AND CLOSE CORPORATIONS:

"By resolution of the board of directors passed on (date).....

Mr

has been duly authorized to sign all documents in connection with the Tender for Contract Numberand any Contract which may arise there from on behalf of

(BLOCK CAPITALS)

SIGNED ON BEHALF OF THE COMPANY

IN HIS CAPACITY AS

DATE
:

FULL NAMES OF SIGNATORY

AS WITNESSES: 1.

2.

T2.2.5

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

--

Witness 2

PRO-FORMA FOR JOINT VENTURES:

Certificate of Authority for Joint Ventures

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms, authorised signatory of the company, acting in the capacity of lead partner, to sign all documents in connection with the tender offer an any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead Partner: CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:

T2.2.6

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

**ATTACH HERETO THE DULY SIGNED AND DATED
ORIGINAL OR CERTIFIED COPY OF AUTHORITY OF
SIGNATORY ON COMPANY LETTERHEAD**

T2.2.7

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM D PREFERENCE SCHEDULE

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

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

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

1. GENERAL CONDITIONS

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

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

1.2 The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 System shall be applicable.

1.3 Preference points for this bid shall be awarded for:

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

1.3. The maximum points for this bid are allocated as follows:

1

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTION	20
Total points for Price and B-BBEE must not exceed	100

1.4 Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

2.1 “all applicable taxes” includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

2.2 “B-BBEE” means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

T2.2.8

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

- 2.3 **“B-BBEE status level of contributor”** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- 2.4 **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;
- 2.5 **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- 2.6 **“comparative price”** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;
- 2.7 **“consortium or joint venture”** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;
- 2.8 **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.9 **“EME”** means any enterprise with an annual total revenue of R5 million or less.
- 2.10 **“Firm price”** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;
- 2.11 **“functionality”** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;
- 2.12 **“non-firm prices”** means all prices other than “firm” prices;
- 2.13 **“person”** includes a juristic person;
- 2.14 **“rand value”** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;
- 2.15 **“sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;
- 2.16 **“total revenue”** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;
- 2.17 **“trust”** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and
- 2.18 **“trustee”** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

- 3.1 The bidder obtaining the highest number of total points will be awarded the contract.
- 3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into

T2.2.9

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

account all factors of non-firm prices and all unconditional discounts;

- 3.3 Points scored must be rounded off to the nearest 2 decimal places.
- 3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.
- 3.5 Whenever, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must one scoring the highest score for functionality.
- 3.6 Two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

80/20 **or** **90/10**

Where

Ps = Points scored for comparative price of bid under consideration
Pt = Comparative price of bid under consideration
Pmin = Comparative price of lowest acceptable bid

5. Points awarded for B-BBEE Status Level of Contribution

- 5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

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

- 5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a

T2.2.10

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.

- 5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS
- 5.4 trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.
- 5.5 trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.
- 5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.
- 5.7 Person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 30% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub- contractor is an EME that has the capability and ability to execute the sub-contract.
- 5.8 Person awarded a contract may not sub-contract more than 30% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. BID DECLARATION

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

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

- 7.1 B-BBEE Status Level of Contribution: =(maximum of 10 or 20 points)

7 (Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA).

8. SUB-CONTRACTING

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

YES		NO	
-----	--	----	--

- 8.1. If yes, indicate:

- 1 what percentage of the contract will be subcontracted? _____ %
- 2 the name of the sub-contractor? _____
- 3 the B-BBEE status level of the sub-contractor? _____

T2.2.11

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

4 whether the sub-contractor is an EME?

YES		NO	
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9. DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of firm:

9.2 VAT registration number

9.3 Company registration number

9.4 **TYPE OF FIRM** (Tick Applicable Box)

- ☐ Partnership/ Joint Venture/ Consortium
- ☐ One Person business/ sole propriety
- ☐ Close Corporation
- ☐ Company
- ☐ (Pty) Ltd
- ☐ Other : Specify _____

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

9.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.
[TICK APPLICABLE BOX]

9.7 MUNICIPAL INFORMATION:

Municipality where business is situated

Registered Account Number

Stand Number

9.8 TOTAL NUMBER OF YEARS THE COMPANY/FIRM HAS BEEN IN BUSINESS?

T2.2.12

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:
The information furnished is true and correct;

- (ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
- (iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- (iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) restrict the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the ***Audi alteram partem*** (listen the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution

WITNESSES:

1.

.....
SIGNATURE(S) OF BIDDER(S)

2.

T2.2.13

.....
Contractor

.....
Witness 1

.....
Witness 2

.....
Employer

.....
Witness 1

.....
Witness 2

Witness 2

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Name of Tenderer: Date:

Signature :

Full name of signatory:

FORM F SCHEDULE OF CURRENT PROJECTS

Provide the following information on current projects. **This information is material to the award of the Contract.**

Description	Value (R) VAT excluded	Date Appointed	Reference		
			Name	Organisation	Tel no

T2.2.15

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Name of Tenderer: Date:

Signature :

Full name of signatory:

FORM G CERTIFICATE OF ATTENDANCE AT SITE MEETING
--

I / We acknowledge that the tender briefing was attended by a company representative able to relay the presentation of the works and/ or matters incidental to doing the works in the tender document in order for me/ us to take account of everything necessary when compiling our rates and prices included in the tender.

I/we acknowledge that the attendance register will be used to confirm our company's presence and if found to be absent, will lead to our tender being disqualified.

Name: Signature:

Capacity: Date and Time:

Capacity: Date and Time:

T2.2.16

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM H PROPOSED KEY PERSONNEL

Please attach CVs of the proposed key personnel.

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

CATEGORY OF EMPLOYEE	NUMBER OF PERSONS					
	KEY PERSONNEL, PART OF THE CONTRACTOR'S ORGANISATION		KEY PERSONNEL TO BE IMPORTED IF NOT AVAILABLE LOCALLY		UNSKILLED PERSONNEL TO BE RECRUITED FROM LOCAL COMMUNITY	
	HDI	NON-HDI	HDI	NON-HDI	HDI	NON-HDI
Site Agent, Project Managers						
Foremen, Quality Control and Safety Personnel						
Technicians, Surveyors, etc						
Artisans and other Skilled workers						
Plant Operators						
Others:.....						

The Tenderer shall attach hereto the *curricula vitae*, in the form included hereafter, of at least the site agent, the foreman, safety officer and the project manager. The information is necessary for evaluation of the tender.

Name of Tenderer:

Date:

Signature :

Full name of signatory:

T2.2.17

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM I SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I / we presently own or lease and will have available for this contract if my / our tender is accepted.

(a) Details of major equipment owned by me / us and immediately available for this contract.

DESCRIPTION (type, size, capacity etc)	QUANTITY	YEAR OF MANUFACTURE

Attach additional pages if more space is required

(b) Details of major equipment that will be hired, or acquired for this contract if my / our tender is accepted

DESCRIPTION (type, size, capacity etc)	QUANTITY	HOW ACQUIRED	
		HIRE/ BUY	SOURCE

Attach additional pages if more space is required

The Tenderer undertakes to bring onto site without additional cost to the Employer any additional plant not listed but which may be necessary to complete the contract within the specified contract period.

Failure to complete this form properly and correctly, will lead to the conclusion that the tenderer does not have the necessary plant and equipment resources at his disposal, which will prejudice his tender.

Name of Tenderer: Date:

Signature :

Full name of signatory:

T2.2.18

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

FORM J SCHEDULE OF PROPOSED SUB-CONTRACTORS

Appointment of the proposed sub-contractors is subject to approval by EMALAHLENI LOCAL MUNICIPALITY (ELM) in accordance with ELM Supply Chain Management Policy.

NAME OF SUB-CONTRACTOR	FULL DESCRIPTION OF WORK TO BE PERFORMED BY SUB-CONTRACTOR

Name of Tenderer:

Date:

Signature :

Full name of signatory:

T2.2.19

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM K FINANCIAL REFERENCES

FINANCIAL STATEMENTS

I/We agree, if required, to furnish an audited copy of the last 3 years' set of financial statements together with my/our Directors' and Auditors' report for consideration by the Client.

DETAILS OF TENDERERS BANKING INFORMATION

I/We hereby authorise the Client/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference:

BANK NAME:										
ACCOUNT NAME: <i>(e.g. ABC Civil Construction cc)</i>										
ACCOUNT TYPE: <i>(e.g. Savings, Cheque etc)</i>										
ACCOUNT NO:										
ADDRESS OF BANK:										
CONTACT PERSON:										
TEL. NO. OF BANK / CONTACT:										
How long has this account been in existence:	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">0-6 months</td> <td style="width: 40px; text-align: center;"> <input type="checkbox"/> </td> </tr> <tr> <td style="padding: 2px;">7-12 months</td> <td style="text-align: center;"> <input type="checkbox"/> </td> </tr> <tr> <td style="padding: 2px;">13-24 months</td> <td style="text-align: center;"> <input type="checkbox"/> </td> </tr> <tr> <td style="padding: 2px;">More than 24 months</td> <td style="text-align: center;"> <input type="checkbox"/> </td> </tr> </table>	0-6 months	<input type="checkbox"/>	7-12 months	<input type="checkbox"/>	13-24 months	<input type="checkbox"/>	More than 24 months	<input type="checkbox"/>	(Tick which is appropriate)
0-6 months	<input type="checkbox"/>									
7-12 months	<input type="checkbox"/>									
13-24 months	<input type="checkbox"/>									
More than 24 months	<input type="checkbox"/>									

Name of Tenderer:

Date:

Signature :

Full name of signatory:

T2.2.20

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM L Certificate of Authority of Joint Ventures/ Close corporations/ Partnership/ Company/ Sole proprietor

Indicate the status of the Tenderer by ticking the appropriate box hereunder. The Tenderer must complete the certificate set out below for the relevant category.

(I) COMPANY	(II) CLOSE CORPORATION	(III) PARTNERSHIP	(IV) JOINT VENTURE	(V) SOLE PROPRIETOR

(I) CERTIFICATE OF COMPANY

I,, chairperson of the Board of Directors of, hereby confirm that by resolution of the Board (copy attached) taken on 20....., Mr/Ms, acting in the capacity of....., was authorized to sign all documents in connection with the tender for Contract No. NKO36/2018 and any contract resulting from it on behalf of the company.

Chairman:

As Witnesses: 1.....

2.....

Date:

T2.2.21

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

(II) CERTIFICATE FOR CLOSE CORPORATION

We, the undersigned, being the key members in the business trading as,
..... hereby authorize Mr/Ms, acting in
the capacity of....., to sign all documents in
connection with the tender for Contract No. NKO36/2018 and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

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

(III) CERTIFICATE FOR PARTNERSHIP

We, the undersigned, being the key partners in the business trading as,
....., hereby authorize Mr/Ms,
acting in the capacity of, to sign all documents in connection with
the tender for Contract No. NKO36/2018 and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note : *This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Partnership as a whole.*

T2.2.22

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

(IV) CERTIFICATE FOR JOINT VENTURE

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms . . .
....., authorised signatory of the company
....., acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORIZED SIGNATORY
Lead partner		Signature. Name Designation.....
		Signature. Name Designation.....
		Signature. Name Designation.....
		Signature. Name Designation.....

Note : *This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Joint Venture as a whole.*

(V) CERTIFICATE FOR SOLE PROPRIETOR

I,, hereby confirm that I am the sole owner of the Business trading as

Signature of Sole owner:

As Witnesses:

Date:

1.....

2.

T2.2.23

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM M Certificate of Registration with CIDB
--

The tenderer shall provide a printed copy of the Active Contractor's Listing off the CIDB website. (www.cidb.org.za). Tenderers whose CIDB registration expires within 21 days after close of tender should attach proof of their application for re-registration (refer to Tender Data Clause F.2.1). In the case of a Joint Venture, a printed copy of the Active Contractor's Listing must be provided for each member of the Joint Venture.

Name of Contractor:

Contractor Grading Designation:

CIDB Contractor Registration Number:

Expiry Date:

T2.2.24

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Contractor

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Witness 1

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Witness 2

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Employer

--

Witness 1

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Witness 2

FORM N Registration on National Treasury Central Supplier

The tenderer shall provide a printed copy of the Active Supplier Listing on the National Treasury Central Supplier Database. (www.treasury.gov.za). Tenderers who are not registered on the Central Supplier Database should attach proof of their application for registration. In the case of a Joint Venture, a printed copy of the Active Supplier Listing must be provided for each member of the Joint Venture.

Name of Contractor:

Central Supplier Database Supplier Number:

Expiry Date:

T2.2.25

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Contractor

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2

FORM O Municipal Utility Account

DECLARATION BY THE TENDERER

I the undersigned _____, has been duly authorized to sign all documents with the Tender for Contract Number _____ on behalf of _____ hereby make a declaration as follows:
(referred to herein as "the Bidder")

1. I declare that the bidder and /or any of its director(s) / member(s) does not owe the municipality, or any other municipality and/or municipal entity any amount which is in arrears in respect of any municipal rates and taxes or municipal service charges.
2. I understand and accept that in the event that this declaration is proved to be false, the bid shall be rejected forthwith. All other rights of the municipality (including but not limited to the right to claim damages where applicable) shall remain reserved in full.

SIGNED ON BEHALF OF THE COMPANY

IN HIS CAPACITY AS

DATE

FULL NAMES OF SIGNATORY

Utility Account Number	Name of Municipality	Name of Owner

ATTACH AN ORIGINAL OR A CERTIFIED COPY OF A MUNICIPAL UTILITY ACCOUNT (NOT OLDER THAN THREE (3) MONTHS)

Important: Note the following

- List Account(s) registered either in the name(s) of the Director(s) or the Company on the declaration form attached hereto.

Attach Municipal Utility account of Company's registered office (if applicable) and in case of leased premises, attach lease agreement and the services account of leased premises. (issued in the name of the bidding company)

T2.2.26

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE EMALAHLENI LOCAL MUNICIPALITY					
BID NUMBER:	ELM 09/2020	CLOSING DATE:	31 JULY 2020	CLOSING TIME:	11h00
DESCRIPTION	CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX
SITUATED AT

First floor, Emalahleni Local Municipality					
Civic Centre					
Corner Mandela & Arras Street					
eMalahleni					
1039					
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	<input type="checkbox"/> Yes <input type="checkbox"/> No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT <input type="checkbox"/> Yes <input type="checkbox"/> No		
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER PART B:3]
TOTAL NUMBER OF ITEMS OFFERED			TOTAL BID PRICE		R
SIGNATURE OF BIDDER		DATE		
CAPACITY UNDER WHICH THIS BID IS SIGNED					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:			TECHNICAL INFORMATION MAY BE DIRECTED TO:		
DEPARTMENT	Supply		CONTACT PERSON	Keagan Smith	
CONTACT PERSON	Edwin Sedupane		TELEPHONE NUMBER	013 492 0492	
TELEPHONE NUMBER	013 690 6300		FACSIMILE NUMBER	086 554 6578	
FACSIMILE NUMBER	013 690 6207		E-MAIL ADDRESS	info@nkpsa.co.za	
E-MAIL ADDRESS	sedupaneme@emalahleni.gov.za				

PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

- 2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
- 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.
- 2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.
- 2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

- | | |
|--|--|
| 3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? | <input type="checkbox"/> YES <input type="checkbox"/> NO |

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

**NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.**

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state*.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest.

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

3.1 Full Name:

3.2 Identity Number:

3.3 Company Registration Number:

3.4 Tax Reference Number:

3.5 VAT Registration Number:

3.6 Are you presently in the service of the state* YES / NO

3.6.1 If so, furnish particulars.

.....

.....

3.7 Have you been in the service of the state for the past twelve months? YES / NO

3.7.1 If so, furnish particulars.

.....

.....

3.8 Do you, have any relationship (family, friend, other) with persons in the service of the state and who may be

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

(a) a member of –

- (i) any municipal council;
- (ii) any provincial legislature; or
- (iii) the national Assembly or the national Council of provinces;

(b) a member of the board of directors of any municipal entity;

(c) an official of any municipality or municipal entity;

(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);

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

(f) an employee of Parliament or a provincial legislature.

involved with the evaluation and or adjudication
of this bid?

YES / NO

3.8.1 If so, furnish particulars.

.....
.....

3.9 Are you, aware of any relationship (family, friend, other)
between a bidder and any persons in the service of the
state who may be involved with the evaluation and or
adjudication of this bid?

YES / NO

3.9.1 If so, furnish particulars

.....
.....

3.10 Are any of the company's directors, managers, principle
shareholders or stakeholders in service of the state?

YES / NO

3.10.1 If so, furnish particulars.

.....
.....

3.11 Are any spouse, child or parent of the company's directors,
managers, principle shareholders or stakeholders in service
of the state?

YES / NO

3.11.1 If so, furnish particulars.

.....
.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)³
.....

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.
I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE
FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Municipal Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the <i>audi alteram partem</i> rule was applied).	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? (To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445).	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.3.1	If so, furnish particulars:		

Item	Question	Yes	No
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.7.1	If so, furnish particulars:		

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME)
CERTIFY THAT THE INFORMATION FURNISHED ON THIS
DECLARATION FORM TRUE AND CORRECT.**

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

CERTIFICATE OF INDEPENDENT BID DETERMINATION

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

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

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

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

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

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENTION 5

C. THE CONTRACT

Part C1: Agreements and Contract Data

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

Part C2: Pricing Data

- C2.1 Pricing Instructions
- C2.2 Bills of quantities

Part C3: Scope of Work

- C3 Scope of Work

Part C4: Site Information

- C4 Site Information

Part C5 : Relevant Documentation

- C5 Health & Safety Specifications

C1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

C1 AGREEMENTS AND CONTRACT DATA

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

C1.1

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Contractor

--

Witness 1

--

Witness 2

--

Employer

--

Witness 1

--

Witness 2

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works: **CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5.**

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

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

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

.....
..... Rand (in words); R (in figures).

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

Signature(s)		
Name(s)		
Capacity		
For the tenderer		
	(Name and address of organisation)	
Name & Signature Of Witness		
	Name	Date

C1.2

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

ACCEPTANCE

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

The terms of the contract are contained in:

Part 1 Agreements and Contract Data (which includes this Agreement)

Part 2 Pricing Data

Part 3 Scope of Work

Part 4 Site information

Part 5 Additional Documentation

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

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

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

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations. Unless the Tenderer (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(s) _____

Name(s) _____

Capacity _____

For the tenderer _____

(Name and address of organisation)

Name & Signature
Of Witness

Name

Date

C1.3

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SCHEDULE OF DEVIATIONS

Notes:

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

1 Subject

Details

2 Subject

Details

3 Subject

Details

4 Subject

Details

5 Subject

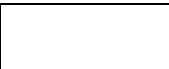
Details

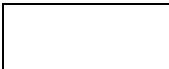
6 Subject

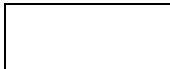
Details

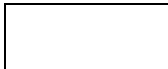
By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer

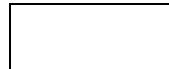
C1.4

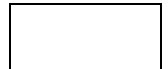

Contractor


Witness 1


Witness 2


Employer


Witness 1


Witness 2

agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the Offer agreed by the Tenderer and the Employer during this process of Offer and Acceptance. It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

FOR THE TENDERER:

Signatures (s) _____

Name(s) _____

Capacity _____

(Name and address of Organisation)

Name & Signature
Of Witness _____ Date _____

FOR THE EMPLOYER

Signatures (s) _____

Name(s) _____

Capacity _____

(Emalahleni Local Municipality – Mandela Street)

Name & Signature
Of Witness _____ Date _____

C1.5

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

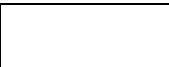
The Conditions of Contract are the *General Conditions of Contract for Construction Works (2015)* published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained from the South African Institute of Civil Engineering (Tel: 011 805 5947).

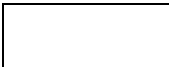
Each item of data given below is cross-referenced to the clause in the Conditions of Contract to which it mainly applies.

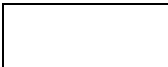
PART 1: Data provided by the Employer

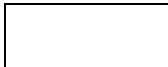
Clause	Data
1.1.1.15	The Name of the Employer is Emalahleni Local Municipality
1.2.1.2	The address of the Employer is: CNR Mandela & Arras Street eMalahleni 1035 Telephone: 013 690 6300 Facsimile: 013 690 6207
1.1.1.16	The name of the Engineer is NKP Consulting Engineers (Pty) Ltd
1.2.1.2	The address of the Engineer is: Portion 76, The Rest Road P.O Box 11 Nelspruit 1200 Telephone : 013 492 0492 Facsimile : 086 554 6578
5.8.1	The special non-working days are the official builder's holiday plus all statutory public holidays. The year end break commences on 15 December 2020 and ends on 4 January 2021
5.13.1	The penalty for failing to complete the works is 3,75c per R100 per day of the contract value.
6.2.1	The liability of the guarantee shall be 10%.
5.2.1	The Contractor shall commence executing the Works within 14 days from the Commencement Date.
5.5.1 1.1.1.14	The Works shall be completed within the timeframe stated by the contractor at tender stage.
5.6.1	The Contractor shall deliver his programme of work within 14 days.
8.6.1.1.2	The value of the materials supplied by the Employer to be included in the insurance sum is nil.

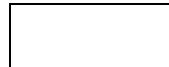
C1.6

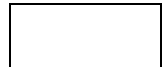

Contractor


Witness 1


Witness 2


Employer


Witness 1


Witness 2

8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is nil.
8.6.2	The limit of indemnity for liability insurance is R 10 000 000.00 .
5.1.1	The Works shall be completed within the timeframe stated by the contractor
6.10.3	The percentage retention on the amounts due to the Contractor is 10 % .
6.10.3	The limit of retention money is 10 % of the contract value.
1.1.1.13	The Defects Liability Period is 12 months.
5.11	A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the working programme of the contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected delay of "n" working days caused by normal rainy weather, for which he will not receive any extension of time, where "n" equals days. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" working days.

C1.7

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART 1: DATA PROVIDED BY THE CONTRACTOR

The Contractor is advised to read the *General Conditions of Contract for Construction Works 3rd Edition (2015)*, published by the South African Institution of Civil Engineering, in order to understand the implications of this Data which is required to be completed.

Each item of data given below is cross-referenced to the clause of Conditions of Contract to which it mainly applies.

Clause	Data
1.1.1.9	The Contractor is: Name:
1.2.1.2	The Address of the Contractor is: Address (physical): Address (postal): Telephone: Facsimile: E-mail:
6.5.1.2.3	The percentage allowance to cover overhead charges is

C1.8

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

C1.3 FORM OF GUARANTEE

FORM OF GUARANTEE

Tender No: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

WHEREASat
EMALAHLENI LOCAL MUNICIPALITY
(Hereinafter referred to as "the Employer")

entered into, on the Day of2020, at

a Contract with
at
(Hereinafter called "The Contractor")

for the CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5 as per
Scope of work AND WHEREAS it is provided by such Contract that the Contractor shall provide the
Employer with security by way of suretyship for the due and faithful fulfilment of such Contract by the
Contractor;

AND WHEREAS
has/have at the request of the Contractor, agreed to give such security;

NOW THEREFORE WE,
do hereby guarantee and bind ourselves jointly and severally as Sureties and Co-principal Debtors to
the Employer under renunciation of the benefits of division and execution for the due and faithful
performance by the Contractor of all the terms and conditions of the said Contract, subject to the
following conditions.

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorised and/or contemplated by the terms of the said contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Due Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Due Completion Date which the Employer may make, give, concede or agree to under the said Contract.
2. The Employer shall be entitled, without reference to us, to release any securities held by it, and to give time to or compound or make any other arrangement with the Contractor.

C1.9

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

3. This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.
4. Our total liability hereunder shall not exceed the sum of (R.....).
5. We hereby choose domicilium citandi et executandi for all purposes arising hereof at
.....

IN WITNESS WHEREOF this guarantee has been executed by us at on
this..... day of 20

As witnesses:

1. Signature
2. Duly authorised to
sign on behalf of
Address
.....
.....

C1.10

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENTION 5

C2 PRICING DATA

C2.1 PRICING INSTRUCTIONS

C2.2 BILL OF QUANTITIES

C2.1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

C2.1 PRICING INSTRUCTIONS

1. Measurement and payment shall be in accordance with the relevant provisions of the COLTO sections.
2. The units of measurement described in these Bills of Quantities are metric units. Abbreviations used in these Bills of Quantities are as follows:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m ²	=	square metre
m ² -pass	=	square metre-pass
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000 kg)
W/day	=	Work day

3. For the purpose of these Bills 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 COLTO.

C2.1.1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Quantity: The number of units of work for each item.
 Rate: The agreed payment per unit of measurement.
 Amount: The product of the quantity and the agreed rate for an item.
 Lump sum: An agreed amount for an item, the extent of which is described in the Bills of Quantities but the quantity of work of which is not measured in any units.

4. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.
5. It will be assumed that prices included in the bills of quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org.za or www.iso.org for information on standards)
6. The prices and rates in these Bills of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.
7. Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items
8. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.
9. The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in these Bills of Quantities.
10. Reasonable compensation will be received where no pay item appears in the Bills of Quantities in respect of work required in terms of the Contract and which is not covered in any other pay item.
11. The short descriptions of the items of payment given in these Bills of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
12. The payment reference numbers appearing in the Bills of Quantities refer to the corresponding item numbers in the COLTO.
13. Those parts of the contract to be constructed using labour-intensive methods have been marked in the Bills of Quantities with the letter L in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using 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 variation to the contract. The items marked with the letter L 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.
14. 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.

C2.1.2

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENTION 5

C2.2 BILL OF QUANTITIES

C2.2.1

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENTION 5

SUMMARY OF BILL OF QUANTITIES

SUMMARY OF BILL OF QUANTITIES		
SCHEDULE A : ROADWORKS		
SECTION	DESCRIPTION	AMOUNT
1200	General requirements and provisions	
1300	Contractor's establishment on site and general obligations	
1400	Offices and laboratory for site personnel	
1500	Accommodation of traffic	
1700	Clearing and grubbing	
1800	Dayworks	
2100	Drains	
2200	Prefabricated culverts	
2300	Concrete kerbing	
3100	Borrow materials	
3300	Mass earthworks	
3400	Pavement layers of gravel materials	
3500	Stabilization	
4100	Prime Coat	
4200	Asphalt Surfacing	
5600	Road signs	
5700	Road markings	
5900	Finishing the road and road reserve and treating old roads	
8100	Testing materials and workmanship	
TOTAL SCHEDULE A		

C2.2.9

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SCHEDULE B : ENVIRONMENTAL MANAGEMENT	
SCHEDULE C : OHS ACT OBLIGATIONS	
SCHEDULE D: TRAINING	
TOTAL SCHEDULE A : ROADWORKS	
TOTAL SCHEDULE B: ENVIRONMENTAL MANAGEMENT	
TOTAL SCHEDULE C: OHS ACT OBLIGATIONS	
TOTAL SCHEDULE D: TRAINING	
TENDER (CONTRACT) SUM	
ADD 10% FOR CONTINGENCIES (This amount is under the sole control of the employer)	
SUBTOTAL	
ADD : 15% VAT	
TENDER (CONTRACT) PRICE TO FORM OF OFFER	

C2.2.9

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

C3 SCOPE OF WORK

<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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.

The following SANS specifications are also referred to in this document and the Contractor is advised to obtain them from Standards South Africa (a division of SABS) in Pretoria.

SANS 10396: 2003: Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures

SANS 1914-4 (2002): Targeted Construction Procurement (local resources)

SANS 1921 – 1 (2004): Construction and Management Requirements for Works Contracts Part 1: General Engineering and Construction Works and where accommodation of traffic is involved:

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

OTHER 1. Technical Guideline: Concrete Manual Association: A Guide for the Design and Construction of Concrete Block Paving. 5th Edition, 2007.

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

C3.2 PROJECT SPECIFICATIONS

PART A: GENERAL

- PS-1 Project Description
- PS-2 Description of the Site and Access
- PS-3 Details of the Works
- PS-4 Construction Management Requirements
- PS-5 Management of the Works
- PS-6 Procurement
- PS-7 Construction
- PS-8 EPWP Labour-Intensive Specification
- PS-9 Generic Labour-Intensive Specification

PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS

- B1 Project Specifications Relating to the Standard Specifications and Additional Specifications

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART A: GENERAL

PS-1 PROJECT DESCRIPTION

The purpose of this project is to provide the new Extension 5 of Thubelihle with distributing and access roads and relating stormwater infrastructure.

The work entails the construction of 4347m of new roads in Thubelihle Extension 5 as well as 2406 m of stormwater pipes, including kerb inlets and junction boxes. A summary of the works is as follow:

PS-2 DESCRIPTION OF THE SITE AND ACCESS

The project is located within the jurisdictional boundaries of Emalahleni Local Municipality (ELM) and Nkangala District Municipality in Mpumalanga Province.

The proposed area's Longitude (E): 29°17'14.05" and Latitude (S): 26°13'12.54" for the start of the proposed road.

PS-3 DETAILS OF THE WORKS

3.1 General

Roadworks:

- Setting out of the works;
- Clearing and grubbing of the site.
- Bulk earthworks to achieve the required design levels;
- Construction of layer works, roadbed, cement stabilised sub-base and gravel base layers as per the pavement design specification;
- Construction of Figure 8b concrete kerbing;
- Priming of the base layer;
- Construction of asphalt surface course.
- Painting of road markings;
- Erection of signage;
- Finishing of the road reserve.

Stormwater:

- Excavation of trenches for sub-surface infrastructure and stormwater pipes;
- Installation of kerb-inlet structures;
- The construction of storm water junction boxes;
- The construction of storm water outlet structures;
- Installation of stormwater pipes;

3.2 Road reserve and typical cross section

This is a Category C road with two lanes in opposite direction. The lane width shall be 3.0m. There are no surfaced shoulders allowed due to the restricted road reserve width. Typical roadside elements.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

DESIGN SPEED (km/h)	ELEMENT	WIDTH (m)
60km/h	Road formation	6,0
	Surfaced lane width (3% crossfall)	3,0
	Surfaced shoulder width	0,0
	Gravel shoulder width	0,5
	Stormwater channel (concrete lined)	1,0m to 1,5m

3.3 Temporary Works

The Contractor shall, as relevant,

- a) provide temporary drainage works, temporary pumps and other equipment as might be necessary for the protection, draining and dewatering of the works; and
- b) Construct and maintain haulage, temporary access and construction roads, subject to the approval of the Employer, and permit the Employer, other Contractors, statutory bodies or any other person who might require legitimate access to or through the site for executing legitimate business, free and unhindered usage of such roads.
- c) Temporary water connections, Contractor's offices, storage sheds, latrines, barricading of Works shall be in an approved location and subject to the approval of all authorities concerned.
- d) Safety and Security of the Contractor's temporary works shall be at the Contractor's discretion.
- e) The camp shall be adequately guarded during or outside working hours.

3.4 Accommodation of traffic

Accommodation of traffic for the arterial road shall be by half widths construction. Where half width construction is not feasible, clear communication with residents shall be undertaken, and alternative provided. Protection of the works especially stabilised layers would be vested with the contractor. The various types of traffic accommodation are detailed on the drawings.

Drawings

The list of drawings is included in **PART C4** of this document and is subject to revision. The revised drawings shall be issued timeously by the Engineer.

PS-4 CONSTRUCTION MANAGEMENT REQUIREMENTS

4.1 General

The Contractor is referred to SANS 1921: 2004 parts 1, 2 and 3: Construction and Management Requirements for Works Contracts. These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

4.1.7 Drawings (Read with SANS 1921 – 1: 2004 clauses 4.1.7; 4.1.11 & 4.1.12)

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

The requirements for drawings, information and calculations for which the Contractor is responsible are: *None*.

The reduced drawings which form part of the tender documents shall be used for tendering purposes only.

The contractor shall be supplied with three complete paper copies of the construction drawings free of charge. The Contractor shall, at his own expense, produce there from all further paper prints required for the construction of the work.

At the completion of the Contract, the Contractor shall return to the Engineer all drawings, provided or made, during the contract period. Any information which the Contractor has control over and which is required by the Resident Engineer to complete the as-built drawings shall be made available to the Resident Engineer before the completion certificate is issued.

Only written dimensions may be used. Dimensions are not to be scaled from drawings unless ordered by the Engineer. The Engineer will supply all figures / dimensions which are not shown on the drawings. The levels or dimensions given on the drawings are subject to confirmation on site. The Contractor shall submit all levels and dimensions to the Engineer for confirmation before he commences with any structural construction work. The Contractor shall also check all clearances which are given on the drawings and inform the Engineer of any conflicting dimensions.

Any destination names on road signs which may be indicated on the drawings are subject to confirmation by the Engineer before these signs are manufactured.

4.2 Responsibilities for design and construction

Consulting Engineer

The Consulting engineer responsible for the design in accordance with the specification is: *NKP Consulting Engineers*.

4.3 Planning and Programme (*Read with SANS1921-1:2004 clause 4.3*)

Preliminary programme

The Contractor shall include with his tender a preliminary programme on the prescribed form to be completed by all Tenderers. The programme shall be in the form of a simplified bar chart with sufficient details to show clearly how the works will be performed within the time for completion as stated in the Contract Data.

Tenderers may submit tenders for an alternative Time for Completion in addition to a tender based on the specified Time for Completion. Each such alternative tender shall include a preliminary programme similar to the programme above for the execution of the works and shall motivate his proposal clearly by stating all the financial implications of the alternative completion time.

The Contractor shall be deemed to have allowed fully in his tendered rates and prices as well as in his programme for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Special Conditions of Contract, in the Project Specifications and in the Contract Data.

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

The following constraints shall be considered in preparing the preliminary construction programme which must be submitted with the Tender. These same constraints shall apply to the final construction programme.

1. The Contract time is **8 months**. Plant and personnel requirements to complete the project within the allocated duration must be incorporated in the Tender.
2. A high standard of traffic accommodation
3. The relocation of services
4. Ancillary works by Emerging Contractors

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 2015 edition, 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. The Contractor's attention is also drawn to clause 5.7.1 of the General Conditions of Contract.

4.4 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.

4.6 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.

4.10 Earthworks, Borrow pits and spoil areas (Read with SANS 1921 - 1 : 2004 clause 4.10)

The borrow pits to be used for this contract shall be pointed out at the Site Inspection. The Contractor shall be permitted to use only those borrow pits approved by the Engineer. Borrow pit investigation and material testing as incorporated in the design, is given in good faith. The contractor shall confirm this material quality prior to the material's use on site.

The spoil sites shall be determined on site in conjunction with the Engineer, the PLC, and the local communities. 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.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

4.11 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 regarded as process control and for the account of the Contractor.

4.14 Site Establishment *(Read with SANS 1921 - 1 : 2004 clause 4.14)*
Contractor's camp site and depot

The Contractor is responsible to provide a suitable site for his camp and to provide accommodation for his personnel and labourers. If the Employer can make any specific site available to the Contractor, such site will be pointed out to the Contractor.

The chosen site shall be subject to the approval of the Engineer, the local Tribal Authorities and the Project Liaison Committee (PLC). Possible locations for a campsite shall be pointed out at the Site inspection. The Contractor shall conform to all local authority, environmental and industrial regulations.

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.

The Contractor shall provide security watchmen for the contract as he deems fit at no extra cost for the Employer. The Contractor must ensure that all his employees as well as the employees of his subcontractors are able to identify themselves as members of the construction team.

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.

<small>Contractor</small>	<small>Witness 1</small>	<small>Witness 2</small>	<small>Employer</small>	<small>Witness 1</small>	<small>Witness 2</small>

The Contractor shall provide the necessary ablution facilities at his camp site and the site of the works for the use of his employees. Chemical toilets only will be allowed where temporary facilities have to be provided.

4.15 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.

4.17 Existing Services *(Read with SANS 1921 - 1 : 2004 clause 4.17)*

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 is commenced.

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.

Services belonging to the following service owners are indicated on the drawings:

<u>Service owner</u>	<u>Type of service</u>
Eskom/municipality	Electricity lines
Local Community	Household water connections

A provisional amount is included in the bill of quantities for the protection of services.

Prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately.

The Contractor shall take note of the requirements of clause 1202 of the standard specifications with regard to services.

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

4.18.1 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 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 2014 issued on 07 February 2014 by the Department of Labour.

For this contract, the Contractor is required to confirm his status as mandatory and employer in his

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Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

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 Part V of the Returnable Schedules.

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.

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 2014.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or 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

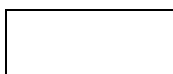
Cost of compliance with the OHSA Construction Regulations

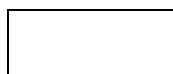
The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract.

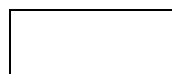
Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

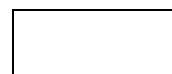
4.18.2 Requirements for Accommodation of Traffic (Read with SANS 1921 - 2 : 2004)

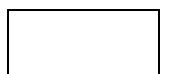

Contractor


Witness 1


Witness 2


Employer


Witness 1


Witness 2

General

The Contractor will be responsible for the safe and easy passage of public traffic past and on sections of roads of which he has occupation or where work has to be done near traffic.

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.

Accommodation of traffic, where applicable shall comply with SANS 1921-2: 2004: Construction and Management Requirements for Works Contracts, Part 2: Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor shall obtain this specification from Standards South Africa if accommodation of traffic will be involved on any part of the construction works.

Basic Requirements

The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective, and that courtesy is extended to the public at all times.

Failure to maintain road signs, warning signs or flicker lights, etc, in a good condition shall constitute ample reason for the Engineer to suspend the work until the road signs, etc, have been repaired to his satisfaction.

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

The Contractor shall construct and maintain all temporary drainage works necessary for temporary deviations.

The Contractor shall provide and grant access to persons whose properties fall within or adjoin the area in which he is working.

Payment

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.

4.19 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 the purpose of 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 such others as the Engineer may direct in writing 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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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 Plan as detailed in C3.3, Particular Specifications, will be adhered to.

