CLUSTER

Human Settlement, Engineering, and Transport

UNIT

Ethekwini Transport Authority

DEPARTMENT

Ethekwini Transport Authority

PROCUREMENT DOCUMENT : INFRASTRUCTURE

Documents are to be obtained, free of charge, in electronic format, from the National Treasury's eTenders website or the eThekwini Municipality website

Contract No: 1X-32452

Contract Title: **Construction of Cornubia Boulevard, C9 Work Package 6A**

Est. CIDB Grade/ Class: 9 9 CE

CLARIFICATION MEETING AND QUERIES

Clarification Meeting: Compulsory Clarification Meeting. Questions and answers from the clarification meeting will be consolidated and posted on eTenders/Municipal website for the benefit of all tenderers by 07 August 2025.

Meeting Location, Date, Time: Meeting will be held at Boardroom 213; 2nd floor, ETA Building: 30 Archie Gumede Place On [17/07/2025] at [09H00]

Queries can be addressed to:
The Employer's Agent's Representative:
Name: Nkululeko Phewa
Tel: 031 322 6912
eMail: Nkululeko.Phewa@durban.gov.za

TENDER SUBMISSION

The Tender Offer (hard copy) shall be delivered to:

Delivery location: The Tender Box in the foyer of the Municipal Building, 166 KE Masinga Road, Durban

Tenderers are to also make an **electronic submission** via the eThekwini Municipality **JDE System (SSS Module) (see Tender Data: C.2.13)**.

JDE Queries Contact: Lindo Dlamini: Tel: 031-322-7133 / 031-322-7153 Email: supplier.selfservice@durban.gov.za

Closing Date/ Time: **Friday, 15 August 2025** **at** **11h00**

Tender Offers submitted via any means other than that stated in the Tender Data will be deemed invalid

Issued by:

ETHEKWINI MUNICIPALITY

Deputy Head: **Ethekwini Transport Authority**

Date of Issue: **02/07/2025**

Document Version 12/05/2025

Tenderer Name:			VAT Registered: Yes No
	Price (excl)	VAT	Price (incl)
Submitted:	R	R	R
Corrected:	R	R	R

INDEX to PROCUREMENT DOCUMENT

PART T1: TENDERING PROCEDURES

T1.1.1: TENDER NOTICE AND INVITATION TO TENDER

Tenders are hereby invited for the works to [the Construction of Cornubia Boulevard and associated works as part of the IRPTN Go! Durban C9 Corridor. The work is scheduled as Work Package 6A.]

Subject	Description	Tender Data
Employer	The Employer is the eThekwini Municipality as represented by: Deputy Head: **Ethekwini Transport Authority**	C.1.1.1
Tender Documents	Documentation is to be downloaded from the **National Treasury's eTenders website** or the **eThekwini Municipality Website:** • https://www.etenders.gov.za/ • https://www.durban.gov.za/pages/business/procurement	C.1.2
CIDB Eligibility	It is estimated that Tenderers should have a CIDB contractor grading designation of **9 9 CE** (or higher).	C.2.1.2
Clarification Meeting	**Meeting will be held at Boardroom 213; 2nd floor, ETA Building: 30 Archie Gumede Place On [17/07/2025] at [09H00]**	C.2.7
Seek Clarification	Queries relating to these documents are to be addressed to the Employer's Agent's Representative whose contact details are: **Name: Nkululeko Phewa** **Tel: 031 322 6912** **eMail: Nkululeko.Phewa@durban.gov.za**	C.1.4
Submitting a Tender Offer	The Tender Offer (hard copy) shall be delivered to: **The Tender Box in the foyer of the Municipal Building, 166 KE Masinga Road, Durban** An **electronic submission**, via the eThekwini Municipality **JDE System (SSS Module)**, is also to be made. Refer to Part T1.1.2 and Tender Data: C.2.13. Notwithstanding the **electronic submission**, a tender offer will only be deemed valid if the "hard copy" submission has been made.	C.2.13
Closing Time	The Tender Offer (hard copy) shall be delivered, and the electronic submission completed, both on or before **Friday, 15 August 2025**, at or before **11h00**.	C.2.15
Evaluation of Tender Offers	**The 90/10** Price Preference Point System, as specified in the **SCM Policy: Section 52: Preferential Procurement** will be applied in the evaluation of tenders. **Tender Data: C.3.11: Evaluation of Tender Offers** details the awarding of Preference Points, and other related evaluation requirements.	C.3.11

Requirements for sealing, addressing, delivery, opening, and assessment of tenders are stated in the Tender Data

Applicable CIDB B.U.I.L.D. Programme Standards	
CIDB Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts	No
CIDB Standard for Developing Skills through Infrastructure Contracts	Yes

T1.1.2: INFORMATION REGARDING THE ETHEKWINI JDE SYSTEM

This Part (T1.1.2) is for information purposes only. Compliance requirements are stated in **Part T1.2: Tender Data**.

1) General

eThekwini Municipality Bids, Tenders and Quotations (hereafter referred to as Tenders) are going to be submitted using the JDE System.

This JDE System will be used for:

- Viewing of available (open) Tenders,
- Downloading procurement documentation for Tenders,
- Uploading completed and signed Tender documentation,
- Completion and submission of Tenders electronically,
- Viewing the Tender opening schedule.

2) Registrations

To be granted access to the **JDE System** prospective service providers must be registered on the **National Treasury's Central Supplier Database (CSD)**, the **eThekwini Municipality Supplier Portal**, and the **eThekwini Municipality JDE System**.

National Treasury: Central Supplier Database

- Registration can be made on https://secure.csd.gov.za .
- Service Providers will be issued a **"MAAA"** number when registered.

eThekwini Municipality Supplier Portal

- Registration can be made on https://www.durban.gov.za by following these links:
  >Business **>**Supply Chain Management (SCM) **>**Accredited Supplier & Contractor Database.

eThekwini Municipality JDE System

- Service providers requiring access must send an email to supplier.selfservice@durban.gov.za
  The following information is required:
  - Copy of the **Director's ID**.
- On receipt of this email, the SCM Unit will respond with the login credentials and a link to the **JDE System**.

3) Assistance with using the JDE System

The following SCM Official(s) can be contacted in connection with any queries regarding the use of the **JDE System**:

- Lindo Dlamini Tel: 031 322 7153 or 031 322 7133
  Email: supplier.selfservice@durban.gov.za

4) Viewing of available tenders

By following link https://rfq.durban.gov.za/jde/E1Menu.maf prospective Service Providers will be able to view available (open) Tender opportunities without signing into the system. However, Service Providers will not be able to respond to a Tender without being signed into the system using a JDE User ID and Password.

5) Tender documentation

By accessing the **JDE System** (using https://rfq.durban.gov.za/) and viewing any available Tenders, prospective Service Providers will be able to download the relevant Tender documentation.

The Tender documentation consists of the **TENDER** and **CONTRACT Parts**, as described in the INDEX, and will include any drawings and other information (if applicable). Referred to or included in the documentation are the **Standard Conditions of Tender (and associated Tender Data),** and the **Conditions of Contract (and associated Contract Data)** which will govern the tendering and contract processes respectively.

6) Submission of tender offers

Reference is to be made to the **Tender Data: C.2.13** that specifies compliance requirements.

Tender Offers are to be delivered, in "hard copy" format, to the Delivery Location as stated in the **Tender Data**.

In addition to the above, **Tender Offers are also to be SUBMITTED ELECTRONICALLY** (uploaded) on the eThekwini Municipality JDE System (Supplier Self Service (JDE-SSS) Module). Notwithstanding the **electronic submission**, a tender offer will only be deemed valid if the "hard copy" submission has been made.

Bidders are responsible for resolving all access rights and submission queries on the JDE System before the tender closing date/ time, as stated in the **Tender Data: C.2.15**.

7) Viewing the Tender opening schedule

Users on the **JDE System** will be able to view the **Tender Opening Schedule** for each closed Tender. The tender opening schedule will also be made available on the eThekwini Municipal website at URL:
https://www.durban.gov.za/pages/business/publication-of-received-bids

T1.1.3: NOTES TO TENDERERS

These "**Notes to Tenderers**" are intended to provide guidance to Tenderers regarding tendering obligations and requirements. Compliance requirements are stated in the relevant parts of the **Tender Data: T1.2**.

eThekwini Supply Chain Management Policy (SCMP)

The requirements as stated in the Employer's SCM Policy include, but are not limited to, the following:

1) Section 14(4): ETM Supplier Database

The eThekwini Supply Chain Management Policy requires suppliers/ service providers/ contractors to be registered on the eThekwini Municipality's Supplier Database (Vendor Portal).

In the event of the Tenderer not being registered on the eThekwini Municipality's Supplier Portal, the Tenderer must register on the internet at www.durban.gov.za by following these links:

- Business
- Supply Chain Management (SCM)
- Accredited Supplier and Contractor's Database.

The following is to be noted:

- The information for registration as in the possession of the eThekwini Municipality will apply.
- It is the Tenderer's responsibility to ensure that the details submitted to the Municipality are correct.
- Tenderers are to register prior to the submission of tenders.

2) Section 20(1)(d)(i): Audited Financial Statements

Audited Financial Statements (prepared for auditing) are required to be submitted if the value of the tender offer exceeds R10 million (incl. VAT). See **Returnable Form T2.2.4.: MBD 5** and **Returnable Form T2.2.5: Contracts awarded by Organs of State** in the past 5 years.

3) Section 20(1)(d)(iii): Contracts Awarded during the past 5 Years

Tenderers are to include with their submission a listing of any contracts awarded to the Tenderer during the past 5 years, including particulars of any material non-compliance or dispute concerning the execution of the contracts. Tenderers are referred to **Returnable Form T2.2.5.: MBD 5**

4) Section 20(1)(d)(ii), Section 28(1)(c) and Section 29(10): Municipal Fees

Tenderers are to refer to **Returnable Form T2.2.10**: **Declaration of Municipal Fees** to certify that they have no undisputed commitments for municipal services towards any municipality. Prior to an award, a Tenderer's municipal rates and taxes cannot be in arears. Should a Tenderer be in arrears with respect to municipal services and has formalised an agreement with the respective municipality to offset the arrears, the agreement must be in place at time of tender closing.

5) Section 28(2)(d), Section 28(2)(h) and Cla Section use 29(12): Certifications and Registrations

CIDB Registration and Status, B-BBEE Certificates, and Tax Compliance Status PINs must be valid at tender closing, and before final award.

The Tenderer's Tax Compliance Status, CIDB Registration and Status (if required), and B-BBEE Level Status (if required), will be verified using the National Treasury Central Supplier Database (CSD). Tenderers are referred to **Returnable Form T2.2.1.: Compulsory Enterprise Questionnaire**.

It is the Tenderer's responsibility to ensure that their data on the CSD is kept updated and correctly reflects the status of the tendering entity.

6) Section 28(2)(e): Joint Ventures (JV)

Each party of a JV must submit separate Tax Compliance Status PINs.

Also, and unless otherwise stated, the requirements for a single entity submission in terms of documentation requirements, will apply to each member of a JV making a submission.

As proof that a JV has been formalised, or that the parties to the JV agree to formalise the JV should they be successful in being recommended for the award of this tender, Tenderers are referred to **Returnable Form T2.2.14: Joint Venture Agreements**.

CIDB

Regulation 25(8)

7) It should be noted that this contract is not part of a **Targeted Development Programme (TDP)**. The CIDB provisions in relation to a Contractor's **Potentially Emerging (PE) status** do not apply. Tenderers are referred to **CIDB Inform Practice Note #32**: "**Application of the Potentially Emerging (PE) Status**".

B.U.I.L.D. Programme

8) A programme to accelerate transformation in the construction industry, increase the capacity of the construction industry to deliver infrastructure and support the growth of emerging contractors, was launched on 14 March 2024 by the Deputy Minister of Public Works and Infrastructure and the Construction Industry Development Board.