PS 5 MANAGEMENT OF THE WORKS

5.1 Applicable SANS 1921 standards

The following parts of SANS 1921 Construction works standards and associated specification data are applicable to the works:

- 1) SANS 1921-1: General engineering and construction works
- 2) SANS 1921-2: Accommodation of traffic
- 3) SANS 1921-6: HIV/Aids awareness

The abovementioned South African National Standards make several references to the Specification Data for data, provisions and variations that make these standards applicable to this contract. The Specification Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and these standards.

Each item of Specification Data given below is cross-referenced to the clause in the standard to which it mainly applies.

SANS 1921-1, Construction and management requirements for works contracts – Part 1: General engineering and construction works	
Clause	Specification data
Essential data	
4.1.7	There are no requirements for drawings, information and calculations for which the contractor is responsible
4.2.1	The responsibility strategy assigned to the contractor for the works is A .
4.2.2	The structural engineer is INKP Consulting Engineers.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

4.3.1	<p>The planning, programme and method statements are to comply with the following:</p> <ul style="list-style-type: none"> a) The Contract time is 8 months. b) Plant and personnel requirements to complete the project in 8 months shall be incorporated. c) A high standard of traffic accommodation. d) The relocation of services (if required). e) Ancillary works by Emerging Contractors. <p>State requirements for format of programme, level of detail, critical path activities and their dependencies, frequency of updating, etc., if not provided in the contract data. Provide particulars of phased completion, programme constraints, milestone dates for completion, etc., as necessary.</p> <p>State requirements for sequencing, as required.</p> <p>State any requirements for software for programmes.</p>
4.3.3	The notice period for inspection is 2 Days
4.12.2	<p>The samples of materials, workmanship and finishes that the contractor is to provide and deliver to the employer are:</p> <p>None</p>

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

4.14.3	<p>The office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are:</p> <ol style="list-style-type: none"> 1) Site office which shall be used for site meetings and for the contractor's use. Such an office shall comprise a minimum of 48m² in area and 3 m high, be ventilated, have good lamination, must be reasonably sound proof, and have a hard floor construction. It shall be furnished with a desk on which drawings can be rolled open and on which there is sufficient writing space and sufficient temporary chairs or benches to accommodate all persons present at site meetings. 2) Engineer's supervisory staff shall be provided with rented accommodation. 3) Engineer's supervisory staff shall be provided with cellular phones. 4) The office of the engineer shall be equipped with 2 laptop computers and colour laser printer. 5) The office of the engineer shall be equipped with a copier, fax and e-mail facilities to facilitate communication. 6) The office of the engineer shall be equipped with HVAC facilities necessary for the climatic condition. 7) The office of the engineer shall be equipped with two office desks and chairs as well as filing units for files and drawings. 8) A board room will be provided and equipped to accommodate the employer, his agent and the contractor in meetings.
4.14.5	The Contractor is required to provide latrine and ablution facilities.
4.14.6	<p>The requirements for the provision and erection of separate sign boards for consultants and subcontractors are:</p> <ol style="list-style-type: none"> 1) The boards must comply with the official standard type signboard of the Employer and be at least 2750 x 1800 mm high. 2) The boards must be constructed with a firm flat exposed face using suitable material of firm construction, painted and lettered according to the standard drawings available from the Employer on request and mounted on sturdy pipe-standards at a height of 1800 mm above natural ground level.
4.17.1	<p>The requirements for the termination, diversion or maintenance of existing services are:</p> <p>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 is commenced.</p> <p>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.</p> <p>Prior to commencing construction activities in a particular area, the Contractor shall also diligently enquire of local landowners as to whether there are any other known services which have not been shown on the drawings but which may be affected by the construction activities in that area, and any such services shall be brought to the attention of the Engineer immediately.</p> <p>The Contractor shall take note of the requirements of clause 1202 of the standard specifications with regard to services.</p> <p>The Contractor shall fulfil all wayleaves requirements/permits prior to and during construction.</p>

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

4.17.3	Services which are known to exist on the site are: 1.... Electricity poles 2.... Fences 3.... Water pipes										
4.17.4	The requirements for detection apparatus are: Where applicable, the Contractor shall use appropriate detection equipment to locate underground services. The Engineer shall be informed immediately of such activities.										
Variations None											
Additional clauses											
<p>1 Site meetings and procedures</p> <p>The Employer's Representative and the Contractor shall hold meetings relating to the progress of the works at regular intervals and at other such times as may be necessary. The Contractor shall attend all site meetings and shall ensure that all persons under his jurisdiction are notified timeously of all site meetings should the Employer's Representative require their attendance at such meetings.</p> <p>The Contractor shall keep on site a set of minutes of all site meetings, daily records of resources (people and equipment employed), a site instruction book, a complete set of contract working drawings and a copy of the procurement document and make these available at all reasonable times to all persons concerned with the contract.</p> <p>2 Water and electricity</p> <p>The Employer does not warrant that any water supply or electricity supply that may exist is adequate for the proper execution of the works. The responsibility strategies in terms of the tabulation below that will apply to the contract is:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 30%;">Service</th> <th>Contractor responsibility</th> </tr> </thead> <tbody> <tr> <td>Water</td> <td>The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections and purchase water from the local authority for the works at his own cost.</td> </tr> <tr> <td>Electricity</td> <td>The Contractor is to provide, and remove and make good upon completion, all the necessary temporary electrical connections and installations and purchase electricity from the local authority / ESKOM for the works at his own cost.</td> </tr> <tr> <td>Telecommunication</td> <td>The Contractor is to provide, and remove and make good upon completion, all the necessary temporary telecommunication connections and installations and purchase bandwidth/units from the supplier for the works at his own cost.</td> </tr> <tr> <td>Sanitation</td> <td>The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections for the works at his own cost. The contractor shall ensure the provision of this service at the site camp and at accommodation of contractor's employees</td> </tr> </tbody> </table>		Service	Contractor responsibility	Water	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections and purchase water from the local authority for the works at his own cost.	Electricity	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary electrical connections and installations and purchase electricity from the local authority / ESKOM for the works at his own cost.	Telecommunication	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary telecommunication connections and installations and purchase bandwidth/units from the supplier for the works at his own cost.	Sanitation	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections for the works at his own cost. The contractor shall ensure the provision of this service at the site camp and at accommodation of contractor's employees
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Sanitation	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary plumbing connections for the works at his own cost. The contractor shall ensure the provision of this service at the site camp and at accommodation of contractor's employees										

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

		contractor's employees.	
	Waste disposal	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary waste disposal means for the works at his own cost.	
	Security services	The Contractor is to provide, and remove and make good upon completion, all the necessary temporary security arrangements and purchase such goods and services for the works at his own cost.	

Clause	Specification Data
Essential Data:	
5.1	The depth of trenches which are to be excavated by hand is 1,5 metres.
Additional clauses:	
1	Stone pitching and rubble concrete masonry All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, shall be collected, loaded, off loaded and placed by hand. Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m. Grout shall be mixed and placed by hand.
2	Manufactured Elements Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper hand hold on them.
SANS 1921-6, Construction and management requirements for works contracts – Part 6: HIV/AIDS awareness.	
4.2.1(a)	A qualified service provider is a service provider that is one that is accredited or provisionally accredited training service provider in the HIV/AIDS field. A list of accredited service providers can be obtained from the Construction SETA (CETA) (Tel: 011-265 5900), Health and Welfare SETA (HWSETA) (011-622 6852) or on the Health and Welfare SETA website: www.hwseta.org.za .
4.2.1(a)	The HIV/AIDS awareness programme is to be repeated at three (3) month intervals throughout the duration of the contract. (Two times in total, including the initial one at the start of the contract.)
Additional clauses	
	The duration of each workshop is not to be less than 2 ½ hours .

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

5.2 Particular / generic specifications

The management of the site shall be in accordance with the provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition), obtainable from the South African Institution of Civil Engineering.

5.3 Recording of weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in a book. Such book shall be handed to the employer's representative for his signature no later than 12 days after rain that is considered to justify an extension of time occurs.

5.4 Unauthorised persons

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

5.5 Management meetings

Project management meetings will be held once a month. This meeting will be attended by the representatives of the Employer, the representatives of the contractor as well as the representatives of the consultant.

All representatives at the meeting(s) must be delegated to take binding decisions, although it may be sometimes necessary to refer some decisions to higher authority.

Any claim or intention to claim must be brought to the attention of the Employer / Engineer / consultant in writing and within 28 days of the cause of the delay or where contractually required any specific shorter period. Not complying with this instruction / procedure will be regarded as relinquishment of the claim.

All important matters must be brought to the attention of the meeting timorously and supported by a written notification.

5.6 Forms for contract administration

Forms for contract administration will be completed by the consultant's staff on site.

5.7 Electronic payments

The contractor is to fulfil the electronic payment requirements of the Client to be paid electronically.

The Contractor is also advised to pay all his staff electronically to avoid handling large quantities of money on site.

5.8 Daily records

The contractor is required to keep a site diary in which to record daily occurrences on site.

5.9 Payment certificates

The Contractor shall be entitled to receive a monthly progress payment, which shall be based on a progress on site and payment certificate issued by the Consultant.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

The Contractor shall on monthly basis submit a monthly statement of all moneys due to him. On such a statement he shall also include the all materials on site. The statement submitted by the contractor shall indicate measured quantities. The consultant shall submit to the Emalahleni Local Municipality a signed certificate which indicates the amount due to the contractor.

PS 6 PROCUREMENT

Preferential procurement procedures

Direct preference is given based on the Targeted Enterprise status of the tenderer. Functionality points are allocated based on the Contract Participation Goal offered in terms of the engagement of Local Enterprises and Local Labour.

Scope of mandatory subcontract work

It is mandatory to subcontract work of at least thirty percent (30%) of the value to the local enterprises to achieve the Contract Participation Goal. The choice of who and for which portions of the work he does is to be agreed with the Project Steering Committee or the Community Forum in liaison with the Liaison Officer and the Ward Councillor. The Contractor commits himself to work closely with the Community Forum, who will compile a local resource database to assist the Contractor in maximizing the use of local resources. In inviting local enterprises to tender for subcontracted work, the Contractor shall include the local enterprises identified by the Community Forum, except if they are deemed by the Contractor to be unfit to provide the service or deliver the goods at the required quality, considering the entrepreneurial training available to empower them. In the event of a dispute between the Community Forum and the Contractor as to the ability of an identified service local enterprise for a particular subcontract, the final choice shall rest with the Contractor, following discussions with the CLO and the Engineer.

PS 7 CONSTRUCTION

Applicable SANS 2001 standards for construction works

There are no SANS 2001 standards applicable.

Applicable national and international standards

The relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition) shall apply to the contract.

Applicable SA National Standards (SANS)

Reference is made to certain provisions of:

- | | |
|-------------|--|
| SANS 1921-5 | Construction and management requirements for works contracts:
Earthworks activities which are to be performed by hand |
| SANS 1914-5 | Targeted construction procurement: Participation of targeted labour |

These Specifications are not issued with this volume but are available at the Contractor's expense from: Standards South Africa,

Office Address:

1 Dr Lategan
Road Groenkloof
PRETORIA

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Postal Address:

Private Bag X191
PRETORIA
0001

Telephone:

National: (012) 428-6883
International: + 27 12 428 6883

Telefax:

National: (012) 428-6928
International: + 27 12 428 6928

Email: sales@sabs.co.za

Particular/ Generic Specifications

The relevant provisions of the COLTO Standard Specification for Road and Bridge Works for State Authorities (1998 edition) shall apply to the contract with the following amendments:

- 1115 Replace clause with the following:
The general conditions of contract are the General Conditions of Contract for Construction Works Third edition (2015) as published by the South African Institution of Civil Engineering read in conjunction with the Contract Data.
- 1202 Replace "Clause 15" with "Clause 5.6".
- 1206 Replace the first sentence with the following:
The contractor shall comply with all legal provisions in regard to surveying and setting out work.
- 1209(e) Replace "Clause 52" with "Clauses 6.9 and 6.10.2".
- 1210 Replace "Clause 54" with "Clause 5.14".
- 1212(1) Replace "Clause 49" with "Clause 6.8".
- 1215 Replace "Clause 45" with "Clause 5.12".
- 1217 Replace "Clause 35" with "Clause 8.1".
- 1303 Replace "Clauses 49 and 53" with "Clause 6.11".
- 13.01(3) Replace "Clauses 12 and 45" with "Clauses 1.1.1.5 and 5.12".
- 14.03(c) Replace "Clause 40(1)" with "Clause 6.4".
- 1505 Replace "Clauses 40 and 53" with "Clause 6.4".
- 3204(b)(iii) Replace "Clauses 40 and 53" with "Clause 6.4".

PS 8 EPWP LABOUR- INTENSIVE SPECIFICATION

EPWP LABOUR-INTENSIVE SPECIFICATION

Employer's objective

The objective of the Employer is to optimise the usage of local labour where possible.

8.1 Labour-intensive works

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

8.1.1 Labour-intensive competencies of supervisory and management staff

Contractors having a CIDB contractor grading of 6CE and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2006, are registered for training towards, the skills programme outlined in Table 1.

The managing principal of the Contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a Contractor grading designation of 1CE, 2CE, 3CE and 4CE shall have personally completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for the NQF level 2. All other site supervisory staff in the employ of such Contractors must have completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, and
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	} any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, and
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	} any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e the contractor's most senior representative)	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

that is resident on the site)			
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8.1.2 Employment of unskilled and semi-skilled workers in labour-intensive works

8.1.2.1 Requirements for the sourcing and engagement of labour.

8.1.2.1.1 Unskilled and semi-skilled labour required for the execution of all labour-intensive works shall be engaged strictly in accordance with prevailing legislation and SANS1914-5, Participation of Targeted Labour.

8.1.2.1.2 The rate of pay set for the SPWP is as determined by the Civil Engineering Industry task rates for the Nelspruit area.

8.1.2.1.3 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.

8.1.2.1.4 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 8.1.2.1.3.

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

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

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

- a) 60 % women;
- b) 20% youth who are between the ages of 18 and 25; and
- c) 2% on persons with disabilities.

8.1.2.2 Specific provisions pertaining to SANS 1914-5

8.1.2.2.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.

8.1.2.2.2 Contract participation goals

8.1.2.2.2.1 Contract participation goals have been specified for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

8.1.2.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid, and any training allowance paid in respect of agreed training programmes.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

8.1.2.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

8.1.2.2.4 Variations to SANS 1914-5

8.1.2.2.4.1 The definition for net amount shall be amended as follows:

Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

8.1.2.2.4.2 The schedule referred to in labour intensive construction shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

8.1.2.2.5 Training of targeted labour

8.1.2.2.5.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

8.1.2.2.5.2 The cost of the formal training of targeted labour, will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible. The contractor must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.

8.1.2.2.5.3 A copy of this training request made by the contractor to the DOL provincial office must also be faxed to the EPWP Training Director in the Department of Public Works - Cinderella Makunike, Fax Number 012 328 6820 or email cinderella.makunike@dpw.gov.za Tel:083 677 4026.

8.1.2.2.5.4 The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he/she is employed for 4 months or more.

8.1.2.2.5.5 The contractor shall do nothing to dissuade targeted labour from participating in training programmes.

8.1.2.2.5.6 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 8.1.2.2.5.4 above.

8.1.2.2.5.7 Proof of compliance with the requirements of 8.1.2.2.5.2 to 8.1.2.2.5.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

<div style="border: 1px solid black; height: 30px; width: 100%;"></div> <div style="text-align: center; font-size: small;">Contractor</div>	<div style="border: 1px solid black; height: 30px; width: 100%;"></div> <div style="text-align: center; font-size: small;">Witness 1</div>	<div style="border: 1px solid black; height: 30px; width: 100%;"></div> <div style="text-align: center; font-size: small;">Witness 2</div>	<div style="border: 1px solid black; height: 30px; width: 100%;"></div> <div style="text-align: center; font-size: small;">Employer</div>	<div style="border: 1px solid black; height: 30px; width: 100%;"></div> <div style="text-align: center; font-size: small;">Witness 1</div>	<div style="border: 1px solid black; height: 30px; width: 100%;"></div> <div style="text-align: center; font-size: small;">Witness 2</div>
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PS 9 GENERIC LABOUR- INTENSIVE SPECIFICATION

The Generic Labour-intensive specification below (informed by SANS 1921-5, Construction and management requirements for works contracts - Part 5: Earthworks) covers activities which are to be performed by hand and should be included in the scope of works without amendment or modification as set out below.

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

- ☐ trenches having a depth of less than 1.5 metres
- ☐ stormwater drainage
- ☐ roads
- ☐ sidewalks and non-motorised transport infrastructure
- ☐ water and sanitation

Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

Hand excavatable material

Hand excavatable material is:

a) granular materials:

- i) whose consistency when profiled may in terms of table 2 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 2 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.
- 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

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

horizontal) into the material being used.

Table 2: Consistency of materials when profiled			
GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be
Dense	Very high resistance to penetration by the sharp end of a geological pick; requires many blows for excavation.	Stiff	can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Trench excavation

All hand excavatable 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 cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
- c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

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

Clearing and grubbing

Grass and bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand. Haulage equipment should be selected in a manner that allows loading by hand to the greatest extent possible.

Haul

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

Offloading

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

Spreading

All material shall be spread by hand.

Compaction

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

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Appropriate rollers should be used where higher (than can be achieved by hand) levels of compaction are required or for large areas.

Grassing

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

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must be collected, loaded, off loaded and placed by hand. Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m. Grout shall be mixed and placed by hand.

Manufactured Elements

Elements manufactured or supplied by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. Where the mass of an element exceeds 55 kg, consideration should be given to the size of the element relative to its total mass related to the number of workers who would be needed to lift such mass.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART B: AMENDMENTS TO THE STANDARD SPECIFICATIONS

Introductory Notes to Tenderer

This part of the project specifications deals with matters relating to the standard specifications. Where reference is made in the standard specifications to the project specifications this part shall also contain the relevant information e.g. the requirements where a choice of materials or construction methods are provided for in the standard specifications.

- 1. In certain clauses the Standard Specifications allow 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 some additional specifications required for this particular contract.**
- 2. The number of each clause and each payment item in this part of the project specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications where applicable. The number of a new clause or a new payment item which does not form part of a clause or a payment item in the standard specifications and which is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications. New payment items introduced do not necessarily replace existing items which may still be used for works on any PART(S) of the project.**
- 3. The tenderer shall note that the standard COLTO specification is based on the COLTO General Conditions of Contract. References to specific COLTO General Conditions of Contract clauses in the specifications shall be exchanged for the equivalent clause in the SAICE Conditions of Contract as amended by the Particular Conditions of Contract to be found in C3.2.1 of this section which are not necessarily inclusive with omissions possible. The Employer assumes no responsibility for the contractor's interpretation of which is the correct or applicable relevant clauses. Clarification in this regard can be confirmed with the Employer if deemed necessary during the tender period.**

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SECTION 1100: DEFINITIONS AND TERMS

B1115 GENERAL CONDITIONS OF CONTRACT

Replace Clause 1115 with the following:

“The General Conditions applicable to this contract are the “General Conditions of Contract for Construction Works (Third edition 2015), issued by the South African Institution of Civil Engineering (SAICE). Accordingly, all reference in the Standard Specifications to any other General Conditions of Contract (GCC) has to be amended. The Standard Specifications have been scrutinized and clauses which refer to another GCC identified. These are tabulated below together with the relevant equivalent clause in the SAICE Conditions of Contract. The context of the reference to the GCC is also noted.

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 Conditions of Contract for Construction, as amended by the Particular Conditions of Contract in Section C1.2, Contract Data of this Volume, shall apply and the contractor shall be responsible for interpretation of the equivalent clause

CHANGES TO REFERENCES BY THE COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND SAICE GENERAL CONDITIONS

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		SAICE Conditions of Contract for Construction works 3 rd edition 2015	
Clause No	Page No	Clause No	Description or Reference	Clause No	Description or Reference
1115	1100-2		Definition of GCC	1	Definition of SAICE
1204	1200-2	15	Construction programme	5.6	Construction programme
1204	1200-2		General reference to GCC		Applicable to SAICE
1206	1200-3	14	Setting out of works		Not covered
1209(a)	1200-4		General references to GCC		Applicable to SAICE
1209(e)	1200-5	52(2)	Valuation of material brought onto site	6.9	Valuation of material brought onto site
1210	1200-5	54 (1)	Certificate of practical completion	5.14	Certificate of practical completion
1212(1)	1200-7	49 (2)	CPA on alternative designs		Not covered.
1215	1200-9	45 (2)	Extension of time for completion due to abnormal rainfall.	5.12	Extension of time for practical completion due to abnormal climatic conditions.
1217	1200-10	35	Care of the works	8.2	Care of the works
1303(ii)	1300-1		General reference to GCC		Applicable to SAICE
1303(iii)	1300-1	49	Price adjustment Item 13.01 (a)	6.8	Adjustment in rates and/or prices.
1303 (iii)	1300-2	49	Price adjustment Item 13.01 (b)	6.8	Adjustment in rates and/or prices.
1303 (iii)	1300-1	53	Variations exceeding 20%	6.11	Variations exceeding 15%
1303 (iii)	1300-2	53	Variations exceeding 20%	6.11	Variations exceeding 15%
1303	1300-2	12	Payment Item 13.01 (c)	6	Payments
1303	1300-2	45	Payment Item 13.01 (c)	6	Payments
1403(c) (ii)	1400-4	40 (1)	Variation for rented accommodation	6.3&6.6	Variations and provisional sums
1505	1500-3	40 (1)	Variation for temporary drainage	6.3	Variation
Item 15.08	1500-8	48	Payment of Provisional Sum	6.6	Provisional Sums
Item 15.09	1500/8	48	Payment of Provisional Sum	6.6	Provisional Sums

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		SAICE Conditions of Contract for Construction works 3 rd edition 2015	
Clause No	Page No	Clause No	Description or Reference	Clause No	Description or Reference
Item 15.11	1500-8	48	Payment of Provisional Sum	6.6	Provisional Sums
Note (2)	3100-4	40	Payment for prospecting for materials	6.3	Variations
3204(b) (iii)	3200-2	40	Payment for oversize material	6.3	Variations
3303(b)	3300-2	2	Engineer's decisions, with reference to materials classification	3.2	Functions of the Engineer
Item 44.06	4400-3		General reference to GCC, PC Sums	6.6	Provisional Sums
Item 45.06	4500-3		General reference to GCC, PC Sums	6.6	Provisional Sums
5803 (c)	5800-3	40	Variation, for landscaping	6.3	Variations
5805 (d)	5800-4	40	Variation, for grassing	6.3	Variations
Item 58.10	5800-10	48	Payment for Extra Work	6.3 6.5	Variations Dayworks
8103 (c)	8100-1	40	Variation, for testing material	6.3	Variation, for testing material
Item 81.02	8100-26		General reference to GCC, Provisional Sums	6.6	Provisional Sums
Item 81.03	8100-26	22	Clearance of site on completion, with reference to core drilling	5.15	Clearance of site.

Amend the following clauses:

“B1131 RECYCLING

The process of recycling shall also mean the breaking up of existing pavement layers and/or the mixing of pavement layer materials with a recycling machine.

B1155 WORK IN RESTRICTED AREAS

Under this contract, no additional or extra over payment will be made for work in restricted areas.”

Add the following clauses:

“B1156 OTHER DEFINITIONS

The COLTO Standard Specification for Roads and Bridges has been written for all contractors, employers and engineers. Similarly, the works and the site are not defined and the general nature of the entities and elements that collectively constitute construction under a contract are characterized by the use of lower case letters throughout.

These project specifications continue to use lowercase spellings in order to avoid the appearance of the capitalized and non-capitalized words to describe or prescribe the same elements of work required on this project. However, for the purposes of this contract the following definitions shall apply:

Contractor

The Contractor and the contractor is the same persona defined under clause 1.1.1.9 of the Conditions of Contract, but who will only be formally identified by the formal Letter of Acceptance which will be bound into the final contract document.

Employer

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

The Employer and employer is the same persona and is defined in Section C1.2.2, Contract Data and clause 1.1.1.15 of the Conditions of Contract.

Engineer

The Engineer and engineer is the same persona and is defined in Section C1.2.2, Contract Data and clause 1.1.1.16 of the Conditions of Contract.

Site

The site is defined in clause 1.1.1.29 of the Conditions of Contract. It is bound by the limits of construction as shown in the drawings or the description of the project and extends to also include the following:

All areas necessary for accommodating the traffic as prescribed in section 1500 of the specification and the drawings.

Works

The works is described in **PART C3.2** of this document and is as defined in clause 1.1.1.28 of the Conditions of Contract.”

Process Control

Process control means all testing required to be carried out by the contractor at his cost in order to ensure that the completed permanent works comply with the specifications and drawings. All such testing will be subject to inspection and approval by the engineer.

Acceptance Control

Acceptance control means whatever testing the engineer carries out over and above the process control testing already carried out by the contractor in order to decide on the acceptability of any work submitted by the contractor. Such testing will be carried out at the cost of the employer in either the engineer's laboratory or one approved by him.

B1159 AGGREGATE SIZE

Where reference is made in this specification or the standard specifications to aggregate size, nominal aggregate size or maximum aggregate size, the aggregate size as listed shall be replaced with the new corresponding aggregate size as indicated in the following table:

Aggregate size	New aggregate size
75	75
63	63
53	50
37,5	37,5
26,5	28
19	20
13,2	14
9,5	10

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

6,7	7.1
4,75	5
2,36	2
1,18	1 "

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Delete and replace the words:

“Clause 12 of the general conditions of contract” in the first sentence of the eleventh paragraph with Clause 5.6 of the General Conditions of Contract for construction works 2015 edition.”

In the second paragraph, delete the word “utility” at the end of the second line.

Add the following:

“Provision is made in the pricing schedule for relocation and/or adjustment of existing services under Provisional and Prime Cost Sums. The work is to be undertaken by the contractor himself or by a nominated sub-contractor, depending on required know-how for each case.”

B1204 PROGRAMME OF WORK

(a) General requirements

Insert the following before the first paragraph:

"A network-based programme in accordance with the precedence method shall be provided showing the various activities in such detail as may be required by the engineer. The programme shall be updated monthly in accordance with the progress made by the contractor.

Failure to comply with these requirements will entitle the employer to invoke clause 5.3.2 in the GCC. Alternatively, and upon the employers instruction, request the engineer to apply a programme based on his own assumptions for the purpose of evaluating claims for extension of time for completion of the works, or for additional compensation."

Add the following as a continuation of the first paragraph:

"In drawing up the programme the contractor shall make allowance for the following general requirements:

- (i) All special non-working days defined in Part C1.2.2 Contract Data.
- (ii) Allowance to be made in terms of clause B1215, dealing with inclement weather delays.
- (iii) No construction will be allowed during the December break.
- (iv) The requirement that chemically stabilized subbase layers have to be cured by covering with the subsequent layer which, for upper subbase layers, consists of crushed-stone base material.
- (v) Phasing of construction work in terms of material utilisation will be the responsibility of the contractor, e.g. cut to fill operations, obtaining commercially supplied pavement layer materials, etc.
- (vi) Asphalt surfacing to be completed prior to construction of road surface drainage concrete structures in cuttings and on fills.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

- (vii) All levels, dimensions and coordinates shall be checked and confirmed on site with the Engineer before construction commences.
- (viii) A risk assessment with specific focus on the construction activities within an urban area, pedestrian and traffic management, to be compiled with assistance from the Employer's Agent.
- (ix) Communications and liaison with the local PCS.

(b) Programme of work for rehabilitation work

Add the following new third paragraph to this section:

"In addition to the requirements of clause B1204(a) the programme of work shall include the following details:

- (i) A work breakdown structure that identifies all major activities.
- (ii) Scheduled start and end dates for each activity on every phase / section.
- (iii) Linkages between activities that clearly identify sequence, floats and critical path.
- (iv) Intended working hours and resource allocations (plant and labour).
- (v) Monthly cash flow projections.
- (vi) Key dates in respect of information required or due delivery.
- (vii) The contractor's payment weekends and non-work days (periods)
- (viii) Complete finishing of borrow pits for approval by DMR

B1205 WORKMANSHIP AND QUALITY CONTROL

Add the following:

Quality control (Scheme 1) as detailed in Section 8200 will be used for determining the acceptance levels with respect to the properties of the materials and workmanship executed by the contractor.

Delete the second, third, fourth and fifth paragraphs and replace with the following:

"The contractor shall submit the quality assurance plan and system he proposes using to the engineer for his approval within two weeks of site handover. Once accepted it shall not be deviated from unless written notification of proposed changes have similarly been submitted and approved. The system shall record lines and levels of responsibility and indicate the method by which testing procedures will be conducted."

Add the following to the end of this clause:

"The engineer shall for the purpose of acceptance control on products and workmanship, assess test results and measurements in accordance with the provisions of section 8200 of the standard specifications. Where small quantities of work are involved, a lot shall mean a full day's production for a specific item of work subject to acceptance control testing.

B1206 THE SETTING-OUT OF WORK AND PROTECTION OF BEACONS

Delete the entire contents of the first paragraph and the following words in the first sentence of the sixth paragraph.

"and of clause 5.3 of the general conditions of contract."

Add the following at the end of the fourth paragraph:

The repair method of this route is to reconstruct the road to existing levels with some localised

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

section to be indicated by the Engineer to be constructed to redesigned lines and levels.

B1207 NOTICES, SIGNS AND ADVERTISEMENTS

One signboard shall be erected and maintained for the duration of the contract at points to be indicated by the engineer. Details of the signboards are included in the contract drawings.

Delete the last paragraph and replace with the following:

"All signboards erected in accordance with the drawings or as ordered by the Safety Officer / Engineer shall be removed at the same time as the de-establishment of the contractor's camp. Payment under item 13.01 for the final instalment of 15% of the tendered lump sum shall not be made unless all the advertisements, notices and temporary signs have been removed."

B1209 PAYMENT

(b) Rates to be inclusive

Add the following to the first paragraph:

"VAT shall be excluded from the rates."

Amend sub clause (e) Materials on site by deleting and replacing the words:

"Clause 52 of the general conditions of contract" in the first sentence of the first paragraph with Clause 6.10 of the General Conditions of Contract for construction works 2010 edition.

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Delete and replace the words in the first paragraph:

"Clause 54 of the general conditions of contract" in the fourth line of the first sentence with Clause 5.14 of the General Conditions of Contract for construction works third edition (2015).

Add the following to subclause (e) before the semicolon:

"(Including road studs)"

Add the following paragraphs under new item (h):

"Notwithstanding that there might be natural or programmed sections or portions of the works that will result in them being completed in their entirety before other sections of the works, no consideration shall be given to the issuing of practical completion certificates for sections of the works. The use of any completed roadway or sections of the work, whether for unhindered use by the public or for accommodation of traffic while other sections are being constructed, shall not constitute use or occupation by the employer.

In addition to the listed specified items of work and regardless of the degree of beneficial occupation by the employer, the works shall be considered for practical completion only if the following criteria have also been met:

- (i) The estimated cost to complete the outstanding work is less than 2% of the tendered sum for the work plus the cost of any variation or extra work orders, but excluding CPA and VAT.
- (ii) The written list of outstanding items of work can be completed within 30 calendar days of the list having been accepted in writing by the contractor.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

- (iii) Any information in the contractor's possession, which is required by the engineer and has been requested in writing, has been supplied.
- (iv) The Regional Manager of the Department of Mineral Resources (DMR) has issued written confirmation to the contractor that they are satisfied with the final shaping to all quarries, borrow pits, stockpile areas, and spoil sites used or intended to be used under this contract. In the event of this written confirmation is not obtained from DMR within 60 days, the acceptance by the Independent Environmental Practitioner (IEP) will be sufficient for the issuing of the Certificate of Completion. The confirmation from DMR will be a condition of the issue of the Certificate of Completion."

B1211 TRAFFIC OVER COMPLETED LAYERS

Add the following after the first paragraph:

"No construction traffic shall be allowed on completed recycled subbases or base prior to the final asphalt overlay being completed. In the event that access to properties result in traffic having to be accommodated over stabilised layers, the contractor shall make allowance for a protection layer of at least 50mm sand layer on top of the stabilised layer."

B1212 ALTERNATIVE DESIGNS AND OFFERS

Add the following to the end of sub clause (m):

"The provision for contract price adjustment in the original tender summary must not under any circumstances be altered in an alternative tender"

B1214 CONTRACTOR'S ACTIVITIES IN RESPECT OF PROPERTY OUTSIDE THE ROAD RESERVE AND OF SERVICES MOVED, DAMAGED OR ALTERED

Add the following to the last paragraph of sub clause (d)

"These written statements shall be handed to the engineer before the final certificate will be issued. Failing to obtain these written statements from all landowners and authorities concerned, the period of maintenance will be extended including all conditions related to such an extension, until such time that all these statements are obtained.

The obtaining of any such written statements will not relieve the contractor of the execution of any of his obligations to the satisfaction of the landowner or authority concerned, and to the approval of the engineer."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Delete and replace the words in the first paragraph:

"Clause 45 of the general conditions of contract" in the first line of the first sentence with Clause 5.12 of the General Conditions of Contract for Construction Works Third edition (2015).

Add the following after the first paragraph:

Method (ii) (Critical-path method) shall be used on this contract.

Method (ii) (Critical-path method)

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Delete and replace the words in the second paragraph with the following:

Replace the word "five-day" in the second paragraph with "six-day".

The value of "n" is twenty (20) days.

Refer to historical data included in **PART C4** of this document.

**B1217 PROTECTION OF THE WORKS AND REQUIREMENTS TO BE MET BEFORE
CONSTRUCTION OF NEW WORK ON TOP OF COMPLETED IS COMMENCED**

Delete and replace the words in the first paragraph:

"Clause 35 of the general conditions of contract" in the second line of the first sentence with
Clause 8 of the General Conditions of Contract for construction works third edition
(2015)."

B1219 WATER

Add the following:

"Water for use on site other than municipal, shall be subject to required permits from DWA submitted to the Contract Engineer by the Contractor. This shall include such extraction points as rivers, privately owned dams, streams, and boreholes. Farmers along the existing rivers could be operating under a quota system of DWA and the contractor shall make his own arrangements for obtaining water from landowners who are not utilizing their quotas to the full or who are willing to provide water. All related arrangements and cost shall be included in the tender rates as applicable."

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Use Table B1219 below to determine the suitability of water for construction purposes.

Property	Unit	Water Quality Classification Code						Method
		H0	H1	H2	H3	H4	H5	
		Pure water (AR)	Clean water (Rain)	Treated water (Municipal)	Silty (muddy) water with low salt content	Highly mineralised chloride sulphate water (brackish)	Waste brack, sewage, marsh, sea, etc. water	
PH*	-	7.0	5.7 – 7.9	4.5 – 6.5	4.5 – 8.5	9.0	-	SABS M113 SM 11 - 1990
Dissolved solids*	ppm	0	1000	1500	3000	-	-	SABS 213 SM213 - 1990
Total hardness*	-	None	None	Temporary	Temporary	Permanent	-	SABS 215 SM 215 – 1971
Suspended matter	ppm	0	2000	2000	5000	-	-	SABS 1049 SM 1049 – 1990
Electrical conductivity	mS/m	0	200	200	500	-	-	SABS 1057 SM 1057 – 1982
Sulphates (SO4)	ppm	0	200	300	500	1000	-	SABS 212 SM 212 – 1971
Chlorides (Cl)	ppm	0	500	1000	3000	5000	-	SABS 202 SM 202 – 1983
Alkali Carbonates (CO3) & Bicarbonates (HCO3)	ppm	0	500	1000	1000	2000	-	SABS 241 – 1999
Sugar	-	Negative	Negative	Negative	Negative	Negative	-	SABS 833
Quality of water required		Untreated layer works	✓	✓	✓	✓	Investigate the effect on the quality of the material	
		Chemically treated layer works	✓	✓	✓	Investigate the effect on the quality of the material		
		Concrete mass	✓	✓	✓	Investigate the effect on the quality of the material		
		Concrete prestressed	✓	✓	References: 1. Concrete Technology – Dr S Fulton (1989) 2. Materials Manual (PAWC)			
		Slurry & emulsion	✓	✓				
		Soil/gravel tests	✓	✓				
		Chemical or control tests	✓	✓				

- A primary property. The quality of the water is that quality where all three of the primary properties are within the limits.
- The tabulated single values are maximum value except in the case of the pH value for pure water, which must be 7.0

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

B1222 USE OF EXPLOSIVES

Add the following subclauses:

“(h) Definitions

- (i) **“Specified excavation or Payment line”** means the excavation profile given on the Drawings or determined by the engineer for the Works, within which no unexcavated or loose material shall occur after the excavation is complete except as allowed within the specified tolerances. It is also the line to which payment for excavation will be made.
- (ii) **“Pre-splitting”** comprises drilling a line of closely spaced parallel holes of appropriate diameter, spaced not more than ten times the hole diameter or 600mm, whichever is the smaller and charging the holes with an appropriate amount (decoupled if necessary) and type of explosive to shear the rock, forming a surface along the line of drill holes.

Either all the holes in a presplit line shall be drilled, charged and detonated simultaneously prior to drilling the production holes for the excavation adjacent to the presplit line, or pre-splitting shall be accomplished by delaying detonation in the production holes to allow the presplit holes to fire first. The first line of production holes next to the presplit face shall be lightly charged to ensure that the presplit face is not damaged when the charges in the production holes are detonated.

- (iii) **“Smooth blasting”** comprises the drilling of a number of closely spaced parallel holes along the required excavation surface, with a suitable burden/spacing ratio, loading all the holes lightly with a uniform continuous charge of small diameter explosive and detonating all these charges simultaneously, after the detonation of the main production blast.
- (iv) **“Line Drilling”** comprises drilling a line of holes of appropriate diameter spaced not more than twice the whole diameter to form a surface of weakness along which the rock will break. Blasting is not permitted in the line drilled holes, and the first line of production holes next to the line drilled holes shall be lightly charged to avoid damage to the line drilled break surface.
- (v) **“Cushion Blasting”** comprises the separate removal of a protective zone of rock which has been purposely left within the specified limits of excavation for flat areas and shallow slopes. Drilling for cushion blasting shall consist of a regular pattern of holes at appropriate spacings and angles and to accurate depths. The holes shall be lightly charged and detonated in relays to lift the rock progressively to form the final excavated surface without shattering the surrounding rock.
- (vi) **“Overbreak”** means any excavation area which extends beyond the payment line, irrespective of the reason for such excavation.

(i) General

The design of blasts shall be undertaken by a suitably qualified person. A copy of all certificates issued to workmen to permit them to undertake blasting, and to the contractor to cover the purchasing, storage and transport of explosives shall be handed to the engineer before any blasting work is undertaken.

The contractor shall submit to the Engineer at least 28 days before the commencement of any excavation work or drilling, full details of his proposed methods and sequence of excavation and

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

programme for the use of explosives.

Within 2 weeks of receipt of the proposals, the engineer shall indicate acceptance in part or in whole, in writing, to the contractor. The engineer reserves the right to reject the proposals if, in his opinion, undesirable damage to permanent rock surfaces or existing structures will result from carrying out the blasting as proposed. If acceptance is withheld, new proposals in whole or in part shall be submitted.

No drilling or blasting shall be carried out in areas for which the proposals have not been accepted by the engineer, and any changes to the accepted methods shall be subject to the engineer's approval.

The work shall be programmed so as to minimise blasting adjacent to previously constructed sections of the Works.

Where blasting is necessary every precaution including the use of blast mats, timber boarding or other means shall be exercised to protect the Works and persons, animals and property in the vicinity of the Site. The contractor shall accept responsibility for all injury or damage occasioned by any blasting operations and shall make good such damage without any additional payment.

The contractor shall, in particular, note the requirement that he must limit to the maximum extent practicable the spillage of material from surface excavations, whether by blasting or other means. To this end the contractor shall take all necessary precautions including, if necessary, covering the rock prior to blasting with sufficient loose material to prevent the blasted material being thrown. If, however, during the course of excavation on a hillside, the engineer is of the opinion that insufficient precautions are being taken to minimise the spillage of material, he may instruct the contractor to adopt further measures to reduce the spillage. No separate payment will be made for any such measures required.

Each separate blast shall be designed in accordance with modern blasting practice to break out the rock with the minimum explosive force. Full details of each blast, unless such blast is unchanged from the previous one, shall be submitted to the engineer for scrutiny not later than 24 hours prior to the commencement of drilling for that blast. The details shall include the location, depth and area of blast holes, the type, strength, amount, column load and distribution of explosives to be used per hole, per delay and per blast, the sequence and pattern of delays, the maximum expected level of shockwaves on adjacent structures, and the description and purpose of any special methods to be adopted by the contractor.

The consent by the engineer to any blasting proposals shall not relieve the contractor of his responsibilities under the Contract and the law.

Should the contractor excavate to dimensions in excess of those specified or instructed by the engineer, whether to remove damaged material or for reasons of safety or for his own convenience, he shall at his own expense and when required by the engineer, fill in the excess excavation with concrete or sprayed concrete of approved quality or with other material approved by the engineer, or carry out additional trimming to the satisfaction of the engineer.

The contractor shall provide the engineer each day with a copy of the record for the previous day's excavations. Where applicable the following data shall be recorded for each working area together with such other data as the engineer may request.

- (i) location of the excavation and position within the excavation
- (ii) drilling pattern
- (iii) type and amount of explosive used, including blasting pattern and delays used
- (iv) details of rock support
- (v) surface area of sprayed concrete and location
- (vi) number and classification of labour and plant
- (vii) unusual occurrences, rockfalls, unstable or soft ground and inflows of water
- (viii) progress, delays and reasons for delays
- (ix) name and permit number of blaster

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

- (x) date
- (xi) distance of blasts to structures and existing services

(j) Quality of Excavated Surface

Unless otherwise instructed by the engineer all blasting work shall be carried out using controlled blasting techniques to minimise any damage to the final profile.

Use shall be made of approved special explosives and/or blasting techniques which will minimise blasting induced fractures, or disturbance, on the rock faces outside the excavation line so preserving the rock in the soundest possible condition. No separate payment will be made for cushion blasting. The cost of using cushion blasting techniques shall be included in the rates for excavation.

The surface after blasting shall exhibit a regular fracture plane between barrels without back break and with half barrels visible over the major portion of the surface. The surface shall be scaled down of all loose and hollow sounding rock to leave a solid, intact surface. Light charges shall be used for enlarging or correcting the excavated profile and also for excavating trenches.

If in the opinion of the engineer, the methods of blasting are at any time causing excessive or undesirable disturbance of the rock mass surrounding the excavated space, he may order the contractor to change his methods of blasting and/or carry out blasting trials until the desired results are achieved. No additional payment shall be made for any change or further trials ordered by the engineer or any delays resulting there from.

The spacing of holes and explosive charges shall be adjusted so that a minimum of oversize material is produced (a maximum particle size of 600mm). The engineer shall have the right to order the contractor to adjust his blasting pattern and/or carry out secondary blasting at his own cost, should he be of the opinion that the contractor is not taking sufficient care to produce rock of the required size.

(k) Monitoring of Blasts

The contractor shall supply and operate an approved tri-axial particle velocity meter equipped with a permanent paper trace output, which shall be used as and where directed by the engineer to monitor blasting work.

The paper trace output records shall show the time and location of each blast, the type and amount of explosive used, together with any other relevant data. Copies of these records shall accompany the daily records required in terms of Clause (i) above.

The contractor shall 7 days prior to submission of blast designs, complete a single hole detonation for each blast site. This blast is to be accurately monitored by the contractor in order to obtain the rock factor (k), which will be used in Langefors' formula to estimate the peak particle velocities.

(l) Notification of Blasts

Prior to any blasting, 28 days' notice is to be given to the engineer and relevant authorities. The contractor shall further notify the engineer of the intention to blast at least 48 hours before that operation is carried out. The notification shall show the location of and the intended time of each blast and the name of the licensed blaster and shift foreman responsible. No blasting shall be undertaken during any known peak hour days on specific peak hours (long weekends).

The contractor shall distribute written notification to all organisations on site, and relevant authorities, 24 hours prior to undertaking blasting. Any delay or postponement of any blasts shall be notified to all organisations immediately. The firing of explosives shall be restricted as detailed in Item B1222(r) of this specification.

(m) Blasting near Structures

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

The amount of explosives that may be detonated shall not result in a ground vibration with a peak particle velocity in excess of 25mm/sec at the nearest point of any part of Permanent Works. Where circumstances dictate, such as when blasting near to partially cured concrete, the peak particle velocity permitted may be reduced by the engineer.

Blasting shall not be carried out within 10m of any Works, unless otherwise agreed to in writing by the engineer.

(n) Controlled Blasting

Controlled blasting methods shall comprise pre-splitting, smooth blasting, line drilling or cushion blasting techniques.

All charges shall be accurately made up and inserted into the holes at the correct spacing, and all holes shall be correctly stemmed and connected in the correct sequence, with detonators being correctly delayed.

If at any time the methods of drilling and blasting do not produce the desired results of a uniform profile and shear face without overbreak, all within the tolerances specified, the contractor shall be required to undertake tests as until a technique is arrived at that will produce the desired results.

Controlled blasting shall be used in the widening of the cuttings or otherwise where called for by the engineer.

(o) Drilling

In all controlled blasting, drilling accuracy of perimeter holes is of prime importance and the contractor shall take particular care and make use of sight lines and guide rails in surface work to control the alignment and depth of blast holes. Holes which are likely to protrude more than 100mm beyond the excavation profile, shall not be charged up, but shall be redrilled.

The blast pattern shall be accurately set out and holes shall be collared within 50mm of the required position. Holes which are overdrilled shall be fully stemmed to the required depth before charging up takes place.

The length of perimeter holes for any individual lift shall not exceed 10m or any lesser depth detailed on the drawings. All perimeter holes for surface blasting shall be drilled to a depth of 1m below the bottom of any production holes adjacent to the perimeter plane.

(p) Use of Explosives

Both cartridge and bulk explosives may be used where appropriate.

In controlled blasting the type, size, decoupling and charge concentration of perimeter and bulk charges shall be within established parameters unless otherwise proven acceptable by site trials.

The bottom charge of a pre-split hole shall not be larger than the line charges unless otherwise directed. The top charge of the pre-splitting hole shall be placed far enough below the collar to avoid overbreaking the final profile.

Adequate stemming shall be used to avoid blow-outs.

(q) Checking and Correcting the Excavated Profile

The excavated profile shall be checked for line, level and underbreak using methods approved by the engineer. No projections of rock shall protrude within the payment line, except as allowed within the specified tolerances.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

The contractor shall submit his proposals for removing any underbreak to the engineer for his consent prior to carrying out any such work of removal. Any work executed or delays, which are due to the contractor having to re-excavate underbreak and then re-install support shall be carried out without additional payment, and no extension of time will be allowed for this work.

(r) Accommodation and Protection of Existing Services and Infrastructure

In the event of the laid-down vibration parameters as detailed in (m) above being exceeded or in the event of a valid recording not being made available as stipulated above, the engineer reserves the right to ascertain by whatever means, whether damage was caused by the blast to the service or structure. All costs incurred in establishing such possible resultant damage and the repair thereof will be to the contractor's account.

(s) Specific blasting

If considered necessary by the Engineer to order a specific type of blasting method it shall be indicated in the documents and/or pricing schedule. The ordering of a specific type of blasting method by the Engineer shall not relieve the Contractor from his obligations relating to the accuracy of the excavated profile.

(t) Blasting near Roads

Blasting near existing roads shall be undertaken during off peak traffic hours. Reference shall be made to sub-clause B1502(m) of these specifications."

B1224 THE HANDING-OVER OF THE ROAD RESERVE

Add the following:

"The full extent of the road reserve will be handed over to the Contractor at the beginning of the contract. The total area taken up by the road reserve and borrow pits as well as quarries are applicable. He shall be responsible for the maintenance along this portion of the road until completion of the contract."

B1227 MONTHLY SITE MEETINGS

Add the following to this clause:

"The contractor's representative attending site meetings shall have the authority to take decisions and make commitments on behalf of the contractor. The contractor shall prepare and submit progress and information reports as required by the engineer five days before the meeting date agreed. These report sheets shall be discussed and reviewed at the monthly meeting or at any other meeting if deemed necessary by the engineer."

B1229 SABS CEMENT SPECIFICATIONS

The standard cement specifications SABS 471, SABS 626, SABS 831 and SABS 1466 have been withdrawn and are replaced by the new SANS 50197-1 and -2: Common cements, and SANS 50413-1 and -2: Masonry cement. These specifications will be applicable to this contract, and the descriptions and types of cements specified, will be based on the designations as defined in these specifications.

Add the following clauses:

"B1230 MATERIALS

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

(a) General

The contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the engineer with certificates showing that the materials do so comply.

Where so specified, materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the Contract Engineer's office on the site, free of charge.

Where proprietary products have been specified, similar products may be used subject to the prior written approval of the engineer (as allowed for in an alternative tender).

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's current published instructions.

Unless anything to the contrary is specified, all manufactured articles or materials supplied by the contractor for the permanent works shall be unused or new materials.

Earth, stone, gravel, sand, and all other materials excavated or present on the site or within the road reserve, or in borrow areas shall not become the property of the contractor, but will be at his disposal only in so far as they are approved for use on the contract.

Existing structures on the site shall remain the property of the employer and except as and to the extent required elsewhere in the contract, shall not be interfered with by the contractor in any way (except for structures to be fully or partially broken down).

Materials to be included in the works shall not be damaged in any way and, should they be damaged on delivery or by the contractor during handling, transportation, storage, installation or testing they shall be replaced by the contractor at his own expense.

All places where materials are being manufactured or obtained for use in the works, and all the processes in their entirety connected therewith shall be open to inspection by the engineer (or other persons authorised by the engineer) at all reasonable times, and the engineer shall be at liberty to suspend any portion of work which is not being executed in conformity with these specifications.

The contractor shall satisfy himself that any quarry or commercial source selected and identified for use provides the specified quality material in accordance with the specification.

All road signs used for accommodation of traffic shall be serviceable in terms of reflectivity, unbroken in any manner and to the correct sizes as specified. Signs not fit for purpose or damaged during use shall be replaced and removed from the site at the contractor's cost.

(b) Compaction

All references to "% of modified AASHTO density" made in the standard specifications and project documents shall be read as "% of MDD".

B1231 ENVIRONMENTAL IMPACT CONTROL

Respect for the environment is an important aspect of this contract. The environmental control of the site shall comply to the following list of activities.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

- (a) The Contractor must allow for the satisfactory combating of dust and noise nuisance throughout the contract length during construction.
- (b) The Contractor must make provision for the prevention of 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 it will be the Contractor's responsibility to make good the erosion/siltation to the satisfaction of the landowner and the Engineer.
- (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 engineer.
- (d) Adequate provision shall be made for temporary toilet requirements in construction areas. Use of the veld for this purpose shall not, under any circumstances be allowed.
- (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 must be set out and the responsible person made aware of the required action. The construction of temporary and or permanent dams must be done with the necessary approvals from the Department of Water Affairs and Forestry and Environmental Affairs and Tourism.

- (f) Bituminous and/or other hazardous products shall not be spoiled on site and may only be disposed of in licensed authorised disposal facilities.
- (g) Control of invader species of plants.
- (h) Clearing shall be limited to the road prism and, where applicable, detours, which shall be sited in consultation with the Engineer and the local communities.

No separate payment will be made for observing these requirements as it is deemed to be included in the amount tendered for Item 13.01(c) but any avoidable non-compliance with these rules may be considered sufficient grounds for withholding payment of part or all of the amounts to be paid for the above item.

B1232 WORKMEN'S COMPENSATION ACT

All labour employed on the site shall be covered by the Workmen's Compensation Act. The Contractor shall pay in full, including the payment of the necessary levies, such amounts as are due in terms of the Act.

The manner in which Workmen's Compensation shall be handled shall be resolved by the Contractor at the commencement of the contract.

B1233 CARE OF WORKS, DAMAGE, INJURY AND INSURANCE

Compliance with Road Traffic Act:

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

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 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 Engineer 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 Engineer against any claims, damages and / or costs that may arise in this regard.

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

B1231 MEASUREMENT AND PAYMENT

Item	Unit
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B12.01 Relocation, protection or replacement of existing services:

- (a) Allow a provisional sum for existing services to be relocated, protected or replaced as ordered by the engineer:
(specify service) provisional sum (prov sum)
- (b) Handling cost and profit in respect of:
(specify sub-subitem)percentage (%)

The provisional sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for providing equipment, if required, labour transport, supervision, accommodation of traffic and incidentals."

Item	Unit
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B12.02 Excavation:

Excavating material within the following depth ranges below ground level for the exposing of/or searching for services

- (a) 0m to 2m:
 - (i) Soft materialcubic metre (m³)
 - (ii) Hard materialcubic metre (m³)
- (b) Extra over item B12.02(a) for excavation by means of hand tools such as picks, crowbars and pneumatic tools or mechanical breakers in close vicinity of services where no blasting or machine excavation is permitted:
 - (i) Soft materialcubic metre (m³)
 - (ii) Hard materialcubic metre (m³)

Measurement and payment shall be as specified for item 22.01 in the standard specifications.

Item	Unit
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B12.03 Excavation of test pits and sampling thereof along the Road as instructed by the engineer

- (a) Sampling by approved materials laboratoryprime cost sum (PC sum)
- (b) Handling cost and profit in respect of
(specify sub-subitem)percentage (%)

The PC sum items shall be paid in accordance with the provisions of the General Conditions of Contract as amended by Particular Conditions of Contract. The tendered percentage is a percentage of the amount actually spent under the prime cost sum and provisional sum items, which shall include full inclusive compensation including profit to the contractor in connection with providing the specified service.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Item	Unit
B12.04 Community Liaison Officer (CLO)	
(a) Remuneration of Community Liaison Officer	provisional sum
(b) Handling costs and profit in respect of sub-item B12.04 (a)."	percentage (%)

The CLO shall be paid at a rate as determined by the Employer.

The following General Requirements and Provisions refer to section C3.3 of this document.

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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Refer to **PART C3.3: PARTICULAR SPECIFICATIONS**

PART C: ENVIRONMENTAL MANAGEMENT

Add the following payment items:

Item	Unit
C10.01 Environmental Control Officer	
(a) Provisional Sum for remuneration of Employer's agent for Environmental Control Management (ECM)	Provisional sum
(b) Contractor 's handling cost, profit and all other charges in respects of sub item C10.01 (a).....	Percentage (%)
Item	Unit
C10.02 Negotiation with land owners and authorities	
(a) Compensation to the affected land owners.	Provisional sum
(b) Handling Cost and profit in respect of Sub-item C10.02 (a)	percentage (%)

PART E: OCCUPATIONAL HEALTH AND SAFETY ACT OBLIGATIONS

This Section covers the Health & Safety Obligations and has been extended to include the new specifications for COVID-19 prevention

PART F: TRAINING

Item	Unit
F10.01 Training	
(a) CETA Accredited training	
(i) Generic skills	provisional sum
(ii) Entrepreneurial skills	provisional sum
(iii) Experiential training for S4 civil students.	provisional sum
(b) Handling costs and profit in respect of sub-item F10.01(a)(i) to (iii).	percentage (%)
(c) Training venue	percentage (%)
(d) Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity to the Site	provisional sum
(e) Handling costs and profit in respect of sub-item F10.01(d).	percentage (%)

Payment of the training allowance in sub-item F10.01(a) will be made at the daily task rate set for the SPWP. Expenditure under sub-items F10.01(b), (c) and (d) shall be made in accordance with the General Conditions of Contract, the tendered percentages being a percentage of the amounts actually spent respectively under sub-items F10.01(a) and (c)."

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

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

B1302: General Requirements

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

Add the following:

"All costs incurred to comply with the requirements of the Occupational Health and Safety act of 1993 including Construction Regulations of 2014 as well as additional requirements as specified in the Emalahleni Local Municipality Health and Safety and Environmental Management documents, shall be included in the contractor's general obligations tendered by the contractor.

When the activities of the contractor cause damage to vehicles of the travelling public, directly or indirectly, such as damage caused by loose aggregates on the road surface, and the contractor or his insurance company does not satisfactorily settle claims emanating from such occurrences, the employer reserves the right to settle such claims on behalf of the contractor and deduct such costs from the monthly payment certificates. Such payments are provided for in Section 1300 of the pricing schedule."

Add the following new sub-clause:

(e) Contractors ablution facilities

The Contractor shall, at each construction section, provide sufficient portable chemical latrine units. Furthermore, the contractor shall also provide a portable chemical latrine unit at each temporary traffic control facility complying with the EMP. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the engineer. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the items B13.01(c)."

"(f) Appointments

The Contractor shall as a minimum appoint the following staff members:

- Traffic Safety Officer
- Site environmental Officer
- Health and Safety Officer in terms of the Occupational Health and Safety Act.

The contractor shall submit a CV of the candidates with previous similar experience to the engineer for approval before the candidate is appointed."

B1303: PAYMENT

Item	Unit
B13.01	The contractor's general obligations

Add the following paragraph after the fourth paragraph, i.e. after the paragraph numbered as (iii):

"(iv) Should the combined total tendered for sub items (a), (b) and (c) exceed 15% of the tender sum

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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(excluding VAT), the tenderer shall state his reasons in writing for tendering in this manner.”

Item

Unit

B13.02 Supply, transport to site and erect contract signboards..... Number (No.)

The item shall cover all costs with regard to producing and erecting the signboards in accordance with the drawing and leave them erected at the end of the contract.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

**SECTION 1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE
PERSONNEL**

B1402 OFFICES AND LABORATORIES

b) Offices

Amend sub-clause (xii) to read as follows:

“(xii) A complete telephone service capable of delivering electronic and facsimile data, together with ...”

Amend sub-clause (xvii) to read as follows:

“(xvii) A combination colour printer/copier/scanner/facsimile machine for A3 and A4 size documents.”

Add the following sub-clauses:

“(xviii) Plan holders which shall be able to accommodate 30x A0 – sized drawings hanging vertically and of a robust construction to withstand continuous use over the duration of the contract.

(xix) An electric refrigerator of specified capacity.

(xx) Floodlights which are to be controlled by a photocell for security purposes at the offices and laboratory.

c) Laboratories

In the second paragraph, second line substitute “drawings” with “figures included in the project document”

B1404 SERVICES

d) Water electricity and gas

Add the following to the end of the third paragraph:

“The power supply 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 and laboratory equipment and related machinery during power surges. 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.”

Add the following paragraph:

“The supply of electricity and water to the offices and laboratories of the engineer’s supervisory staff shall be maintained 24 hours per day”

B1405 GENERAL

Add the following to paragraph (e):

“In addition, the offices and laboratories shall be supplied with approved burglar proofing and the whole site shall be guarded full time during the day and night, as well as over weekends and holidays. The site shall also be fenced with a 2,4m high security fence with a razor-cut wire being used as strands or with a brick wall. The cost of this protection shall be included in item B13.01.”

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

B1406 MEASUREMENT AND PAYMENT

Item	Unit
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B14.03 Office and laboratory fittings, installations and equipment

a) Items measured by number

Add the following subitems:

“(xix) Rain gauge number (No)
 (xx) Electrical Refrigerator (120l)..... number (No)
 (xxi) Floodlights complete with poles and 500Watt minimum globes number (No)

The tendered rate for subitem B14.03(a)(xxi) shall include for the operation of the lights from sunset to sunrise for the full duration of the contract.”

b) Prime cost items and items measured and paid for in a lump sum

Add the following subitems:

“(ix) Cell phones costs, including pro-rata rentals, for
 calls in connection with contract administrationprime cost sum (PC)sum

 (x) Handling costs and profit in respect of
 subitem 14.03(b)(ix) above.....percentage (%)

Payment of B14.03(b)(ix) shall include for the cost of all cellular telephone calls in connection with contract administration, as well as pro rata fixed costs.

The tendered percentage for pay item B14.03(b)(x) shall be a percentage of the amount actually spent under sub item B14.03(b)(ix) which shall include full compensation for the profit and handling costs incurred in managing provision of the cellular phones and monthly billings.”

Item	Unit
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B14.10 Provision of Photostat facilities

Amend this pay item description to read “Provision of copying facilities” and in the payment prescription, amend “photocopier” to read “combination colour printer/copier/scanner/facsimile machine”.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION 1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

"It is a condition of this contract that traffic is accommodated taking into account the provisions of the latest edition of the South African Road Traffic Signs Manual (SARTSM). The latest version for use in the accommodation of traffic is volume 2, chapter 13 of the June 1999 edition. Copies of this publication are available from Government Printers

Tel: (012) 334 4507/8/9 or (012) 334 4510 Fax: (012) 323 9574.

Although drawings are included in the contract, these drawings are taken to be indicative only and shall not in any way relieve the contractor from his obligations in terms of the contract related to safe passage of traffic and regulations in Chapter 13 of Traffic Signs manual as specified below:

Arrangements expected to be most commonly used are given in the drawings. The Contractor shall assess the drawings in terms of actual site conditions and traffic and amend the drawings as required for the safe passage of traffic. Any amendment or addition to the drawings shall be with the approval of the Contract Engineer.

This section also covers the provision of additional information signs for motorists and the release of any notices to the media and public."

B1502 GENERAL REQUIREMENTS

Insert the following:

"The whole of the site will be handed over to the contractor at the beginning of the contract. The sequence in which various parts of the site may be occupied by the contractor for the execution of the different items of work shall be subject to the requirements of the contract documents regarding, inter alia, working hours and the number, spacing and length of the work areas which may be occupied at any particular time.

The contractor shall programme his work taking due cognizance of restrictive conditions indicated in Clause B1204. The contractor's tendered rates shall include full compensation for all possible additional costs which may arise from the above and no claims for extra payment as a result of this *modus operandi* will be considered. The contractor shall in particular note that no additional compensation shall be made for work that could be considered as half-width construction."

(a) Safety

Add the following as an introductory sentence to this sub clause:

"Traffic shall be accommodated in accordance with the South African Road Traffic Signs Manual with the least delay and discomfort to the public."

(b) Providing Temporary Deviations

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

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

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.

(i) Traffic Safety Officer

Add the following to the end of the second paragraph:

“The contractor shall submit a CV of the candidate to the engineer for approval before the candidate is appointed as the traffic safety officer. “

Insert the following as the opening phrase to sub-sub-clause (i):

“make himself available to discuss road safety and traffic accommodation matters whenever required by the engineer and shall be responsible...”

Delete sub-sub-clauses (ii) and (iii) and replace with the following:

- “(ii) Record on neat and dimensioned sketches and submits 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 shall be adequately referenced from the marker boards or other surveyed points on 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 similarly account for whatever changes are made in the field. Such changes shall record 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 9h30 and by 16h30, 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 midday of the next working day. The traffic safety officer shall keep a duplicate book for this specific purpose.

The traffic safety officer shall also submit with this report the daily labour returns of flagmen, stop/go and traffic signal control men employed.”

Add the following sub-sub-clauses:

- “(ix) The traffic safety officer shall be equipped with a cellular telephone and shall have a vehicle and sufficient labour at his disposal 24 hours a day, including all prescribed non working days, and shall not be utilised for other duties. He shall be directly answerable to the contractor’s site agent. The traffic safety vehicle shall be a 1 ton LDV and shall be equipped with a high visibility rear panel in accordance with the requirements of the SARTSM. The words TRAFFIC CONTROL shall be written on a warning sign in highly legible letters, not less than 150 mm high, and the sign shall be mounted on the vehicle at least 1,5 m above ground level. The proposed sign and letter dimensions shall be submitted to the engineer for his approval.

The vehicle shall also be equipped with an amber-coloured flashing light of the rotating parabolic reflector type with a minimum intensity of 100 W. The warning light shall be switched on at all times and the sign shall be displayed when the vehicle is used on site.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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. The provision of the road safety vehicle, driver, labourers and the cost of the cellular telephone shall be deemed to be included in the rates tendered for the contractor's establishment on site.

- (xii) Ensure that all obstructions related to the contractor's activities be removed before nightfall where applicable as instructed by the engineer and that the roads are safe for night traffic.
- (xiii) The traffic safety officer shall, in addition to the duties listed in paragraph 1502 (i), also be responsible for the 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, be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic.
- (xiv) In the advent of an accident the traffic officer shall record in a written report the details of the accident, record the position of all temporary road signs, barricades, delineators, flagmen and any other devices used for traffic accommodation. In addition the report shall include a neat dimensional sketch, photographs, identifiable permanent features, and any other relevant information."

Add the following subclause:

"(j) Site Personnel

The contractor shall ensure that all his personnel, excluding those who are permanently office bound, are equipped with reflective safety jackets and yellow or orange overalls as well as safety head gear at structural sites and that these are worn at all times when working on or near to the travelled way. Any person found not wearing a reflective jacket or safety head gear under these circumstances shall be removed from the site until such time as he is in possession of and wearing a reflective jacket. Reflective safety jackets and head gear shall be kept in good condition and any that are, in the opinion of the engineer, ineffective shall be immediately replaced by the contractor."

(k) Failure to comply with provisions

Failure or refusal on the part of the contractor to take the necessary steps to ensure the safety and convenience of the travelling public, accommodation of traffic, plant and personnel in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause for the engineer to apply penalties as follows:

A fixed penalty of R5 000,00 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 the engineer has given an instruction to this effect. 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."

(l) Blasting

Blasting could be necessary. Blasting notification to the public shall be displayed visibly on signage approved by the Engineer. And displayed for 14 days prior to the blast date.

All traffic shall be stopped outside the blast area prior to the detonation of the blast. The Contractor shall ensure that it is not possible for any vehicle or pedestrians to enter this area at this time.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

No blasting shall be undertaken without required suitable plant and labour available to clear / clean the road surface after blasting.

On completion of the blast and after the blaster has given the go-ahead, the Contractor shall inspect the road surface for debris and clear this away before opening the road again to traffic.

(m) 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.

(n) 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.

(o) 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.

(p) Handing over site (additional sub clause):

The entire road reserve within the construction limits will be handed over to the contractor on commencement of the contract. The contractor will then be responsible for the accommodation of traffic on, and maintenance and repair work to be done on the existing roadways, from the date of handing over up to the issue of the Certificate of Completion.

The contractor's programme for the accommodation of traffic and any proposed deviation therefrom must be approved by the engineer on the site.

The Road Safety Officer to be appointed by the contractor shall be on full-time duty and shall be responsible for traffic control and safety on site, and for ensuring that all the requirements for accommodation are met.

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

(e) Warning devices

Add the following:

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

(i) Vehicle mounted flashing lights

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Flashing lights shall have an amber lens of minimum height of 200 mm and shall be mounted in such a way as to be highly visible from all directions. The lights on construction vehicles shall not be switched on while vehicles are being operated on unrestricted sections of a public road, but shall be switched on while construction vehicles are operating within the accommodation of traffic area or public road, as the vehicles decelerate to enter a construction 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 LDV's and cars operating on site shall also be equipped with amber flashing lights which shall be placed so as to be highly visible and operated continuously while the vehicles are manoeuvring in or out of traffic or are travelling or parked alongside roads open to public traffic. The lights and application thereof shall comply with the National Road Traffic Act No.93 of 1996/ Regulations/ GNR225 of 17 March 2000: National Road Traffic Regulations, 2000/176. Identification lamps.

Flashing lights and the "construction vehicle" signs on the contractor's vehicles and plant shall not be paid for separately but shall be included in the rates for traffic accommodation.

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

Add the following sub clauses:

“(g) Other traffic control measures ordered by the Engineer

The OHS Officer or Engineer may instruct the Contractor to provide any other road sign, reflective tape, etc. not measured in standard pay items and/or shown on the drawings or indicated in the mentioned Road Sign manual. A provisional sum is allowed for in the pricing schedule for this purpose (Item B15.17). Such road signs shall conform to the requirements of the SARTSM, or specification provided by the engineer. Similarly, in order to ensure that the travelling public is kept fully informed and warned on matters relating to the accommodation of traffic, construction sign posting and the effect of the construction on the free flow of traffic through the site, the Engineer may arrange for advertising in the press and/or for other forms of publicity.

(h) Flagmen

Flagmen shall be provided where shown on the drawings or required by the specification or circumstances requiring flagmen.

Flagmen shall be adequately trained in the standard flagging techniques as described in the SARTSM (refer to figure 13.23 of detail 13.23.1) and be provided with conspicuous clothing such as safety jackets utilizing retro-reflective and / or fluorescent panels in red, yellow and / or white.

Flags shall be made from bright red or red-orange material and shall be square with a minimum side length of 600 mm. The flag shall be attached to a staff at least 1,0 m in length.

In terms of lateral clearance and safety, flagmen shall stand on the shoulder of the lane of traffic that is being controlled and under no circumstances shall flagmen be permitted to stand within the traffic lane. In order to obtain maximum visual impact for the travelling public, flagmen shall stand-alone. Flagmen shall not be paid for separately with the cost included in item B1501.”

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

Add to Clause 1511 the following:

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

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

B1513 ACCOMMODATION OF TRAFFIC WHERE THE ROAD IS CONSTRUCTED IN HALF WIDTHS

Where the work on the road surface is undertaken for rehabilitation of the pavement, such work shall be carried out in areas as indicated on the drawings.

All work adjoining the carriageway shall be undertaken only when the shoulder is barricaded and the required road signs, barricades and cones have been installed as shown on the drawings or as instructed by the engineer.

During construction, when work is in progress on one portion of the carriageway and shoulder of the road, the other portion of the road shall remain open at all times to allow for safe one-way traffic flow.

The speed of vehicles alongside actual construction areas must be limited to a maximum of 40 km/h. STOP/GO signs and flagmen shall be employed at the points where construction traffic enter the working area thus creating a potential danger situation for public traffic.

In the case of intersections, provision shall be made, where necessary, for STOP/GO signs. Intersections shall also, at all times, be able to safely carry traffic.

As soon as a section of road has been repaired or treated, the centreline shall immediately be indicated by means of pre-marking.

Amend Clause 1513 as follows:

In the third line of the third paragraph, delete “4 km” and replace with “2 km”.

In the second line of the fourth paragraph, delete the word “four” and replace with “two”. Also, delete “2 km” and replace with “2 km”.

B1517: MEASUREMENT AND PAYMENT

Amend item 15.01 to read as follows:

Item	Unit
B15.01 Accommodating traffic and maintaining temporary deviations:	

(a) On the route kilometre (km)

Replace the first paragraph with the following:

“The unit of measurement shall be the kilometre, measured along the centre lines of the road, where work is carried out. Accommodation of traffic shall be measured once only, that is no separate payments shall be made for lane and shoulder rehabilitation, slurry, reseal, asphalt overlay, side drains, etc. The bypass for abnormal vehicles and gravel service roads shall not be measured. Only the net distance of the road shall be measured and overlapping distances during staged rehabilitation shall not be measured. A distinction shall be made between accommodation of traffic on the through road and accommodation of traffic on the ramps and cross roads of interchanges.

In the second paragraph, replace the comma after “deviations” at the start of the third line with a full stop and delete the remainder of this first sentence. Also delete the whole of the second sentence, which refers to compensation for the traffic safety officer.

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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In the third paragraph second sentence, insert a full stop after "use" and delete the remainder of the sentence."

B15.03 Temporary traffic-control facilities

Add the following sub-items:

Item	Unit
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Replace the payment description according to the following:

"(a) Flagmenman-day

The unit of measurement shall be a full day and night worked by flagmen. A man-day shall be deemed to comprise of three eight hour shifts in a twenty-four-hour period. Three shifts of eight hours per flagman equates to one man-day. Shorter single portion shifts (6 to 10 hours) shall be measured as a half man-day."

Item	Unit
-------------	-------------

"(n) Amber rotating flashing lights with magnet base as specified for the engineer's use
number (No)

The unit of measurement is the number of amber rotating flashing lights with magnet bases supplied to the engineer as specified. The tendered rate shall include full compensation for supplying the amber rotating flashing lights to the engineer on site as well as maintenance and, if necessary replacement, thereof to keep it in a good working condition at all times for the duration of the contract.

Item	Unit
-------------	-------------

(o) Provision of a robot system Number (No)

The unit of measurement shall include full compensation for the procurement, erecting, operating and maintaining a set of traffic lights, consisting of two units erected on both ends of a deviation.

Payment for the traffic lights shall include a set of radio's or any other equipment that will enable the operators to effectively communicate and operate the robots over the distance that the robots are apart, when the system is not operated automatically.

The robot system shall be an automatic system of which the cycle time are adjustable in order to optimize the green time for traffic with variation in the length of road under construction. The robot system shall be reliable to operate 24 hours per day continually.

Amend the following notes under the subheading "(b), (d), (e), (f) and (h)" in the measurement paragraphs as follows:

The tendered rate for sub item (h) shall also include full compensation for the sign stand, for the provision of two sandbags per delineator to hold it in position and for their replacement when necessary due to whatever reason. Only the standard plastic type road signs TW 401/402 (Old DTG 50 J) will be allowed on this contract.

Amend payment paragraph (j) to read as follows:

"The unit of measurement shall be the number of cones provided over and above those indicated on the drawings as required by the engineer. Payment for these cones shall include supply, re-use or removal of the traffic cones as necessary."

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Under the subheading "General" add the following to the last paragraph:

"Only items additional to those shown on the drawings are scheduled for payment."

B15.04 Relocation of traffic-control facilities

Divide item B15.04 in the following sub items:

Item	Unit
(a) Relocation of traffic-control facilities, excluding robot systems	Lump sum
(b) Relocation of robot systems in excess of 100 m	number (No)

Sub-item (a) is only applicable to those items ordered by the engineer and for which the cost of relocation is not already included in Item 15.03 (or B15.03)

Sub-item (b) for the relocation of the robot systems shall only be applicable upon removal of the system to an entirely new position approved by the engineer. No payment shall be made for their removal to a new position if the distance moved is less than 100 meters.

The tendered rate for sub-item (b) shall include full compensation for the number of robot sets relocated in excess of 100 m. Payment under this item shall be full compensation for all labour, plant, equipment, tools, transport or any other cost to remove and re-erect the robot system to its new position.

Item	Unit
B15.14 Penalty to be deducted for non-compliance with requirements for accommodation of traffic	
(a) Fixed penalty per occurrence	number (No)
(b) Time related penalty	hour (h)

In subitem B15.14(a) a fixed penalty of R5 000.00 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, in subitem B15.14 (b), a time-related penalty of R500.00 per hour over and above the fixed penalty in subitem B15.14 (a) shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within reasonable time after the engineer has given an instruction to this effect. The engineer's instruction shall state the time in hours for re-instatement of the defects. Should the contractor fail to adhere to the instruction, the time-related penalty will be applied from the time the instruction was given.

B15.15 Provision of traffic safety equipment for visitors

Item	Unit
(a) Safety jackets.....	number (No)

The unit of measurement shall be the number of each item provided as specified, and approved by the engineer.

The tendered rates for the various safety items shall include full compensation for provision thereof and maintenance in good working order.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Item	Unit
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B15.16 Non-specified signage ordered by the Engineer and Site Safety officer:

- (a)Provisional sum for non-specified signage or arrangements as
 ordered by the Engineerprovisional sum (prov. Sum)

- (b)Handling cost and profit in respect of Item B15.17(a)Percentage (%)

The provisional sum items shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for items as ordered by the engineer.”

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION B1600: OVERHAUL

B1602 DEFINITIONS

(a) Overhaul material

Add the following new sub-sub clause:

- (vii) No overhaul shall be payable on commercial materials such as asphalt, ready mix concrete, crushed stone, etc. used on the project for which the overhaul shall be included in the rate tendered”.

(b) Overhaul

Replace the sub-clause with:

“Payment shall only be made for material hauled in excess of 5 kilometres. Overhaul shall be measured as the product of the volume of material hauled and the overhauled distance.

(d) Free-haul distance

Replace the last sentence with:

“This distance shall be 5 kilometre in the case of all overhaul materials”

B1603 MEASUREMENT AND PAYMENT

Amend item 16.02 as follows:

Item	Unit
B16.02 Overhaul on material hauled in excess of 5,0km	cubic meter - kilometre (m ³ -km)

Delete the first paragraph of the first set of notes.”