Details of the B.U.I.L.D. Programme were published in a Government Gazette in 2020 (GG 43726) and B.U.I.L.D. has gradually been phased in at various levels of government and the private sector. The CIDB, a public entity with the mandate to promote improved performance in construction, oversees the programme and manages the B.U.I.L.D Fund.

The B.U.I.L.D programme determines that public sector entities which implement construction projects, that meet certain minimum requirements, must include developmental goals to the deliverables defined in the tenders. Contractors are required to include these goals in the plans and pricing when they submit their tender bids.

PART T1: TENDERING PROCEDURES

T1.2: TENDER DATA

T1.2.1 STANDARD CONDITIONS OF TENDER

The conditions of tender are the **Standard Conditions of Tender** as contained in **Annex C** of the CIDB Standard for Uniformity in Construction Procurement as published in Government Gazette No 42622, Board Notice 423 of 8 August 2019, as duplicated below.

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.

Annex C

Standard Conditions of Tender

C.1 General

C.1.1 Actions

C.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

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

Note:
1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.

2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

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

C.1.2 Tender Documents

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

C.1.3 Interpretation

C.1.3.1 The ***Tender Data*** and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the ***Tender Data*** and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

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

a) **conflict of interest** means any situation in which:
   i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
   ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
   iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional ***discounts*** it can be utilised to have been taken into consideration;

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;

C.1.4 Communication and employer's agent

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

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;
b) funds are no longer available to cover the total envisaged expenditure;
c) no acceptable tenders are received;
d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the *original* tender invitation was advertised.

C.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement procedures

C.1.6.1 General

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

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the ***Tender Data*** require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the ***Tender Data*** shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or

distort competition or have a discriminatory effect.

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

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

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

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

C.1.6.3.2 Option 2

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

C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage, in terms of the method of evaluation stated in the ***Tender Data***, and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

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

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

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the ***Tender Data***, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

C.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

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

C.2.4 Confidentiality and copyright of documents

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

C.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.

C.2.6 Acknowledge addenda

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

C.2.7 Clarification meeting

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

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the ***Tender Data***.

C.2.9 Insurance

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

C.2.10 Pricing the tender offer

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

C.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

C.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the ***Contract Data***.

C.2.10.4 State the rates and prices in Rand unless instructed otherwise in the ***Tender Data***. The conditions of contract identified in the ***Contract Data*** may provide for part payment in other currencies.

C.2.11 Alterations to documents

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

C.2.12 Alternative tender offers

C.2.12.1 Unless otherwise stated in the ***Tender Data***, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

C.2.12.2 Accept that an alternative tender offer must be based only on the criteria stated in the ***Tender Data*** or criteria otherwise acceptable to the employer.

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the ***Contract Data*** and described in the scope of works, unless stated otherwise in the ***Tender Data***.

C.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

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

C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the ***Tender Data***. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

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

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

C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the ***Tender Data***.

C.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the ***Tender Data***.

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

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

C.2.15 Closing time

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

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

C.2.16 Tender offer validity

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

C.2.16.2 If requested by the employer, consider extending the validity period stated in the ***Tender Data*** for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer’s agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as “SUBSTITUTE”.

C.2.17 Clarification of tender offer after submission

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

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

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer’s commercial position (including

notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment.
Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

C.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the ***Tender Data***.

C.2.20 Submit securities, bonds and policies

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the ***Contract Data***.

C.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

C.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the ***Tender Data***.

C.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the ***Tender Data***.

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the ***Tender Data***, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the ***Tender Data*** and notify all tenderers who collected tender documents.

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

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

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the ***Tender Data***. If, as a result a tenderer applies for an extension to the closing time stated in the ***Tender Data***, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

Return tender offers received after the closing time stated in the ***Tender Data***, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4 Opening of tender submissions

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

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the ***Tender Data***, the name

of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

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

C.3.5 Two-envelope system

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

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the ***Tender Data***, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

C.3.6 Non-disclosure

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

C.3.7 Grounds for rejection and disqualification

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

C.3.8 Test for responsiveness

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

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

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

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

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

C.3.9 Arithmetical errors, omissions and discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the pricing schedule or bills of quantities; or
c) arithmetic errors in:
   (i) line-item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
   (ii) the summation of the prices.

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either

confirm the tender offer as tendered or accept the corrected total of prices.

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

a) If bills of quantities or pricing schedules apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line-item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the ***Tender Data*** associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	**Qualitative interpretation of goal**
Requirement	
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

a) Open and record tender offers received
b) Determine whether or not tender offers are complete
c) Determine whether or not tender offers are responsive
d) Evaluate tender offers
e) Determine if there are any grounds for disqualification
f) Determine acceptability of preferred tenderer
g) Prepare a tender evaluation report
h) Confirm the recommendation contained in the tender evaluation report .

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the ***Tender Data***.

C.3.12 Insurance provided by the employer

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

C.3.13 Acceptance of tender offer

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

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;
c) has the legal capacity to enter into the contract;
d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
e) complies with the legal requirements, if any, stated in the ***Tender Data***; and
f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

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

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

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

C.3.15 Complete adjudicator's contract

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

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the cidb Register of Projects.

C.3.17 Provide copies of the contracts

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

C.3.18 Provide written reasons for actions taken

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

T1.2.2 TENDER DATA

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

C.1: GENERAL

C.1.1 The employer:

The Employer for this Contract is the **eThekwini Municipality** as represented by:
Deputy Head: **Ethekwini Transport Authority**

C.1.2 Tender documents:

The Tender Documents issued by the Employer comprise:

1) This procurement document.
2) The **Conditions of Contract** identified in Section C1.2.1.1. Tenderers/ Contractors are required to obtain their own copies.
3) The **Specifications** identified in Section C3.3.1. Tenderers/ Contractors are required to obtain their own copies.
4) **Drawings**, if applicable, issued separately from this document, or bound in Section C3.4 (as an Annexure).
5) In addition, Tenderers are advised, in their own interest, to obtain their own copies of the following acts, regulations, and standards referred to in this document as they are essential for the Tenderer to get acquainted with the basics of construction management, the implementation of preferential construction procurement policies, and the participation of targeted enterprise and labour.
   - The Employer's Supply Chain Management Policy (as at advertising date).
   - The Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the Construction Regulations (2014).
   - The Construction Industry Development Board Act No 38 of 2000 and the Regulations issued in terms of the Act (July 2013).
   - SANS 1921:2004 – Construction and Management Requirements for Works Contract, Parts 1-3.
   - CIDB Standard for Developing Skills Through Infrastructure Contracts, published in Gazette Notice No. 48491 of 28 April 2023.
   - Any other eThekwini Policy documents referenced in the Tender Documents.

Electronically downloaded documentation is obtainable from the National Treasury's **eTenders Website** or the **eThekwini Municipality Website** at URL:

- https://www.etenders.gov.za/
- https://www.durban.gov.za/pages/business/procurement

C.1.4 Communication and employer's agent:

The Employer's Agent is:

Name: Bethuel Manthoadi
Tel: 031 322 8651
eMail: Bethuel.Manthoadi@durban.gov.za

The Employer's Agent's Representative is:

Name: Nkululeko Phewa
Tel: 031 322 6912
eMail: Nkululeko.Phewa@durban.gov.za

The Tenderer's contact details, as indicated on **Returnable Document T2.2.1: Compulsory Enterprise Questionnaire**, shall be deemed as the only valid contact details for the Tenderer for use in communications between the Employer's Agent and the Tenderer during tender evaluation.

C.1.6 Procurement procedures:

The following Sections of the **Standard Conditions of Tender** are not applicable to this tender:

- **C.1.6.2: Competitive negotiation procedure,** and

C.1.6.2 Procurement procedures:

The competitive negotiation procedure shall be applied.

C.2: TENDERER'S OBLIGATIONS

C.2.1 Eligibility:

Entities may only submit one (1) tender offer, either as a single tendering entity or as a partner of a joint venture. Should a tendering entity submit more than one (1) tender, **all** submissions by that tendering entity, including submissions where the entity is a partner of a joint venture, will be deemed not to be eligible.

C.2.1.1 Eligibility: General

A Tenderer will not be eligible to submit a tender if:

(a) In the event of a Compulsory Clarification Meeting:
  i) the Tenderer fails to attend the Compulsory Clarification Meeting, or
  ii) the Tenderer fails to have **Returnable Document T2.2.2: Certificate of Attendance at Clarification Meeting / Site Inspection** signed by the Employer's Agent or their representative.

(b) At the time of tender closing, the Tenderer is not registered on the **National Treasury Central Supplier Database (CSD)** and the **eThekwini Municipality Supplier Portal**. In the case of a Joint Venture, this requirement will apply individually to each party in the Joint Venture. Tenderers are to reference **Returnable Document T2.2.1: Compulsory Enterprise Questionnaire** (section 1.5) and **Returnable Document T2.2.12: "CSD Registration Report"**.

(c) In the case of Joint Venture (JV) submissions, two or more JV entities have common directors/ shareholders or common entities tendering for the same works.

(d) The following documentation is to be completed in full, signed, and returned with the tender submission. Failure to comply will result in the tender offer being deemed non-responsive:
- T2.2.1: Compulsory Enterprise Questionnaire.
- T2.2.5: MBD 4: Declaration of Interest.
- T2.2.6: MBD 5: Declaration for Procurement Above R10 Million.
- T2.2.7: MBD 6.2: Declaration for Local Production and Content.
- T2.2.8: MBD 8: Declaration of Bidder's Past SCM Practices.
- T2.2.9: MBD 9: Certificate of Independent Bid Determination.
- T2.2.10: Declaration of Municipal Fees

(e) The certificates listed in the **Tender Data: C.2.23: Certificates** are to be included with the tender submission. Failure to comply will result in the tender offer being deemed non-responsive. These include:
- T2.2.1: Compulsory Enterprise Questionnaire
  - SARS Tax Compliance Status – PIN Issued.
- T2.2.6: MBD 6.1: Preference Points Claim

- B-BBEE Status Level of Contribution Certificate.
- T2.2.12: Central Supplier Database (CSD) Report.
- T2.2.13: CIDB Registration and Status.

C.2.1.2 **Eligibility: CIDB**

Tenderers are to reference the provisions of **Tender Data: C.2.23: Certificates** and **Returnable Document: T2.2.13: Verification of CIDB Registration and Status** with respect to CIDB registration.

Only those Tenderers who are registered (as "Active") with the CIDB (at time of tender closing), in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations, for a **9 CE** class of construction work, are eligible to have their tenders evaluated.

Joint ventures are eligible to submit tenders provided that:

(a) Every member of the joint venture is registered (as "Active") with the CIDB (at time of tender closing),

(b) The lead partner has a contractor grading designation in the **9 CE** class of construction work and has a grading designation of not lower than one level below the required grading designation, and

(c) The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations (2013) is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **9 CE** class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.

C.2.2.2 **The cost of the tender documents:**

Replace this paragraph with the following:

"Documents are to be downloaded, free of charge, from the **National Treasury's eTenders website** or the **eThekwini Municipality's Website**."

C.2.6 **Acknowledge addenda:**

Add the following paragraphs:

"Addenda will be published on the **eThekwini Municipality website** as stated in **Tender Data: C.1.2**. Tenderers are to ensure that this website is consulted for any published addenda pertaining to this tender up to three days before the tender closing time as stated in the **Tender Data**."

"Acknowledgement of receipt of the addenda will be by the return of the relevant completed, dated, and signed portion of the addenda, to the physical or email address as specified on the addenda.

Failure of the Tenderer to comply with the requirements of the addenda WILL result in the tender submission being made non-responsive."

C.2.7 Clarification meeting:

Meeting will be held at Boardroom 213; 2nd floor, ETA Building: 30 Archie Gumede Place On [17/07/2025] at [09H00]

In the event of a Compulsory Clarification Meeting, Tenderers must sign the attendance register in the name of the tendering entity. The Tenderer's representative(s) at the clarification meeting must be able to clearly convey the discussions at the meeting to the person(s) responsible for compiling the entity's tender offer.

C.2.12 Alternative tender offers:

No alternative tender offers will be considered.

C.2.13 Submitting a tender offer:

The signed Tender Offer ("hard copy") is to be sealed in an envelope, addressed to the City Manager, marked with the **identification details** and be delivered to the **delivery address**, both as stated below.

The **Tender Offer** (hard copy) is to be delivered to the following **delivery address**:
the Tender Box in the foyer of the Municipal Building, 166 KE Masinga Road, Durban

Identification details to be shown on the hard copy package are:
- Contract No. : **1X-32452**
- Contract Title : **Construction of Cornubia Boulevard, C9 Work Package 6A**

Tender Offers are also to be **SUBMITTED ELECTRONICALLY** (uploaded) on the eThekwini Municipality **JDE System** (Supplier Self Service (SSS Module)). For information pertaining to the JDE System, Tenderers are referred to **Section T1.1.2**.

Notwithstanding the **electronic submission**, a tender offer will only be deemed valid if the "hard copy" submission has been made.

The Tender documentation, issued by the eThekwini Municipality (refer to **Tender Data: C.1.2**), is to be printed in its entirety. Printing should be done on white A4 paper, with printing on only one side of the paper. (It is suggested that the Tender documentation is not stapled, or punched for filing, prior to scanning, as this could affect the scanning process.)

After completion and signature (using **BLACK INK**), the entire Tender document is to be scanned to a single PDF (**P**ortable **D**ocument **F**ormat) document, at a resolution of 300 DPI (dots per inch). The PDF document is to be uploaded via the (Tender specific) upload option on the JDE System (SSS Module).
- Tenderers must ensure that the hard copy and electronic submission are the same, failing which the submission will be deemed invalid.
- Tenderers are responsible for resolving all access rights and submission queries on the JDE System before the tender closing date/ time (**Tender Data: C.2.15**).

Tender Offer delivery, and the electronic submission on the JDE System, are both to be completed on or before the closing date/ time stated in the **Tender Data: C.2.15**.

The submission of Tender Offers via any means other than that stated above will not be accepted, and those that are will be deemed invalid.

C.2.15 Closing date and time:

The closing time is:

- **Date : Friday, 15 August 2025**
- **Time : 11h00**

The **delivery of the hard copy AND** the completion of the requirements on the **JDE System (SSS Module)** are be completed prior to the Tender **closing date and time** as stated above. Any Tender Offer submitted thereafter will not be considered.

C.2.16 Tender offer validity:

The Tender Offer validity period is **120 Days** from the closing date for submission of tenders.

C.2.20 Submit securities, bonds, policies:

The Tenderer is required to submit with their tender offer a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in T2.2 of this procurement document.

C.2.23 Certificates:

Refer to **T2.1: "List of Returnable Documents"** for a listing of certificates that must be provided with the tender. All certificates must be valid at the time of tender closing.

Tenderers are to include a printout of the required documents/ certificates at the back of their tender submission.

SARS Tax Compliance Status – PIN Issued

Reference is to be made to **Returnable Document T2.2.1: Compulsory Enterprise Questionnaire**.

B-BBEE Status Level of Contribution Certificate

Tenderers are referred to **Returnable Document T2.2.6: MBD 6.1: Preference Points Claim** for the B-BBEE Certificate requirements.

Central Supplier Database (CSD)

Reference is to be made to **Returnable Document T2.2.12: CSD Registration Report**.

The entities **CSD Registration Report**, obtained from the National Treasury Central Supplier Database (CSD), is to be included in the tender submission (https://secure.csd.gov.za).

The date of the report, as indicated at the top right of each page, should be on or after the date of advertising of this tender.

Separate **CSD Registration Reports** are required for each party to a Joint Venture.

CIDB Registration (if applicable)

Reference is to be made to **Returnable Document T2.2.13: Verification of CIDB Registration and Status**.

Tenderers are to include with their submission a printout of their **CIDB Registration**, obtained from the CIDB website (https://portal.cidb.org.za/RegisterOfContractors/).

The date of obtaining the CIDB printout(s) is to be indicated on the printout, and the Tenderer's registration with the CIDB must be reflected as "Active" as at the date of tender closing.

Separate **CIDB Registration printouts** are required for each party to a Joint Venture.
The **Joint Venture Grading Designation Calculator** printout should be included when making a submission as a Joint Venture:
(https://registers.cidb.org.za/PublicContractors/JVGradingDesignationCalc)

C.3: THE EMPLOYER'S UNDERTAKINGS

C.3.1.1 Respond to requests from the tenderer:

Replace the words “five working days” with “three working days”.

C.3.2 Issue addenda:

Add the following paragraph:

“Addenda will be published on the **eThekwini Municipality Website** (refer to **Tender Data: C.1.2**).

C.3.4 Opening of Tender Submissions:

Tenders will be opened immediately after the closing time for tenders. The public reading of tenders will take place in the SCM Boardroom, 6th Floor, Engineering Unit Building, 166 KE Masinga Road, Durban.

The tender opening schedule will also be made available on the eThekwini Municipal website at URL: https://www.durban.gov.za/pages/business/publication-of-received-bids

C.3.9 Arithmetical errors, omissions and discrepancies:

Add the following Clause:

“C.3.9.5 Reject a tender offer if the Tenderer does not accept the correction of the arithmetical error in the manner described in C.3.9.4.”

C.3.11 Evaluation of Tender Offers:

Eligibility

Tenders will be checked for compliance with the ELIGIBILITY requirements, as specified in the **Tender Data: C.2.1**. Tenders not in compliance will be deemed non-responsive.

Functionality

FUNCTIONALITY will not be used in the evaluation of tenders.

FUNCTIONALITY will be evaluated to determine the responsiveness of tenders received. The minimum score for FUNCTIONALITY is 70 points. Those tenders not achieving the minimum score will be deemed non-responsive.

The functionality Criteria, Sub-Criteria, Points per Criteria/ Sub-Criteria, Returnable Documentation and Schedules, Method of Evaluation, and Prompts for Judgement are as specified in **Part T1.2.3: Additional Conditions of Tender**.

Preference Point System

The procedure for the evaluation of responsive tenders is **PRICE AND PREFERENCE**, in accordance with the Employer’s **SCM Policy: Section 52: Preferential Procurement**.

The provisions of the SCM Policy: **Section 52.7: The Basket of Preference Goals** shall apply.

Price Points

The 9**0/10** preference points system, for requirements with a Rand value above R50,000,000 (all applicable taxes included), will be applied. The Formula used to calculate the **Price Points (max. 90)** will be according to that specified below.

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

90/10 Procurement System

$$Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

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

Preference Points

Reference is to be made to **Returnable Form: T2.2.6: MBD 6.1: Preference Points Claim**.

The Basket of Preference Goals (SCM Policy Section 52.7)

The Preference Points (either 20 or 10) will be derived from points claimed for **Specific Goals** as indicated in the table(s) below, according to the specified **Goal/ Category Weightings**.

- **Ownership Goal**
  Goal Weighting: 25%

  The tendering entity's **Percentage Ownership**, in terms of the **Ownership Category(s)** listed below, is to be used in the determination of the Tenderer's claim for **Preference Points**.

Ownership Categories	Criteria	90/10
Race: Black (w1)	Equals 0%	0
	Between 0% and 51%	4
	Greater or equal to 51% and less than 100%	8
	Equals 100%	10
Gender: Female (w2)	Equals 0%	0
	Between 0% and 51%	4
	Greater or equal to 51% and less than 100%	8
	Equals 100%	10
Disabilities (w3)	Equals 0%	0
	Between 0% and 51%	4
	Greater or equal to 51% and less than 100%	8
	Equals 100%	10
	Maximum Ownership Goal Points:	2.5

The **Weightings** of the **Ownership Categories** will be:
- w1 = 50%, w2=30%, w3=20% (where: w1 + w2 + w3 = 100%)

Proof of claim as declared on MBD 6.1 (1 or more of the following will be used in verifying the Tenderer's status)
- Companies and Intellectual Property Commission registration document (CIPC)
- CSD report.
- B-BBEE Certificate of the tendering entity.
- Consolidated BBBEE Certificate if the tendering entity is a Consortium, Joint Venture, or Trust (Issued by verification agency accredited by the South African Accreditation System).
- Agreement for a Consortium, Joint Venture, or Trust.

- **RDP Goal: The promotion of South African owned enterprises**
  Goal Weighting: 25%

The tendering entity's **Address** (as stated on the National Treasury Central Supplier Database (CSD) or on the eThekwini Municipality Vendor Portal) is to be used in the determination of the Tenderer's claim for **Preference Points** for this Specific Goal.

Location	90/10
Not in South Africa	**0**
South Africa	**2.5**
Kwa Zulu Natal	**5**
eThekwini Municipality	**10**
Maximum Goal Points:	**2.5**

Proof of claim as declared on MBD 6.1 (1 or more of the following will be used in verifying the Tenderer's status)
- CSD report

- **RDP Goal: Social Upliftment of communities**
  Goal Weighting: 25%

The tendering entity's **Involvement in Corporate Social Investment initiatives**, in terms of the categories below, is to be used in the determination of the Tenderer's claim for **Preference Points** for this Specific Goal.

Corporate Social Investment	90/10
Clean-up campaigns	**2.5**
Social upliftment programmes	**5**
Bursaries	**7.5**
Infrastructure repairs and maintenance	**10**
Maximum Goal Points:	**2.5**

Proof of claim as declared on MBD 6.1 (1 or more of the following will be used in verifying the Tenderer's status)
- List and value of projects identified through the local councillor/chief in a letter form (as a percentage of the tendered value)

- **RDP Goal: The promotion SMMEs owned by Black People – Contracts > R5m**
  Goal Weighting: 25%

The tendering entity's **Commitment to Sub-Contracting** (to Sub-Contractors conforming to the specified ownership demographics) the **percentage works**, as specified below, is to be used in the determination of the Tenderer's claim for **Preference Points** for this Specific Goal.

SUBCONTRACTING	90/10
Sub-contracting 0%	**0**
Sub-contracting <25%	**2.5**
Sub-contracting 25%	**5**
Sub-contracting ≥25% and <50%	**10**
Maximum Goal Points:	**2.5**

Proof of claim as declared on MBD 6.1 (1 or more of the following will be used in verifying the Tenderer's status)
- Subcontracting Plan (% work to be allocated)

C.3.13 Acceptance of tender offer:

In addition to the requirements of **Tender Data: C.3.13** of the **Standard Conditions of Tender**, tender offers will only be accepted if:

(a) The Tenderer's municipal rates and taxes are not in arears, or they have made arrangements to meet outstanding municipal fee obligations.

(b) The Tenderer's tax compliance status has been verified, or they have made arrangements to meet outstanding tax obligations.

(c) If applicable, the Tenderer is **registered**, and **"Active"**, with the **Construction Industry Development Board** in an appropriate contractor grading designation.

(d) The Tenderer or any of its directors/ shareholders are n**ot listed on the Register of Tender Defaulters**, in terms of the Prevention and Combating of Corrupt Activities Act of 2004, as a person prohibited from doing business with the public sector.

(e) The Tenderer has not:
  i) Abused the Employer's Supply Chain Management System; or
  ii) Failed to perform on any previous contract and has been given a written notice to this effect.

(f) The Employer is reasonably satisfied that the Tenderer has in terms of the Construction Regulations (2014), issued in terms of the Occupational Health and Safety Act (1993), the **necessary competencies and resources to carry out the work safely**.

The Municipality does not bind itself to accept the lowest or any tender. It reserves the right to accept the whole or any part of a tender to place orders. Bidders shall not bind the Municipality to any minimum quantity per order. The successful Tenderer(s) shall be bound to provide any quantities stipulated in the specification.

The municipality has a firm intention to proceed with the work, subject to funding being identified. Notwithstanding the **Standard Conditions of Tender: C.1.1.3** of, the municipality reserves the right to award or not award the tender based on the municipalities available budget.

C.3.15 Complete adjudicator's contract:

Refer to the Conditions of Contract and the Contract Data.