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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SECTION 1700: CLEARING AND GRUBBING

B1702: DESCRIPTION OF WORK

(a) Clearing

Add the following:

“Clearing shall not be undertaken outside the road prism finishing toe line. Clearing shall include the removal of material to a thickness of up to 150mm in-situ material as ordered by the engineer before roadbed compaction below existing ground level or excavation of cuttings commences. No payment shall be made for temporary stockpiling of topsoil material in the case where this material is applied as topsoil after completion of roadside slopes.

Should the required depth exceed 150mm, the total volume of material removed shall either be classified as “temporary stockpiling of topsoil” or “unsuitable roadbed material” or “cut to spoil” whichever is applicable as allowed for in the standard specifications. In these cases no payment shall be made for clearing and grubbing.

Clearing as described shall in all cases be undertaken in such a manner that the topsoil is preserved and not contaminated with other debris or rubbish. Cross-sections for the determination of earthworks quantities, where applicable, shall be taken after clearing (topsoil or unsuitable roadbed material) and roadbed preparation if applicable.”

(c) Conservation of Topsoil

Add to the end of the 1st paragraph:

“The contractor will not be required to remove topsoil to more than an average depth of 200mm, from any particular area. The depth of topsoil removed shall be reliant on the terrain, suitability of material and topsoil requirements of the work.”

Replace the second paragraph of this clause with the following:

“After clearing and grubbing, all topsoil shall be removed to stockpiles as agreed with the Engineer. Where ordered by the engineer, any topsoil that shall be required for the top soiling of new banks and cuts, but which cannot be accommodated within the construction site, shall be loaded and hauled to the designated stockpile area where it shall be placed in temporary stockpiles for later use in the rehabilitation of the site affected by construction activities. Where new borrow pits are to be opened up the topsoil shall first be removed (independently of the overburden) and placed in temporary stockpiles inside the parameters of the borrow pit. The moving of topsoil from windrow or the loading of topsoil from temporary stockpiles and the placing and spreading thereof on cut or fill slopes or on borrow pit soil sites, is covered in Section 5800.

Reference to clause 5802 (g) of this project specification and stipulations of relevant documentation are required”.

Add the following new subclause:

“(e) Clearing and grubbing by hand or similar means

Where clearing and grubbing cannot be undertaken by means of normal construction machinery, the engineer may order clearing and grubbing to be undertaken using hand methods. This method of clearing and grubbing will normally apply to existing steep fill embankments or cut slopes where widening of the existing road is specified or other restricted areas indicated by the engineer. Separate payment for this method of clearing and grubbing is allowed under payment item B17.01(b) of these project specifications.”

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

B1704 MEASUREMENT AND PAYMENT

Amend item 17.01 to read as follows:

Item	Unit
B17.01 Clearing and grubbing	
B17.01 Clearing and grubbing:	
(a) Using normal construction machinery	hectare (ha)
(b) Using hand methods	hectare (ha)

Measurement and payment for subitem B17.01(a) shall be as specified for item 17.01 of the standard specifications. The unit of measurement for subitem B17.01(b) shall be the hectare of clearing and grubbing using hand methods. The tendered rate shall include full compensation for all labour and appropriate hand-held tools to execute clearing and grubbing by hand to the standard as specified for normal clearing and grubbing.

Add to Payment Item 17.01 the following:

"Clearing and grubbing of the construction camp sites shall not be measured separately and shall be deemed to be included in the rates tendered for item B13.01

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."

Add the following new items:

Item	Unit
B17.07 Trimming of existing trees: (State equipment or labour).....	hour (h)

The unit of measurement shall be the hour for the item of equipment or personnel. Non-working hours for transport breakdown, lack of operator of any other reason shall not be measured. The time shall be taken from the time that the personnel and/or equipment depart until return from the site offices.

Measurement shall only be for work instructed and directed by the contract engineer.

The tendered rates for labour under B17.07 shall include full compensation to cover overhead charges and profit, leave pay, bonuses, subsistence, allowances, Employer's contributions, additional payment for overtime where applicable, insurances, housing, site supervision, use of small hand tools and appliances, non-mechanical plant and equipment and consumable stores, for all administrative, supervisory, operative and contingent costs, relating to the supply of personnel.

The tendered rates for plant for item B17.07 shall be an all-inclusive hire charge for the use of the vehicle and driver or plant/equipment and operator and shall apply only to vehicles plant and equipment nominated in writing by the contract engineer, for all administrative, supervisory, operative and contingent cost, and profit relating to the running of the plant.

The above mentioned tendered rates shall be full compensation for the various items as specified and no further profit shall be paid. The tendered rate shall be fully inclusive of all costs and overheads as applicable.

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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The total cost tendered under this item shall be accepted to be a provisional sum in terms of the Conditions of Contract.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SECTION 1800: DAYWORKS

Refer to the particular specification **Section C3.3 - Part D: Dayworks**.

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Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION 2100: DRAINS

B2101 SCOPE

Amend the first paragraph to read:

“This section covers all work both rehabilitative and new work in connection with the excavation and construction of open drains, subsoil drainage and banks and dykes at the locations and to the sizes, shapes, grades and dimensions as shown on the drawings or as directed by the engineers, and the test flushing of subsoil drains.”

B2107 MEASUREMENT AND PAYMENT

Item	Unit
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B21.01	Excavation for open drains
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Add the following to the penultimate paragraph:

“The tendered rate shall also include full compensation for trimming the open drains and preserving excavated material for shoulder reconstruction”

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION 2200: PREFABRICATED CULVERTS

B2201 SCOPE

Add to Clause 2201 the following:

This section also covers work associated with the removal of existing pipes and their inlet and outlet structures. Due to the nature of the project, the Contractor can expect that works associated with the installation of pipe culverts will have to be carried out under traffic.

B2204 CONSTRUCTION METHODS

Add to Clause 2204 the following:

Generally, prefabricated stormwater drainage pipes and rectangular culverts will be installed using the 'trench method'. Installation in half widths can be anticipated.

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.

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

Add to Sub-clause 2212(c) the following:

"Under this contract, no inlet and outlet structures at culverts (head- and wingwalls) shall be constructed from brickwork"

Add to Clause 2212 the following new sub-clause (j):

(i) Subsurface drain outlet into catch-pits and manholes

Where required, sub-surface drain pipes shall be led into standard stormwater catchpits or manholes, as shown on the drawings or as directed by the Engineer. This shall be done either by making provision during the construction of the chamber, or by breaking out and making good after completion of the chamber.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

B2218 MEASUREMENT AND PAYMENT

Add the following subitem to item 22.01:

Item	Unit
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B22.01 (c)	Extra over subitem 22.01(a) for excavation by hand using hand tools
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- | | | |
|------|------------------------|-------------------------------|
| (i) | In soft material | cubic metre (m ³) |
| (ii) | In hard material | cubic metre (m ³) |

Measurement and payment shall be as specified for item 22.01 of the standard specifications.”

Item	Unit
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B22.02	Backfilling
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Replace the last sentence in the fourth paragraph with:

“...including a free haul of 5,0km.”

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

B2304 CONSTRUCTION

(g) Concrete-lined open drains

Add the following:

"Before construction of concrete open drains, the bedding shall be prepared as described in Clause 2102. The bedding shall be compacted for at least 150mm to a minimum density of 93% of modified AASHTO density.

Before placing the concrete, the bedding shall be watered without having pools of water standing in the excavation."

(k) Cutting existing bituminous surfacing and pavement layers

Add the following:

"All concrete side drains, adjacent to the pavement, shall be constructed after completion of the asphalt surfacing that shall be trimmed as specified. The asphalt shall be protected by placing a polyethylene sheet, at least 600mm wide inside the cut face and folded back over the asphalt. After the concrete has dried, the sheet shall be neatly cut level with the surface."

Add the following new subclauses:

(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. Formwork and finish of concrete kerbs and linings shall comply with the requirements of section 6200. Templates for cast in-situ drains shall consist of 3mm thick steel plate. All visible edges on the sides or at joints of cast in-situ concrete kerbs or channels shall be neatly rounded with a rounding tool.

B2307 MEASUREMENT AND PAYMENT

Item

B23.07 Trimming of excavations for concrete-lined open drains

Delete the second sentence of the second paragraph and replace with the following:

"All excavation, backfilling, compaction and other requirements to establish the bedding for concrete-lined drains shall be included in the tendered rates for trimming of excavations."

Item

Unit

**B23.16 Concrete edge beam (200mm x 150mm)
Class 30/19 concretemetre(m)**

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

The unit of measurement shall be the cubic metre of concrete edge beam complete as constructed, measured along the front face of the concrete edge beam.

The tendered rate for each per metre of concrete edge beam shall include full compensation for the necessary excavation, backfilling, preparation of bedding, formwork, furnishing and installing all materials, protecting it against staining, protecting the existing road surface from contamination with concrete, placing of concrete, curing of concrete and protecting the concrete edge beam from damage by traffic.

The tendered rate shall also include full compensation for cutting the edge of the surfacing with a mechanical saw to a minimum depth of 75 mm.”

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SECTION 3100: BORROW MATERIALS

B3102 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

Add to Sub-clause 3102(a) the following:

The Contractor may be required to effect the payment of compensation to the affected land owners when ordered to do so by the Engineer. In this case, the costs will be recovered via the Provisional Sum allowed in PART C of the Schedule of Quantities.

The Contractor will be responsible for the arrangements associated with constructing suitable accesses to the borrow pits.

B3103 OBTAINING BORROW MATERIALS

(a) General

Add to Sub-clause 3103(a) the following:

The Contractor shall note that natural materials which meet the requirements for the selected and sub-base layers are scarce, even when the properties are improved via stabilisation. Therefore, careful selection of materials will be required in the borrow pits. The Contractor shall refer to Section 3200 of the standard specifications with regard to his liabilities in respect of the contamination of good quality materials.

B3104 OPENING AND WORKING BORROW PITS AND HAUL ROADS

(a) Removing topsoil

Add to Sub-clause 3104(a) the following:

The topsoil to be stockpiled shall be placed between the Road and the physical borrow pit area so as to provide a temporary visual screen in front of the borrow activities. The topsoil shall not be stockpiled for longer than 3 months, nor shall the stockpile be higher than 2,5m.

(g) Unproclaimed private access roads

The Contractor is responsible for proper maintenance of haul roads in cases where the material from the borrow pit areas has to be transported over secondary, tertiary, private or access roads. At the completion of activities in the borrow pits, the haul roads shall be restored to their original state and to the satisfaction of the Engineer.

Expropriation of borrow pits on private property by the Employer, will include access roads to the borrow pits. However, the Contractor is fully responsible for negotiating details of the right of access to the borrow pits with the private owners as well as for the building, maintenance and later removal of all access roads.

No additional payment will be made for this work and full remuneration will be deemed to be included in the tendered rates for the various items where the material is to be used.

B3105 FINISHING OFF BORROW AREAS

There shall be no measurement of Intermediate class finishing. All finishing that is not Hard shall be deemed as Soft.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

B3108 MEASUREMENT AND PAYMENT

Add the following new pay items:

Item	Unit
B31.04 Construction and maintenance of haul roads for materials from borrow pits and quarries (specify type)	kilometre (km)

The unit of measurement for items B31.04 shall be the km of haul road constructed and maintained.

The tendered rate shall include for all items required to construct and maintain the road such as clearing and grubbing, roadbed preparation, cut and fill, pavement layers, watering and frequently blading and re-graveling to keep the road to an acceptable standard for the use of public traffic.

Payment shall be made in two instalments. The first payment of 80% after the road has been completed to an acceptable standard and the final instalment after completion of the earthworks, the borrow pit has been finished off and the haul road has been treated as agreed with land owners and the engineer.

Item	Unit
B31.05 Exploration of borrow pits:	
(a) Sampling of borrow materials by an approved materials laboratory	prime cost sum (P.C. Sum)
(b) Handling cost and profit in respect of Item B31.05(a)	Percentage (%)

The prime cost sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation for handling costs and profit and all other incidentals for arranging and making payments for the exploration of borrow pits.

Item	Unit
B31.06 Royalties for the use of borrow pit	
(a) Royalty as agreed with Employer	Provisional sum
(b) Handling Cost and profit in respect of Sub-item B31.06(a)	percentage (%)

The provisional sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for items as ordered by the engineer."

Add to the notes at the end of the payment items under Clause 3108 the following:

(3) The tendered rate shall include full compensation for all moneys payable and all expenses incurred by the Contractor for the acquisition of all material for the proper completion of the works, irrespective of whether the material is obtained from borrow pits indicated in the Materials Information included in this document, from additional borrow pits identified by the Engineer, from commercial sources, or from borrow pits obtained by the Contractor himself.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION 3300: MASS EARTHWORKS

B3301 SCOPE

Add to Clause 3301 the following:

“The Contractor shall 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.”

B3303 CLASSIFICATION OF CUT AND BORROW

Add to Clause 3302 the following:

“All material excavated from the existing road prism including subgrade, subbase, base, seals and shoulders shall be classified as soft material. No additional payment will be made for other classes of material excavated from the road prism.”

(a) Classes of excavation

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

“Soft excavation shall be excavation in material which can be efficiently ripped by a bulldozer with a mass of at least 35 tons when fitted with single tine ripper and an engine developing approximately 220 kW at the flywheel”.

Remove item 3303 (a)(ii) Intermediate excavation. There will be no intermediate material measured in this contract and except from blasting all excavations must be considered as soft excavation.

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.

B3307 FILLS

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

a) General

Add the following:

"Where existing embankments are to be widened, or where new embankments are to be constructed adjacent to existing embankments, the existing side slopes shall be benched as specified in sub clause 3307(d) and in accordance with the details on the drawings.

In addition, the material in the fill widening shall, unless otherwise instructed by the engineer, be compacted as follows:

(i) where the thickness exceeds 1,5m, it shall be compacted to a minimum of 93% modified AASHTO density to a depth of at least 1,5m below the final road level; or

(ii) where the thickness is less than 1,5m, the in situ roadbed and fill material shall be compacted to 93% modified AASHTO density."

(c) Constructing a pioneer layer

Add the following to the first paragraph:

"For the purpose of this contract, pioneer layers shall be compacted by means of eight-pass roller compaction using vibratory rollers as specified in subclause 3304(b) of the standard specifications. Suitable coarse rock material, up to a maximum size of 500 mm, obtained from commercial quarries, shall be used for the construction of pioneer layers."

d) Benching

Replace the first sentence of the second paragraph with the following:

"It is a requirement that benching shall always be started at the bottom of the existing fill progressing to the top of the formation. The dimensions of benches as well as the extent to which existing fills have to be cut back to form benches shall be as indicated on the drawings or indicated by the engineer."

Add the following after the second paragraph:

"In order to obtain sufficient working width for road-building equipment when the existing road fill is widened, it may be necessary to form benches that extend beyond the normal road prism or to cut back into the existing road fill or both. The contractor shall submit his proposals in this regard to the engineer for approval before proceeding with such work. The contractor will be paid in accordance with the relevant payment items for work required to obtain a working width of up to 4 m. Additional work required to provide a working width in excess of 4m shall be at the contractor's expense. "

(i) Widening of fills

In the eight paragraph of Sub-clause 3307(i), delete the sentence "An extra over payment for the widening

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

of existing fills will apply under Item 13.16."

Add the following:

No extra over payments will be made in respect of the nature of the site or due to the dimensions of the fills being widened or constructed.

Add the following new sub-subclause:

“(k) Stormwater drainage of fills and fill slopes:

Should erosion occur on the outside slopes of the embankment resulting in scour of the embankment, such erosion shall be benched and backfilled before the placing of any pavement materials on the road embankment.

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:

Item

B33.01 Cut and borrow to fill, including free-haul up to 5km:

In the description of Item 33.01, delete "free-haul up to 0.5 km" and replace with "free- haul up to 5.0 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 5.0 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."

Item

B33.04 Cut to spoil including free-haul up to 5,0km:

B33.04 In the description of Item 33.04, delete "free-haul up to 0.5 km" and replace with "free-haul up to 5.0 km."

In the fourth paragraph delete "free-haul distance of 0.5 km" and replace with "free-haul distance of 5.0 km."

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION 3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

a) General

The following changes are applicable:

"The maximum size for the crushed G5 material in Table 3402/1 shall be 53mm.

Table 3402/1, the grading requirements for G5 type crushed (commercial) material for the fraction passing the 2,00mm sieve shall be changed to read "nor more than 60%."

In Table 3402/2 of the specification change the CBR specified for G7 and G8 material as follows:

G7 : 20% at 93% of modified AASHTO density

G8 : 15% at 93% of modified density

Add the following at the end of the second paragraph:

"For chemically stabilised layers the material shall conform to the requirements in table B3402/5." For cold in situ recycled layers the target grading shall be as indicated in table B3402/7"

Replace Table 3402/5 with:

"TABLE B3402/5: REQUIREMENTS FOR CHEMICALLY STABILISED LAYERS

Classification	C1	C2	C3	C4
Material before treatment	At least G2 quality	At least G4 quality	At least G5 quality	At least G6 quality
PI after treatment	Non-plastic	Non-plastic	6 max. *(1)	6 max. *(1)
UCS (MPa) *(2)	6 min.	4 min.	1,5 min	0,75 min.
ITS (kPa) *(3)	-	-	250 min.	200 min.
WDD (% loss)	5 max.	10 max.	20 max.	30 max.

Note:

*(1) For materials derived from the basic crystalline rock group, the Plasticity Index after stabilisation shall be non-plastic.

* (2) Unconfined Compressive Strength @ 100% Mod. AASHTO density

* (3) Indirect tensile Strength @ 100% Mod. AASHTO density (Rapid Curing) * (4) Wet/Dry

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

TABLE B3402/7: TARGET GRADING ENVELOPE FOR COLD IN SITU RECYCLED PAVEMENT LAYERS

Sieve Size (mm)	Percent Passing
	Cement / Lime
50	100
37.5	87 – 100
28	82 – 100
20	72 - 100
14	60 -90
10	51 - 77
7.1	42 -65
5	36 - 57
0.425	12 – 26
0.075	4 - 10

b) Compaction requirements

Amend the compaction requirements as follows:

Fill Material 93% MOD AASHTO

Lower selected layer 93% MOD AASHTO – G7

Upper selected layer: 95% MOD AASHTO – G7

Subbase (insitu or G5 imported): 95% MOD AASHTO

Shoulder material (Where applicable) 95% MOD AASHTO- G5

Add the following:

“The compaction of recycled material, stabilized with chemical agents and placed as subbase pavement layers in one operation for 300mm or more up to 400mm thickness, shall be 96% of mod. AASHTO density on average measured for the full depth of the layer with a minimum of 97% of mod. AASHTO compaction for the upper 150mm.

The compaction density shall be calculated as follows:

$$D_{(150-300)} = 2 \times D_{(0-300)} - D_{(0-150)}$$

Where

$D_{(0-150)}$ = Density as measured for 0 to 150mm layer

$D_{(0-300)}$ = Density as measured for 0 to 300mm layer

$D_{(150-300)}$ = Density as calculated for 150 to 300mm layer

B3403 CONSTRUCTION

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Add the following subparagraph:

“(f) Cold in situ recycling and mixing

Where the in situ layer consisting of granular or cemented layers, which may include asphalt or bituminous surfacing above granular or cemented support layer is to be recycled, with or without any make-up material, the layer must be constructed according to the method described in Section 3500.”

B3405 CONSTRUCTION TOLERANCES

(a) Level

Replace the table in the sub-sub-clause with the following:

	H ₉₀	H _{max}
Selected layers	25 mm	30 mm
Sub-base layers	15 mm	20 mm
Base layers	12 mm	15 mm
Shoulders	20 mm	25 mm"

Add the following:

"Level control for the various pavement layers shall be done at least at the following intervals in the longitudinal direction:

Layer	Interval
Selected layer, sub-base, shoulders and wearing course	20 m
Base	10 m

(b) Layer thicknesses

Replace the table in the sub-sub-clause with the following:

	D ₉₀	D _{max}	D _{ave}
Selected layers	25 mm	35 mm	8 mm
Sub-base layers	18 mm	24 mm	5 mm
Base layers	15 mm	22 mm	5 mm"
Shoulders		30 mm	0 mm

(f) Surface regularity

Replace the second paragraph with the following:

- “(i) the average number of irregularities per 100m equal to or exceeding 5mm when taken over 300 – 600m lengths 3
- (ii) the number of irregularities equal to or exceeding 5mm when taken over 100m lengths.....4”

Add the following:

“Where transverse construction joints in layers are made between newly and previously constructed sections, the contractor shall exercise careful level control at such joints by installing level poles at 5m

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

intervals on either side of the joint of the layer covering at least a 30m length into the newly constructed section."

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Replace the second paragraph with the following:

"Test results and measurements will be assessed in accordance with the provisions of Section 8200."

B3407: MEASUREMENT AND PAYMENT

Change item 34.01 to read as follows:

Item	Unit
B34.01 Pavement layers constructed from gravel taken from cut or borrow, including free-haul up to 5,0 km (source and layer specified, layer thickness and compaction indicated)	cubic metre (m ³)

Add the following sub-subitem to Subitem 34.06(e)

Item	Unit
B34.14 Provisional sum for sampling and testing of materials for stabilisation design:	
(a) Provisional sum for labour, transport, supervision, accommodation of traffic and incidentals	provisional sum (prov.sum)
(b) Handling cost and profit in respect of item B34.16(a)	Percentage (%)

The provisional sum item shall be paid in accordance with the provisions of the General Conditions of contract as amended if applicable. The tendered percentage is a percentage of the amount actually spent under the items agreed and shall include full compensation including profit etc. for providing equipment, including recycling plant if required, labour transport, supervision, accommodation of traffic and incidentals to sample the required materials for testing."

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

SECTION B3500: STABILIZATION

B3501 SCOPE

Add the following:

"In terms of chemically stabilized pavement layers, the contractor shall allow in his programme of work a period of at least 3 weeks for the Engineer to confirm the stabilization designs of relevant pavement materials in order to determine the required dosages of stabilising agent. The actual application rate of the stabilizing agent for the specific material or layer shall however remain the Contractor's responsibility in terms of the acceptance of the pavement specified.

The actual quantity of stabilizing agent agreed to shall be payable."

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.

On this contract CEM II(B-4) 32.5 shall be used for stabilization purposes. The use of other types of cement shall be subject to laboratory testing and to the approval of the engineer with no additional payment applicable for higher application rates resulting from the use of such other types of stabilizing agents.

The contractor shall provide all labour, plant, materials, transport, accommodation of traffic and all other incidentals to sample the necessary materials to undertake the stabilisation design as ordered by the Engineer."

B3503 CHEMICAL STABILIZATION

a) Preparing the layer

Insert the following before the first paragraph:

"Moisture content tests shall not be undertaken more than one day in advance of in situ stabilization operations. Care shall be taken to ensure that samples are representative of the in situ material. Checks shall be conducted when wet weather occurs between initial testing and work commencing on any section."

b) Applying the stabilizing agent

Replace the second sentence of the second paragraph with the following:

"Under this Contract, stabilizing agent shall be provided in pockets to be packed out onto the layer to be stabilized. Mechanical spreaders shall not be allowed. Spreading of stabilizing agent shall always be

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

done by hand, using rubber squeegees to evenly spread the agent before mixing of the material may commence. Double application of stabilizer at construction joints shall not be allowed except as specifically shown on drawings or for re-working of layers when required.

Spreading shall only commence when the engineer is satisfied that the correct quantity of stabilizing agent has been placed on the layer and has given permission that the stabilizing agent may be spread uniformly over the entire surface to be treated."

(d) Mixing in the stabilizing agent

Replace second paragraph with the following:

"Mixing shall be done with a recycling unit capable of milling and recycling of material to a depth up to 300mm minimum and a width up to 2,0m. The Contractor shall control the length of sections of subbase layer construction in such a manner that the specified time limitations for processing of cemented layers as specified shall not be exceeded.

Before recycling for stabilization commences, the stabilizing agent shall be manually spread to obtain the correct application rate. The recycler shall mix in the stabilizer together with the required metered quantity of water.

Where the required stabilising agent dosage is such that a build-up of the agent is noted in front of the recycling unit, the layer shall first be treated with light ripping by a motor-grader to a depth not exceeding 100 mm. No separate payment shall be applicable to the ripping operation.

Where two adjacent lanes are reworked the longitudinal overlap shall be maintained along recycled strips of stabilized material in such a manner that final recycling longitudinal joints are in the centre of travel lanes or on the painted lines demarcating the travel lanes. The Contractor shall submit his stabilization plan to the Engineer for his approval. Where the width of the layer to be stabilized is such that part of the width of recycling falls within the gravel shoulder outside the stabilizing limits, payment under item B35.01 shall only be applicable to the stabilized part of the recycled width. Double recycling of material with cement and water added shall not be allowed. The contractor shall plan his recycling activities in accordance with the above limitation and/or by applying a recycler of suitable width. If recycling plan is such that double recycling of material is applicable, cement and water shall only be applied to the final recycling process. Material which is double worked shall not be paid for.

The rotating drum speed of the recycling machine and the moving forward of the machine shall be such that the grading of the material is not significantly changed to fall outside the specified grading limits of the materials used in the layer."

(f) Compaction

Add the following:

"Material placed for chemical stabilization shall, prior to the applying and mixing in of the stabilizing agent, be lightly compacted with 3-pass static rolling (vibratory roller in static mode). Payment for this required operation is allowed for in item 33.11. Once the mixing in of the stabilizing agent by means of a recycling unit is completed, the layer immediately behind the recycle unit shall be compacted by means of 3-pass or more vibratory rolling (roller as specified in subclause 3304(b)) or until the rubber wheel footprints of the

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

recycler is completely removed. Level cutting shall follow this compaction before final processing and compaction of the layer is commenced with. No additional payment will be considered for this requirement which shall form part of the compaction process."

h) Curing the stabilized work

Add the following paragraph:

"Curing of stabilized pavement layers shall be undertaken in accordance with protection method (ii) as specified. Any other method of curing shall only be allowed in special circumstances as agreed to by the Engineer, but no additional payment whatsoever over and above that allowed for in item 35.05 shall be made. Method (iii) and (iv) shall not be applicable on gravel stabilized layers. The curing of stabilized subbase layers by covering with gravel material where applicable will be dependent on the availability of the G5 base material and must be incorporated in the contractor's programme of work.

Curing of stabilized pavement layers for the construction of the stabilised base for interlocking paving roads shall be undertaken in accordance with protection method (i) as specified.

Add the following to method (ii):

"The covering material shall be placed by end-tipping, spread, and not compacted until the underlying layer has cured for at least 7 days."

i) Construction limitations

Replace the fourth paragraph starting with "No stabilization ..." with the following:

"No stabilization shall be done during windy conditions, wet weather or with falling air temperatures (7°C and dropping), or during rising air temperatures (when the air 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 the necessary precautions to prevent the layer from freezing.

All stabilized layers damaged by rain, frost or by the formation of ice in the layer shall be removed and replaced by the contractor at his own expense.

The contractor shall make allowance for these requirements in his construction programme."

In Table 3503/1, delete "8 hours" for Ordinary portland cements and cement blends and replace with "6 hours".

B3507 CONSTRUCTION OF TRIAL SECTION

Insert the following before the second paragraph:

"Prior to carrying out the trial section for cold in situ recycling, the contractor shall assemble all items of plant and equipment that he proposes to use for the recycling operation. Only those machines he intends

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

using for production work shall be used to construct the trial section and under no circumstances shall he be permitted to use any substitutes. The first section of pavement to be recycled shall be regarded as a trial section with the objective of:

- demonstrating that the equipment and processes he proposes to employ are capable of constructing the recycled layer in accordance with the specified requirements;
- determining the effect on the grading of the recycled material by varying the forward speed of the recycling machine and the rate of rotation of the milling drum; and
- determining the amount of rolling necessary to achieve the compaction requirements.

The trial section shall be at least 200m in length and shall cover the full lane-width or half-road width in accordance with the geometry of the road and the accepted work plan.

To allow the engineer sufficient time to assess all aspects of quality of the completed trial section and contingent on the results being satisfactory, the contractor shall programme to start production recycling work no sooner than one week after constructing the trial section.

Should the contractor make any alterations in the methods, processes, equipment or materials used, or if he is unable to comply consistently with the specifications due to variations in the in situ material, or for any other reason, he may be required to undertake further trial sections before continuing with the permanent work."

Insert the following new paragraph after the third paragraph:

"For cold in situ recycling provision is made for payment for the first approved trial section. Such payment will be made as an extra-over to the various payment items for recycling work together with all additives that will be measured and paid as normal production work. Any further trial sections ordered by the engineer shall likewise be paid provided they are approved."

B3509 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following after the second paragraph:

Add the following paragraphs:

"The engineer shall be notified in good time to enable him to conduct tests himself.

Sample preparation and testing for cement stabilization testing shall be done by means of the Rapid Cure Method as described in clause B8110.

The stabilized material sampled from the layer for the compaction of modified AASHTO briquettes, shall be prepared according to SANS 3001; GR54; ie discard material coarser than a 37,5 mm test sieve, and compacted according to SANS 3001; GR31.

Any delamination of the completed layer (biscuiting), identified by the hollow sound caused when a chain is dragged over the stabilized layer, shall be removed and repaired prior to the construction of subsequent

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

layers. The repair method shall be approved by the engineer. No payment will be made for repairs.

(a) Process control for cold in situ recycling

The contractor shall establish a comprehensive process control system for the recycling work.

The following daily reports shall be submitted as a minimum:

- The production plan;
- The completed pre-start check list;
- Weather conditions and temperature measurements;
- Details of the recycling work completed during the day with the following information for each cut that was made:
 - start and end chainage;
 - depth of cut (including a schedule of dip measurements);
 - width of application of stabilising agent(s);
 - nozzle settings (closures) for each spray bar (where relevant);
 - computer data input;
 - cement / lime spreading check measurements (where relevant); and
- Where the material is treated with a bitumen stabilising agent, the following shall be included:
 - bitumen emulsion or Pen-grade bitumen consumption;
 - average temperature and pressure measured at the spray bar; and
 - all other details shown in the sample report included in the Appendices of the latest edition of SAPEM and TG2:
- Relevant comments / information concerning the recycling operation. These shall include but shall not be limited to:
 - standing time and the reason(s);
 - sections where in situ pavement conditions changed together with a description of the change (e.g. thick asphalt between km 1+200 and km 1+230 in Cut #2);
 - details of any non-routine tests that were undertaken;
 - any changes in the weather during the day (e.g. strong wind from 13:00); and
 - relevant instructions received and from whom; and
- The location where the daily sample of pulverised material was taken."

B3510 MEASUREMENT AND PAYMENT

Change item 35.01 to B35.01 with the heading as follows:

Item	Unit
B35.01 Chemical stabilization (layer thickness indicated) extra over unstabilized layers (layers and materials to be stabilized to be indicated)	cubic metre (m ³)

Add the following to pay-item 35.02:

"The quantity of stabilizing agents indicated in the schedule is a nominal rate of application. Only approved quantities will be paid for at the rates tendered."

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Add the following to pay-item 35.03:

"Mechanical modification shall not be paid for different materials if mixed with the recycle machine."

Item	Unit
B35.02 Chemical stabilizing agent	

Replace the full stop at the end of the third paragraph with the following:

" and layer dimensions."

Change item 35.13 to read as follows:

Item	Unit
B35.13 Extra over item B35.01 for trial sections..... cubic metre (m³)	

Measurement and payment shall be as for item 35.13."

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SECTION B4200: ASPHALT BASE AND SURFACING

B4202 MATERIALS

(a) Bituminous binders

(i) Conventional binders

Add the following

“The binders to be used shall be as follows:

- (a) Asphalt surfacing consisting of continuously graded, medium grade (TRH8) using 50/70 penetration grade bitumen.

The base bitumen shall conform to SANS 4001-BT1:2012, or a blend of SANS 4001-BT1:2012 grades.

(b) Aggregates

Add the following paragraph to the introductory description:

“Asphalt mixes shall be manufactured using different individual single size coarse aggregates fractions and crushed fine aggregates blended to conform to the specified grading requirements. The use of natural sands shall only be permitted if approved by the engineer and shall be limited to a maximum of 5% for continuously graded mixes. All aggregate in excess of 4,75 mm shall consist of individual nominal single sized aggregate. The use of run of crusher type materials shall not be permitted.”

(v) Absorption

Add the following sentence

“In addition, the total binder absorption of the combined coarse and fine aggregate blend shall not exceed 0,5%.”

(viii) Grading

Delete the second paragraph commencing with "The target grading..." and add the following paragraphs.

Add the following to this sub-subclause:

For the asphalt surfacing mixture the applicable grading shall be as indicated in the Table B4202/7 below:

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

TABLE B4202/7: Grading for asphalt surfacing

Sieve Size (mm)	Cumulative Percentage Passing		
	SABITA Manual 19 Coarse Grade	Modified TRH8 Coarse grading	TRH8 Medium grading
19,0	100	100	
13,2	84-96	84-95	100
9,5	70-84	70-92	82-100
4,75	45-63	50-70	54-75
2,36	29-47	36-55	38-57
1,18	19-33	26-41	27-42
0,600	13-25	16-28	18-32
0,300	10-18	12-20	13-23
0,150	6-13	8-15	9-16
0,075	4-10	4-10	4-10

“The target grading limits for the combined aggregate grading for the asphalt base and surfacing shall be as specified in subclause 3602 (c) specified for crushed stone base table 3602/4.”

(h) General

Add the following after the second paragraph:

“Sufficient aggregate for a minimum of 3 days production shall be separately stockpiled and tested for conformance and uniformity prior to use. The test results shall be presented to the engineer”

B4203 COMPOSITION OF ASPHALT BASE AND SURFACING MIXTURES

In the first paragraph, third last line, after “or active filler content” add:

“or aggregate content”

Replace the fifth paragraph with the following:

“The design of the asphalt mixes shall be in accordance with “Interim Guidelines For The Design Of Hot-Mix Asphalt In South Africa (June 2001)”, and appropriate research results. The mix properties and requirements shall be as specified in the project specifications”

The relevant asphalt mixes for the base and surfacing layers shall comply with the requirements in table B4203/2.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Table B4203/2: Asphalt mix requirements: Surfacing

Property	Continuously graded surfacing mixes
Marshall Stability (kn)	8 – 18
Marshall Flow (mm)	2 – 6
Stability /Flow (kN/mm)	> 2,5
VMA (%)	> 15
VFB (%)	65 – 75
Air voids (%)	4 – 6
Indirect tensile strength @ 25oc (kPa)	> 1000
Dynamic Creep Modules @ 40oC (MPa)	> 20
Modified Lottmann* (TSR)	> 0, 8
Air permeability @ 7% voids (cm2)	< 1 x 10 –8
Binder film thickness (microns)	5,5 – 8,0
Filler bitumen ratio	1 – 1,5
Immersion index (%)	-
Superpave Gyratory test % Voids 2 N Final Gyration (300) **	Min 2
Wheel tracking test using Model Mobile Load Simulator (MMLS)* (100,000 repetitions)	Max 2,5mm

* At 7% voids according to interim SA testing protocols

** Test to be done according to SHRP testing protocol and shall be done at 3 binder contents as for the wheel tracking test."

B4205 GENERAL LIMITATIONS AND REQUIREMENTS AND THE STORAGE OF MIXED MATERIAL

(b) Moisture

Add the following at the end of the second last paragraph after "engineer"

"even if the underlying layer has been previously primed."

(c) Surface Requirements

(iii) Tack Coat

Add the following paragraph:

"Hand spraying shall only be permitted on areas approved by the engineer. The binder distributor shall be capable to apply the binder evenly over the full area. The equipment shall comply with clause 4103. Tack coat shall be applied to all transverse and longitudinal joints by hand utilizing a paint brush."

B4206 PRODUCING AND TRANSPORTING THE MIXTURE

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

(b) Production of the mixture

- (ii) Using drum-type mixer plants

Add the following:

“Pre blending of aggregate fractions shall not be permitted and the contractor shall ensure that sufficient cold-feed bins are installed to accommodate each individual aggregate fraction, including the filler.”

(c) Transporting the mixture

Add the following paragraph:

“Special precautions shall be taken by the contractor to ensure that the temperature of the total mass of asphalt does not decrease by more than 10°C from point of dispatch to the point where it is to be paved. The use of the thermal blankets is obligatory.

The contractor shall ensure that trucks used to haul asphalt are not overloaded and the legal axle loads are not exceeded. Before any asphalt can be transported, the contractor must provide the engineer with the certified carrying capacity of each truck intended for the purpose of transporting the mix. The contractor shall provide the engineer with a weighbridge ticket before discharging into the paver hopper.

ANY truck that is overloaded shall not be allowed to discharge its load and shall return to the depot/batching plant for adjustment of the load. In addition a penalty shall be applied for the overload.”

Add the following sub-clause:

“(f) Approval of asphalt mixture

Before any asphalt is placed on the road, the engineer shall approve the mix design. The approval process shall be as follows:

The contractor shall prepare and submit a laboratory design mix with test results at four different bitumen contents. The design mix shall be submitted on the prescribed form D3 of TMH 10: “Instruction for the Completion of As-Built Materials Data Sheets” with all the necessary test results completed. In addition, the proposed asphalt mixture shall be subjected to gyratory testing. All the expenses in preparing and submitting the laboratory design mix shall be to the contractor’s cost.

Samples of all aggregate and bitumen shall be submitted with the laboratory design mix to enable the engineer to carry out check design testing as necessary. The above design and aggregate shall be submitted to the engineer at least six weeks before it is intended to commence with any asphalt production.