C.3.17 Copies of contract:

The number of paper copies of the signed contract to be provided by the Employer is ONE (1). Tenderers are referred to the requirements as stated in the **Tender Data: C.2.13**.

T1.2.3 ADDITIONAL CONDITIONS OF TENDER

T1.2.3.1 Appeals

In terms of Regulation 49 of the Municipal Supply Chain Management Regulations persons aggrieved by decisions or actions taken by the Municipality, may lodge an appeal within 14 days of the decision or action, in writing, to the Municipality. All appeals (clearly setting out the reasons for the appeal) and queries with regard to the decision of award are to be directed to:

The City Manager
Attention Ms S. Pillay eMail: Simone.Pillay@durban.gov.za
P O Box 1394
DURBAN, 4000

T1.2.3.2 Prohibition on awards to persons in the service of the state

Clause 44 of the Supply Chain Management Regulations states that the Municipality or Municipal Entity may not make any award to a person:

(a) Who is in the service of the State;
(b) If that person is not a natural person, of which a director, manager, principal shareholder or stakeholder is a person in the service of the state; or
(c) Who is an advisor or consultant contracted with the municipality or a municipal entity.

Should a contract be awarded, and it is subsequently established that Clause 44 has been breached, the Employer shall have the right to terminate the contract with immediate effect.

T1.2.3.3 Code of Conduct and Local Labour

The Tenderers shall make themselves familiar with the requirements of the following policies:

- Code of Conduct;
- The Use of CLOs and Local Labour.

T1.2.3.4 Functionality Specification

The value of W_2 is 100. The Functionality criteria (and sub criteria if applicable) and maximum score in respect of each of the criteria are as follows:

Functionality Criteria / Sub criteria		Maximum Points Score
Tenderer's Experience		30
Project Organogram and Experience and expertise of Key Staff	**Contracts Manager**	15
	Lead Site Agent	15
	Lead Foreman 1*	5
	Lead Foreman 2*	5
	Health and Safety manager	10
Preliminary Programme		10
Construction Methodology & Quality Control		10
	Maximum possible score for Functionality (M_s)	100

The minimum number of evaluation points for Functionality is **70**. Only those Tenderers who achieve the minimum number of Functionality evaluation points (or greater) will be eligible to have their tenders further evaluated.

Functionality shall be scored by not less than three evaluators and the scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for Functionality. Each evaluation criteria will be assessed in terms of six indicators and scores allocated according to the following table:

Level 0 No submission/No substantive submission	**Level 1** Generic & dissatisfactory submission	**Level 2** Satisfactory submission	**Level 3** Good submission	**Level 4** Excellent submission
0	40	70	90	100

Evaluation criteria will be adjudicated according to submissions made in accordance with the following schedules, which are found in T2.2: Returnable Schedules:

Functionality Criteria	Returnable Schedules
Tenderer's Experience	• Experience of Tenderer
Project Organogram and Experience and expertise of Key Staff	• Proposed Organisation and Staffing • Key Personnel • CV's with Experience of Key Personnel
Preliminary Programme	• Preliminary Programme
Construction Methodology & Quality Control	• Construction Approach, • Methodology, and Quality Control • Schedule of Proposed Subcontractors • Plant and Equipment

Unless otherwise stated, evaluation criteria will be adjudicated with respect to the contract specific Scope of Work, as specified in C.3. In this regard the following definitions apply to the evaluation criteria prompts for judgement:

- "**successfully completed**" implies a project has been completed on time and to specification(**only applies if a signed completion certificate has been submitted**);
- "**similar nature**" implies projects that were of a value of at least 70% of this tender's value, and had a comparable Scope of Work in terms of technical requirements and operations;
- "**experience**" implies experience on projects of a similar nature;
- "**Accredited degree / diploma**" implies a minimum 3-year qualification in Civil Engineering, from a registered University or Institute of Technology.

Criterion: Tenderer's Experience Note: Projects of a similar nature that will be considered shall be one, or a combination of, new road construction, road widening/upgrade projects, intersection improvements, gravel to surface road upgrades, access road upgrades and major parking areas.	
Level 0	No information provided; OR submission of no substance / irrelevant information provided
Level 1	To have successfully completed 1 project of a similar nature within the past 7 years.
Level 2	To have successfully completed 2 projects of a similar nature within the past 7 years.
Level 3	To have successfully completed 3 projects of a similar nature within the past 7 years.
Level 4	To have successfully completed 4+ projects of a similar nature within the past 7 years.

Criterion : Project Organogram and Experience of Key Staff	
The tenderer is to attach to this schedule the proposed composition of their staffing structure (both on-site and off-site), including key staff member/expert names: • Contract's Manager (part-time on site) • Construction Manager or Site Agent (Full time on site) • Minimum of 2 Foremen (full time on site) and their respective CVs. • Health and Safety Officer (full time on site) The roles and responsibilities of each key staff member/expert should be as set out as job descriptions.	
0	No information provided; OR submission of no substance / irrelevant information provided
40	**Contracts Manager:** relevant accredited 3-year diploma/degree and 3-year relevant experience on a project of a similar nature and value. **Lead Site Agent:** relevant accredited 3-year diploma/degree and 3-year relevant experience on a project of a similar nature and value. **Lead Foremen (min 2):** 3 years relevant experience, each. **Health and Safety manager**: relevant accredited health and safety qualification and must be registered with SACPCMP and 3-year relevant experience on a project of a similar nature and value.
70	**Contracts Manager:** relevant accredited 3-year diploma/degree and 5 years relevant experience on a project of a similar nature and value. **Lead Site Agent:** relevant accredited 3-year diploma/degree and 5-year relevant experience on a project of a similar nature and value **Lead Foremen (min 2):** 5 years relevant experience, each. **Health and Safety manager**: relevant accredited health and safety qualification and must be registered with SACPCMP and 5-year relevant experience on a project of a similar nature and value.
90	**Contracts Manager:** relevant accredited 3-year diploma/degree and 7 years relevant experience on a project of a similar nature and value and must be registered with ECSA. **Lead Site Agent:** relevant accredited 3-year diploma/degree and 7-year relevant experience on a project of a similar nature and value **Lead Foremen (min 2):** 7 years relevant experience, each. **Health and Safety manager**: relevant accredited health and safety qualification and must be registered with SACPCMP and 7 -year relevant experience on a project of a similar nature and value.
100	**Contracts Manager:** relevant accredited 3-year diploma/degree and 10 years relevant experience on a project of a similar nature and value and must be registered with ECSA. **Lead Site Agent:** relevant accredited 3-year diploma/degree and 10-year relevant experience on a project of a similar nature and value **Lead Foremen (min 2):** 10 years relevant experience, each. **Health and Safety manager**: relevant accredited health and safety qualification and must be registered with SACPCMP and 10 -year relevant experience on a project of a similar nature and value.

Criterion : Preliminary Programme	
The programme should: • List the individual construction activities broken down into appropriate levels of description • Indicate the durations for the individual construction activities • Indicate the sequencing/overlapping of activities • Indicate the time interval used (days/weeks/months)	
0	No information provided; OR submission of no substance / irrelevant information provided
40	The programme does not adequately deal with the critical characteristics of the project Scope of Work or the plan and manner in which risk is to be managed. The sequencing of activities is not in accordance with generally accepted construction practice, and activity durations are unrealistic.
70	Programme covers all the applicable individual activities which are in an acceptable sequence, with appropriate durations, and is in accordance with generally accepted construction practice, and is in line with Clause 1.1.1.14 of the Conditions of Contract (time for achieving Practical Completion).
90	Programme covers all the applicable individual activities which are in an acceptable sequence, with appropriate durations and a greater level of detail for activities and durations, presented using a programme management software. Programme must show the critical path.
100	Programme covers all the applicable individual activities which are in an acceptable sequence, with appropriate durations, including critical path, resources and cash flow. In addition to the programme covers all activities, meetings, requirements and accommodates changes and details ways to improve the overall project outcome within the completion time.

Criterion : Construction Methodology & Quality Control	
Brief overview of the methodology which encompasses all programmed activities in appropriate order and includes staff, plant and equipment resources, including subcontractors if applicable, a brief description of preparatory work, construction processes including finishing works for each activity. Statement covers required sampling and testing requirements for preparatory works, process monitoring and finishing works, for all programmed activities.	
0	No information provided; OR submission of no substance / irrelevant information provided
40	The technical approach and/or methodology is less than acceptable and unlikely to satisfy project objectives or requirements. Plant and equipment is unlikely to provide adequate protection of the works. Quality control statement is generic or poor with no relevant information.
70	Brief overview of the methodology which encompasses all programmed activities in appropriate order and includes staff, plant and equipment resources, including sub-contractors if applicable, a brief description of preparatory work, construction processes including finishing works for each activity, including sampling and testing for quality control. Quality control statement is generic.
90	Comprehensive overview of a site-specific methodology which encompasses all programmed activities in appropriate order and includes staff, plant and equipment resources, including subcontractors if applicable, a brief description of preparatory work, construction processes including finishing works for each activity. Quality control statements are site specific with statements covering required sampling and testing requirements for the programmed activities.
100	The methodology is specifically tailored to address specific project requirements. The methods and approach to managing risk, contingency procedures, reference to quality control, reference to sample specimens for quality testing and references as-built information requirements for quality control are specifically tailored to the critical characteristics of the project. The plant and equipment are specifically tailored to the project requirements and are sufficiently adaptable to accommodate changes that may be required during execution. Quality control statements are site specific covering required sampling and testing for programmed activities including site specific quality control checklist for programmed activities

PART T2: RETURNABLE DOCUMENTS

T2.1 LIST OF RETURNABLE DOCUMENTS

T2.1.1 General

The Tender Submission Documentation must be submitted in its entirety. All forms must be properly completed and signed as required.

The Tenderer is required to complete and sign each and every Schedule and Form listed below to the best of their ability as the evaluation of tenders and the eventual contract will be based on the information provided by the Tenderer.

Failure of a Tenderer to complete the Schedules and Forms to the satisfaction of the Employer will inevitably prejudice the tender and may lead to rejection on the grounds that the tender is non-responsive.

T2.1.2 Returnable Schedules, Forms and Certificates

Entity Specific

Technical or Functionality Evaluation

Contract Part: The Tenderer is required to complete following forms:

T2.2.1 COMPULSORY ENTERPRISE QUESTIONNAIRE

Ref	Description	Tenderer to Complete	
1.1	Name of enterprise		
1.2	Name of enterprise's representative		
1.3	Email address of representative		
1.4	Contact numbers of representative	**Tel:**	**Cell:**
1.5	National Treasury Central Supplier Database Registration number	**MAAA**	
1.6	VAT registration number, if any:		
1.7	CIDB registration number, if any:		
1.8	Department of Labour: Registration number		
1.9	Department of Labour: Letter of Good Standing Certificate number		

2.0	**Particulars of sole proprietors and partners in partnerships (attach separate pages if more than 4 partners)**		
	Full Name	**Identity No.**	**Personal income tax No. ***
2.1			
2.2			
2.3			

3.0	**Particulars of companies and close corporations**	
3.1	Company registration number, if applicable:	
3.2	Close corporation number, if applicable:	
3.3	Tax Reference number, if any:	
3.4	South African Revenue Service: Tax Compliance Status PIN:	

4.0	**MBD 4, MBD 6, MBD 8, and MBD9** issued by National Treasury must be completed for each tender and be included as a tender requirement.

Tenderers are to include, at the back of their tender submission, a printout of their SARS "Tax Compliance Status – PIN Issued" certificate.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

i) authorizes the Employer to verify the Tenderer's tax clearance status from the South African Revenue Services that it is in order.

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004.

iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption.

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the Tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest.

v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

NAME (Block Capitals): **Date**

SIGNATURE:

T2.2.2 CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING / SITE INSPECTION

Reference is to be made to the **Tender Data: C.2.1.1(a) and C.2.7**.

This is to certify that:

(entity name): .....

of (address): .....

.....