After approval is obtained for the laboratory design mix, a plant mix at varying binder contents of approximately 5 to 10 tons each shall be produced. The purpose of the plant mix is for the contractor to prove that the laboratory design mix can be produced successfully. The engineer shall conduct the necessary testing on the plant mix. The plant mix shall not be placed on the road. During the production of the plant mix, the engineer shall be afforded the opportunity to inspect the asphalt plant.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

After the plant mix is approved, permission shall be given for laying a trial section at varying binder contents in accordance with the requirements of section 4211 of the specifications. The engineer may require that the mix be further assessed by means of CSIR Wheel Tracking or MMLS testing, the cost of which will be borne by the Employer. Mass production of asphalt shall only commence after approval of the trial section, which should be given within a maximum of ten days.

The engineer may instruct the contractor at any time to halt his paving process and to review the whole or part of the above process should a change of aggregate properties occur, the specified asphalt requirements not being met and/or a consistent asphalt mixture not be produced."

B4207: SPREADING THE MIXTURE

Add the following after the first paragraph:

"The maximum paving thickness of the asphalt surfacing and inlays shall be 30 mm."

Delete the last sentence of the seventh paragraph and add the following:

"On all asphalt overlays and levelling courses, the Contractor must allow for the use of automatic sensing devices on both sides of the paver to match either the top edge of an adjacently paved width or to follow a levelling beam."

B4208 JOINTS

Add the following to this clause:

"Where the difference in level between the new work and the existing road surface exceeds 25mm, joints shall be treated as follows:

Transverse steps at the end of a day's work shall be tapered off at a slope of 1 vertical to 20 horizontal (1:20) to tie in with the existing surface. The tapered section shall be removed before surfacing is recommenced and a joint formed in accordance with clause 4208 of the specification.

Longitudinal joints exposed to traffic shall be provided with a taper of compacted asphalt material over the full length of the exposed joint. The width of the taper shall be at least 5 times the difference in level between the old and new work.

All costs involved in the provision and removal of these temporary ramps shall be deemed to have been included in the rates tendered for the relevant asphalt pay item."

B4211: LAYING TRIAL SECTIONS

Add the following:

"The trial section shall be about 150m long and 3m wide and shall be laid in accordance with the results of the plant design mix. The binder content of the first 50m section shall be 0,5% less than the design binder content, the binder content of the next 50m at the design binder content and for the last 50m section the binder content shall be 0,5% over the design binder content. Volumetric properties, indirect tensile strength on briquettes shall all be checked against the criteria set in Table B4203/1 for all three sections. Gyratory

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

compaction tests should be carried out on the samples obtained from the trial sections at the different binder contents."

B4213 CONSTRUCTION TOLERANCES AND FINISH REQUIREMENTS

(e) Voids

Add the following:

"The void content shall not deviate from the approved production mix void content by more than 1%."

B4214 QUALITY OF MATERIALS AND WORKMANSHIP

(b) Coring of asphalt layers

Add the following:

"A suitable coring machine shall be available on a daily basis when asphalt paving is taking place. Cores shall only be drilled, when the road temperature is 20°C or less. Core holes shall be filled with hot mix asphalt and compacted, all within 24 hours of the core being drilled. Coring shall be carried out within 48 hours after the paving has been completed and supplied to the engineer. The test results of cores shall be submitted to the engineer within 24 hours after coring.

Coring and backfilling shall not be paid for separately but shall be included in the cost of the asphalt or laboratory testing."

(c) Routine inspection and tests

Add the following paragraphs:

"The contractor shall keep accurate records of:

- (i) The position where every truckload of asphalt is paved (chainage, lane, time and date).
- (ii) The temperatures of the asphalt in the trucks both at the mixing plant and at the paving equipment immediately prior to discharging the load.
- (iii) The truck and load number from which control samples are taken. All samples taken shall be appropriately numbered.

Test results and measurements will be assessed in accordance with the provisions of section 8200."

Add the following sub-clause:

(d) Special tests

n-Heptane-Xylene Equivalent (Spot test) (AASHTO-T102)

If the engineer suspects that bitumen or asphalt has been overheated, he may order that the bitumen, or the bitumen recovered from the asphalt, be subjected to the Spot Test. Recovery of binder for use in the Spot Test shall be carried out according to an approved method.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Any bitumen having an n-Heptane-Xylene equivalent in excess of 36, or in excess of the manufacturers test result on the dispatched stock, shall be considered to have been overheated and shall be deemed to be rejected unless proven otherwise."

B4215 MEASUREMENT AND PAYMENT

Amend the following payment items:

Item	Unit
B42.04 Tack coat of 30% cationic spray grade bitumen emulsion: (indicate nominal application rate).....	litre (l)

Measurement and payment shall be as for item 42.04 of the standard specifications"

Item	Unit
B42.08 100mm cores in asphalt paving	number (No)

Amend the 1st sentence by adding the following after the word "drilled....":

"irrespective of depth of core."

Add the following new payment item:

Item	Unit
B42.21 Speed hump (asphalt)	No

The unit of measurement shall be the number of speed humps, complete with road marking and road signs, constructed in accordance with the drawings.

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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SECTION B5100: PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION

B5102 Materials

a) Stone

Replace the 2nd paragraph with the following:

“Unless suitable stone can be located on site, the stone for pitching shall come from commercial sources but, from whatever source, its use shall be subject to the prior approval of the engineer.”

c) Sand

(ii) Sand for bedding

Replace this sub-sub-clause with the following:

Sand for bedding used for paving blocks shall not contain any deleterious impurities and shall comply with the requirements given in Table B5102/1.

TABLE B5102/1

Sieve size (mm)	Percentage passing
10	100
5	95 – 100
2	73 – 86
1	43 - 78
0,600	25 – 60
0,300	10 - 30
0,150	5 – 15
0,075	5 - 10

Note:

Refer to standard COLTO table for COLTO grading if required

B5106 SEGMENTAL BLOCK PAVING

d) Edge beams

Add the following paragraph:

“Where concrete edge beams are constructed the relevant specifications under section 2300 shall apply.”

B5108 MEASUREMENT AND PAYMENT

Amend the following payment items:

Item	Unit
B51.04 Concrete pitching and block paving	

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

- (d) Prefabricated concrete paving blocks
- (i) Sidewalks (type indicated)square meter (m²)
- (ii) Roadway surfacing (type indicated)square meter (m²)
- (iii) Bus layby's (type indicated)square meter (m²)

Measurement and payment shall be as for item 51.04 of the standard specifications

Add the following paragraph:

"The rate shall cover the units that needs to be cut to fit to the edge restraints, sand bed of 25mm to be placed below paving blocks. (SABS pre-cast concrete paving blocks only)

Amend the following payment items:

Item	Unit
B51.08 Speed hump with paving blocks.....	No

The unit of measurement shall be the number of speed humps, complete with road marking and road signs, constructed in accordance with the drawings.

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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SECTION 5600: ROAD SIGNS

B5609 MEASUREMENT AND PAYMENT

Add the following new payment item:

Item	Unit
B56.10 Statutory signs, street names, etc. supplied and erected complete (state sign)	No

The unit of measurement shall be the number of signs (as stated). The rate shall include full compensation for procurement, delivery and installation complete with sign face, support (150mm diameter CCA treated timber post) and brackets, as instructed by the engineer and in accordance with the drawings.

<div></div> <div>Contractor</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>	<div></div> <div>Employer</div>	<div></div> <div>Witness 1</div>	<div></div> <div>Witness 2</div>
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SECTION 5700: ROAD MARKINGS

B5702 MATERIALS

(a) Paint

(ii) Retro-reflective road-marking paint

Add to Sub-clause 5702(a)(ii) the following:

During actual painting the Contractor shall supply sealed samples of the paint to be used to the Engineer together with details of the paint batch numbers and testing carried out on these particular batches by the paint manufacturer to prove compliance with this specification. These samples shall be kept until the end of the defects liability period.

B5704 MECHANICAL EQUIPMENT FOR PAINTING

Add to Clause 5704 the following:

The machine shall always operate in the direction of the traffic when applying lane markings.

B5707 APPLYING THE PAINT

Add the following:

“The Contractor’s establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be on site or is required to move within the site.”

B5711 GENERAL

Insert the following into the last sentence of the last paragraph between “black paint” and “or chemical paint remover”:

“, bituminous Emulsion, slurry”

Add the following to the last paragraph:

“Where black paint is used, it shall be matt.”

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

B5902 FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

Add the following to the first paragraph:

“The contractor shall pay special attention to the collection and removal of all waste materials originating from the construction activities. All materials trimmed or excavated from the road shall be collected and removed from the road reserve to the satisfaction of the engineer.

This requirement shall be deemed to be incorporated in the tendered rates for item 59.01 of the bill of quantities or such other items as the contractor may decide upon.

The engineer may order additional finishing of the road reserve which will entail the collection and disposal of loose rocks etc. Payment for this work will be made under daywork items included in section 5900 of the bill of quantities as described in section 1800 of these project specifications.”

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SECTION 8100: TESTING MATERIALS AND WORKMANSHIP

B8117 MEASUREMENT AND PAYMENT

Add the following new payment item:

Item	Unit
-------------	-------------

B81.04 Acceptance control

- | | |
|--|-------------------------|
| (a) Testing by the engineer | Prime-Cost Sum (PC Sum) |
| (b) Handling cost and profit in respect of subitem B81.04(a) | Percentage (%) |

The prime-cost shall be paid in accordance with the provisions of the general conditions of contract. The tendered percentage is a percentage of the amount actually spent under the prime-cost item, which shall include full compensation for the handling cost of the contractor, and the profit in connection with providing the specified service.

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

SECTION 8200: QUALITY CONTROL (SCHEME 1)

B8201 SCOPE

Add the following to Clause 8201 of the Specifications:

Quality control shall be carried out in accordance with the requirements of Section 8200: Quality Control (Scheme 1).

B8209 PROCESS CONTROL BY THE CONTRACTOR

Add the following:

For the purpose of this Contract process or quality control by the Contractor comprises at least the following:

Soil Tests:

Field densities, maximum dry density and optimum moisture content determinations, CBR, UCS, ITS, indicator tests (grading and PI), moisture contents and chemical tests relating to stabilizing agent contents;

Concrete tests:

Slump and cube crushing strengths.

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

C3.3 PARTICULAR SPECIFICATIONS

In addition to the Standardised and Project Specifications the following Particular Specifications shall apply to this contract and are bound in hereafter.

PART C	ENVIRONMENTAL MANAGEMENT SPECIFICATION
PART D	DAYWORKS
PART E	OHSA 1993 SAFETY SPECIFICATION
PART F	SMALL CONTRACTOR DEVELOPMENT, TRAINING AND COMMUNITY LIAISON

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Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

PART C: ENVIRONMENTAL MANAGEMENT SPECIFICATION GENERIC ENVIRONMENTAL

SPECIFICATION

1. Method Statements

The Contractor shall not commence the activity until the Method Statement has been approved and shall, except in the case of emergency activities, allow a period of two weeks for approval of the Method Statement by the Engineer/ECO. Such approval shall not unreasonably be withheld.

The Engineer/ECO may require changes to a Method Statement if the proposal does not comply with the specification or if, in the reasonable opinion of the Engineer/ECO, the proposal may result in, or carries a greater than reasonable risk of, damage to the environment in excess of that permitted by the Specifications.

Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. The Contractor shall carry out the Works in accordance with the approved Method Statement. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the Contract.

2. Environmental Awareness Training

It is a requirement of this contract that environmental awareness training courses are run for all personnel on site. All employees who spend more than 1 day a week or four days in a month on Site must attend the training. Two types of course shall be run: one for the Contractors and Subcontractors management and the other one for all site staff and labourers. Courses shall be run during normal working hours at a suitable venue provided by the Contractor.

All attendees shall remain for the duration of the course and sign an attendance register that early indicates participant's names on completion, a copy of which shall be handed to the Engineer/ECO. The size of each session shall be limited to the numbers shown in the Project Specification and the Contractor shall allow for sufficient sessions to train all personnel. Subsequent sessions shall be run for any new personnel coming onto site. A Method Statement with respect to the organisation of these courses shall be submitted. Conduct revised training as and when required.

Notwithstanding the specific provisions of this clause it is incumbent upon the Contractor to convey the sentiments of the EMP to all personnel involved with the works.

2.1. Training course for management and foremen

The environmental awareness training course for management shall include all management and foremen. The course, which shall be presented by the Engineer/ECO/EO or his designated representative, is of approximately one-hour duration. The initial course shall be undertaken not more than 7 days prior to commencement of work on site.

2.2. Training course for site staff and labour

The environmental awareness training course for site staff and labour shall be presented by the Contractor from material provided by the Engineer/ECO/EO unless otherwise indicated in the

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

Project Specification. The course is approximately one-hour long. The course shall be run not more than 7 days after commencement of work on site with sufficient sessions to accommodate all available personnel.

3. Contractor's Environmental Representative

The Contractor shall appoint an environmental representative (called an Environmental Site Officer) who shall be responsible for undertaking a daily site inspection to monitor compliance with this Specification and the relevant Project Specification. The Contractor shall forward the name of the environmental representative to the Engineer/ECO/EO for his approval seven days prior to the date of the environmental awareness training course. The Contractor's environmental representative shall complete daily Site Inspection Forms and these shall be submitted to the Engineer/ECO/EO once a week.

4. Site division, demarcation and no-go areas

The Contractor shall restrict all his activities, materials, equipment and personnel to within the area specified. The area of the site shall be fenced where possible.

A Method Statement detailing the layout and method of establishment of the construction camp (including all buildings, hostels, offices, lay down yards, vehicle wash areas, fuel storage areas, batching areas and other infrastructure required for the running of the project) shall be provided.

As required by the Project Specification, the Contractor shall erect and maintain permanent and/ or temporary fences of the type and in the locations directed by the Engineer/ECO/EO. Such fences shall, if so specified, be erected before undertaking designated activities.

If so required by the Project Specification, certain areas shall be "no go" areas. The Contractor shall ensure that, insofar as he has the authority, no person, machinery, equipment or material enters the "no go" areas at any time.

5. Access routes/ haul roads

On the Site, and, if so required by the Project Specification, within such distance of the Site as may be stated, the Contractor shall control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic and that all relevant laws are complied with. In addition, such vehicles and plant shall be so routed and operated as to minimise disruption to regular users of the routes not on the Site. On gravel or earth roads on Site and within 500m of the Site, the vehicles of the Contractor and his suppliers shall not exceed a speed of 45 km/hr. as far as possible the Contractor shall use existing access and haul routes. Damage to the existing access roads as a result of construction activities shall be repaired to the satisfaction of the Engineer/ECO/EO, using material similar to that originally used. The cost of the repairs shall be borne by the Contractor.

6. Construction personnel information posters

As required by the Project Specification, the Contractor shall erect and maintain information posters for the information of his employees depicting actions to be taken to ensure compliance with aspects of the Specifications. Such posters shall be erected at the eating areas and any other locations specified by the Engineer/ECO/EO.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

7. Fire control

No fires may be lit on site. Any fires, which occur, shall be reported to the Engineer/ECO/EO immediately. Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include the workshop and fuel storage areas and any areas where the vegetation or other material is such as to make liable the rapid spread of an initial flame. In terms of the National Environmental Management: Air Quality Act and Community Fire Safety Bylaw, burning is not permitted as a disposal method.

The Contractor shall appoint a Fire Officer who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedure to be followed. The Contractor shall forward the name of the Fire Officer to the Engineer/ECO/EO for his approval.

The Contractor shall ensure that there is basic fire-fighting equipment available on Site at all times. This shall include at least rubber beaters when working in urban open spaces and fynbos areas, and at least one fire extinguisher of the appropriate type when welding or other "hot" activities are undertaken.

1. The Contractor shall ensure that the basic fire-fighting equipment is to the satisfaction of the Local Fire Services.
2. The Contractor shall supply all living quarters, site offices, kitchen areas, workshop areas, materials, stores and any other areas identified by the Engineer/ECO/EO with tested and approved fire fighting equipment.
3. Fire and "hot work" shall be restricted to a site approved by the Engineer/ECO/EO.
4. A braai facility may be considered at the discretion of the Engineer/ECO/EO.

8. Emergency procedures

The Contractor shall submit Method Statements to the Engineer/ECO/EO covering the procedures for the following emergencies:

i) Fire

The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall ensure that his employees are aware of the procedure to be followed in the event of a fire.

ii) Accidental leaks and spillages

The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include notifying the Engineer/ECO/EO and telephoning relevant people (from a cell phone) and the relevant authorities. The Contractor shall ensure that the necessary materials and equipment for dealing with spills and leaks is available on Site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the Engineer/ECO/EO.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown and where possible is designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 l of hydrocarbon liquid spill.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

9. Safety

Telephone numbers of emergency services, including the local firefighting service, shall be posted conspicuously in the Contractor's office near the telephone. In the event of an emergency, the Contractor shall contact the emergency call centre availed for that specific emergency available in the area.

No unauthorised firearms are permitted on Site.

10. Community relations

If so required by the Project Specification, the Contractor shall erect and maintain information boards in the position, quantity, design and dimensions specified. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Engineer/ECO/EO. The Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself.

11. Protection of natural features

The Contractor shall not deface, paint, damage or mark of any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes unless agreed beforehand with the Engineer/ECO/EO. Any features affected by the Contractor in contravention of this clause shall be restored/ rehabilitated to the satisfaction of the Engineer/ECO/EO.

The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

12. Protection of flora and fauna

Except to the extent necessary for the carrying out of the Works, flora shall not be removed, damaged or disturbed nor shall any vegetation be planted.

Trapping, poisoning and/ or shooting of animals is strictly forbidden. No domestic pets or livestock are permitted on Site.

Where the use of herbicides, pesticides and other poisonous substances has been specified, the Contractor shall submit a Method Statement.

13. Erosion and sedimentation control

The Contractor shall take all reasonable measures to limit erosion and sedimentation due to the construction activities and shall, in addition, comply with such detailed measures as may be required by the Project Specification. Where erosion and/or sedimentation, whether on or off the Site, occurs despite the Contractor complying with the foregoing, rectification shall be carried out in accordance with details specified by the Engineer/ECO/EO. Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification shall be carried out to the reasonable requirements of the Engineer/ECO/EO.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

Any runnels or erosion channels developed during the construction period or during the vegetation establishment period shall be backfilled and compacted, and the areas restored to a proper condition. Stabilisation of cleared areas to prevent and control erosion shall be actively managed. The method of stabilisation shall be determined in consultation with the Engineer/ECO/EO.

14. Aesthetics

The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area

15. Recreation

If so required by the Project Specification, the Contractor shall take measures to reduce disruption to recreational users of the area abutting the Site.

17. Temporary site closure

If the Site is closed for a period exceeding one week, the Contractor in consultation with the Engineer/ECO/EO shall carry out the checklist procedure required by the Project Specification. In the event of temporary site closure, the Contractor's Safety Officers (as defined by the Occupational Health and Safety Act) shall check the site, ensure that the conditions contained in the Detailed Specification.

18. Tolerances

Environmental management is concerned not only with the final results of the Contractor's operations to carry out the Works but also with the control of how those operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standard of the day-to-day operations required to complete the Works.

It is thus required that the Contractor shall comply with the environmental requirements on an ongoing basis and any failure on his part to do so will entitle the Engineer/ECO/EO to certify the imposition of a fine subject to the details set out in the Project Specification

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

PART D: DAYWORKS

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

D. 1 SCOPE

According to clause 6.5 of the General Conditions of Contract (GCC) for construction works third edition (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 are for tender evaluation purposes only and the use or not of these items shall not constitute a variation in terms of Clause 6.4 of the GCC.

No work will be paid for as Dayworks without the written instruction or approval of the Engineer.

D. 2 TYPE OF WORK

The Engineer 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 Engineer. Dayworks will only be used in exceptional circumstances.

D. 3 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 Dayworks Schedule for Daywork materials. The Contractor shall enter a tendered percentage in the schedule 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 the Pricing Data. No contract price adjustment will be applicable to materials.

The Contractor shall submit proof of ownership for any materials used in Dayworks with his dayworks claim to the Engineer. Further, if specific materials are required for Dayworks, quotations will be called for as per Clause 6.5.2 of the GCC.

D. 4 CONSTRUCTION PLANT HIRE

Where daywork is ordered, the tendered rates for plant hire in Section 1800 of Schedule A shall be used in calculating the payment due for any plant required to execute the daywork. If no rate is included in the schedule 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 GCC 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 dayworks.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

D. 5 SALARIES AND WAGES OF WORKMEN

The salaries and wages of workmen executing daywork shall be paid for using the tendered rates in Section 1800 of Schedule A . 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 dayworks.

All overhead costs, administration costs, site management costs and the Contractor's profit are deemed to be covered by the Dayworks 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 Engineer, will payment be made for the use of a gang boss or foreman supervising on a continuous basis.

D. 6 MEASUREMENT AND PAYMENT

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

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 Sub-clauses 6.5.3 and 6.5.4 of the GCC with regard to the submission of Dayworks claims.

<i>Contractor</i>	<i>Witness 1</i>	<i>Witness 2</i>	<i>Employer</i>	<i>Witness 1</i>	<i>Witness 2</i>

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

EMALAHLENI LOCAL MUNICIPALITY



TENDER NO: ELM 09/2020

CONSTRUCTION OF ROADS AND STORMWATER IN THUBELIHLE EXTENTION 5

C4 SITE INFORMATION

Locality plan

The proposed area's Longitude (E): 29°17'14.05" and Latitude (S): 26°13'12.54" for the start of the proposed road.



C4.1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

ANNEXURE A

Health and Safety Specifications

HEALTH AND SAFETY SPECIFICATIONS

1. OH&S MANAGEMENT

Structure and Organization of OH&S Responsibilities

1.1.1. Overall Supervision and Responsibility for OH&S

The Client is to ensure that the Principal Contractor, appointed in terms of Construction Regulation 4(1)(c), implements and maintains the agreed and approved OH&S Plan.

The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act is to ensure that the Employer (as defined in the Act) complies with the Act. Annexure 2 - "Legal Compliance Audit" may be used for this purpose.

Any OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her respective appointment forms.

The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 6.

Further (Specific) Supervision Responsibilities for OH&S

Appointments required by the Act and Regulations:

- OH&S Representatives (Sections 17/18 of the Act)
- OH&S Committees (Sections 19/20 of the Act)
- Risk Assessor (Construction Regulation. 7(1))
- Accident/Incident Investigations Co-ordinator (General Administrative Regulation 9 (2))
- Form/Support work Supervisor (Construction Regulation 10(a))
- Batch Plant Supervisor (Construction Regulation 18(1))
- Stacking & Storage Supervisor (Construction Regulation 26(a))
- Fire Equipment Inspector (Construction Regulation 27(h))
- Electrical Installations, Machinery & Appliances Inspector (Construction Regulation 22)
- Excavations Supervisor (Construction Regulation 11(1))
- Demolition Supervisor (Construction Regulation 12(1))
- OH & S Officer (where necessary) (Construction Regulation 6(6))
- Person Responsible for Machinery (General Machinery Regulation 2)
- Emergency, Security and Fire Co-ordinator (Construction Regulation 27(h) & Environmental Regulation 9)
- Fire Equipment Inspector (Construction Regulation 27(h) Environmental Regulation 9)
- First Aider (General Safety Regulation 3(2))
- Hazardous Chemical Substances Supervisor (HCS Regulations)
- Ladders Inspector (General Safety Regulation 13A)
- Lifting Equipment Inspector (Construction Regulation 20)
- Operators & Drivers of Construction Plant & Vehicles (Construction Regulation 21 (i))
- Structures Supervisor (Construction Regulation 9)
- Users Operators of Construction Equipment (Construction Regulation 21(i))
- Welding Supervisor (General Safety Regulation 9)
- Communication and Liaison

OH&S liaison between the Client, the Principal Contractor, the other Contractors, the Consulting Engineer and other concerned parties will be through the OH&S Committee as in 3.10.

In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S Committee and their elected Trade Union Representatives, if any.

The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and the Consulting Engineer,

instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.

1.3. OH & S File

The Principal Contractor must, in terms of Construction Regulation 5 (7), keep a health and safety file on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done.

The following documents must be kept in the OH & S file:

- 1) Notification of Construction Work (Construction Regulation 3.)
- 2) Copy of OH&S Act (updated) (General Administrative Regulation 4.)
- 3) Proof of Registration and good standing with a COID Insurer (Construction Regulation 4 (g))
- 4) Copy of health and safety plan (construction regulation 5 (1))
- 5) OH&S Programme agreed with Client including the underpinning Risk Assessment and Method Statements (Construction regulation 5 (1))
- 6) Designs/drawings (Construction Regulation 5 (8))
- 7) A list of Contractors (Subcontractors) including copies of the agreements between the parties and the type of work being done by each contractor (Construction Regulation 9)
- 8) Appointment / Designation forms as per 3.1.1. and 3.1.2. above.

Registers as follows:

- Accident/Incident Register (Annexure 1 of the General Administrative Regulations)
- OH & S Representatives Inspection Register
- Form/Support work Inspection
- Excavations Inspection
- Lifting Equipment
- Demolition Inspections
- Designer's Inspection of Structures Record
- Batch Plant Inspections
- Arc & Gas Welding & Flame Cutting Equipment Inspections
- Construction Vehicles & Mobile Plant Inspections
- Electrical Installation and Machinery Inspections
- Fire Equipment Inspection & Maintenance
- First Aid
- Hazardous Chemical Substances
- Lifting Tackle and Equipment Inspections
- Inspection of Cranes
- Inspection of Ladders
- Inspection of Vessels under Pressure
- Machinery Inspections
- Drivers/Operators of Mobile Plant/Construction Vehicles Daily Inspections

The Principal Contractor will be required to submit the abovementioned registers monthly to the chairperson of the OH&S Committee for endorsement.

The Health & Safety File must be handed over to the Client on completion of the contract. It must contain all the documentation handed to the Principal Contractor by any subcontractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project.

1.4. OH & S Goals and Objectives and Arrangements for Monitoring and Review of OH&S Performance

The Principal Contractor is required to maintain a Compensation Incidence Frequency Rate (CIFR) of at least 8 (Refer Annexure 3 - "Measuring Injury Experience") and to report on this to the Client on a monthly basis.

Identification of Hazards and Development of Risk Assessments, Standard Working Procedures (SWP) and Method Statements

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project (Refer to Section 4. below "Project/Site Specific Requirements")

Arrangements for Monitoring and Review

Monthly Audit by Client

The Client will be conducting a Monthly Audit to comply with Construction Regulation 4 (1) (d) to ensure that the Principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

Other Audits and Inspections by Client

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Principal Contractor must accompany the Client on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

1.6.3 Reports

The Principal Contractor is required to provide the Client with a monthly report in the format as per the attached Annexure 4: "SHE Risk Management Report"

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb

is injured or becomes ill to such a degree that he/she is likely either to die, or to suffer a permanent physical defect, or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

or where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

To the Provincial Director of the Department of Labour within seven days. (Section 24 of the General Administrative Regulation 8.). The Principal Contractor is required to provide the Client with copies of all statutory reports required in terms of the Act.

The Principal Contractor is required to provide the Client with copies of all internal and external accident/incident investigation reports including the reports contemplated in 3.9. below.

1.6.4 Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP's at each two weekly site inspection/meeting as the construction work develops and progresses and each time that changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client, other Contractors and all other concerned parties with copies of any changes, alterations or amendments.

Site Rules and Other Restrictions

Site OH&S Rules

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the OH&S aspects of the construction.

1.7.2. Security and Emergency Arrangements

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period.

Access control must include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of security rules and procedures and maintain these throughout the construction period.

The Principal Contractor must appoint a competent Emergency Controller who must develop emergency contingency plans for any emergency that may arise on site as indicated by the risk assessments. These must include a monthly practice/testing programme for the plans e.g. January: trench collapse, February: flooding etc. and practiced/tested with all persons on site at the time, participating.

1.8 Training

The contents and syllabi of all training required by the Act and Regulations must be included in the Principal Contractor's OH&S Plan.

General Induction Training

All employees of the Principal and other Contractors to be in possession of proof of General Induction Training

Site Specific Induction Training

All employees of the Principal and other Contractors to be in possession of Site Specific OH&S Induction Training.

Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training.

OH&S TRAINING REQUIREMENTS: (AS REQUIRED BY THE CONSTRUCTION REGULATIONS AND AS INDICATED BY THE OH&S SPECIFICATION AND THE RISK ASSESSMENT/S):

- General Induction (Section 8 of the Act)
- Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
- Site/Project Manager
- Construction Supervisor
- OH&S Representatives (Section 18 (3) of the Act)
- Training of the Appointees indicated in 3.1.1. & 3.1.2. above
- Operation of Cranes (Driven Machinery Regulations 18 (11))
- Operators and Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
- Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction regulation 27)
- Basic First Aid (General Safety Regulations 3)
- Storekeeping Methods & Safe Stacking (Construction Regulation 26)
- Emergency, Security and Fire Co-ordinator

1.9. Accident and Incident Investigation

The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she had to be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9).

The results of the investigation to be entered into the Accident/Incident Register. (General Administrative Regulation 9)

The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

OH & S Representatives and Committees

Designation of OH&S Representatives

Where the Principal Contractor employs more than 20 persons (including the employees of other contractors (sub-contractors) he has to appoint one OH&S Representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the appointment or election and subsequent designation of the OH&S Representative is executed in consultation with Employee Representatives or Employees. (Section 17 of the Act and General Administrative Regulation 6. & 7.)

OH & S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

Duties and Functions of the OH&S Representatives

The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor.

OH & S representatives must be included in accident/incident investigations.

OH & S representatives must attend all OH&S committee meetings.

1.10.3. Appointment of OH&S Committee

The Principal Contractor must establish an OH & S Committee consisting of all the designated OH&S Representatives together with a number of management representatives (this number is not to exceed the number of OH&S representatives on the committee) and a representative of the Client who shall act as the chairperson without a vote. The members of the OH&S committee must be appointed in writing.

THE OH&S COMMITTEE MUST MEET MINIMUM MONTHLY AND CONSIDER, AT LEAST, THE FOLLOWING AGENDA:

- 1) Opening and welcome
- 2) Present/Apologies/Absent
- 3) Minutes of previous meeting
- 4) Matters arising from the previous minutes
- 5) OH&S Representatives Reports
- 6) Incident Reports & Investigations
- 7) Incident /Injury statistics
- 8) Other matters
- 9) Endorsement of Registers and the statutory documents by a representative of the Principal Contractor
- 10) Close/Next Meeting

PROJECT / SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

Clearing & Grubbing of the Area/Site

SITE ESTABLISHMENT INCLUDING:

- Office/s
- Secure/safe storage for materials, plant & equipment
- Ablutions
- Sheltered eating area
- Maintenance workshop
- Vehicle access to the site
- Dealing with existing structures (NB: the existing pipeline is also a structure.)
- Location of existing services
- Installation and maintenance of temporary construction electrical supply, lighting and equipment
- Adjacent land uses/surrounding property exposures
- Boundary and access control/Public Liability Exposures (NB: the Employer is also responsible for the OH&S of non-employees affected by his/her work activities.)

HEALTH RISKS ARISING FROM NEIGHBOURING AS WELL AS OWN ACTIVITIES AND FROM THE ENVIRONMENT E.G. THREATS BY DOGS, BEES, SNAKES, LIGHTNING ETC.

- Exposure to noise
- Exposure to vibration
- Protection against dehydration and heat exhaustion
- Protection from wet & cold conditions
- Dealing with HIV/Aids and other diseases
- Use of Portable Electrical Equipment including
- Angle grinder
- Electrical drilling machine
- Skill saw
- Excavations including
- Ground/soil conditions
- Trenching
- Shoring
- Drainage of trench
- Welding including
- Arc Welding
- Gas welding
- Flame cutting
- Use of LP gas torches and appliances
- Loading & offloading of trucks
- Aggregate/sand and other materials delivery
- Manual and mechanical handling
- Lifting and lowering operations
- Driving & operation of construction vehicles and mobile plant including
- Trenching machine
- Excavator
- Bomag roller
- Plate compactor
- Front end loader
- Mobile cranes and the ancillary lifting tackle
- Parking of vehicles & mobile plant
- Towing of vehicles & mobile plant
- Use and storage of flammable liquids and other hazardous substances

- Layering and bedding of trench floor
- Installation of pipes in trench
- Pressure testing of pipeline
- Installing heat shrink joint sleeves
- Backfilling of trench
- Protection against flooding
- Gabion work
- Use of explosives
- Protection from overhead power lines
- As discovered by the Principal Contractor's hazard identification exercise
- As discovered from any inspections and audits conducted by the Client or by the Principal Contractor or any other Contractor on site
- As discovered from any accident/incident investigation.

Annexure 1: Safety Agreement

Annexure 2: Construction Occupational Health – Safety – Environment Audit System

Annexure 3: Guidelines for the development of a Health and Safety Plan.

Annexure 4: Guide to Risk Assessment

ANNEXURE 1

EMALAHLENI LOCAL MUNICIPALITY

TENDER NO: ELM 11/2017

IMPLEMENTATION OF ROADS AND STORMWATER IN THUBELIHLE EXTENSION 5

SAFETY AGREEMENT

**MEMORANDUM OF AGREEMENT CONCLUDED BY AND BETWEEN:
EMALAHLENI LOCAL MUNICIPALITY
(HEREINAFTER REFERRED TO AS THE CLIENT)**

herein represented by _____
in his capacity as _____
of the Client, he being duly authorized thereto
and

(hereinafter referred to as the Mandatory)
herein represented by _____
in his capacity as _____
of the Mandatory, he being duly authorized thereto

WHEREAS:

The Client and the mandatory entered into a written, alternatively oral agreement on the.....Day of
.....20..... in terms of which the Mandatory undertook to carry out the
following work for the client , viz. (give a short description of the type of contract work to be done as well as
the address where work will be done)

(The said contract work is hereinafter referred to as the **Work**)

The Occupational Health and Safety Act, Act 85 of 1993 as amended (hereinafter referred to as **the Act**) contains amongst others certain provisions with regard to the health and safety of people at work and in connection with the usage of plant and machinery, as well as the protection of other persons than persons at work against hazards to health and safety that originates from or in connection with the activities of persons at work.

Section 37(2) of the Act makes provision for the exclusion by the parties, by way of a written agreement, of supposition and accompanying liability of the Client as stipulated in section 37(1) of the Act.

The parties have reached consensus with regard to the terms and conditions to which they agree in terms of the provisions of section 37(2) of the Act.

NOW THEREFOR THE PARTIES AGREE AS FOLLOWS

1. WRITTEN AGREEMENT

The parties herewith agree in terms of section 37(2) of the Act on the arrangements and procedures that must be followed to ensure compliance with the provisions of the Act by the Mandatory.

2. ACKNOWLEDGEMENT BY THE MANDATARY

The mandatory acknowledge herewith that he is fully acquainted with the contents of the Act, as well as with all regulations and SABS codes of practice that have been made in terms of section 43 of the Act.

3. UNDERTAKING BY MANDATARY

- (a) The Mandatory hereby undertakes and binds himself to the Client to ensure prompt and strict compliance with the provisions of the Act and the said regulations as well as with the provisions included in this Safety Agreement at all times during the execution of the Works
- (b) It is hereby recorded that the provisions of this Safety Agreement as set out hereinafter are in no way intended to restrict the duties of the Mandatory, nor to exempt the Mandatory from his obligation in accordance with the Act and the said regulations

4. PERSONAL PROTECTIVE EQUIPMENT

- (a) It is compulsory to wear equipment for eye protection when working in an eye protection zone or where the Work requires eye protection.
- (b) It is compulsory to wear safety helmets when working in a safety helmet zone or where the Work requires safety helmets.
- (c) It is compulsory to wear hearing protection when working in a noise zone or where the Work requires hearing protection.
- (d) The wearing of other protective clothing and equipment as prescribed by the Occupational Health and Safety Officer of the Client is compulsory.
- (e) The Mandatory shall ensure that the statutory requirements are complied with at all times.

5. FENCING AND GENERAL MACHINERY PROTECTION

No shield or fencing may be removed from or be moved at any machinery or installation without written permission.

6. SCAFFOLDING, LADDERS, TOOLS, ET CETERA

The Mandatory without the written permission of the Client may use no equipment or tools that belong to the Client.

Except where agreed before hand the Mandatory shall provide enough tools and equipment to enable him to complete the Works and the Mandatory shall provide all storerooms, offices and eating halls that he may need. The Mandatory will be responsible for all his material on site.

In special case where the Client may lend equipment, tools or materials to the Mandatory, the Mandatory will use such equipment, tools and/or materials at his own risk and the Mandatory herewith indemnifies the Client against any liability of whichever nature or from any cause whatsoever, whether direct or indirect, that may arise from such usage.

7. SERVICES AND WORKING METHODS

The written permission of the Chief Executive/Town Clerk of the Client shall be obtained where any work which must be undertaken by the Mandatory is connected with a working process or machinery or any other service in connection therewith, or may possibly affect it, before he commences with such work.

Approval shall be obtained from the City Electrical Engineer of the Client before any equipment is connected to the electrical supply of the Client. All equipment shall be isolated before any equipment is connected to the electrical supply of the Client.

It shall be isolated and be provided with earth leakage protection. Electrical machinery, portable electrical tools and portable lights must comply with the requirements of the applicable regulations.

Work permits must be issued in terms of the Occupational Health and Safety Act and Regulations when the nature of the work requires it. Permits must be issued by the relevant departmental head where necessary.

8. EXCAVATIONS

Written permission for excavations shall be obtained from the City Engineer of the Client and the Mandatory shall make sure of the existence and position of electrical cables, discharge pipes, gas lines, water conduits, et cetera before he commences with any excavation work.

All excavations and obstructions and/or any openings in platforms or floors shall be enclosed in a safe way and warning notices shall be erected to ensure absolute safety. An adequate number of red or orange caution lights shall be provided when it is dark or should bad light prevail.

The area surrounding excavations shall be kept in a safe, orderly and tidy condition. No walkways or workplaces.

Nobody may enter into any restricted area in which hazardous fumes or a shortage of oxygen exists without a permit giving permission to do so, issued by the head of the relevant department of the Client and until it has been certified safe for entrance by the Occupational Health and Safety Officer and the Health Inspector of the Client.

9. RESTRICTION TO WORKPLACE

Employees of the Mandatory shall be restricted to their workplaces except when they have to leave their area for work purposes or when they visit toilets.