.....

was represented by the person(s) named below at the Clarification Meeting for Contract **1X-32452** held for all Tenderers, the details of which are stated in the **Tender Data: C.2.7**.

I / We acknowledge that the purpose of the meeting was to acquaint myself / ourselves with the site of the works and / or matters incidental to doing the work specified in the tender documents in order for me / us to take account of everything necessary when compiling our rates and prices included in the tender.

Particulars of person(s) attending the meeting:

Name:	……..……..	Name:	..... …….
Signature:	……..…….	Signature:	..... …….
Capacity:	……	Capacity:	……..……..…….

Attendance of the above person(s) at the meeting is confirmed by the Employer's Agent's Representative, namely:

Name: ……

Signature: ……

Date: ……..…..

T2.2.3 MBD 4: DECLARATION OF INTEREST

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

(a) a member of:
  (i) any municipal council.
  (ii) any provincial legislature.
  (iii) the national Assembly or the national Council of provinces.
(b) a member of the board of directors of any municipal enterprise.
(c) an official of any municipality or municipal enterprise.
(d) an employee of any national or provincial department, national or provincial public enterprise 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 enterprise.
(f) an employee of Parliament or a provincial legislature.

"**Shareholder**" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

1 No bid will be accepted from persons **in the service of the state**[1]**.**

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 Name of enterprise	
Name of enterprise's representative	
3.2 ID Number of enterprise's representative	
3.3 Position enterprise's representative occupies in the enterprise	
3.4 Company Registration number	
3.5 Tax Reference number	
3.6 VAT registration number	

3.7 The names of all directors / trustees / shareholders / members / sole proprietors / partners in partnerships, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below. In the case of a joint venture, information in respect of each partnering enterprise must be completed and submitted.

	Circle Applicable	
3.8 Are you presently in the service of the state?	YES	NO

If yes, furnish particulars: .....

.....

3.9 Have you been in the service of the state for the past twelve months?	YES	NO
If yes, furnish particulars: ……		
……		
3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?	YES	NO
If yes, furnish particulars: ……		
……		
3.11 Are you, aware of any relationship (family, friend, other) between any other 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
If yes, furnish particulars: ……		
……		
3.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state?	YES	NO
If yes, furnish particulars: ……		
……		
3.13 Are any spouse, child or parent of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state?	YES	NO
If yes, furnish particulars: ……		
……		
3.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract ?	YES	NO
If yes, furnish particulars: ……		
……		

4 The names of all directors / trustees / shareholders / members / sole proprietors / partners in partnerships, their individual identity numbers and state employee numbers must be indicated below. In the case of a joint venture, information in respect of each partnering enterprise must be completed and submitted

Full Name	Identity No.	State Employee No.	Personal income tax No.
Use additional pages if necessary			

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): **Date**

SIGNATURE:

T2.2.4 MBD 5: DECLARATION FOR PROCUREMENT ABOVE R10 MILLION
(ALL APPLICABLE TAXES INCLUDED)

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

		Circle Applicable	
1.0	Are you by law required to prepare annual financial statements for auditing?	YES	NO

1.1 **If YES, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.**

2.0	Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?	YES	NO

2.1 If NO, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.

2.2 If YES, provide particulars.

……

……

3.0	Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?	YES	NO

3.1 If YES, provide particulars.

SEE Returnable Document T2.2.5

4.0	Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?	YES	NO

4.1 If YES, provide particulars.

……

……

If required by 1.1 above, Tenderers are to include, at the back of their tender submission, a printout of their audited annual financial statements.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, ***and, if required, that the requested documentation has been included in the tender submission****.*

NAME (Block Capitals): ..... **Date** .....

SIGNATURE: .....

T2.2.5 CONTRACTS AWARDED BY ORGANS OF STATE IN THE PAST 5 YEARS

In terms of SCM Policy Section 20(1)(d)(iii), Tenderers are to provide details of Works undertaken for the Government or Public Sector entities/ Organs of State in the past 5 Years, including particulars of any material non-compliance or dispute concerning the execution of such contract.

Material non-compliance or dispute (Yes or No)													
Date Completed													
Value of Work													
Consulting Engineer/ Engineers representative													
Employer													
Contract Number													

I, the undersigned, who warrants that they are authorised to sign on behalf of the entity, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): **Date**

SIGNATURE:

T2.2.6 MBD 6.1: PREFERENCE POINTS CLAIM

(SCMP 52.7: Basket of Preference Goals)

This form serves as a claim form for preference points according to **The Basket of Preference Goals**. **Reference is to be made to the Tender Data: C.3.11.**

1.0 GENERAL CONDITIONS

1.1 The relevant **Preference Points System (90/10)** applicable to this bid is stated in the **Tender Data: C.3.11**.

1.2 Failure on the part of the Tenderer to submit the required proof or documentation, in terms of the requirements in the Tender Data for claiming specific goal preference points, will be interpreted that **Preference Points for Specific Goals** are not claimed.

1.3 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.

2.0 ADJUDICATION USING A POINT SYSTEM

2.1 The bidder obtaining the highest number of total points will be recommended for the award of the contract.

2.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts.

2.3 Points scored will be rounded off to the nearest 2 decimal places.

2.4 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.

2.5 However, 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 be the one scoring the highest score for functionality.

2.6 Should two or more bids be equal in all respects the award shall be decided by the drawing of lots.

3.0 POINTS AWARDED FOR PRICE

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

90/10 Procurement System

$$Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

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

4.0 POINTS ALLOCATED FOR THE BASKET OF PREFERENCE GOALS

4.1 Preference points may be claimed for the **Specific Goals** stated in the **Tender Data: C.3.11**.

For the purposes of this tender, the Tenderer may claim points based on the goal(s) stated in the table below, as supported by proof/ documentation specified in the Tender Data.

90/10 Preference Points System The Specific Goals to be allocated points in terms of this tender and the	**Maximum Number of points ALLOCATED**	**Tenderer's Number of points CLAIMED**
Ownership Goal: Race (black)	1.25	
Ownership Goal: Gender (female)	0.75	
Ownership Goal: Disabilities	0.5	
RDP Goal: The promotion of South African owned enterprises.	2.5	
RDP Goal: Social upliftment of communities	2.5	
RDP Goal: The promotion of SMMEs owned by Black People (contracts >R5m)	2.5	
Total CLAIMED Points (maximum 10)	**10**	

5.0 REMIDIES FOR THE SUBMISSION OF FALSE INFORMATION

5.1 The remedies for the submission of false information regarding claims for specific goals are stated in the **SCM Policy: Section 52.9**.

Tenderers are to include, at the back of their tender submission, the required proof/ documentation in support of their Preference Goal claims.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, ***and, if required, that the requested documentation has been included in the tender submission****.*

NAME (Block Capitals): ..... **Date**

SIGNATURE: ....

T2.2.8 MBD 8: DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1.0 This Municipal Bidding Document must form part of all bids invited.

2.0 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.

3.0 The bid of any bidder may be rejected if that bidder, or any of its directors have:

a) abused the 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) wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years.
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).

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

		Circle Applicable	
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer / Authority of the institution that imposed the restriction after the audi alteram partem rule was applied.) The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	YES	NO

4.1.1 If YES, provide 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)? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	YES	NO

4.2.1 If YES, provide 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	NO

4.3.1 If YES, provide particulars.

……

……

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	NO

4.4.1 If YES, provide 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	NO

4.5.1 If YES, provide particulars.

……

……

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

I accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

NAME (Block Capitals): ---------- **Date**

SIGNATURE: ---------- ----------

T2.2.9 MBD 9: CERTIFICATE OF INDEPENDENT BID DETERMINATION

NOTES

[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.
[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.

1.0 This Municipal Bidding Document (MBD) must form part of all **bids**[1] invited.

2.0 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.

3.0 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.

4.0 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.

5.0 In order to give effect to the above, the below **Certificate of Independent Bid Determination** must be completed and submitted with the bid.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid for: Contract **1X-32452**
Construction of Cornubia Boulevard, C9 Work Package 6A

in response to the invitation for the bid made by: ETHEKWINI MUNICIPALITY

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

I certify, on behalf of: ……

that:

(continued on next page)

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.
   (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 consortium[3] 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.
   (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.

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.

NAME (Block Capitals): ---------- **Date**

SIGNATURE: _____ ----------

T2.2.10 DECLARATION OF MUNICIPAL FEES

Reference is to be made to the **Tender Data: C.2.23 and C.3.13(a)**.

I, the undersigned, do hereby declare that the Municipal fees of:

.....

(full name of Company / Close Corporation / partnership / sole proprietary/Joint Venture)

(hereinafter referred to as the TENDERER) are, as at the date hereunder, fully paid or an Acknowledgement of Debt has been concluded with the Municipality to pay the said charges in instalments.

The following account details relate to property of the said TENDERER:

Account	Account Number: to be completed by Tenderer											
Consolidated Account												
Electricity												
Water												
Rates												
JSB Levies												
Other												

- If applicable, a copy of a recent (within the past 3 months) Metro Bill is to be provided.

I acknowledge that should the aforesaid Municipal charges fall into arrears, the Municipality may take such remedial action as is required, including termination of any contract, and any payments due to the Contractor by the Municipality shall be first set off against such arrears.

- Where the Tenderer's place of business or business interests are outside the jurisdiction of eThekwini municipality, a copy of the accounts/ agreements from the relevant municipality are to be provided.

- Where the Tenderer's Municipal Accounts are part of their lease agreement, then a copy of the agreement, or an official letter to that effect, is to be provided.

- Where a Tenderer's place of business or business interests are carried out from premises as part of any other agreement, then a copy of the agreement, or an official letter to that effect, is to be provided.

Tenderers are to include, at the back of their tender submission, copies of the above-mentioned account's, agreements signed with the municipality, lease agreements, or official letters.

*I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, **and that the requested documentation has been included in the tender submission**.*

NAME (Block Capitals): **Date**

SIGNATURE:

T2.2.11 CONTRACTOR'S HEALTH AND SAFETY DECLARATION

Reference is to be made to Clauses C.2.1(e) and C.2.23 of the Tender Data.

In terms of Clause 5(1)(h) of the OHSA 1993 Construction Regulations 2014 (referred to as "the Regulations" hereafter), a Principal Contractor may only be appointed to perform construction work if the Client is satisfied that the Principal Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHSA 1993 Construction Regulations 2014.

To that effect, a person duly authorised by the Tenderer, must complete and sign the declaration hereafter in detail.

Declaration by Tenderer

1 I, the undersigned, hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHSA 1993 Construction Regulations 2014.

2 I hereby declare that my company has the competence and the necessary resources to safely carry out the construction work under this contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.

3 I propose to achieve compliance with the Regulations by one of the following **(Tenderers are to Circle Applicable - Yes or No)**:

	Circle Applicable	
(a) From my own competent resources as detailed in 4(a) hereafter.	Yes	No
(b) From my own resources still to be appointed or trained until competency is achieved, as detailed in 4(b) hereafter:	Yes	No
(c) From outside sources by appointment of competent specialist Subcontractors as detailed in 4(c) hereafter:	Yes	No

4 Details of resources I propose:
(Note: Competent resources shall include safety personnel such as a construction supervisor and construction safety officer as defined in Regulation 8, and competent persons as defined in Regulations 9, 10, 11, 12, 13, 14, 16, 17, 20, 21, 22, 23(1), 24, 25, 26, 27, 28 and 29, as applicable).

(a) Details of the competent and qualified key persons from my company's own resources, who will form part of the contract team:

NAMES OF COMPETENT PERSONS	POSITIONS TO BE FILLED BY COMPETENT PERSONS

(b) Details of training of persons from my company's own resources (or to be hired) who still have to be trained to achieve the necessary competency:

(i) By whom will training be provided?	
(ii) When will training be undertaken?	
(iii) Positions to be filled by persons to be trained or hired:	

(c) Details of competent resources to be appointed as subcontractors if competent persons cannot be supplied from own company:

Name of proposed subcontractor:	
Qualifications or details of competency of the subcontractor:	

5 I, the undersigned, hereby undertake, if this tender is accepted, to provide, before commencement of the works under the contract, a suitable and sufficiently documented Health and Safety Plan in accordance with Regulation 7(1) of the Construction Regulations, which plan shall be subject to approval by the Client.

6 I, the undersigned, confirm that copies of this company's approved Health and Safety Plan, the Client's Safety Specifications as well as the OHSA 1993 Construction Regulations 2014 will be provided on site and will at all times be available for inspection by the Principal Contractor's personnel, the Client's personnel, the Employer's Agent, visitors, and officials and inspectors of the Department of Labour.

7 I, the undersigned, hereby confirm that adequate provision has been made in the tendered rates and prices in the Bill of Quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHSA 1993 Construction Regulations 2014, and that I will be liable for any penalties that may be applied by the Client in terms of the said Regulations (Regulation 33) for failure on the Principal Contractor's part to comply with the provisions of the Act and the Regulations.

8 I, the undersigned, agree that failure to complete and execute this declaration to the satisfaction of the Client will mean that this company is unable to comply with the requirements of the OHSA 1993 Construction Regulations (2014) and accept that this tender will be prejudiced and may be rejected at the discretion of the Client.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): **Date**

SIGNATURE:

T2.2.12 CSD REGISTRATION REPORT

Reference is to be made to **Tender Data: C.2.1.1(b) and C.2.23**.

The **Tender Data: C.2.1: Eligibility**, requires a Tenderer to be registered, at the time of tender closing, on the **National Treasury Central Supplier Database (CSD)** as a service provider.

The date of obtaining the printout is to be printed on the printout.

CSD Registration Reports can be obtained from the National Treasury's CSD website at
https://secure.csd.gov.za/Account/Login.

The following is an example of the printout obtained from the above website.
Note: the printout will contain more than one page.

CENTRAL SUPPLIER DATABASE FOR GOVERNMENT

Report Date:
Report Ran By:

CSD REGISTRATION REPORT

SUPPLIER IDENTIFICATION

Supplier number		Have Bank Account	
Is supplier active?		Total annual turnover	
Supplier type		Financial year start date	
Supplier sub-type		Registration date	
Legal name		Created by	
Trading name		Created date	
Identification type		Edit by	
Government breakdown		Edit date	
Business status		Restricted Supplier	
Country of origin		Restriction Last Verification Date	
South African company/CC registration number			

Tenderers are to include, at the back of their tender submission, a printout of their CSD Registration Report.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, ***and that the requested documentation has been included in the tender submission****.*

NAME (Block Capitals): _____ **Date**

SIGNATURE: ....

T2.2.13 CIDB REGISTRATION AND STATUS

Reference is to be made to the **Tender Data: C.2.1.2, C.2.23, and C.3.13(c).**

The **Tender Data: C.2.1.1: Eligibility**, requires a Tenderer to be registered, as "Active", with the CIDB (at time of tender closing), in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.

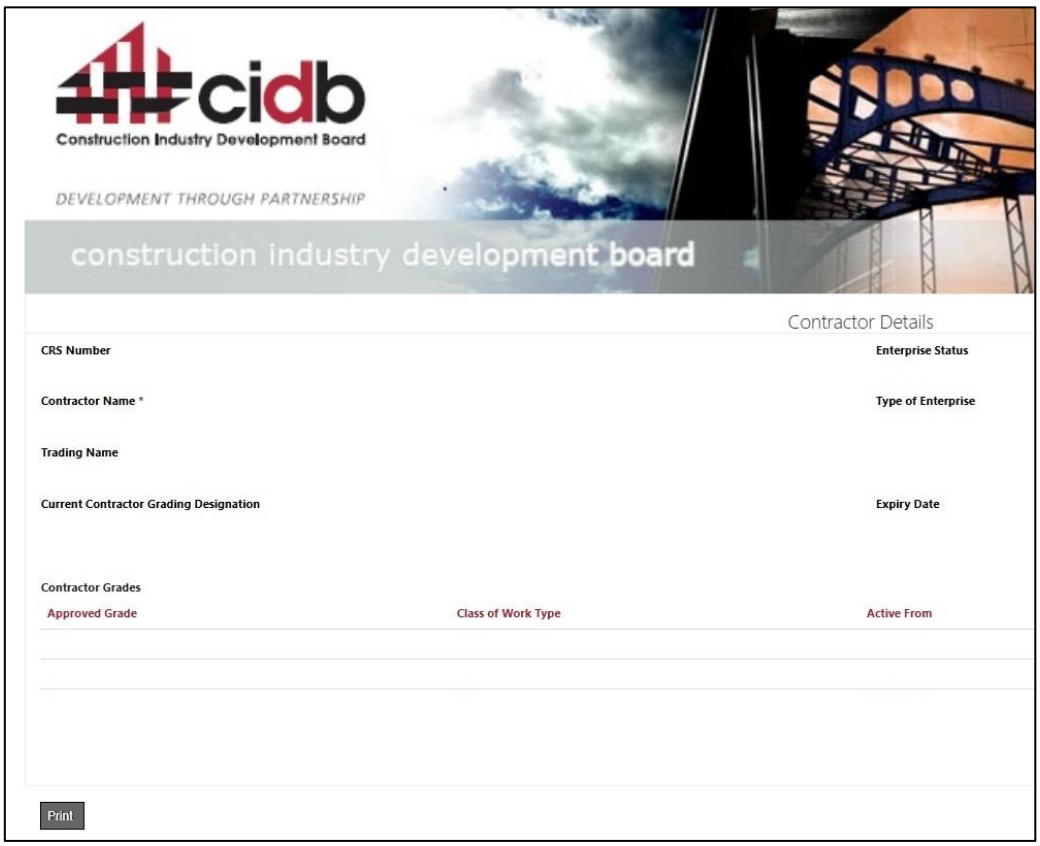
The required class of construction work is specified in the **Tender Data: C.2.1.2**.

The date of obtaining the printout is to be printed on the printout.

CIDB Registrations can be obtained from the CIDB website at:

https://portal.cidb.org.za/RegisterOfContractors/

The following is an example of the printout obtained from the above website using the provided "Print" button. Note: the printout may contain more than one page.



Tenderers are to include, at the back of their tender submission, a printout of their CIDB Registration and Status.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, ***and that the requested documentation has been included in the tender submission****.*

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.14 JOINT VENTURES AGREEMENTS

If this tender submission is to be made by an established Joint Venture, the Joint Venture Agreements and Power of Attorney Agreements are to be attached here.

Should the Joint Venture, at the time of submission, not yet be formalised, this form is to be completed in full and signed by all parties to the proposed Joint Venture.

The Lead Partner of the Joint Venture is to sign the **Form of Offer** in Section **C1.1.1**.

INTENT TO FORM A JOINT VENTURE

Should our submission for CONTRACT: **1X-32452** be successful, a Joint Venture will be established by the parties as listed below, as an unincorporated association, with the purposes of securing and executing the Contract, for the benefit of the Members.

Proposed Joint Venture			
Joint Venture Title (name):			
Represented by (name):		Tel:	
Lead Partner/ Member 1			
Entity Name:			
Ownership Interest in JV %:		CSD Registration:	MAAA
CIDB #:			
Represented by (name):		Signature:	
Partner/ Member 2			
Entity Name:			
Ownership Interest in JV %:		CSD Registration:	MAAA
CIDB #:			
Represented by (name):		Signature:	
Partner/ Member 3			
Entity Name:			
Ownership Interest in JV %:		CSD Registration:	MAAA
CIDB #:			
Represented by (name):		Signature:	

Note: All requirements for Joint Ventures, as stated elsewhere in this procurement document, must be complied with in full.

T2.2.15 RECORD OF ADDENDA TO TENDER DOCUMENTS

Reference is to be made to the **Tender Data: C.2.6**.

I / We confirm that the following communications received from the Employer or his representative before the date of submission of this tender offer, amending the tender documents, have been taken into account in this tender offer.

ADD.No	DATE	TITLE OR DETAILS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

It is also confirmed that the requirements, as stated on the Addenda, have been complied with.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.16 EXPERIENCE OF TENDERER

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

The following is a statement of works of similar nature (in relation to the scope of works) recently (within the past 7 years) executed by myself / ourselves.

Tenderers are to submit copies of signed completion certificates for all projects submitted.

EMPLOYER: CONTACT PERSON AND TELEPHONE NUMBER	CONSULTING ENGINEER: CONTACT PERSON AND TELEPHONE NUMBER	NATURE OF WORK	VALUE OF WORK (inclusive of VAT)	DATE COMPLETED

Attach additional pages if more space is required

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.17 PROPOSED ORGANISATION and STAFFING

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts

The Tenderer should propose the structure and composition of their team i.e. the main disciplines involved, the key staff member / expert responsible for each discipline, and the proposed technical and support staff and site staff.

The roles and responsibilities of each key staff member / expert should be set out as job descriptions. In the case of an association / joint venture / consortium, it should, indicate how the duties and responsibilities are to be shared.

The Tenderer must attach their organization and staffing proposals to this page. (this is to include both the on-site and off-site staffing resources used for this project)

In addition to any lists, this information should also be shown in an organogram format (flow chart) clearly indicating the staff hierarchy and reporting lines, again for on- and off-site resources.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.18 KEY PERSONNEL

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel (Contract's Manager, Site Agent, and Foremen) 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
Site Agent, Project Managers		
Foremen, Quality Control and Safety Personnel		
Technicians, Surveyors, etc		
Artisans and other Skilled workers		
Plant Operators		
Unskilled Workers		
Others:		
....		

Note: CVs of key personnel may be requested during the contract period.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.19 EXPERIENCE OF KEY PERSONNEL

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

The experience of assigned staff member in relation to the Scope of Work will be evaluated from three different points of view:

1) General experience (total duration of professional activity), level of education and training and positions held of each discipline specific team leader.
2) The education, training, skills and experience of the Assigned Staff in the specific sector, field, subject, etc which is directly linked to the scope of work.
3) The key staff members' / experts' knowledge of issues which the Tenderer considers pertinent to the project e.g. local conditions, affected communities, legislation, techniques etc.

A CV of the contract manager, site agent(s) and general foreman of not more than 2 pages should be attached to this schedule:

Each CV should be structured under the following headings:

a) Personal particulars
- name
- date and place of birth
- place (s) of tertiary education and dates associated therewith
- professional awards

b) Qualifications (degrees, diplomas, grades of membership of professional societies and professional registrations)

c) Skills

d) Name of current employer and position in enterprise

e) Overview of post-graduate / diploma experience (year, organization and position)

f) Outline of recent assignments / experience that has a bearing on the scope of work

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: ..... _____

T2.2.20 PRELIMINARY PROGRAMME

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

The Tenderer shall detail below or attach a preliminary programme reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this Contract. The programme shall be in accordance with the information supplied in the Contract, requirements of the Project Specifications and with all other aspects of his Tender.

PROGRAMME														
ACTIVITY	**WEEKS / MONTHS**													

Note: The programme must be based on the completion time as specified in the Contract Data.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): **Date**

SIGNATURE:

T2.2.21 CONSTRUCTION METHODOLOGY AND QUALITY CONTROL

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

Construction Approach and Methodology

The construction approach and methodology must respond to the Scope of Work and outline the proposed approach to undertake the work showing a detailed programme including health and safety aspects, the use of plant and resources for this Project.

Quality Control

The quality control statement must discuss what tests and control measures are to be employed on site to attain the specified results and is to cover the program associated activities.

The Tenderer must attach their Construction Methodology and Quality Control information to this page.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.22 SCHEDULE OF PROPOSED SUBCONTRACTORS

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

The following firms have been identified as possible subcontractors for work in this contract.

NAMES AND ADDRESSES OF PROPOSED SUBCONTRACTORS	NATURE AND EXTENT OF WORK TO BE SUBCONTRACTED	PREVIOUS EXPERIENCE WITH SUBCONTRACTOR

Attach additional pages if more space is required

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.23 PLANT and EQUIPMENT

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

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 that is 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.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

T2.2.24 CONTRACTOR'S HEALTH AND SAFETY PLAN

Refer to Additional Conditions of Tender: T1.2.3.4 for Functionality Points evaluation prompts.