10. SUBCONTRACTORS

The Mandatory shall ensure that all subcontractors receive a copy of this safety agreement and must ensure they comply with it.

11. OCCUPATIONAL HEALTH AND SAFETY OFFICER AND THE REPORTING OF ALL ACCIDENTS

The Occupational Health and Safety Officer of the Client is available for consultation and he will make periodical visits to the workplace of the Mandatory. Any hazardous occurrence or incident to the employees of the Mandatory that results in absence from work for a period longer than three days shall be reported in writing to the Occupational Health and Safety Officer of the Client within forty eight hours as well as to the Department of Labour as specified by the Act. Every user, employer, occupier, builder or excavator must, under this Act, keep record of all accidents that occur.

In the case of an accident that results in loss of life, nobody may disturb the scene of the accident or any articles involved in the accident prior to the arrival of the Occupational Health and Safety Officer and the Inspector, unless it is to prevent another accident from happening or the prevention of loss of life or to remove corpses.

The Occupational Health and Safety Officer will issue contravention notices to the Mandatory or a sub contractor when there is a non compliance and will specify the time in which it must be rectified.

The Occupational Health and Safety Officer will issue work stop notices to the Mandatory or sub contractor whenever he is of the opinion that the health and safety of any person at work is threatened or that the contravention notices are not adhered to.

12. FIRST AID

Where five or more persons are employed at a workplace, the Mandatory shall provide and maintain an adequately equipped first-aid box that meets the following requirements:

- (a) Every first-aid box shall contain the minimum contents as prescribed by the Occupational Health and Safety Act.
- (b) Nothing except articles and equipment required for first-aid purposes may be kept in the first-aid box.
- (c) Each first-aid box shall be kept in a place readily accessible in case of an accident.
All first-aid boxes shall be placed under control of a responsible person except where five or less persons are at work. The responsible person must be in the possession of a valid first-aid certificate issued by one of the following organizations:

- A South-African Red Cross Society**
- B St. John's Ambulance Foundation**
- C South-African First-Aid League**

A notice indicating where the first-aid box is kept as well as the name of the person in charge shall be affixed in a conspicuous place. The first-aid facilities of the Client may be used during emergencies.

13. FIRE PREVENTION MEASURES AND STORAGE OF FLAMMABLE MATERIAL

The Fire department of the Client shall be notified before any welding, oxyacetylene welding, cutting, burning of paint or tar from floors or roofs is undertaken so that the necessary fire prevention measures can be arranged. All "NO SMOKING AND OPEN SURFACE FIRES/LIGHTS PROHIBITED" notices shall be adhered to. The Mandatory and his senior employee shall acquaint themselves and their fellow workers with the fire prevention measures of the Client, which will also include fire alarm notices and exits in case of fire, and they shall ensure that these rules are strictly complied with.

14. COMPLETION OF WORK

Before the mandatory or his sub-contractors leaves the site they shall inform the Head of the relevant Department of the Client and obtain his/her written approval that the work has been completed satisfactory and that the site of the work is left in a good condition.

15. SALVAGED MATERIAL AND EQUIPMENT

Any building demolished or equipment or materials that are salvaged whilst carrying out the work shall remain the property of the Client, unless the contract specifically provides otherwise.

16. BREAKING OF THESE RULES AND POOR CONDUCT

The Mandatory is warned that no behaviour that causes danger to their own employees, to the employees of the Client or general public will be tolerated. The Occupational Health and Safety Officer of the Client reserves the right of the withdrawal of any employees of the Mandatory or Client from the premises in the case of any default or breach of the agreement and to order that the completion of the work be stayed, pending compliance with this agreement; alternatively to cancel the agreement referred to in par.2 in which event the Client will be entitled to appoint an alternative contractor to complete the work and recover the costs thereof from the mandatory, without prejudice to any alternative or additional right or action or remedy to the Client, to recover from the mandatory damages for the default or breach and the cancellation.

The senior employees of the Mandatory shall sign a note of acknowledgement of this safety agreement to certify that they have received the regulations as included herein and that they understand the regulations

17. INTOXICATION

Nobody that is in a state of intoxication or that is in any other condition that causes or may cause his/her incapability to control him/herself or persons under his control may and shall not be permitted on the premises of the Client. The Occupational Health and Safety Officer of the Client reserves the right to the withdrawal of any employees of the Mandatory or Client from the premises in the case of any transgression of this nature.

18. CONFIDENTIALLY

The Mandatory shall at all times treat data and information that have been made known to him or that he requires in connection with his work from the Client as confidential and he may not make unauthorized use thereof. He must also ensure that such data and information are not communicated to anybody else that is not an employee of the Mandatory without obtaining prior written approval from the Client and he must further ensure that such persons do in fact know that the said information is confidential and that they are obliged to treat it as such.

The Mandatory shall provide for adequate physical protection for any confidential documents, sketches, et cetera that he receives from the Client in connection with the work as well as for any copies thereof that he makes. He shall hand back all documents sketches and copies thereof to the Client upon completion of the work, or earlier, if so requested by the Client. The Mandatory shall inform the Client immediately should any such documents or sketches become lost.

19. INDEMNIFICATION BY THE MANDATORY

The following conditions will be applicable to the Mandatory:

- (a) The Mandatory is liable and herewith indemnifies the Client irrevocably and in full against any claim for loss or damage to property or arising from death or injury of any person and any associated loss or damage suffered, and against all lawsuits, claims, demands, costs, expenses, and charges that may arise when the said occurrences are caused on purpose or through the negligence, violation of legal obligations or failure by the Mandatory or its employees.
- (b) Whenever any of the employees of the Client is busy with work to, or with the supply of material that will be used during the execution of the work by the Mandatory, or otherwise busy with work under the instruction and supervision of the Mandatory, in as far as they may be negligent or fail to do there duty, they will be regarded as employees of the mandatory
- (c) All installations, equipment, hoisting-apparatus and other implements, scaffolding, ladders, material, et cetera that are borrowed from the Client by the Mandatory for usage during the execution of the work, will be used entirely at the risk of the Mandatory or employees of the Mandatory and the Mandatory herewith indemnifies the Client irrevocably and in full against any liability that may arise from such usage.

20. AMENDMENTS MUST BE IN WRITING

The parties agree herewith that this safety agreement is the only safety agreement between them and that no amendment thereof will be valid unless it is in writing and signed by both parties.

20. JURISDICTION AND LEGAL COSTS

In the event of any legal action being instituted pertaining to the this agreement the party in default or breach will be liable for the other party's legal costs on the scale as between attorney and own client and the parties consent to the jurisdiction of the magistrate's court for purpose of any legal action being instituted.

PARTICULARS OF THE MANDATORY

Name (Mandatory) _____

C.E.O. (Section 16(1)) _____

ID NO. : _____

Designation: _____

Name of Business _____

Address of Business :

Tel number (h) _____ (w) _____ e-mail _____

Number of employees employed _____

Registration number as allocated to the Mandatory by the Workman's Compensation

Commissioner _____

Date allocated _____

Thus done and signed on this _____ day of _____ 20 _____

As witnesses:

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

THE MANDATORY

Thus done and signed on this _____ day of _____ 20 _____

As witnesses

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

THE CLIENT

Acknowledgement of receipt of the agreement:

THE MANDATORY

ANNEXURE 2

CONSTRUCTION OCCUPATIONAL HEALTH - SAFETY - ENVIRONMENT AUDIT SYSTEM

(Based on the New Construction Regulations)

** Denotes items applicable to both Construction sites and Contractors Plant/Storage*

1. ADMINISTRATIVE & LEGAL REQUIREMENTS

Section/Regulation	Subject	Requirements	Yes/No
Construction. Regulation 3	Notice of carrying out Construction work	Department of Labour notified Copy of Notice available on Site	
General Admin. Regulation 3	*Copy of OH&S Act (Act 85 of 1993)	Updated copy of Act & Regulations on site Readily available for perusal by employees	
COID Act Section 80	*Registration with Compels. Insurer	Written proof of registration / Letter of good standing available on Site	
Construction. Regulation 4 & 5(1)	OH&S Specification & Plan	OH&S Specification received from Client OH&S plan developed Updated regularly	
Section 8(2)(d) and Construction. Regulation 6	*Hazard Identification & Risk Assessment	Hazard Identification carried out/Recorded Risk Assessment and Plan drawn up/Updated Risk Assessment Plan available on Site Employees/Subcontractors informed/trained	
Section 16(2)	*Assigned duties (Managers)	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.	
Construction. Regulation 5(2)	Designation of Person Responsible on Site	Competent person appointed in writing as Construction Supervisor	
Construction. Regulation 5(5)(a)	Designation of Subordinate Person	Competent person appointed in writing as Sub-ordinate Construction Supervisor	
Section 17 & 18	*Designation of Occupational Health & Safety Representatives	More than 20 employees - one OH&S Representative, one additional OH&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful OH&S Rep. reports. Reports actioned by Management.	
Section 19 & 20	*Occupational Health & Safety Committee/s	OH&S Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by Management.	

Section/Regulation	Subject	Requirements	Yes/No
Section 37	*Agreement with Mandatories (Sub-Contractors)	Written agreement with Subcontractors. List of Subcontractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Work Supervisor designated Written arrangements concerning OH&S Reps & OH&S Committee Written arrangements regarding First Aid	
Construction. Regulation 7	Fall Prevention & Protection	Competent person appointed to draw up and supervise the Fall Protection Plan Proof of appointees competence available on Site Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site	
Construction. Regulation 8	Roofwork	Competent person appointed to plan & supervise Roofwork. Proof of appointees competence available on Site Risk Assessment carried out Roofwork Plan drawn up/updated Roofwork inspect before each shift. Inspection register kept Employees medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 9	Structures	Information re. the structure being erected received from the Designer including: - geo-science technical report where relevant - the design loading of the structure - the methods & sequence of construction - anticipated dangers/hazards/special Measures to construct safely Risk Assessment carried out Method statement drawn up All above available on Site Structures inspected before each shift. Inspections register kept	
Construction. Regulation 10	Formwork & Support work	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of Support & Formwork Design drawings available on site Risk Assessment carried out Support & Formwork inspected: - before use/inspection - before pouring of concrete - weekly whilst in place - before stripping/dismantling. Inspection register kept	

Section/Regulation	Subject	Requirements	Yes/No
Construction. Regulation 11	Scaffolding	Competent persons appointed in writing to: <ul style="list-style-type: none"> - erect scaffolding (Scaffold Erector/s) - act as Scaffold Team Leaders - inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Written Proof of Competence of above appointees available on Site Copy of SABS 085 available on Site Risk Assessment carried out Inspected weekly/after bad weather. Inspection register/s kept	
Construction. Regulation 12	Suspended Scaffolding	Competent persons appointed in writing to: <ul style="list-style-type: none"> - erect Susp.scaffolding (Scaffold Erector/s) - act as Susp.Scaffold Team Leaders - inspect Susp.Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Risk Assessment conducted Certificate of Authorization issued by a registered professional engineer available on Site/copy forwarded to the Department of Labour The following inspections of the whole installation carried out by a competent person <ul style="list-style-type: none"> - after erection and before use - daily prior to use. Inspection register kept The following tests to be conducted by a competent person: <ul style="list-style-type: none"> - load test of whole installation and working parts every 12 months - hoisting ropes/hooks/load attaching devices quarterly. Tests log book kept Employees working on Susp.Scaffold medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 13	Excavations	Competent person/s appointed in writing to supervise and inspect excavation work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: <ul style="list-style-type: none"> - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used	
Constructions . Regulation 14	Demolition Work	Competent person/s appointed in writing to supervise and control Demolition work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Engineering survey and Method Statement available on Site Inspections to prevent premature collapse carried out by competent person before each shift.	

Section/Regulation	Subject	Requirements	Yes/No
		Inspection register kept	
Construction. Regulation 16	Materials Hoist	Competent person appointed in writing to inspect the Material Hoist Written Proof of Competence of above appointee available on Site. Materials Hoist to be inspected weekly by a competent person. Inspections register kept.	
Construction. Regulation 17	Caissons & Cofferdams	Competent person appointed in writing to supervise, control & inspect the construction, installation/dismantling of caissons/coffer dams Written Proof of Competence of above appointee available on Site Risk Assessment carried out To be inspected daily by a competent person. Inspections register kept	
Construction. Regulation 18	Explosive Powered Tools	Competent person appointed to control the issue of the Explosive Powered Tools & cartridges and the service, maintenance and cleaning. Register kept of above Empty cartridge cases/nails/fixing bolts returns recorded Cleaned daily after use	
Construction. Regulation 19	Batch Plants	Competent person appointed to control the operation of the Batch Plant and the service, maintenance and cleaning. Register kept of above Risk Assessment carried out Batch Plant to be inspected weekly by a competent person. Inspections register kept	
Construction. Regulation 20/ Mine Health & Safety Act (29 of 1996)	Tunneling	Complying with Mines Health & Safety Act (29 of 1996) Risk Assessment carried out	
Construction. Regulation 21/ Driven Machinery Regulations 18 & 19	Cranes & Lifting Machines Equipment	Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment Written Proof of Competence of above appointee available on Site. Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - daily by operator - Tower Crane/s – after erection/6monthly - Other cranes – annually by comp. person - Lifting tackle(slings/ropes/chain slings etc.) - 3 monthly Risk Assessment carried out	
Construction. Regulation 22/ Electrical Machinery Regulations 9 &	*Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)	Competent person appointed in writing to inspect/test the installation and equipment. Written Proof of Competence of above appointee available on Site. Inspections:	

Section/Regulation	Subject	Requirements	Yes/No
10/Electrical Installation Regulations		- Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools and -lights and extension leads identified/numbered. Monthly visual inspection by User/Issuer/Storeman. Register kept.	
Construction. Regulation 2 Diving Regulations	Water Environments	Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an Approved Inspection Authority of equipment used Written Proof of Competence of above appointee available on Site Proof of registration of all divers present on site available Risk Assessment carried out Diving Manual produced. Available on Site Record of Voice Communications kept Diving Operations record kept Each Diver keeps a personal logbook. Entries countersigned by the Diving Supervisor Decompression tables available on Site Records of any Decompression illness kept Certificate of Manufacture of any Compression Chamber or Diving Bell in use available on Site	
Construction. Regulation 30/ General Safety Regulation 8(1)(a)	*Designation of Stacking & Storage Supervisor.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site	
Construction. Regulation 31/ Environmental Regulation 9	*Designation of a Person to Co-ordinate Emergency Planning And Fire Protection	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register. Inspected weekly. Inspection Register kept Serviced annually	
Construction. Regulation 32/ General Safety Regulation 3	*First Aid	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aiders and Certificates	

Section/Regulation	Subject	Requirements	Yes/No
		Name of person/s in charge of First Aid box/es displayed. Location of F/Aid box/es clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries	
Construction. Regulation 33/ General Safety Regulation 2	Personal Safety Equipment (PSE)	PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PSE	
Construction. Regulation 34/ General Safety Regulation 9	*Inspection & Use of Welding/Flame Cutting Equipment	Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site Equipment identified/numbered and entered into a register Equipment inspected monthly. Inspection Register kept	
Construction. Regulation 35/ Hazardous Chemical Substances (HCS)	*Control of Storage & Usage of HCS	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of HCS Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site	
Construction. Regulation 36/Vessels under Pressure Regulations	Vessels under Pressure (VUP)	Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP's Written Proof of Competence of above appointee available on Site Risk Assessment carried out Certificates of Manufacture available on Site Register of VUP's on Site Inspections & Testing by Approved Inspection Authority (AIA): <ul style="list-style-type: none"> - after installation/re-erection or repairs - every 36 months. - Register/Log kept of inspections, tests. Modifications & repair 	
Construction. Regulation 37	Construction Vehicles & Earth Moving Equipment	Operators/Drivers appointed to: <ul style="list-style-type: none"> - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site Record of Daily inspections kept	
Construction. Regulation 38/	*Inspection of Ladders	Competent person appointed in writing to inspect Ladders	

Section/Regulation	<i>Subject</i>	<i>Requirements</i>	<i>Yes/No</i>
General Safety Regulation 13D		Ladders inspected at arrival on site and monthly there after . Inspections register kept	
Construction. Regulation 39/ General Safety regulation 13B	Ramps	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.	

ANNEXURE 2

GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

1. PROJECT BACKGROUND

In terms of the Construction Regulations [Regulation 4 (1) (a)] of the Occupational Health and Safety Act, No 85 of 1993, the Client is required to compile an Occupational Health and Safety specification for each of its projects and the Principle Contractor, appointed by the Client in terms of Regulation 4 (1) (c), is required to prepare an Occupational Health and Safety Plan. This plan has to be prepared in terms of Regulation 5 (1) as well as the Client's Occupational Health & Safety Specification. In terms of Regulation 4 (2), the Client and the Principle Contractor are required to agree on the Occupational Health and Safety Plan before any work may commence.

2. FRAMEWORK FOR AN OCCUPATIONAL HEALTH AND SAFETY PLAN

2.1 INTRODUCTION

The Principal Contractor has to demonstrate to the Client that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and resources to perform the construction work safely. The Principle Contractor could be required to submit the following documentation for perusal and verification by the Client:

- *Management Structure*
- *Quality Plan*
- *Human Resources Plan*
- *Registered Workplace Skills Plan*
- *“Letter of good standing” from the Compensation Commissioner or licensed compensation insurer.*
- *Proof of induction and other training of employees*
- *Example copy minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports*

2.2 CONTENTS OF AN OCCUPATIONAL HEALTH AND SAFETY PLAN

2.2.1 Occupational Health and Safety Management Programme

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Programme of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

2.2.2 Communication and Management of the Work

- Management structure and responsibilities
- Occupational Health and Safety goals for the project and arrangements for monitoring and review of Occupational Health and Safety performance.
- **Arrangements for:**
 - Regular liaison between parties on site
 - Consultation with the workforce
 - The exchange of design information between the Client, engineer, supervisors and contractors on site

- Handling design changes during the project
- Selection and control of contractors
- The exchange of Occupational Health and Safety information between all contractors
- Security
- Site induction and onsite training
- Facilities and first-aid
- The reporting and investigation of accidents and incidents
- The production and approval of risk assessments and method statements
- Site OH&S rules
- Fire and emergency procedures
- Reporting to the Client i.e. results of Occupational Health and Safety inspections, incident and incident investigations and committee meetings
- Reporting of incidents to the Department of Labour and Compensation insurer where appropriate

2.2.3 Arrangements for controlling significant site risks

The following are some examples of the arrangements for controlling the most significant site risks:

- **SAFETY RISKS**
 - Services, including temporary electrical installations
 - Preventing employees from falling into excavations, from trucks etc.
 - Work with, on or near fragile materials
 - Control of lifting operations
 - The maintenance of plant and equipment
 - Poor ground conditions
 - Traffic routes and segregation of vehicles and pedestrians
 - Storage of hazardous materials
 - Dealing with existing unstable structures/land
 - Accommodating adjacent land use
 - Other significant safety risks as and when identified
- **HEALTH RISKS**
 - Storage and use of hazardous chemical substances
 - Dealing with contaminated land or material
 - Manual handling
 - Reducing noise and vibration
 - Provision of adequate lighting
 - Ventilation considerations
 - Extreme heat and cold temperature considerations
 - Dealing with HIV/Aids and other illnesses
 - Provision of and maintaining ablution and eating facilities
 - Other significant health risks as and when identified

2.2.4 Preparation of an Occupational Health and Safety Operational Reference File/Manual

THE FOLLOWING ARE SOME OF THE REQUIREMENTS TO BE ADDRESSED:

- Layout, format and content requirements
- Arrangement for the collection and gathering of information
- Storage and archiving of all the information
- Copy to the Client at completion of project

SUGGESTED CONTENTS OF AN OH&S FILE/MANUAL

- OH&S Policy
- Notice of new project
- Site start-up
- Security measures
- Written designations & appointments
- Arrangements with contractors/mandatories
- OH&S rules and procedures
- Induction
- OH&S training
- OH&S promotion
- OH&S representatives
- OH&S committees
- Workplace facilities e.g. ablutions, sheltered eating areas etc.
- Protective equipment
- Workplace inspections and audits
- Investigation & reporting of incidents/accidents
- Mechanical safeguarding
- Electrical safeguarding
- Safeguarding against hazardous substances
- Lifting machinery & equipment
- Construction vehicles & mobile plant
- Welding, heating & flame cutting
- Excavations
- Protection of the environment affected by construction activities
- Keeping of records in terms of the OH&S Act (85 of 1993)

ANNEXURE 3

GUIDE TO RISK ASSESSMENT

1. HOW TO DO IT?

2. STEPS TO EFFECTIVE RISK ASSESSMENT

- Step 1 : Identifying the hazards
- Step 2 : Aim to identify major hazards, don't waste time on the minor & detail
- Step 3 : Involve as many people as possible in the process especially those at risk
- Step 4 : Gather all the information and analyze it
- Step 5 : Look at what actually occurs including non-routine operations
- Step 6 : Use a systematic approach to ensure all hazards are adequately addressed
- Step 7 : Assess the risks arising taking into account the effectiveness of controls
- Step 8 : Ensure the process is practical and realistic
- Step 9 : Always record the assessment in writing including assumptions and why

3. HOW SERIOUS IS IT?

PROBABILITY		CONSEQUENCES	
A Common		1 Fatality or permanent disability	
B Has Happened		2 Major injury	
C Could Happen		3 Average Lost Time Injury	
D Not Likely		4 Minor Injury	
E Practically impossible		5 Medical Treatment or less	

C O N S E Q U E N C E S	PROBABILITY					
	A	B	C	D	E	
	1	1	2	3	4	5
	2	2	3	4	5	6
	3	3	4	5	6	7
	4	4	5	6	7	8
	5	5	6	7	8	9

Risk Rating:	1 – 3 =	Serious	ACTION
	4 - 5 =	High	Immediate (within 1 week)
	6 – 7 =	Moderate	Within 1 month
	8 – 9 =	Acceptable	> 4 weeks
			No action

ANNEXURE B

Pro-forma agreement in terms of Occupational Health and Safety Act

PRO-FORMA AGREEMENT IN TERMS OF

OCCUPATIONAL HEALTH AND SAFETY ACT 1993 – SECTION 37 (2)

NEW CONSTRUCTION SAFETY REGULATIONS

The above-mentioned regulations were promulgated in the Govt. Gazette on Friday, 18 July 2003 under the Occupational Health & Safety Act (85 of 1993) and are now in force.

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993, hereinafter referred to as the Act), that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

- (a) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all the relevant provisions of the Act and the regulations promulgated in terms of the Act, and the Employer's Health and Safety Specifications included in the contract documents.
- (b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations and the Employer's Health and Safety Specifications included in the contract documents will be complied with in all respects.
- (c) In relation to any work or activity performed by the Contractor, his workmen or any other person for whose acts or omissions the Contractor is responsible in terms of the Contract, the Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions.
- (d) The Contractor agrees that any duly authorised 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 set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor.
- (e) The Contractor shall be obliged to report forthwith in writing to the Representative/Agent full details of 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 Contract.
- (f) Forward "safety meeting" minutes to the representative/Agent.

For the Employer: _____

Date: _____

Witnesses: 1) : _____

2) _____

For the Contractor: _____

Date: _____

Witnesses: 1) : _____

2) _____

ANNEXURE C

Notification of construction work

NOTIFICATION OF CONSTRUCTION WORK

(Regulation 3 of the Construction Regulations, 2003)

1. CONTRACTOR

1.1 Name and postal address of Contractor :

1.2 Name and telephone number of Contractor's contact person :

1.3 Contractor's compensation registration number :

1.4 Name and telephone number of Contractor's Construction Supervisor :

1.5 Physical address of the construction site or site office:

1.5 Estimated number of persons on the construction site :

1.6 Estimated number of Subcontractors on the construction site accountable to the Contractor :

2. EMPLOYER

2.1 Name and postal address of Employer :

2.2 Name and telephone number of Employer's Principal

Agent:_____

3. DESIGN CONSULTANTS

3.1 Name and postal address of design consultants:

3.1.1 Construction project managers:

3.1.2 Architects:

3.1.3 Structural engineer :

3.1.4 Electrical engineer:

3.1.5 Mechanical engineer :

3.1.6 Civil engineer :

3.1.7 Security engineer

3.1.8 Other (if any) :

3.2 Name and telephone number of design consultant's contact person :

3.2.1 Construction project managers :

3.2.2 Architects :

3.2.3 Structural engineer :

3.2.4 Electrical engineer :

3.2.5 Mechanical engineer :

3.2.6 Civil engineer :

3.2.7 Security engineer :

3.2.8 Other (if any) :

4. THE WORKS

Nature of the works :

Commencement date :

Completion date :

Contractor: _____ Date: _____

Employer: _____ Date: _____

THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.

ALL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER CONTRACTOR ON THE SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

ANNEXURE D

Pro-forma Contract between Contractor and Worker

SPECIAL PUBLIC WORKS PROGRAMMES

CONTRACT OF EMPLOYMENT BETWEEN

CONTRACTOR

Name:

Address:

ID:

AND

WORKER

Name:

Details

ID:

I am pleased to confirm that you have been appointed to work on a task based employment contract within a Special Public Works Programme (SPWP) project. Within this contract you will undertake numerous groups of tasks.

This contract must be read in conjunction with the standard terms and conditions of employment on SPWP attached.

The project where you will be employed is located at

The contract will start on

You must be aware that this contract is a limited term contract and not a permanent job. The contract may be terminated for one of the following reasons:

- a) If the contractor does not get additional contracts from the SPWP.
- b) Funding for the programme in your area comes to an end.
- c) You repeatedly do not perform in terms of the tasks set out in your work programme.

6 You will be employed as a within the team.

7 While you are working you will report to

8 Payment

- a) You will be paid a fixed amount of R..... for completing a fixed amount of work .
- b) The amount of work required for the agreed rate of pay will vary from task to task. You will be informed at the beginning of each task or group of tasks how much work you are expected to complete per day.
- c) You will only be paid for work completed.
- d) You will be paid the amount for the number of days quoted in the contract even if you finish the work before the time or after the estimated date of completion.
- e) A contractor must pay you the production bonus (the extra days if the work is finished early) if you have completed your share of tasks.
- f) The contractor will be paid within 30 days after the work is completed. You will be paid within 5 days of the contractor being paid.

9 In addition to the conditions above all the terms and conditions of employment on SPWP apply to your employment. If you breach any of these terms your contract may be terminated.

10 Signatures:

Signed on this day of 201...

Contractor: Date:

Worker: Date.

Witness: Date:

ANNEXURE E

Pro-forma Attendance Register

EXPANDED PUBLIC WORKS PROGRAMME - POVERTY RELIEF PROJECT

CONTRACTOR'S PERSON-DAYS, TRAINING AND ATTENDANCE REGISTER

PARK:		MONTH:	
PROJECT:		CONTRACTOR:	

[illegible]

CODE	CATEGORY
W = WORKING (PAID)	SC = SUPERVISOR / CONTRACTOR
I = ABSENT INJURED / SICK	SW = SKILLED WORKER
X = ABSENT / SENT HOME (UNPAID)	SS = SEMI SKILLED
T = OFF-SITE TRAINING (PAID 100%)	CL = CLERICAL
	UL = UNSKILLED LABOURER

CONTRACTOR	SIGNATURE	DATE
PROJECT MANAGER	SIGNATURE	DATE

ANNEXURE F

Contract Person Days Calculation Format

CONTRACT MAN / DAYS CALCULATION FORMAT

This calculation must be in accordance with the attached Special Public Works Programme (SPWP) (ANNEXURE G).

The labour value of the contract must be equal to a minimum of 30% of your contract tendered sum.

You will be allowed to use the following values in order to calculate the minimum Man / day requirements: (In Lieu of the R35-00 minimum labour rate per day as specified)

80% General Labour at R50-00 per day
10% Skilled Labour at R80-00 per day
10% Supervisory Labour at R120-00 per day

The Man / days will be calculated as follows:

30% of the Contract sum = Minimum Labour Value.

- a) General Labour
80% of Labour value divided by R50-00 per day = Labour Man / days.
- b) Skilled Labour
10% of Labour value divided by R80-00 per day = Skilled Man / days.
- c) Supervisory Labour
10% of Labour value divided by R120-00 per day = Supervisory Man / days.
- d) Total Man / days
Total Man / days for the duration of the contract = a + b + c

Example

Say your tender sum equal R1, 000,000-00

R1, 000,000-00 x 30% = R300, 000-00 (Minimum Labour Value)

- a) Labour R300, 000-00 x 80% / R50-00 = 4800 Labour Man / days
- b) Skilled R300, 000-00 x 10% / R80-00 = 375 Skilled Man / days
- c) Supervisory R300, 000-00 x 10% / R120 = 250 Supervisory Man / days.
- Total Man / days 5425 Man / days

ANNEXURE G

Contractor's monthly report format

CONTRACTOR'S MONTHLY REPORT

Part 1

Tender number:	54/2015
Project name:	Construction of a community hall in Boschfontein
Project description:	Construction of a community hall in Boschfontein
Contract number:	54/2015
Name of Contractor:	
Payment certificate number:	
For month ending:	
Date of report:	

The Contractor's monthly report comprises an integral part of the Contractor's payment certificate and must be submitted together with the payment claim. The payment certificate will not be processed without this signed report, i.e. "NO REPORT – NO PAYMENT".

Attachments:

Part 2: Overall Project Worker Schedule: Schedule of all local labourers employed since the start of the project

Part 3: Weekly Task Wage Register

Part 4: Local Labour Schedule

Part 2

OVERALL PROJECT WORKER SCHEDULE (local labourers only)

Sheet: ...

Names of all **Local Workers** employed **at any time on the project** are to be entered in the table below irrespective of how long they worked on the project.

No.	Name of local worker	Identity number	Month worker started	Age of worker	Age (tick applicable column)			
					Woman		Man	
					Over 35 years 2A	35 years & under 2B	Over 35 years 2C	35 years & under 2D
Totals for this sheet								
Totals brought forward from previous sheet								
Totals carried forward to next sheet								

Total number of workers employed =

Completed by:

.....
signed

.....
initials and surname

.....

capacity

.....
date

Part 3

WEEKLY TASK WAGE REGISTER (local labourers only)

Sheet: ..

Entries in this portion to be completed by Foreman									Entries in this portion to be Completed by Contractor				
No.		Day Tasks Worked							Payment				
		Mo n	Tue	Wed	Th u	Fri	Sat	Su n	Total DAY TASKS worked this week	Rate per DAY TASK	Total payment due to worker	Workers signature on receipt of payment	Date payment received by worker
Totals for this sheet													
Totals brought forward from previous sheet													
Totals carried forward to next sheet													

3(A)

3(B)

Completed by:

.....
signed

.....
initials and surname

.....
capacity

.....
date

Part 4

LOCAL LABOUR AND SUPPLIER SCHEDULE

1. Summary of day tasks worked and amount spent on local labour this month

Week No.	Week Ending	Total Day Tasks / Person Days Worked <i>Total of 3(A) from Part 3 for each week</i>	Total Amount Paid <i>Total of 3(B) from Part 3 for each week</i>
1			
2			
3			
4			
5			
Total this month			

2. Summary of amount spent on local labour to date

1. Previous amount spent on local labour (from previous claim)	R
2. Amount spent on local labour this month (from total above)	R
3. Total amount spent on local labour to date (3) = (1+2)	R

3. Local labour schedule

Summary of Local Labour Employed <i>Refer to Part 2</i>	Number of local workers who worked on the project to date	% of Total
1. Total number of individual local workers who have worked on the project		100%
2. Number of local youth (35 yrs and under) (columns B plus D)		
3. Number of local women (columns A plus B)		

4. Summary of amount spent on local suppliers to date

1. Previous amount spent on local suppliers (from previous claim)	R
2. Amount spent on local suppliers this month (from total above)	R
3. Total amount spent on local suppliers to date (3) = (1+2)	R

Completed by:

.....
Signed

.....
initials and surname

.....
.....
Capacity

date

TENDER DRAWINGS

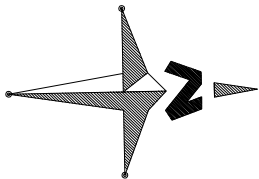
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- ROADEDGE
- ROADKERB
- FENCE



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CLIENT:

EMALAHLENI LOCAL MUNICIPALITY



P.O.BOX 3
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1025
TEL NO: (013) 590 8911
FAX NO: (013) 690 8907

PROJECT TITLE:

CONSTRUCTION OF ROAD AND
STORMWATER IN THUBELHLE EXT'5

DRAWING TITLE:

ROADS & STORMWATER GENERAL LAYOUT

DESIGNED: AJ VAN SCHALKWYK

SCALE: 1:1000

DRAWN: T VAN WEST

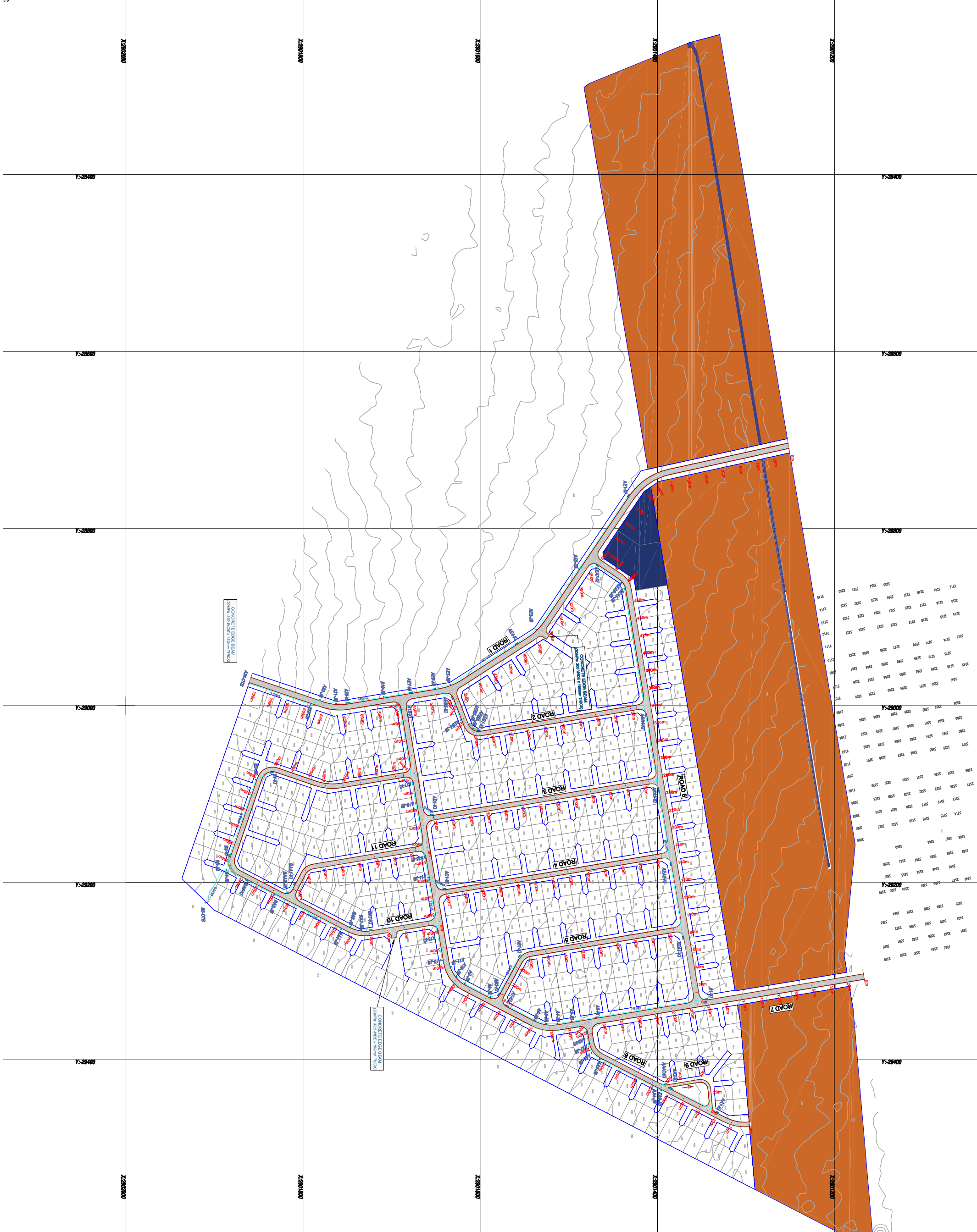
DATE: MARCH 2019

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CONTRACT NO.: ELM 09/2020

DRAWING NO: NKP383_GL01

REVISION: 00



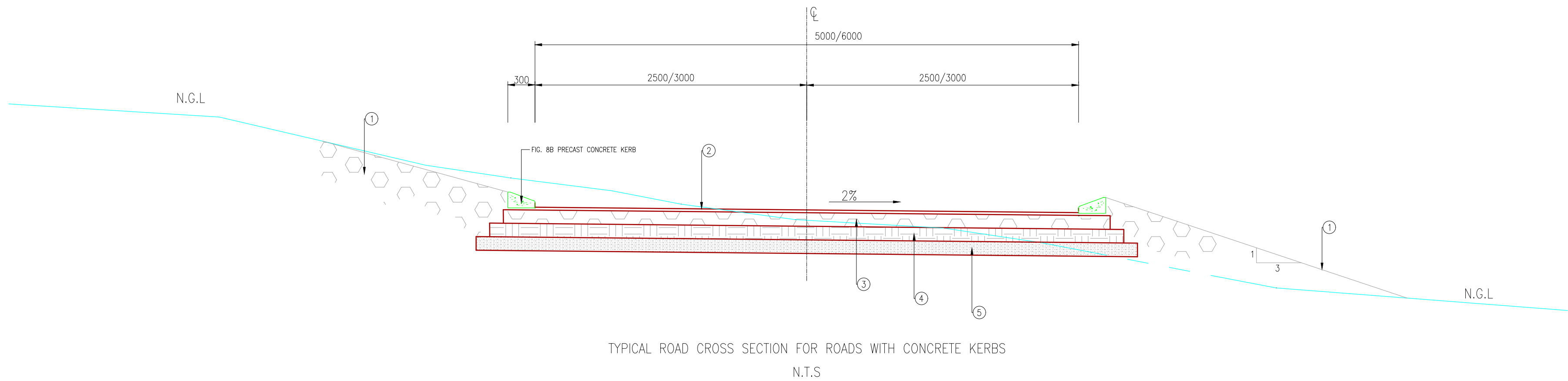
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BRANCHES IN PAARL AND MIDDELBURG