At tender stage only a brief overview (**to be attached to this page**) of the Tenderers perception on the safety requirements for this contract will be adequate.

Only the successful Tenderer shall submit separately the Contractor's Health and Safety Plan as required in terms of Regulation 7 of the Occupational Health and Safety Act 1993 Construction Regulations 2014.

The detailed safety plan will take into consideration the site-specific risks as mentioned under C.3: Project Specification. A generic plan will not be acceptable.

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals): _____ **Date**

SIGNATURE: _____ _____

PART C1: AGREEMENT AND CONTRACT DATA

C1.1: FORM OF OFFER AND ACCEPTANCE

C1.1.1: OFFER

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

Contract No: **1X - 32452**

Contract Title: **Construction of Cornubia Boulevard, C9 Corridor, Work Package 6A**

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:**

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

.....)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the 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.

For the Tenderer:

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

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

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

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

Address : .....

: .....

Telephone : .....

Witness:

Signature : ..... **Date** : .....

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

Notes:
*** Indicates what information is mandatory.**
Failure to complete the mandatory information and sign this form will invalidate the tender.

C1.1: FORM OF OFFER AND ACCEPTANCE

C1.1.2: FORM OF ACCEPTANCE

This Form will be completed by the Employer

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

The terms of the contract are contained in:

- Part C1 : Agreement and Contract Data, (which includes this Agreement)
- Part C2 : Pricing Data, including the Bill of Quantities
- Part C3 : Scope of Work
- Part C4 : Site Information

and the schedules, forms, drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 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 representatives 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 (if any). 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 *(person authorized to sign the acceptance)* **:** .....

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

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

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

Address : .....

: .....

Witness:

Signature : ..... **Date** : .....

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

C1.1: FORM OF OFFER AND ACCEPTANCE
C1.1.3: SCHEDULE OF DEVIATIONS

This form will be completed by THE EMPLOYER and ONLY THE SUCCESSFUL TENDERER

1.	**Subject**	: ……
	Details	: ……
		: ……
2.	**Subject**	: ……
	Details	: ……
		: ……
3.	**Subject**	: ……
	Details	: ……
		: ……

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or 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		**FOR THE EMPLOYER**
……	Signature	……
……	Name *(in capitals)*	……
……	Capacity	……
……	Name and Address of	……
……	Organisation	……
……		……
……		……
……	Witness Signature	……
……	Witness Name	……
……	Date	……

C1.2: CONTRACT DATA

C1.2.1 CONDITIONS OF CONTRACT

C1.2.1.1 GENERAL CONDITIONS OF CONTRACT

The Conditions of Contract are the General Conditions of Contract for Construction Works (2015 3rd Edition), (GCC 2015) published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel: 011-805-5947, Fax: 011-805-5971, E-mail: civilinfo@saice.org.za).

The Contract Data (including variations and additions) shall amplify, modify, or supersede, the GCC 2015 to the extent specified below, and shall take precedence and shall govern.

Each item of data given below is cross-referenced to the clause in the GCC 2015 to which it mainly applies.

C1.2.2 CONTRACT DATA

C1.2.2.1 DATA TO BE PROVIDED BY THE EMPLOYER

1.1.1.13 The **Defects Liability Period**, from the date of the Certificate of Completion, is **1 Year**

1.1.1.14 The **time for achieving Practical Completion**, from the Commencement Date is **24 months**. The period as stated in 5.3.2, and the 7 days referred to in 5.3.3, are included in the above time for achieving Practical Completion. The special non-working days as stated in 5.8.1 are excluded from the above time for achieving Practical Completion.

1.1.1.15 The Employer is the eThekwini Municipality as represented by:
Head: **Ethekwini Transport Authority**

1.2.1.2 The address of the Employer is:
Physical: eThekwini Transport Authority, 30 Archie Gumede Place, DURBAN, 4001
Postal: eThekwini Transport Authority, P O Box 680, DURBAN, 4000
Telephone: 031 311 7758 (t)
E-Mail: Nelisiwe.Zama@durban.gov.za

1.1.1.16 The **name of the Employer's Agent** is Bethuel Manthoadi
1.2.1.2 The address of the Employer' Agent is:
Physical: eThekwini Transport Authority, 30 Archie Gumede Place, DURBAN, 4001
Postal: eThekwini Transport Authority, P O Box 680, DURBAN, 4000
Telephone: 031 322 8651 (t)
E-Mail: Bethuel.Manthoadi@durban.gov.za

1.1.1.26 The **Pricing Strategy** is by **Re-measurement Contract**.

3.2.3 The Employer's Agent shall obtain the **specific approval of the Employer** before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract:

- 6.3: Council approval in order to authorise any expenditure in excess of the Tender Sum plus **10%** contingencies.

4.11.1 To carry out and complete the works, the Contractor shall employ a competent Contracts Manager and a lead Site Agent as part of the key staff. It is a requirement for the Contractor's Contracts Manager and a lead Site Agent to each have a relevant accredited 3-year diploma/degree and a minimum of 5 years relevant experience on a project of a similar nature and value. The CVs of the Contracts Manager and a lead Site Agent should be submitted to the Employer's Agent's

Representative for acceptance by the Department (reference is made to Cl.5.3.1 of the Contract Data).

Note:

i) "similar nature" implies projects that were of a value of at least 70% of this tender's value, and had a comparable Scope of Work in terms of technical requirements and operations.

ii) "experience" implies experience on projects of a similar nature.

iii) "Accredited degree / diploma" implies a minimum 3-year qualification in Civil Engineering, from a registered University or Institute of Technology.

5.3.1 The **documentation required** before commencement with Works execution are:

- Health and Safety Plan (refer to Clause 4.3)
- Initial Programme (refer to Clause 5.6)
- Security (refer to Clause 6.2)
- Insurance (refer to Clause 8.6)
- CV(s) of Key Site Staff (refer to Clause 4.11.1)
- Subcontracting Implementation Plan
- If required to be registered, in terms of the Occupational Injuries and Diseases Act (130 of 1993 as amended), the Contractor is to supply proof of being registered and in good standing with the compensation fund by submitting a valid Letter of Good Standing from the Compensation Commissioner. Should the Contractor's Letter of Good Standing be expired, but an application for renewal has been made, the Contractor is to submit the expired Letter of Good Standing AND proof of an application for renewal.
- Construction Regulation Permit to be secured by the Client's Agent

5.3.2 The **time to submit the documentation** required before commencement with Works is **14 Days**.

5.3.3 Add the following paragraph:

"If a construction work permit, in terms of Clause 3(1) of the Construction Regulations (2014), is applicable, the instruction to commence carrying out of the works may only be issued once the construction work permit has been obtained by the Employer's Agent. If a construction work permit is applicable, the contractor shall allow for a minimum period of 37 days, after the submission (or re-submission) of the documentation referred to in Clause 5.3.1., for the issuing of the construction work permit."

5.8.1 The **non-working days** are **Saturdays and** Sundays.

(5.1.1) The **special non-working** days are:

- All statutory holidays as declared by National or Regional Government.
- The year-end break:
  - Commencing on the first working day after 15 December.
  - Work resumes on the first working day after 5 January of the next year.

5.8.1 Delete the words "sunset and sunrise" and replace with "17:00 and 07:00".

5.12.2.2 **Abnormal Climatic Conditions (Rain Delays)** - The numbers of days per month, on which work is expected not to be possible as a result of rainfall, for which the Contractor shall make provision, is given in the table below. During the execution of the Works, the Employer's Agent's Representative will certify a day lost due to rainfall only if at least 75% of the work force and plant on site could not work during that specific working day.

Extension of time as a result of rainfall shall be calculated monthly being equal to the number days certified by the Employer's Agent's Representative as lost due to rainfall, less the number of days allowed for as in table below, which could result in a negative figure for certain months. The total extension of time for which the Contractor may apply, shall be the cumulative algebraic sum of the monthly extensions. Should the sum thus obtained be negative, the extension of time shall be taken as NIL.

Month	Days Lost	Average Rainfall	Month	Days Lost	Average Rainfall
January	4*	134	July	1	39
February	3	113	August	2	62
March	3	120	September	2	73
April	2	73	October	3	98
May	2	59	November	3	108
June	1	28	December	1*	102
TOTAL	27	1009mm	* = The number of working days lost allows for the annual statutory Construction holiday in December and January of each year.		

5.13.1 The **penalty for delay** in failing to complete the Works is **R 45 000** (per Day).

5.14.1 The **requirements for achieving Practical Completion** will be determined by the Employer's Agent (in consultation with the Contractor) and recorded in the minutes of the first Site Meeting / Handover Meeting. (Refer to 1.1.1.24 for a generic definition.) The requirements are to be regularly reviewed with respect to any variations to the Contract.

5.16.3 The **latent defect liability** period is **10 Years**.

6.2.1 **Security (Performance Guarantee)**: Delete the word "selected" and replace it with "stated".

The liability of the Performance Guarantee shall be as per the following table:

Value of Contract (incl. VAT)	Performance Guarantee Required
Less than or equal to R 1m	Nil
Greater than R 1m and less than or equal to R 10m	5% of the Contract Sum
Greater than R 10m	10% of the Contract Sum

6.5.1.2.3 The **percentage allowance** to cover overhead charges for daywork are as follows:

- **20%** of the gross remuneration of workmen and foremen actually engaged in the daywork;
- **20%** on the net cost of materials actually used in the completed work.

No allowance will be made for work done, or for materials and equipment for which daywork rates have been quoted at tender stage.

6.8.2 **Contract Price Adjustment Factor**: The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule (GCC 2015 - page 86) with the following Indices / Descriptions / Coefficients:

- The proportion not subject to adjustment: **x = 0.10**.
- The base month will be the month prior to the month in which tenders close.

- The Index for, **Plant**, **Materials**, and **Fuel** shall be based on **2023 = 100**.
- The Index for **Labour** shall be based on **2024 = 100**.

	STATS SA Statistical Release	Table	Description	Coefficient
• "L" is the "Labour Index"	P0141	Table A	Geographic Indices; CPI per Province; Kwa-Zulu Natal	**a = 0.28**
• "P" is the • "Contractor's Equipment Index"	P0151.1	Table 4	Plant and Equipment	**b = 0.28**
• "M" is the "Materials Index"	P0151.1	Table 6	Civil Engineering Material (excluding bitumen)	**c = 0.38**
• "F" is the "Fuel Index"	P0142.1	Table 1	Coke, petroleum, chemical, rubber and plastic products; Coal and petroleum products; Diesel	**d = 0.06**

6.8.3 Price adjustments for **variation in the cost of the special material(s)** listed below, will be allowed.

Bitumen - escalation will be calculated using the "Rise and Fall" method as determined by the Employer. The base price for bitumen on this contract shall be the ruling price of 50/70 grade bitumen based on the **RUBIS Asphalt South Africa List Selling Price** for Penetration Grade Bitumen, seven (7) days prior to the closing date of tenders.

6.10.1.5 The **percentage advance** on materials not yet built into the Permanent Works is **80%**.

The **percentage advance** on Plant not yet supplied to Site: **Not Required**

6.10.3 **Retention Money:** Delete the word "selected".
The percentage retention on the amounts due to the Contractor is 10%.
The limit of "retention money" is 5% of the Contract Sum.
Should the Contract Price exceed the Contract Sum then the limit of "retention money" is 5% of the Contract Price.
Interest will not be paid on retention withheld by the Employer.

8.6.1.1.2 The **value of Plant and materials** supplied by the Employer to be included in the insurance sum: **Not Required**

8.6.1.1.3 The **amount to cover professional fees** for repairing damage and loss to be included in the insurance sum: **Not Required.**

8.6.1.2 **SASRIA Coupon Policy** for Special Risks to be issued in joint names of Council and Contractor for the full value of the works (including VAT).