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WITBANK
1035
TEL NO.: (013) 690 6811
FAX NO.: (013) 690 6207

PROJECT TITLE:

THUBELIHLE EXTENSION 5

DRAWING TITLE:

TYPICAL ROAD CROSS SECTION &
PAVEMENT DESIGN

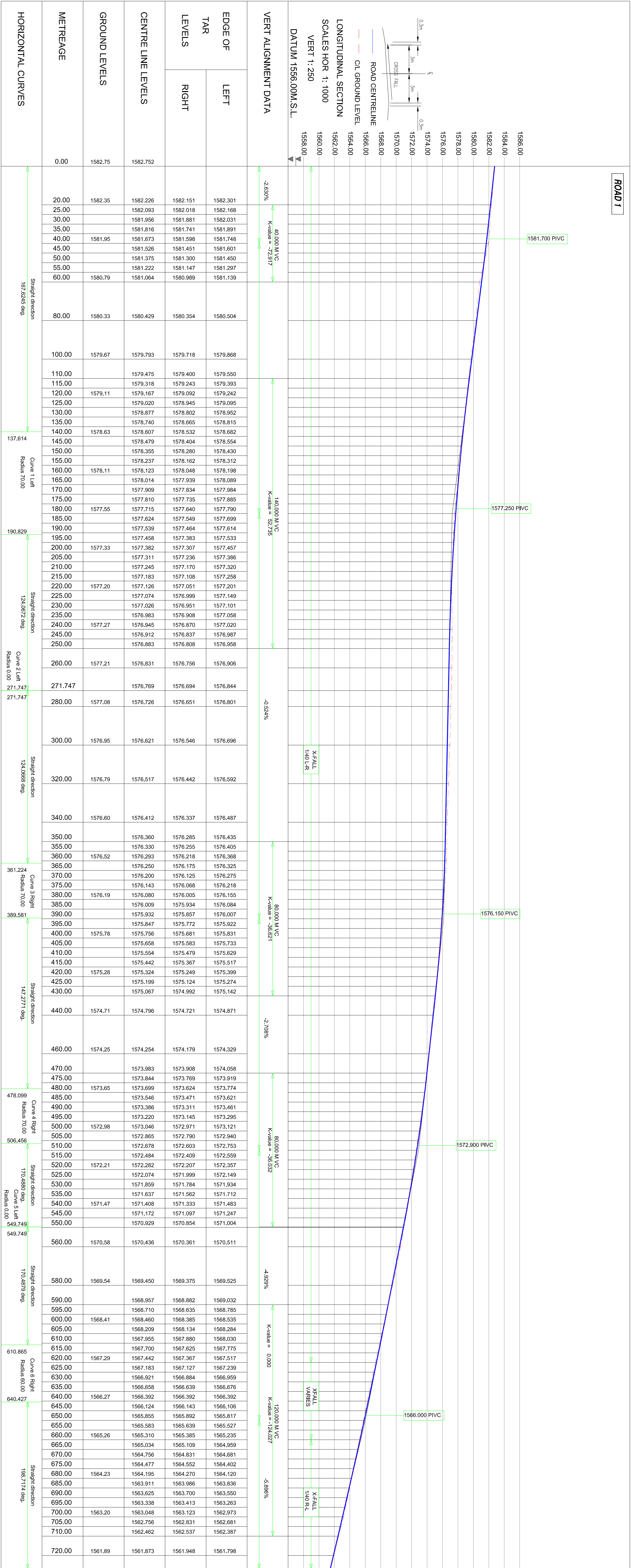
DESIGNED: C.M.STRYDOM	SCALE: AS INDICATED
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DRAWN: C.M.STRYDOM	DATE: MARCH 2019
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DRAWING NO: NKP383_PD01

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180	390	-0.524	-36.621
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510	650	-4.929	-124.027
650	727	-5.896	

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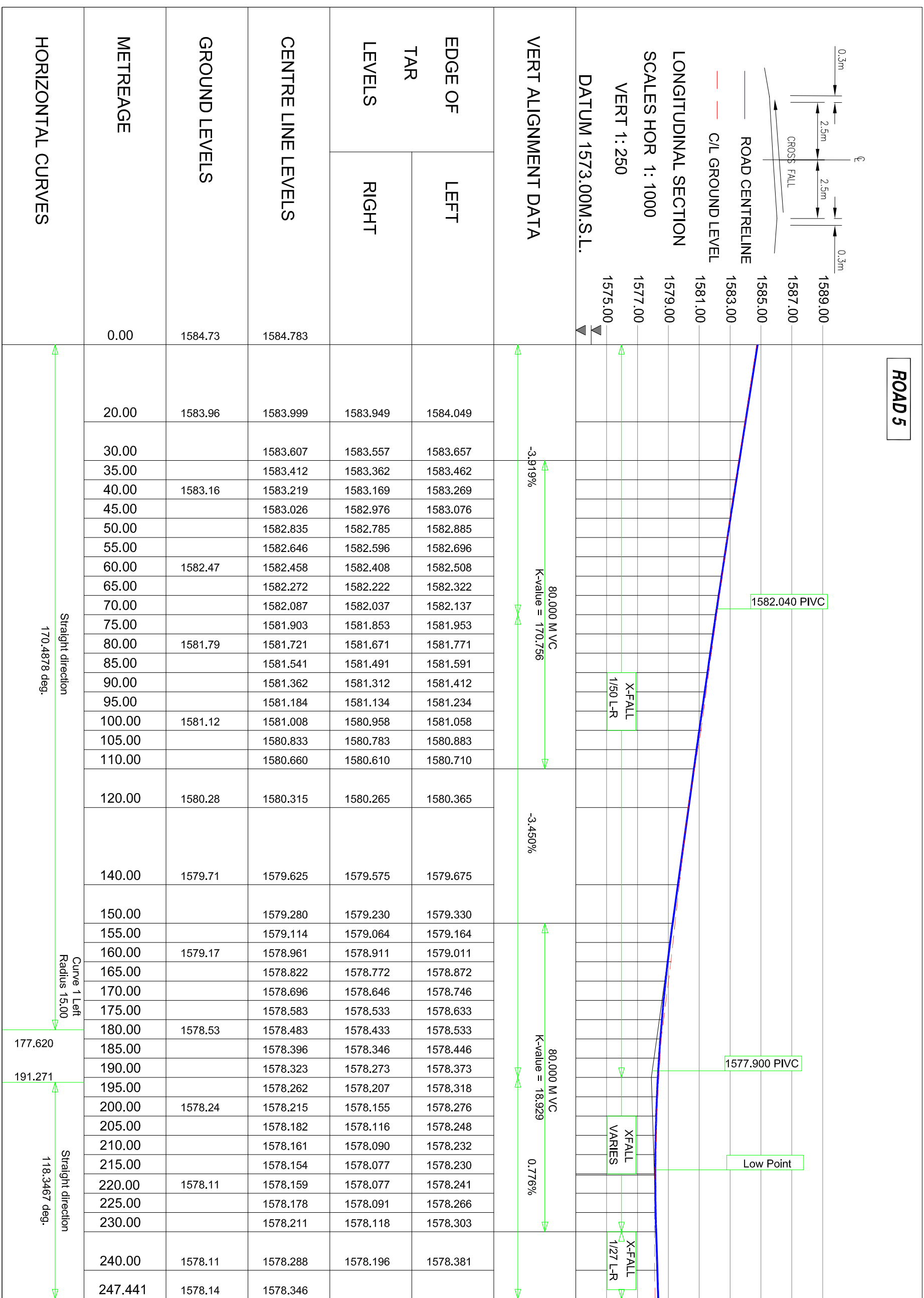
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PROJECT TITLE: CONSTRUCTION OF ROAD & STORMWATER IN THUBELIHE EXTENSION 5	P.O. BOX 3 EMALAHLENI MUNICIPALITY - 1035 TEL. NO.: (013) 690 6911 FAX NO.: (013) 690 6207

DRAWING TITLE: LONGITUDINAL SECTION ROAD 1	
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CHECKED: FJ BURGER	CONTRACT NO.:

DATE: MARCH 2019		SCALE: VERT. 1:250 HOR. 1:1000	
DRAWING NO: NKP383_L501		REVISION:	
		00	



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70	190	-3.450	18.929
190	247.441	0.776	

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FAX NO.: (013) 690 620

TEL NO.: (013) 690 691
FAX NO.: (013) 690 620

PROJECT TITLE:

CONSTRUCTION OF ROAD & STORMWATER IN THUBELIHE EXTENSION 5

DRAWING TITLE:

LONGITUDINAL SECTION
ROAD 5

DESIGNED:

AJ VAN SCHALKWYK

CHECKED:

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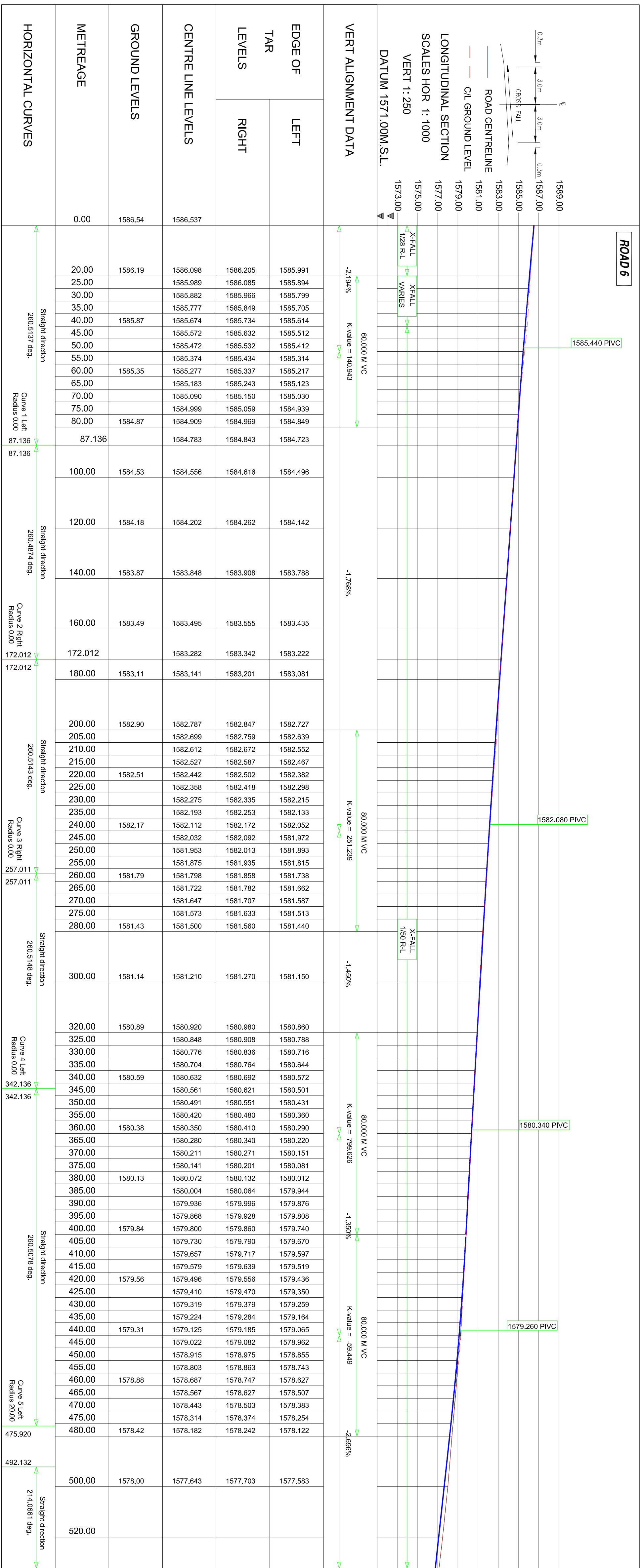
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NKP378-LS05

80



VERTICAL ALIGNMENT THEUBELHE EXT 5, ROAD 6			
FROM CHAINAGE	TO CHAINAGE	GRADE %	K VALUES
0	50	-2.194	140.943
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240	360	-1.450	251.239
360	440	-1.350	799.626
440	532.409	-2.696	-59.449

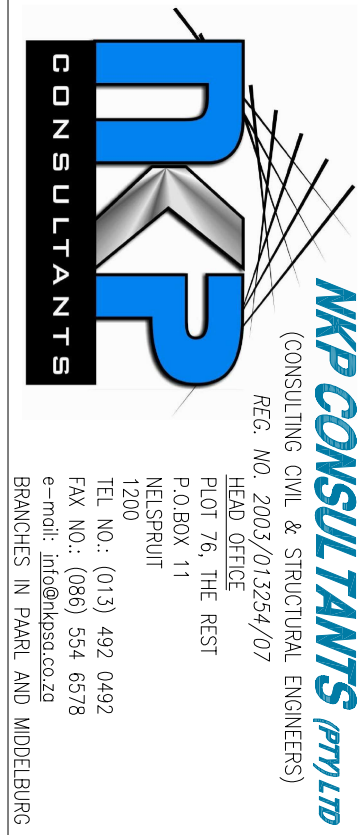
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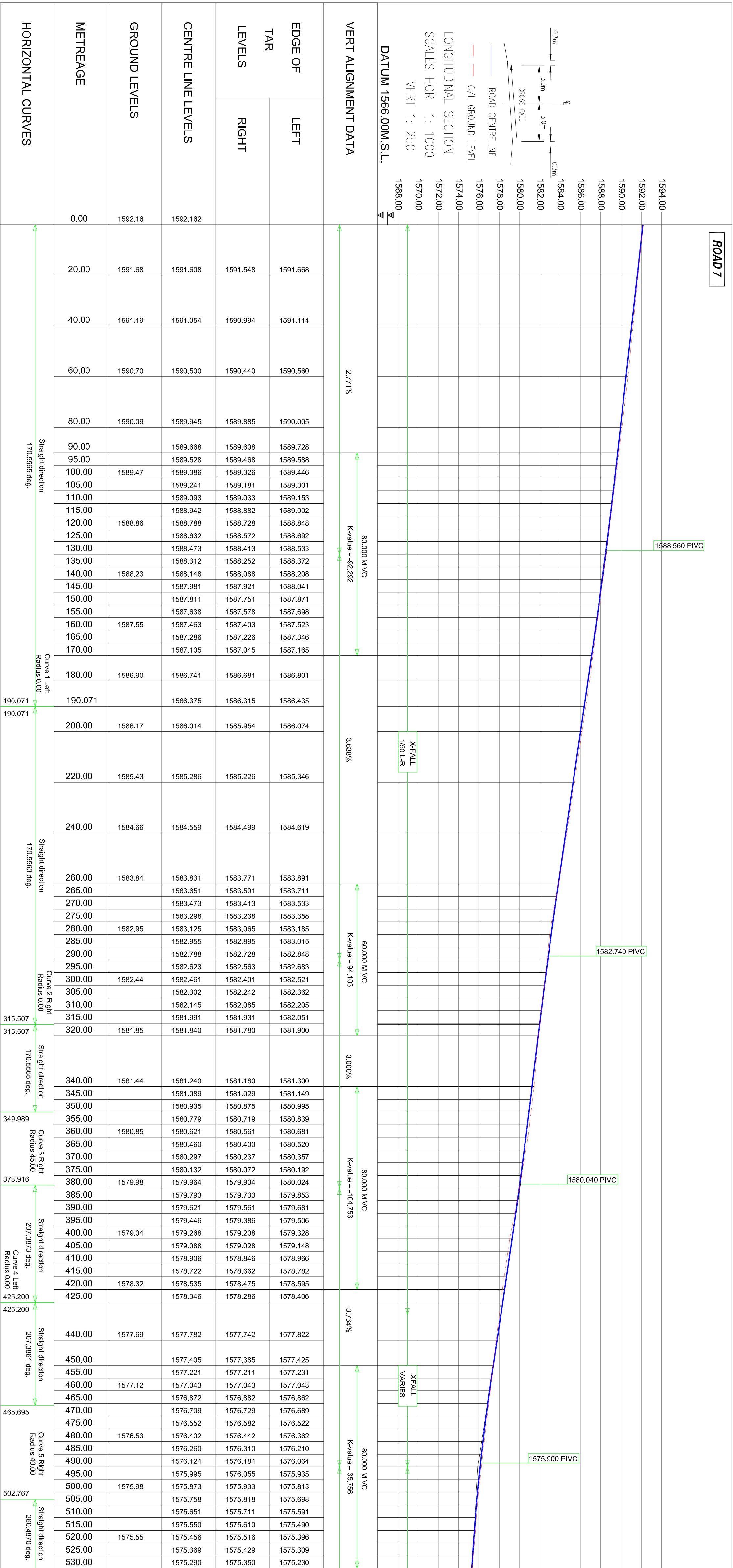
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TEL NO.: (013) 690 6311
FAX NO.: (013) 690 6260

PROJECT TITLE: CONSTRUCTION OF ROAD & STORMWATER
IN THUBELILE EXTENSION 5

DRAWING TITLE:		LONGITUDINAL SECTION ROAD 6	
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FROM CHAINAGE	TO CHAINAGE	GRADE %	K-VALUES
0	130	-2.771	-92.292
130	290	-3.638	
290	380	-3.000	
380	490	-3.764	-104.753
490	806.203	-1.526	35.756

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CLIENT:

EMALAHLENI LOCAL MUNICIPALITY

PROJECT TITLE:

CONSTRUCTION OF ROAD & STORMWATER IN THUBELIHE EXTENSION 5

DESIGNED:

AJ VAN SCHALKWYK

CHECKED:

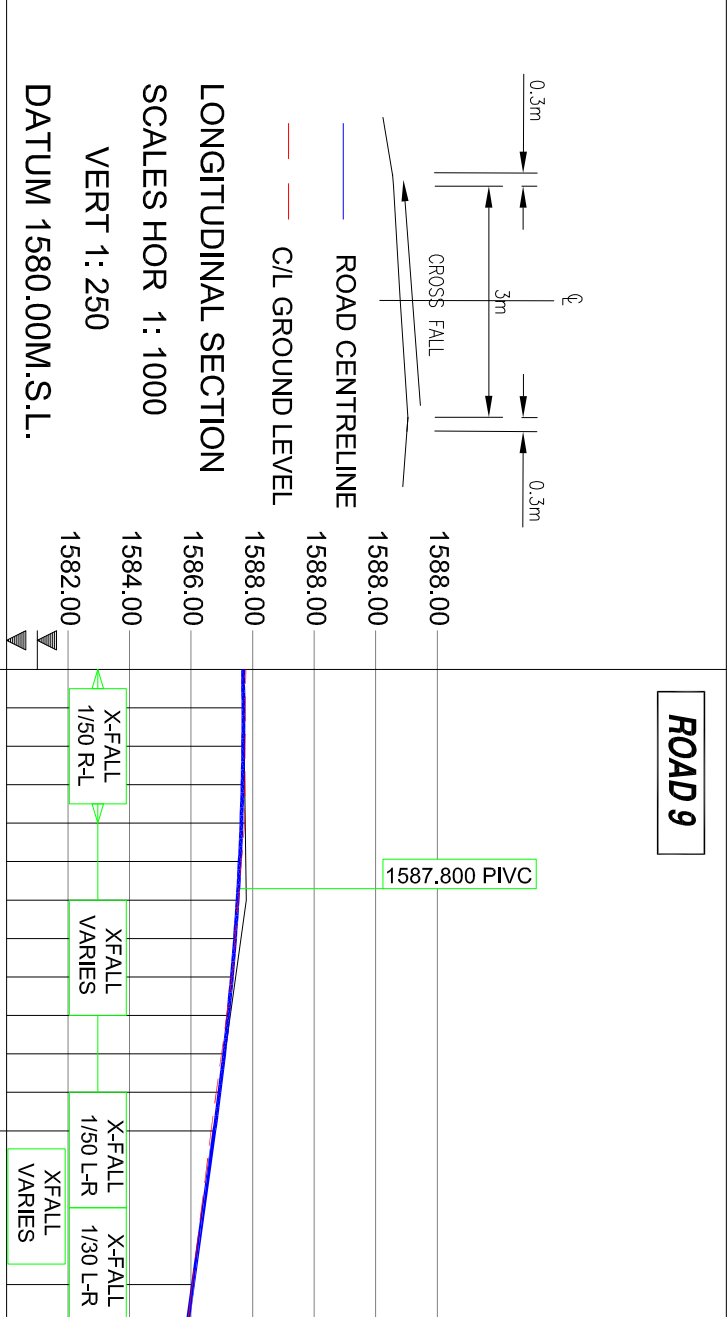
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DATE:

MARCH 2019

SCALE:

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HOR. 1:1000

[illegible]

VERTICAL ALIGNMENT THROUGH THE EXITS ROAD 9			
FROM CHAINAGE	TO CHAINAGE	GRADE %	K-VALUES
0	90	-3.180	324.331
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
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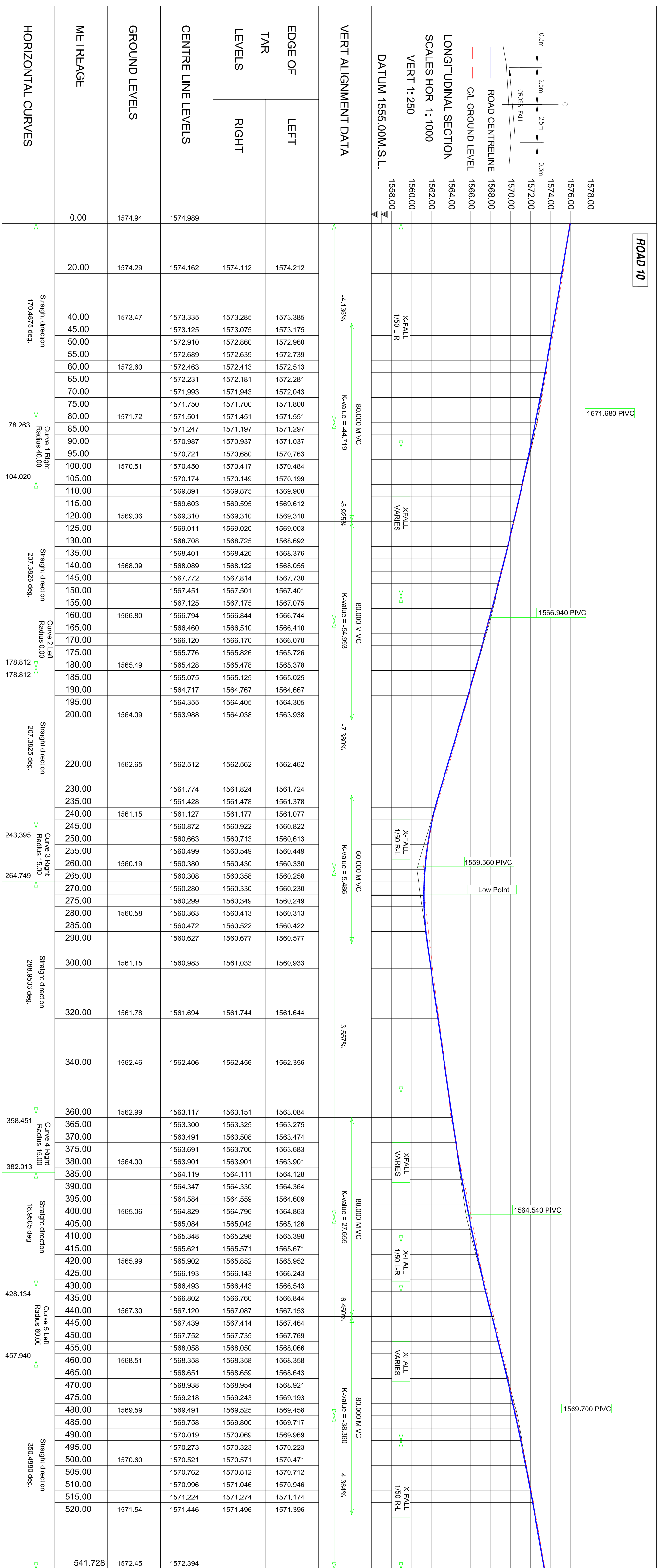
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BRANCHES IN PAVARI AND MODEL BURU




CLIENT:	EMMAHLENI LOCAL MUNICIPALITY
PROJECT TITLE:	CONSTRUCTION OF ROAD & STORMWATER IN THUBELIHLA EXTENSION 5
	
	PO BOX 3 EMMAHLENI 1005 TEL NO: (013) 690 6911 FAX NO: (013) 690 6201

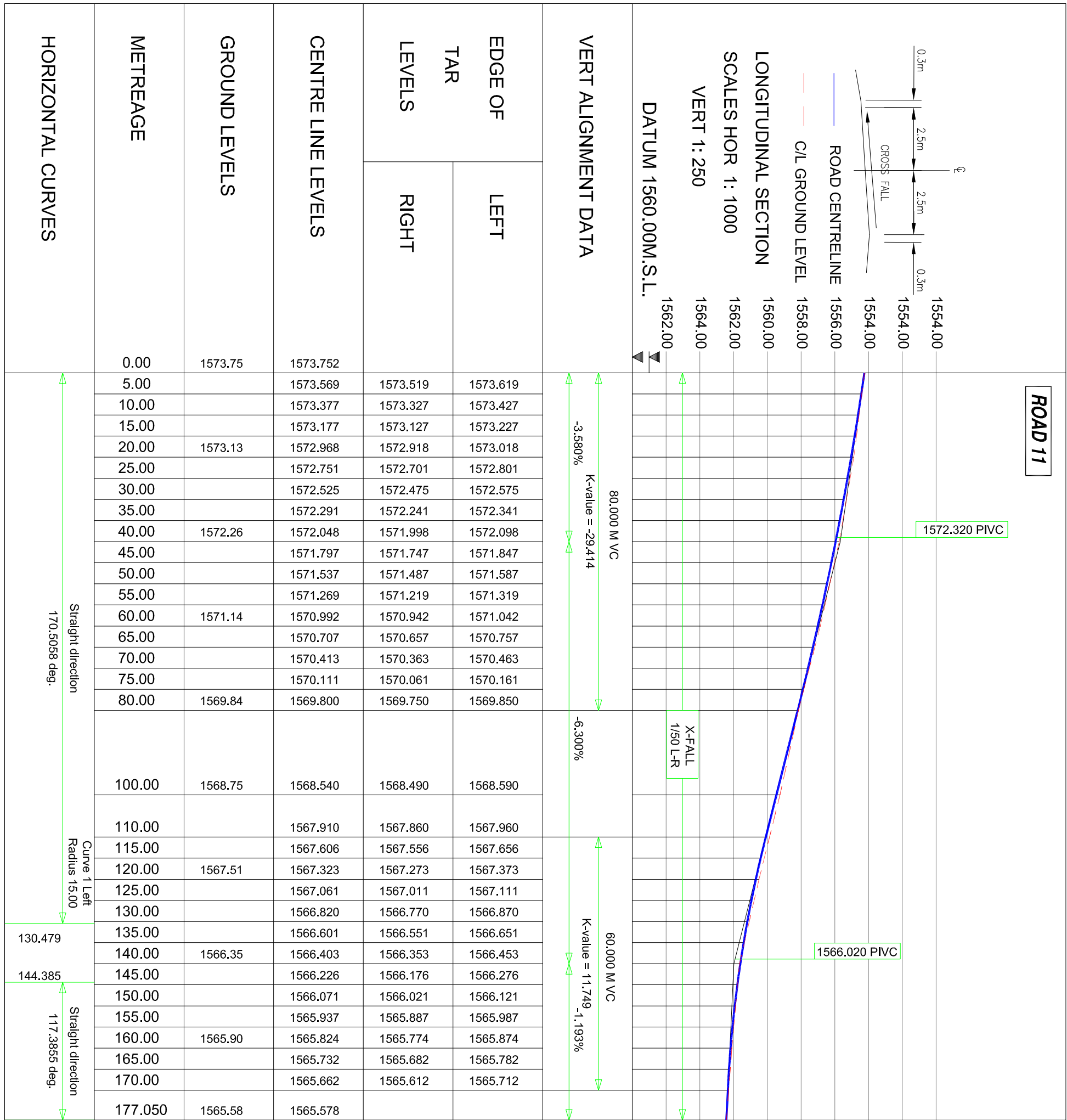
DRAWING TITLE:		LONGITUDINAL SECTION ROAD 9	
DESIGNED:	AJ VAN SCHALKWYK	DRAWN:	T VAN WEST
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REVISION:				



VERTICAL ALIGNMENT THIRDEHUE EXT.5, ROAD 10			
FROM CHAINAGE	TO CHAINAGE	GRADE %	K VALUES
0	80	-4.136	-44.719
80	160	-5.925	-54.993
160	260	-7.380	-54.66
260	400	3.557	27.655
400	480	6.450	-38.360
480	541.728	4.364	

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<div>EVALAHLIENI LOCAL MUNICIPALITY P.O. Box 3 EVALAHLIENI MIDWINTER, 1025 TEL NO.: (013) 690 9911 FAX NO.: (013) 690 8207</div>		<div>CLIENT: EVALAHLIENI LOCAL MUNICIPALITY</div>	
<div>CONSTRUCTION OF ROAD & STORMWATER IN THUBHELE EXTENSION 5</div>		<div>PROJECT TITLE:</div>	
<div>DESIGNED: AJ VAN SCHALKWYK</div>		<div>DRAWN: T VAN WEST</div>	
<div>CHECKED: FJ BURGER</div>		<div>CONTRACT NO.:</div>	
<div>REVISION:</div>		<div>DATE: MARCH 2019</div>	
<div>DRAWING NO: NKP 383-LS10</div>		<div>SCALE: VERT. 1:250 HORI. 1:1000</div>	



VERTICAL ALIGNMENT THUBHEILE EXTENSION 5, ROAD 11			
FROM CHAINAGE	TO CHAINAGE	GRADE %	K-VALUES
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40	140	-6.300	11.749
140	177.050	-1.193	


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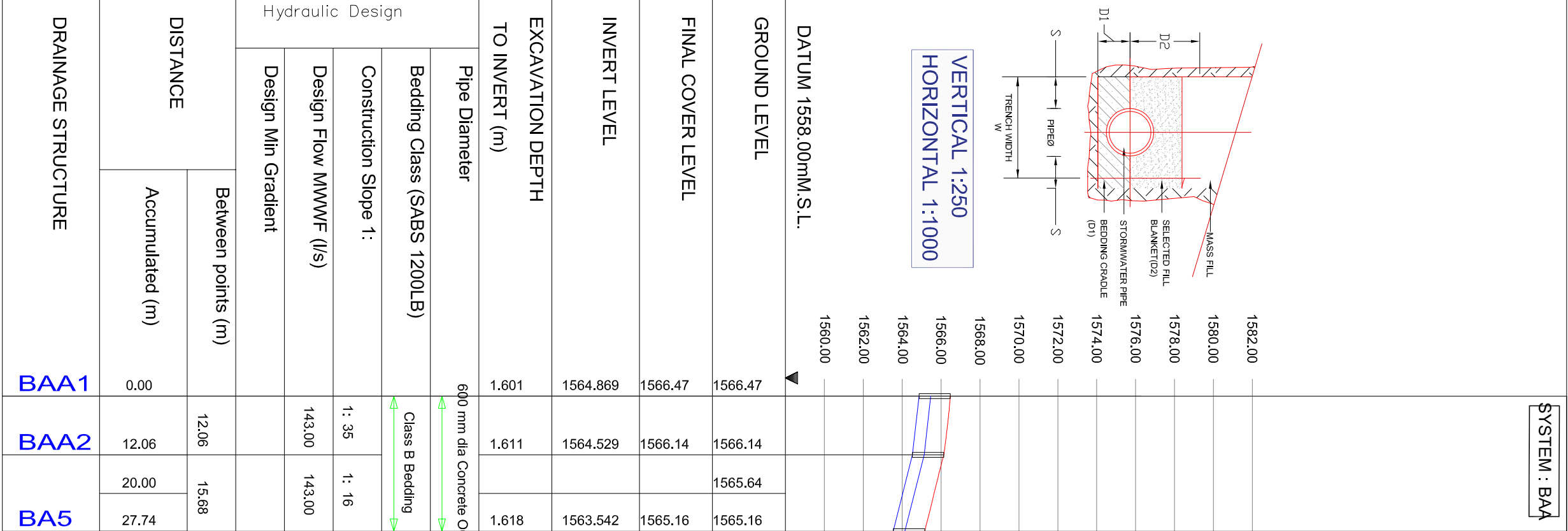
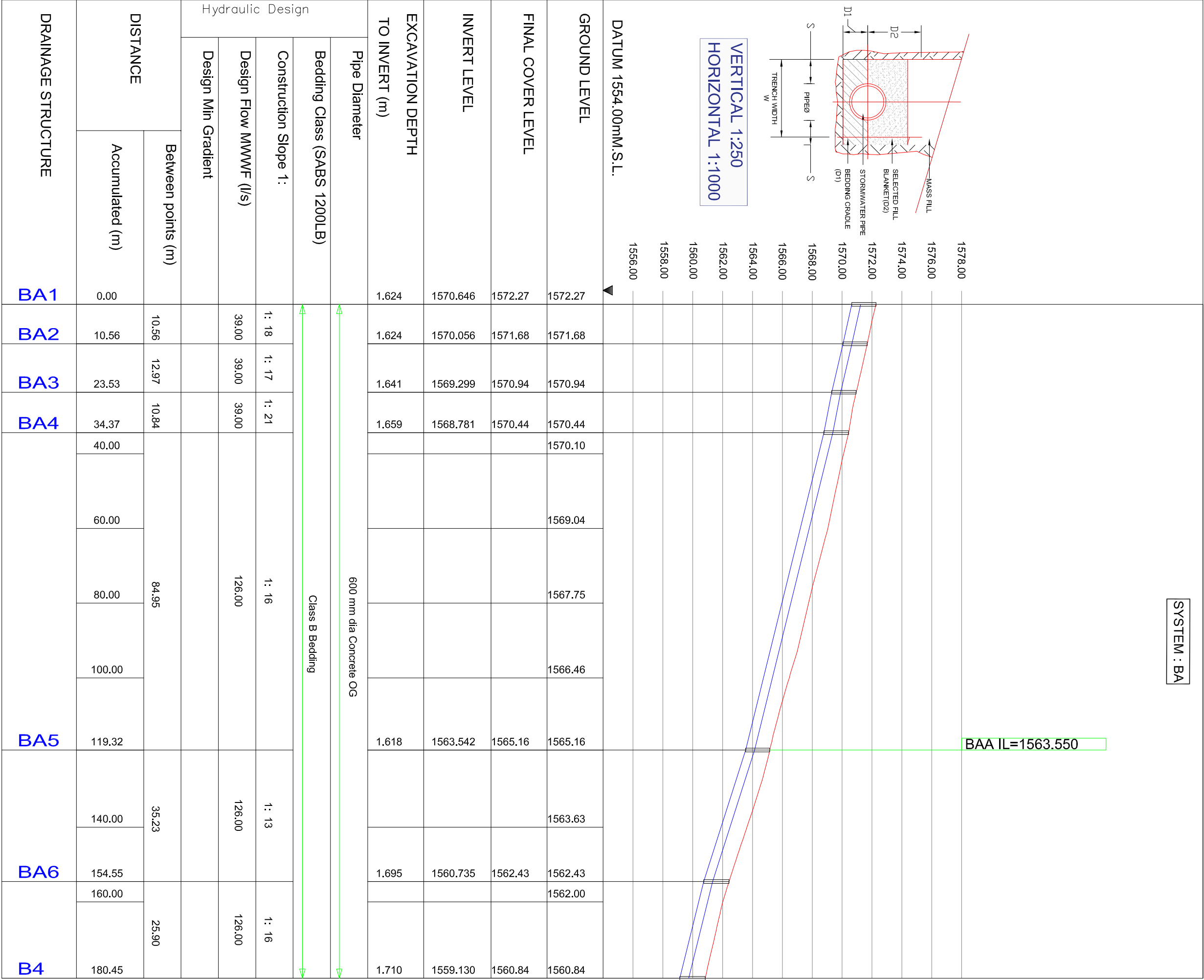
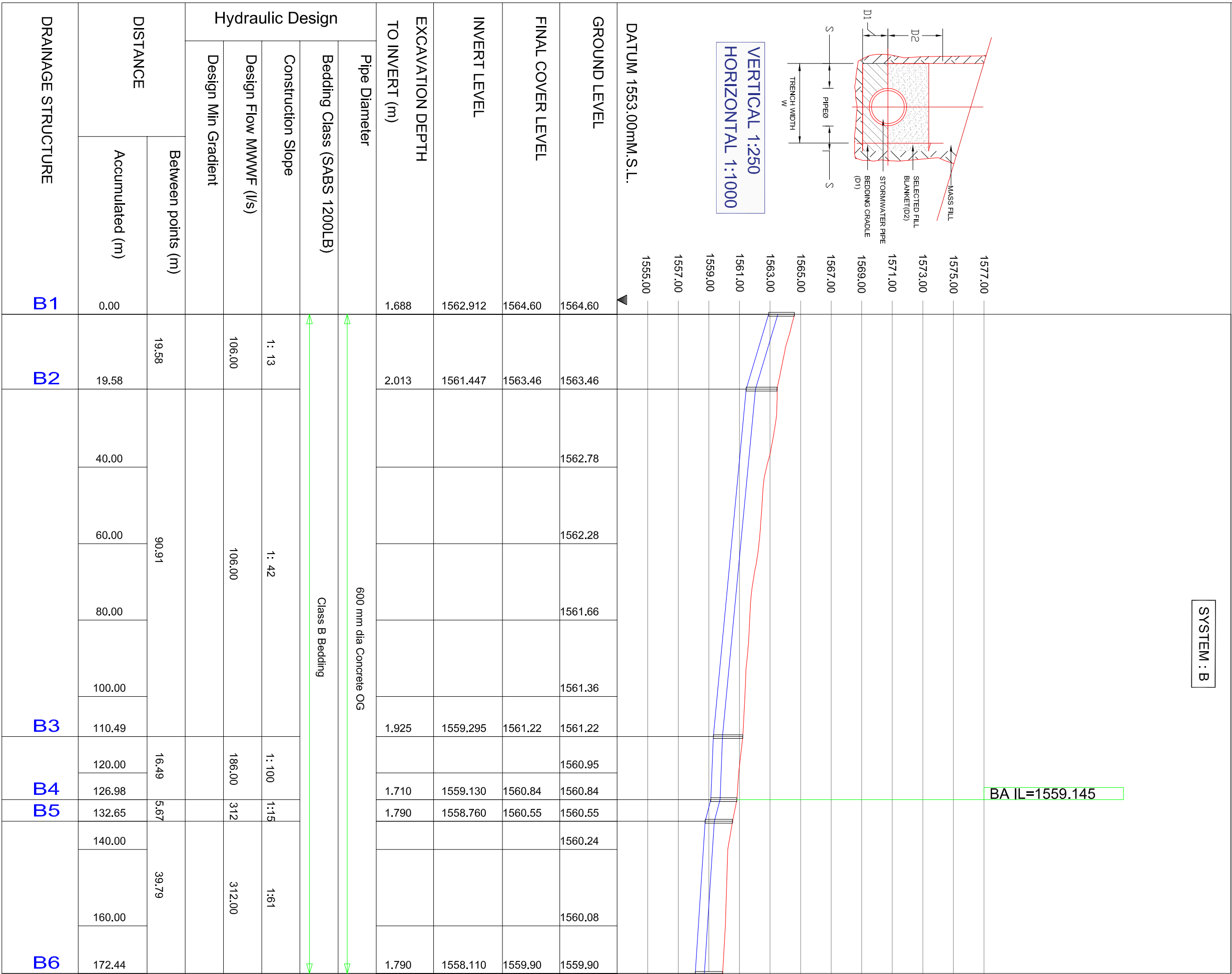
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BRANCHES IN PAPEL AND MODELBURG

CLIENT:	EMALAHLENI LOCAL MUNICIPALITY
PROJECT TITLE:	CONSTRUCTION OF ROAD & STORMWATER IN THUBELILE EXTENSION 5
	
	P.O. BOX 3 EMALAHLENI UPMANUWA, 1035 TEL. NO.: (013) 690 6911 FAX NO.: (013) 690 6207

DRAWING TITLE:		LONGITUDINAL SECTION	
		ROAD 11	
DESIGNED:	AJ VAN SCHALKWYK	DRAWN:	T VAN WEST
CHECKED:	FJ BURGER	CONTRACT NO.:	

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MH	Pipe Dia.	Pipe Description	Distance Between	Grade	Invert Level	Cover Level	Depth	Flow
B1	600	Concrete OG Class 100D	19.58	1: 13	1562.912	1564.60	1.69	106.00
B2	600	Concrete OG Class 50D	90.91	1: 42	1561.447	1563.46	2.01	106.00
B3	600	Concrete OG Class 50D	16.48	1:100	1569.295	1561.22	1.82	186.00
B4	600	Concrete OG Class 50D	5.67	1: 15	1569.130	1560.84	1.71	312.00
B5	600	Concrete OG Class 50D	38.79	1: 61	1568.760	1560.55	1.79	312.00
B6		Concrete OG Class 50D			1568.110	1559.90	1.79	

MH	Pipe Dia.	Pipe Description	Distance Between	Grade	Invert Level	Cover Level	Depth	Flow
BA1	600	Concrete OG Class 50D	10.56	1: 18	1570.946	1572.27	1.62	39.00
BA2	600	Concrete OG Class 50D	12.97	1: 17	1570.096	1571.68	1.62	39.00
BA3	600	Concrete OG Class 50D	10.84	1: 21	1569.299	1570.94	1.64	39.00
BA4	600	Concrete OG Class 100D	84.95	1: 16	1568.781	1570.44	1.66	39.00
BA5	600	Concrete OG Class 50D	35.23	1: 13	1563.542	1565.16	1.82	126.00
BA6	600	Concrete OG Class 50D	25.90	1: 16	1560.735	1562.43	1.70	126.00
B4	600	Concrete OG Class 50D			1569.130	1560.84	1.71	

MH	Pipe Dia.	Pipe Description	Distance Between	Grade	Invert Level	Cover Level	Depth	Flow
BAA1	600	Concrete OG Class 50D	12.06	1: 35	1564.869	1566.47	1.80	143.00
BAA2	600	Concrete OG Class 50D	15.08	1: 16	1564.529	1565.14	1.81	143.00
BA5					1563.542	1565.16	1.82	

MH	Y Coord	X Coord
B1	29075.63	-2901835.16
B2	29063.49	-2901653.18
B3	29169.47	-2901862.70
B4	29165.47	-2901866.65
B5	29167.20	-2901862.06
B6	29222.54	-2901910.34

MH	Y Coord	X Coord
BA1	29253.18	-2901723.68
BA2	29253.26	-2901734.24
BA3	29249.39	-2901746.61
BA4	29252.67	-2901756.95
BA5	29213.59	-2901832.38
BA6	29167.39	-2901863.66
B4	29165.47	-2901866.65

MH	Y Coord	X Coord
B1	29075.63	-2901835.16
B2	29063.49	-2901653.18
B3	29169.47	-2901862.70
B4	29165.47	-2901866.65
B5	29167.20	-2901862.06
B6	29222.54	-2901910.34

- STORMWATER:
- 1) ALL STORMWATER PIPES TO BE CLASS 500 CONCRETE (SABS 677) EXCEPT FOR ROAD CROSSINGS (INDICATED ON LONG SECTION) WHERE CLASS 1000 CONCRETE (SABS 677) PIPES ARE TO BE USED. INSTALLED 1.5m FROM ROAD EDGE, ON LOWER SIDE OF ROAD, UNLESS OTHERWISE SPECIFIED.
 - 2) ALL PIPES TO BE Laid ON CLASS 'B' BEDDING.
 - 3) ALL PIPES HAVE 0.6m MINIMUM COVER TO FINAL ROAD LEVELS IN ACCORDANCE WITH SABS 0102.
 - 4) AT ROAD CROSSINGS THE MINIMUM COVER WILL BE 1000mm AND THE TRENCH WILL BE RE-FILLED WITH SOIL GRETE (1:3 RATIO) WITH OPC.
 - 5) ALL JOINTS BETWEEN PIPES TO BE SEALED WITH DENSIO BITUMEN SEALANT, PRIOR TO COVERING UP.
 - 6) REFER TO TYPICAL DRAWINGS FOR DETAILS ON STORMWATER STRUCTURES.
 - 7) JUNCTION BOXES TO BE INSTALLED AS INDICATED ON THE LAYOUT DRAWING. THE ROOF TO BE LOCATED 500mm BELOW N.G.L. AND WILL HAVE A ROOF SLAB OF 200mm THICK, OF 20MPa/19mm, WITH AN ACCESS MANHOLE.
 - 8) KERB INLET STRUCTURES TO BE OF 'KERB MASTER' SA PRE-CAST UNITS, TO LENGTHS SPECIFIED ON THE ROAD LONGSECTIONS.
 - 9) PLACEMENT OF KI (KERB INLET) STRUCTURES TO BE AS PER LAYOUT POSITION. ENSURE THAT STRUCTURE PLACEMENT DOES NOT INTERFERE WITH ACCESS DRIVEWAYS FOR STANDS.
 - 10) THRUST BLOCKS TO BE PROVIDED AT ALL FITTINGS TO THE DETAILS SHOWN ON TYPICAL DRAWING OR AS INSTRUCTED BY THE ENGINEER.
 - 11) ALL STORMWATER PIPELINES LOCATED IN THE ROADWAY SHOULD BE SPIGOT AND SOCKET TYPE PIPES.

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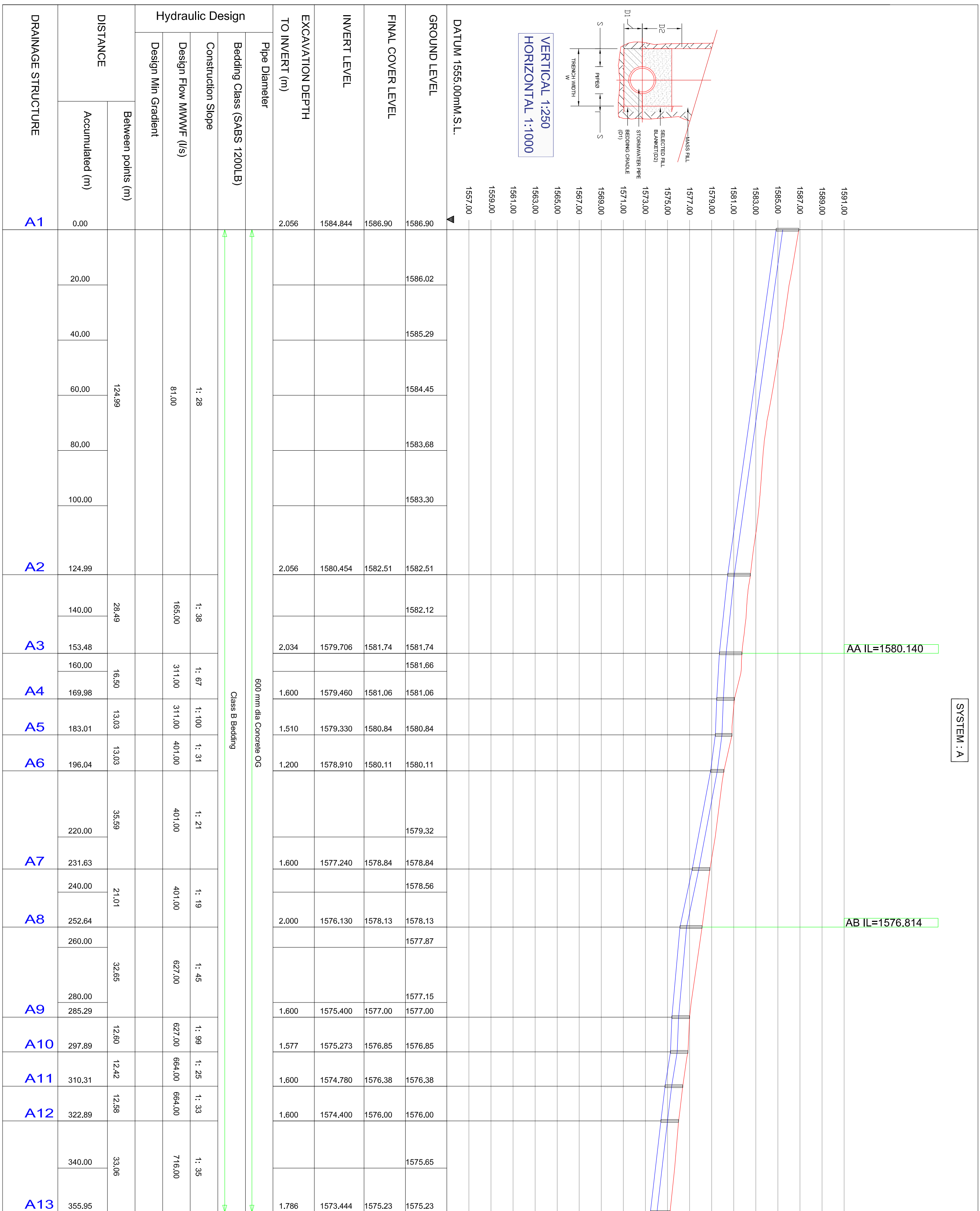
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P.O. BOX 11
KIMBERLEY
2200

TEL NO.: (013) 492 0492
FAX NO.: (086) 554 6578
SERVICES IN PAVE AND MORTARING

CLIENT:	EMALAHLENI LOCAL MUNICIPALITY
PROJECT TITLE:	CONSTRUCTION OF ROAD AND STORMWATER IN THUBELHLE EXTENSION 5
PO BOX 3 WITBANK 1035	TEL NO.: (013) 660 6911 FAX NO.: (013) 660 6207

DRAWING TITLE:	LONGITUDINAL SECTION: SYSTEM B, BA & BAA
DESIGNED:	AJ VAN SCHALKWYK
CHECKED:	FJ BUNGER
DRAWN:	CM STRYDOM
CONTRACT NO.:	

DATE:	APRIL 2020	SCALE:	VERT. 1:250 HOR. 1:1000
DRAWING NO.:	NKP 383_LSW01		
REVISION:	00		





MH	Pipe Dia.	Pipe Description	Distance Between	Grade	Invert Level	Cover Level	Depth	Flow
A1	600	Concrete OG Class 1000	124.49	1: 28	1594.944	1586.90	2.06	81.00
A2	600	Concrete OG Class 500	28.49	1: 38	1590.454	1582.51	2.06	165.00
A3	600	Concrete OG Class 500	16.50	1: 67	1579.706	1581.74	2.03	311.00
A4	600	Concrete OG Class 500	13.03	1:00	1579.460	1581.06	1.60	311.00
A5	600	Concrete OG Class 500	13.03	1: 31	1579.330	1580.84	1.51	401.00
A6	600	Concrete OG Class 500	35.59	1: 21	1578.910	1580.11	1.20	401.00
A7	600	Concrete OG Class 1000	21.01	1: 19	1577.240	1578.84	1.60	401.00
A8	600	Concrete OG Class 500	32.65	1: 45	1576.150	1578.13	2.00	627.00
A9	600	Concrete OG Class 500	12.60	1: 99	1575.400	1577.00	1.60	627.00
A10	600	Concrete OG Class 500	12.42	1: 25	1575.273	1576.85	1.58	654.00
A11	600	Concrete OG Class 1000	12.48	1: 33	1574.780	1576.38	1.60	654.00
A12	600	Concrete OG Class 500	33.06	1: 35	1574.400	1576.00	1.60	716.00
A13	750	Concrete OG Class 1000	61.88	1: 75	1573.444	1575.23	1.79	762.00
A14	750	Concrete OG Class 500	23.00	1: 66	1572.614	1574.55	1.94	928.00
A15	750	Concrete OG Class 1000	61.99	1: 48	1572.285	1574.03	1.77	971.00
A16	900	Concrete OG Class 500	22.89	1: 56	1570.979	1573.04	2.06	1129.00
A17	900	Concrete OG Class 1000	84.88	1: 63	1570.573	1572.65	2.08	1129.00
A18	900	Concrete OG Class 1000	23.10	1: 25	1569.552	1571.23	1.88	1129.00
A19	900	Concrete OG Class 500	40.81	1: 30	1568.610	1570.21	1.80	1833.00
A20	900	Concrete OG Class 500	13.89	1: 22	1566.011	1568.12	1.51	1833.00
A21	900	Concrete OG Class 500	18.48	1: 15	1564.800	1566.70	1.90	1833.00
A22	900	Concrete OG Class 1000	11.84	1: 12	1563.946	1566.19	2.34	1833.00
A23	900	Concrete OG Class 500	73.80	1: 21	1560.266	1562.21	1.94	1833.00

SYSTEM: A		
MM	Y Coord	X Coord
A1	29331.445	-290144.955
A2	29351.390	-2901468.24
A3	29356.58	-2901496.35
A4	29359.29	-290112.63
A5	29359.34	-2901526.65
A6	29355.28	-2901338.03
A7	29338.64	-290169.64
A8	29329.24	-2901588.29
A9	29314.23	-290117.28
A10	29305.81	-2901626.66
A11	29294.93	-2901632.64
A12	29287.66	-290142.91
A13	29255.08	-2901648.37
A14	29194.02	-2901658.58
A15	29171.34	-2901672.59
A16	29110.19	-2901676.37
A17	29087.62	-2901793.36
A18	29003.90	-2901903.37
A19	28990.11	-2901708.89
A20	28986.87	-2901434.24
A21	28987.45	-2901762.92
A22	28983.41	-2901780.89
A23	28988.94	-2901791.36
A24	28975.06	-2901661.06

- 1) ALL STORMWATER PIPS TO BE CLASS 500 CONCRETE (SABS 677)
- 2) EXCEPT FOR ROAD CROSSINGS (INDICATED ON LONG SECTION) WHERE CLASS 1000 CONCRETE (SABS 677) PIPS ARE TO BE USED.
- 3) INSTALLED 1,3m FROM ROAD EDGE ON LOWER SIDE OF ROAD, UNLESS OTHERWISE SPECIFIED.
- 4) ALL PIPS TO BE LAD ON CLASS 'B' BEDDING.
- 5) ALL PIPS HAVE 0,6m MINIMUM COVER TO FINAL ROAD LEVELS IN ACCORDANCE WITH SABS 0102.
- 6) AT ROAD CROSSINGS THE MINIMUM COVER WILL BE 1000mm AND THE TRENCH WILL BE REFILLED WITH SOIL CRETE (1:8 RATIO) WITH OPC.
- 7) ALL JOINTS BETWEEN PIPS TO BE SEALED WITH DENSIO BITUMEN SEALANT, PRIOR TO COVERING UP.
- 8) REFER TO TYPICAL DRAWINGS FOR DETAILS ON STORMWATER STRUCTURES.
- 9) JUNCTION BOXES TO BE INSTALLED AS INDICATED ON THE LAYOUT DRAWING. THE ROOF TO BE LOCATED 500mm BELOW N.G.L. AND WILL HAVE A ROOF SLAB OF 200mm THICK, OF 2000kg/m² WITH AN ACCESS HATCHOLE.
- 10) KERN INLET STRUCTURES TO BE OF 'KERN MASTER' SA PRE-CAST UNITS, TO LENGTHS SPECIFIED ON THE ROAD LONGSECTIONS.
- 11) PLACEMENT OF KI (KERN INLET) STRUCTURES TO BE AS PER LAYOUT POSITION, ENSURE THAT STRUCTURE PLACEMENT DOES NOT INTERFERE WITH ACCESS DRIVEWAYS FOR STANOS.
- 12) THROUST BLOCKS TO BE PROVIDED AT ALL FITTINGS TO THE DETAILS SHOWN ON TYPICAL DRAWING OR AS INSTRUCTED BY THE ENGINEER.
- 13) ALL STORMWATER PIPELINES LOCATED IN THE ROADWAY SHOULD BE SPOOT AND SOCKET THE PIPS.

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DATE: 2009/09/04	PR. ENG. 2009/09/04
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REVDATE	

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 CLIENT: EMUALAHENI LOCAL MUNICIPALITY PO BOX 3 1055 TEL NO.: (01) 690 8911 FAX NO.: (01) 690 8207	
PROJECT TITLE: CONSTRUCTION OF ROAD & STORMWATER IN THUBHELE EXTENSION 5	
DRAWING TITLE: LONGITUDINAL SECTION: SYSTEM A	DESIGNED: AJ VAN SCHALKWYK
DRAWN: CM STRYDOM	CHECKED: FJ BURGER
DATE: APRIL 2020	DRAWING NO.: NKP383_LSM02
SCALE: VERT 1:250 HORI. 1:1000	REVISION: 00

[illegible]

MH	Pipe Dia.	Pipe Description	Distance Between	Grade	Invert Level	Cover Level	Depth	Flow
A1	600	Concrete OG Class 1000	124.99	1: 28	1564.644	1566.90	2.06	81.00
A2	600	Concrete OG Class 50D	28.48	1: 38	1560.664	1562.51	2.06	165.00
A3	600	Concrete OG Class 50D	16.50	1: 67	1579.706	1581.74	2.03	311.00
A4	600	Concrete OG Class 50D	13.03	1:00	1579.460	1581.06	1.60	311.00
A5	600	Concrete OG Class 50D	13.03	1: 31	1579.330	1580.64	1.51	401.00
A6	600	Concrete OG Class 50D	35.59	1: 21	1578.910	1580.11	1.20	401.00
A7	600	Concrete OG Class 100D	21.01	1: 19	1577.240	1578.84	1.60	401.00
A8	600	Concrete OG Class 50D	32.65	1: 45	1576.130	1578.13	2.00	627.00
A9	600	Concrete OG Class 50D	12.60	1: 99	1575.400	1577.00	1.60	627.00
A10	600	Concrete OG Class 50D	12.42	1: 25	1575.272	1576.85	1.58	664.00
A11	600	Concrete OG Class 100D	12.58	1: 33	1574.780	1576.38	1.60	664.00
A12	600	Concrete OG Class 50D	33.06	1: 35	1574.400	1576.00	1.60	716.00
A13	750	Concrete OG Class 100D	61.86	1: 75	1573.444	1575.23	1.79	762.00
A14	750	Concrete OG Class 50D	23.00	1: 66	1572.614	1574.55	1.94	928.00
A15	750	Concrete OG Class 100D	61.99	1: 48	1572.265	1574.03	1.77	971.00
A16	900	Concrete OG Class 50D	22.89	1: 36	1570.979	1573.04	2.06	1159.00
A17	900	Concrete OG Class 100D	84.88	1: 63	1570.573	1572.65	2.08	1159.00
A18	900	Concrete OG Class 100D	23.10	1: 25	1569.652	1571.23	1.68	1129.00
A19	900	Concrete OG Class 50D	40.91	1: 20	1568.610	1570.21	1.60	1833.00
A20	900	Concrete OG Class 50D	13.69	1: 22	1566.011	1568.12	1.51	1833.00
A21	900	Concrete OG Class 50D	16.48	1: 15	1566.007	1567.51	1.51	1833.00
A22	900	Concrete OG Class 100D	11.84	1: 12	1564.900	1566.70	1.90	1833.00
A23	900	Concrete OG Class 50D	73.60	1: 21	1563.846	1566.19	2.34	1833.00
A24		Concrete OG Class 50D			1560.266	1562.21	1.94	1833.00

SYSTEM A		
MH	Y Coord	X Coord
A1	28331.40	-280134.95
A2	28351.90	-280148.24
A3	28356.58	-280146.35
A4	28359.00	-280151.23
A5	28359.34	-280152.65
A6	28355.28	-280153.03
A7	28338.90	-280159.64
A8	28329.24	-280158.29
A9	28314.72	-280167.28
A10	28305.81	-280162.66
A11	28294.93	-280162.64
A12	28287.66	-280164.31
A13	28287.06	-280164.37
A14	28194.02	-280168.58
A15	28171.34	-280162.27
A16	28110.19	-280167.59
A17	28087.62	-280167.37
A18	28080.90	-280160.37
A19	28090.11	-280170.89
A20	28098.87	-280174.24
A21	28097.45	-280172.32
A22	28093.67	-280170.89
A23	28088.64	-280171.36
A24	28075.06	-280161.06

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e-mail: info@nkp.co.za
BRANCHES IN PAERL AND MODELBERG

CLIENT: EMALAHLENI LOCAL MUNICIPALITY
 PROJECT TITLE: CONSTRUCTION OF ROAD & STORMWATER IN THUBELIHLILE EXTENSION 5

DRAWING TITLE:	
LONGITUDINAL SECTION: SYSTEM A	
DESIGNED:	DRAWN:
AJ VAN SCHALKWYK	CM STRYDOM
CHECKED:	CONTRACT NO.:
FJ BURGER	

DATE:	APRIL 2020	SCALE:	VERT. 1:250				
			HORI. 1:1000				
DRAWING NO.:	NKP383_LSM03						
REVISION:		00					

- 1) ALL STORMWATER PIPES TO BE CLASS 500 CONCRETE (SABS 677) EXCEPT FOR ROAD CROSINGS (INDICATED ON LONG SECTION) WHERE CLASS 1000 CONCRETE (SABS 677) PIPES ARE TO BE USED. INSTALLED 1.2m FROM ROAD EDGE, ON LOWER SIDE OF ROAD, UNLESS OTHERWISE SPECIFIED.
- 2) ALL PIPES TO BE Laid ON CLASS 7, BEDDING.
- 3) ALL PIPES HAVE 0.6m MINIMUM COVER TO FINAL ROAD LEVELS IN ACCORDANCE WITH SABS 0102.
- 4) AT ROAD CROSSEINGS THE MINIMUM COVER WILL BE 1000mm AND THE TRENCH WILL BE REFILLED WITH SOIL CRETE (1:8 RATIO) WITH OPC.
- 5) ALL JOINTS BETWEEN PIPES TO BE SEALED WITH DENSOL BUTEN SEALANT, PRIOR TO COVERING UP.
- 6) REFER TO TYPICAL DRAINAGES FOR DETAILS ON STORMWATER STRUCTURES.
- 7) JUNCTION BOXES TO BE INSTALLED AS INDICATED ON THE LAYOUT DRAWING. THE ROOF TO BE LOCKED 500mm BELOW NGL, AND WILL HAVE A ROOF SLAB OF 200mm THICK, OF 20N/m² /30mm, WITH AN ACCESS MANHOLE.
- 8) KERB INLET STRUCTURES TO BE OF "KERB MASTER SA PRE-CAST UNITS, TO LENGTHS SPECIFIED ON THE ROAD LONGSECTIONS.
- 9) PLACEMENT OF KI (KERB INLET) STRUCTURES TO BE AS PER LAYOUT POSITION. ENSURE THAT STRUCTURE PLACEMENT DOES NOT INTERFERE WITH ACCESS DRIVEWAYS FOR STANDS.
- 10) THURST BLOCKS TO BE PROVIDED AT ALL FITTINGS TO THE DETAILS SHOWN ON TYPICAL DRAWING OR AS INSTRUCTED BY THE ENGINEER.
- 11) ALL STORMWATER PRELIMS, LOCATED IN THE ROADWAY BE BE SPROUT AND SOCKET TYPE PIPES.

Hydraulic Design															
DRAINAGE STRUCTURE	DISTANCE		Between points (m)	Design Min Gradient	Design Flow MMWF (l/s)	Construction Slope	Bedding Class (SABS 1200LB)	Pipe Diameter	EXCAVATION DEPTH TO INVERT (m)						
	Accumulated (m)														
AE1	0.00		99.82		106.00	1: 92			1.200						
	20.00														
	40.00														
	60.00														
	80.00														
	99.82														
	AE2	120.00		83.81		405.00	1: 100			1.604					
		140.00													
		160.00													
		183.63													
	AE3	200.00		22.25		405.00	1: 100			2.053					
		210.88													
	AE4	220.00		87.75		487.00	1: 71			1.925					
		240.00													
260.00															
280.00															
AE5	298.63		17.89		487.00	1: 19			1.200						
	316.52														
AE6	344.19		27.67		624.00	1: 34			1.600						
	360.00														
AE7	375.39		31.20		704.00	1: 17			1.200						
A19									1.600						

VERTICAL 1:250
HORIZONTAL 1:1000

DATUM 1563.00mm S.L.

AEA IL=1574.566

AEB IL=1571.290

MH	Pipe Dia.	Pipe Description	Distance Between	Grade	Invert Level	Cover Level	Depth	Flow
AE1	600	Concrete OG Class 50D	99.82	1: 92	1575.650	1576.65	1.20	106.00
AE2	600	Concrete OG Class 50D	83.81	1:00	1574.566	1576.17	1.80	405.00
AE3	600	Concrete OG Class 50D	27.25	1:00	1573.727	1575.78	2.05	405.00
AE4	600	Concrete OG Class 50D	87.75	1: 71	1573.455	1575.38	1.93	467.00
AE5	600	Concrete OG Class 50D	17.89	1: 19	1572.220	1573.42	1.20	467.00
AE6	600	Concrete OG Class 50D	27.67	1: 34	1571.290	1572.89	1.80	624.00
AE7	600	Concrete OG Class 50D	31.20	1: 17	1570.470	1571.67	1.20	704.00
AE9		Concrete OG Class 50D			1568.610	1570.21	1.80	

SYSTEM: AE		
MH	Y Coord	X Coord
AE1	28762.61	-2901642.78
AE2	28845.30	-2901488.69
AE3	28913.96	-2901536.75
AE4	28923.81	-2901556.92
AE5	28978.10	-2901333.46
AE6	28980.38	-2901650.83
AE7	28984.95	-2901578.12
A19	28990.11	-2901708.69

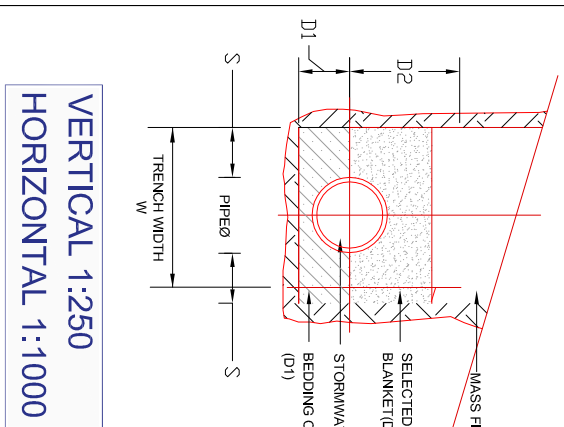
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101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 90

CLIENT: EMALAHLENI LOCAL MUNICIPALITY PO BOX 3 WINTERBROOK 1025 TEL. NO.: (013) 650 6011 FAX NO.: (013) 650 6207		DRAWING TITLE: LONGITUDINAL SECTION: SYSTEM AE		DATE: APRIL 2020		SCALE: VERT. 1:250 HORI. 1:1000	
PROJECT TITLE: CONSTRUCTION OF ROAD & STORMWATER IN THUBELHLE EXTENSION 5		DESIGNED: AJ VAN SCHALKWYK		DRAWN: CM STRYDOM		DRAWING NO: NKP383_LSM06	
CHECKED: FJ BURGER		CONTRACT NO.:		REVISION: 00			

- 1) ALL STORMWATER PIPES TO BE CLASS 500 CONCRETE (SABS 677)
- 2) ALL STORMWATER PIPES TO BE CLASS 500 CONCRETE (SABS 677) EXCEPT FOR ROAD CROSSINGS (INDICATED ON LONG SECTION) WHERE CLASS 1000 CONCRETE (SABS 677) PIPES ARE TO BE USED, INSTALLED 1.5m FROM ROAD EDGE, ON LOWER SIDE OF ROAD, UNLESS OTHERWISE SPECIFIED.
- 3) ALL PIPES TO BE LAID ON CLASS 'B' BEDDING.
- 4) ALL PIPES HAVE 0.6m MINIMUM COVER TO FINAL ROAD LEVELS IN ACCORDANCE WITH SABS 0102.
- 5) AT ROAD CROSSINGS THE MINIMUM COVER WILL BE 1000mm AND THE OPENING WILL BE REFILLED WITH SOIL CRETE (1:6 RATIO) WITH 15%.
- 6) ALL JOINTS BETWEEN PIPES TO BE SEALED WITH DENSE BITUMEN SEALANT, PRIOR TO COVERING UP.
- 7) REFER TO TYPICAL DRAININGS FOR DETAILS ON STORMWATER STRUCTURES.
- 8) JUNCTION BOXES TO BE INSTALLED AS INDICATED ON THE LAYOUT DRAWING. THE ROOF TO BE LOCATED 500mm BELOW N.G.L. AND WILL HAVE A ROOF SLAB OF 200mm THICK, OF 20Mpa/19mm, WITH AN ACCESS MANHOLE.
- 9) KERN INLET STRUCTURES TO BE OF KERN MASTER SA PRE-CAST UNITS, TO LENGTHS SPECIFIED ON THE ROAD LONGSECTIONS.
- 10) PLACEMENT OF KI (KERN INLET) STRUCTURES TO BE AS PER LAYOUT POSITION. ENSURE THAT STRUCTURE PLACEMENT DOES NOT INTERFERE WITH ACCESS DRIVEWAYS FOR STANDS.
- 11) THUSIT BLOCKS TO BE PROVIDED AT ALL FITTINGS TO THE DETAILS SHOWN ON TYPICAL DRAINING OR AS INSTRUCTED BY THE ENGINEER.
- 12) ALL STORMWATER PIPELINES LOCATED IN THE ROADWAY SHOULD BE SPPOD AND SOCKET THE PIPES.



GROUND LEVEL	1584.68		1584.68
			1584.20
			1583.99
			1583.56
FINAL COVER LEVEL	1584.68		1582.87
			1582.76
			1582.72
			1582.20
			1581.98
INVERT LEVEL	1583.022		1581.68
			1581.44
			1581.13
			1581.03
			1580.85
EXCAVATION DEPTH TO INVERT (m)	1.658		1.730
	1.639	1576.171	1577.81
	1.679	1576.031	1577.71
			1577.37
	1.604	1575.156	1576.76
	1.604	1574.566	1576.17

Hydraulic Design									
Pipe Diameter	600 mm dia Concrete OC								
Bedding Class (SABS 1200LB)	Class B Bedding								
Construction Slope									
Design Flow MWWF (l/s)	1: 47	1: 69	1: 65	1: 58	1: 53	1: 38	1: 36		
Design Min Gradient	37.00	83.00	137.00	187.00	187.00	299.00	299.00		

DISTANCE			
	Between points (m)		
Accumulated (m)	0,00		
	20,00	84,88	
	40,00		
	60,00		
	84,88		
	100,00	84,88	
	120,00		
	140,00		
	160,00		
	169,76		
	180,00		
	200,00	85,00	
	220,00		
	240,00		
	254,76		
	260,00		
	280,00	145,59	
	300,00		
	320,00		
	340,00		
	360,00		
	380,00		
	400,35		
	407,77	7,42	
	420,00	33,40	
	441,17		
	462,31	21,14	

DRAINAGE STRUCTURE	
AE1	
AE2	
AE3	
AE4	
AE5	
AE6	
AE7	
AE2	

MH	Pipe Dia.	Pipe Description	Distance Between	Grids	Invert Level	Cover Level	Depth	Flow
AE1	600	Concrete OG Class 100D	84.88	1:47	1583.022	1584.68	1.66	37.00
AE2	600	Concrete OG Class 100D	84.88	1:69	1581.206	1582.87	1.66	83.00
AE3	600	Concrete OG Class 100D	86.01	1:65	1579.984	1581.68	1.70	153.00
AE4	600	Concrete OG Class 100D	145.59	1:58	1578.670	1580.40	1.73	167.00
AE5	600	Concrete OG Class 50D	7.42	1:53	1576.171	1577.81	1.64	167.00
AE6	600	Concrete OG Class 50D	33.40	1:58	1576.037	1577.71	1.68	289.00
AE7	600	Concrete OG Class 100D	21.14	1:56	1575.195	1576.76	1.60	289.00
AE2					1574.956	1576.17	1.60	

SYSTEM: AEA		
MH	Y Coord	X Coord
AEA1	23632.42	-290337.05
AEA2	29178.70	-2901366.05
AEA3	29094.98	-2901399.05
AEA4	20911.14	-2901413.07
AEA5	28667.56	-2901437.16
AEA6	28680.92	-2901440.48
AEA7	28641.78	-2901467.54
AEA2	20845.30	-2901468.69

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REV DATE	REVISION

NOTES: ON RECEIPT OF REVISED DRAWING, DESTROY PREVIOUS DRAWING	
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APPROVED	SIGNED:
DATE: PR. ENG. 20090094	

NKP CONSULTANTS

NKP

CONSULTANTS

NKP CONSULTANTS (Pty) Ltd
(CONSULTING CIVIL & STRUCTURAL ENGINEERS)
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1200
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TEL NO: (011) 492 0462
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e-mail: info@nkp.co.za
BRANCHES IN PAARL AND MODDERBURG

CLIENT:	EMALAHLENI LOCAL MUNICIPALITY
PROJECT TITLE:	PO BOX 3 WINTERK 1035
	TEL NO: (013) 690 6911 FAX NO: (013) 690 6207
CONSTRUCTION OF ROAD & STORMWATER IN THUBELUHE EXTENSION 5	

DRAWING TITLE:		LONGITUDINAL SECTION: SYSTEM AEA	
DESIGNED:	AJ VAN SCHALKWYK	DRAWN:	CM STRYDOM
CHECKED:	FJ BURGER	CONTRACT NO.:	

DATE:	APRIL 2020	SCALE:	VERT. 1:250				
DRAWING NO:		HORI. 1:1000					
NKP383_LSW07							
REVISION:		00					

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- 2) ALL PIPES TO BE Laid ON CLASS 'B' BEDDING.
- 3) ALL PIPES HAVE 0.6m MINIMUM COVER TO FINAL ROAD LEVELS IN ACCORDANCE WITH SABS 0102.
- 4) AT ROAD CROSINGS THE MINIMUM COVER WILL BE 1000mm AND THE TRENCH WILL BE REFILLED WITH SOIL CRETE (1:8 RATIO) WITH OPC.
- 5) ALL JOINTS BETWEEN PIPES TO BE SEALED WITH DENSIO BROUEN SEALANT, PRIOR TO COVERING UP.
- 6) REFER TO TYPICAL DRAINAGES FOR DETAILS ON STORMWATER STRUCTURES.
- 7) JUNCTION BOXES TO BE INSTALLED AS INDICATED ON THE LAYOUT DRAWING. THE ROOF TO BE LOCATED 500mm BELOW N.G.L. AND WILL HAVE A ROOF SLAB OF 200mm THICK, OF 200kPa/15mm, WITH A ACCESS MANHOLE.
- 8) KEBB INLET STRUCTURES TO BE OF KEBB MASTER SA, PRE-CAST UNITS, TO LENGTHS SPECIFIED ON THE ROAD LAYOUT.
- 9) PLACEMENT OF KI (KEBB INLET) STRUCTURES TO BE AS PER LAYOUT POSITION. ENSURE THAT STRUCTURE PLACEMENT DOES NOT INTERFERE WITH ACCESS DRIVEWAYS FOR STANOS.
- 10) DENSIO BLOCKS TO BE PROVIDED AT ALL FITTINGS TO THE DRAINS SHOWN ON TYPICAL DRAWING OR AS INSTRUCTED BY THE ENGINEER.
- 11) ALL STORMWATER PIPELINES LOCATED IN THE ROADWAY SHOULD BE SPPOD AND SOCKET THE PIPES.