8.6.1.3 The limit of indemnity for **liability insurance**: **R 10 000 000**.

8.6.1.4 **Ground Support Insurance**:

- Minimum amount for any one occurrence, unlimited as to the number of occurrences, against any claim for damages or loss caused by vibration and / or removal of lateral support: **R 1 000 000**.
- Maximum first excess: **R 10 000**.

8.6.1.5 Furthermore, the insurance cover effected by the Contractor shall meet the following requirements:

Third Party Insurance (Public Liability)

- Minimum amount for any one occurrence, unlimited as to the number of occurrences, for the period of the contract, inclusive of the maintenance period: **R 1 000 000**.
- Consequential loss to be covered by policy: **Yes**
- Liability section of policy to be extended to cover blasting: **R 2 000 000**
- Maximum excess per claim or series of claims arising out of any one occurrence: **R10 000**.

Principal's own surrounding Property Insurance

- Minimum amount for any one occurrence unlimited as to the number of occurrences against any claim for damage which may occur to the Council's own surrounding property: **R1 000 000**.
- Maximum first excess: **R 10 000**.

Insurance of Works

- Minimum amount for additional removal of debris (no damage): **Nil**
- Minimum amount for temporary storage of materials off site, excluding Contractor's own premises: **Nil**
- Minimum amount for transit of materials to site: **Nil.**

8.6.5 **Approval by Employer**: At the end of the sub-clause, add the following paragraph:

"Except where otherwise provided in the Special Conditions of Contract, the insurance cover effected by the Contractor in terms of this clause shall not carry a first loss amount greater than those set out below:

Contract Price	First Loss
Less than R 100,000	R 5,000
R 100,000 to R 500,000	R 10,000
R 500,000 to R 1,000,000	R 20,000
R 1,000,000 to R 2,000,000	R 30,000
R 2,000,000 to R 4,000,000	R 40,000
Greater than R 4,000,000	R 50,000

The insurance policy shall contain a specific provision whereby cancellation of the policy prior to the end of the period referred to in Cause 8.2.1 cannot take place without the prior written approval of the Employer."

10.5.1 **Dispute resolution** shall be by ad-hoc adjudication.

10.5.3 The **number of members** of the Adjudication Board to be appointed: 1 or 3 as agreed by the parties, failing agreement, it shall be 3. Refer to clause PS, AB 17.

10.7.1 Failing ad-hoc adjudication, the determination of disputes shall be by arbitration.

C1.2.2.2 DATA TO BE PROVIDED BY CONTRACTOR

1.1.1.9 The legal name of Contractor is:

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1.2.1.2 The Physical address of the Contractor is:

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The Postal address of the Contractor is:

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The contact numbers of the Contractor are:

Telephone: ……

Fax: ……

The E-Mail address of the Contractor is:

……

6.5.1.2.3 The **percentage allowance** to cover overhead charges for daywork are as follows:

- % of the gross remuneration of workmen and foremen actually engaged in the daywork; …… %
- **%** on the net cost of materials actually used in the completed work. …… %

C1.2.3 ADDITIONAL CONDITIONS OF CONTRACT

C1.2.3.1 COMMUNITY LIAISON OFFICER

The Ward Councillor(s) in whose ward(s) work is to be done will, collectively, identify one community liaison officer (CLO) for the project and make the person known to the Contractor within two days of being requested to do so. The Contractor will be required to enter a written contract with the CLO that specifies:

- The hours of work and the wage rate of the CLO (200% of the Civil Engineering Industry minimum wage).
- The duration of the appointment.
- The duties to be undertaken by the CLO which could include:
  - Assisting in all respects relating to the recruitment of local labour.
  - Acting as a source of information for the community and councillors on issues related to the contract.
  - Keeping the Contractor advised on community issues and issues pertaining to local security.
  - Assisting in setting up any meetings or negotiations with affected parties.
  - Keeping a written record of any labour or community issue that may arise.
  - Any other duties that may be required by the Contractor.

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

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

Payment: The CLO will be reimbursed from the PC Sum item in the Preliminary & General Section of the Bill of Quantities.

C1.2.3.2 EMPLOYMENT OF LOCAL LABOUR

It is a condition of contract that the contractor will be required to employ local labour as specified in eThekwini Council Policy “The use of CLOs and Local Labour”. The contractor will be required to ensure that a minimum of 50% of the labour force is made up of local labour. For the purposes of this contract, “Local labour” will be deemed to be any **persons who reside within Wards 35 and 102.** The contractor will be required to provide proof of authenticity of local labour. Signed confirmation by the appointed CLO will suffice for this.

No additional costs will be entertained due to this Particular Specification. The contractor will remain responsible for providing proper supervision of all labour and will be responsible for the quality of work produced.

C1.2.3.3 SUBCONTRACTING

It is a condition of contract that the contractor must allow for a minimum of **30%** of the contract value (excluding PC Sum items and Fixed Cost allowances) to be subcontracted to contractors who are **>51%** owned by Black People. Proof of payment to the subcontractors will be required to verify that the minimum has been achieved.

The penalty for not achieving the specified subcontracting will be 0.5% of the contract value (excluding PC Sum items and Fixed Cost allowances) for every 1% of subcontracting not achieved.

C1.2.3.4 FTE (Full Time Equivalent) EMPLOYMENT INFORMATION

It is a condition of contract that the Contractor supplies the Employer's Agent's Representative with information in respect of the employment of all foremen, artisans and Labour (skilled and unskilled) employed to work on this contract. The information required is:

- Initials (per ID doc)
- Last Name (per ID doc)
- ID Number
- Disability (y / n)
- Education Level

Level 1 Unknown	**Level 2** No Schooling	**Level 3** Grade 1-3	**Level 4** Grade 4	**Level 5** Grade 5-6
Level 6 Grade 7-8	**Level 7** Grade 9	**Level 8** Grade 10-11	**Level 9** Grade 12	**Level 10** Post Matric

- Category of Employment

Category A: Employed as Local Labour for this contract only
Category B: Temporarily employed by the Contractor
Category C: Permanently employed by the Contractor

In addition, the following information is required in respect of each person listed above, on a monthly basis:

- Number of days worked during the month;
- Daily wage rate;
- Number of training days during the month.

The information is to be forwarded in a format acceptable to the Employer's Agent's Representative, but preferably in the form of an emailed EXCEL file (an original file, to be used as a template, will be issued to the Contractor). Contractors without computer facilities will be required to submit a hard copy of the information in a format as agreed to between the Contractor and the Employer's Agent's Representative.

In addition to the tax invoice, to be submitted by the Contractor with his monthly statement, mentioned in Clause 6.10.4 of GCC 2015, the Employer reserves the right to withhold payment until the monthly FTE information has been forwarded to the Employer's Agent's Representative. No additional payment for complying with the above will be made and the Contractor is to make allowance for complying through the time related P & G items (sum) under Part AA: Preliminaries, of the Bill of Quantities.

C1.2.3.5 PERFORMANCE MONITORING OF SERVICE PROVIDERS

[For contract awards over R10m] The Contractor shall be subjected to "Performance Monitoring" assessments in terms of the applicable Section (S.53) of the Employer's Supply Chain Management Policy.

Key Performance Indicators (KPIs) are specified in the C3: Scope of Works or will be discussed and agreed with the Contractor before commencement of the contract.

C1.2.3.6 EXCEPTED RISKS (Clause 8.3)

Pursuant to Clause 8.3 of the Conditions of Contract (GCC 2015), the Employer shall not be liable for the payment of standing time costs as a result of the occurrence of any of the "Excepted Risks" as defined under Clause 8.3.

However, the Employer shall reimburse the Contractor in respect of plant de-establishment and re-establishment costs as a result of "Excepted risks" when a written instruction to de-establish is issued to the Contractor.

C1.2.3.7 CIDB B.U.I.L.D. PROGRAMME

a) CIDB Skills Standard

It will be a condition of contract that the Contractor shall, in the performance of the contract, achieve the **Contract Skills Development Goal** (CSDG) established in the below referenced standard:

- CIDB Standard for Developing Skills Through Infrastructure Contracts, published in Gazette Notice No. 48491 of 28 April 2023.

C2.1: PRICING ASSUMPTIONS / INSTRUCTIONS

C2.1.1 GENERAL

The Bill of Quantities forms part of the Contract Documents and must be read and priced in conjunction with all the other documents comprising the Contract Documents (refer to C.1.2 of the Tender Data).

C2.1.2 PRICING INSTRUCTIONS AND DESCRIPTION OF ITEMS IN THE SCHEDULE

Measurement and payment shall be in accordance with the relevant provisions of Clause 8 of each of the Standard Engineering Specifications referred to in the Scope of Work. The Preliminary and General items shall be measured in accordance with the provisions of C2.1.8.

The descriptions of the items in the Bill of Quantities are for identification purposes only and comply generally with those in the Standard Engineering Specification.

Clause 8 of each Standard Engineering Specification, read together with the relevant clauses of the Scope of the works, set out what ancillary or associated work and activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standard Engineering Specification, or the Scope of the works, conflict with the Bill of Quantities, the requirements of the Standard Engineering Specification or Scope of the work, as applicable, shall prevail.

C2.1.3 QUANTITIES REFLECTED IN THE SCHEDULE

The quantities given in the Bill of Quantities are estimates only, and subject to re-measuring during the execution of the work. The Contractor shall obtain the Employer's Agent's detailed instructions for all work before ordering any materials or executing work or making arrangements for it.

The Works as finally completed in accordance with the Contract shall be measured and paid for as specified in the Bill of Quantities and in accordance with the General and Special Conditions of Contract, the Specifications and Project Specifications and the Drawings. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.

The validity of the contract will in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment.

C2.1.5 MONTHLY PAYMENTS

Unless otherwise specified in the Specifications and Project Specifications, progress payments in Interim Certificates, referred to in Clause 6.10.1 of the General Conditions of Contract, in respect of "sum" items in the Bill of Quantities shall be by means of interim progress instalments assessed by the Employer's Agent and based on the measure in which the work actually carried out relates to the extent of the work to be done by the Contractor.

C2.1.4 PROVISIONAL SUMS / PRIME COST SUMS

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

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

C2.1.6 PRICING OF THE BILL OF QUANTITIES

The prices and rates to be inserted by the Tenderer in the Bill of Quantities shall be the full inclusive prices to

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

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

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

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

C2.1.7 "RATE ONLY" ITEMS

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

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

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

C2.1.8 PRELIMINARY AND GENERAL

The Preliminary and General Section is provided to cover the Contractor's expenses incurred in complying with the requirements of the tender documents and consists of the following parts:

- Part AA: Preliminaries
- Part AB: General Specifications
- Part AH: Occupational Health and Safety

Fixed Charge Items: Each item should be priced separately and, subject to the Engineer certifying in terms of Clause 6.7 of the General Conditions of Contract that the work has been done, payment will be made as follows:

(i) the total amount due when the certified value fixed charge items in this section is less than 5% of the net contract price;
(ii) when the certified value of fixed charge items in this section is greater than 5% of the net contract price, payment will be limited to 5% of the net contract price. The remainder will be paid when the value of the work done under the contract, excluding the value of fixed charge items in this section, is greater than 50% of the net contract price, excluding the value of fixed charge items in this section.

Time Related Items: Any Time Related items not priced shall be deemed to be covered by the prices of other items in the section.

Payment of Time Related items in this section will be made throughout the contract period, the amount per month being the value of the item divided by the completion in months or, if specified in weeks, the equivalent number of months, in terms of Clause 5.5 of the General Conditions of Contract. The final monthly increment will only be paid upon the issue of a completion certificate.

C2.2: BILL OF QUANTITIES

The Bill of Quantities follows and comprises of 22 pages.

PART C3: SCOPE OF WORK

C3.1: PROJECT DESCRIPTION AND SCOPE OF CONTRACT

C3.1.1.1 Background of the Project

The eThekwini Municipality is in the process of restructuring the Public Transport (PT) within the City in order to ensure that a sustainable, safe and efficient service is delivered. The overall goal of this initiative is to improve the quality of life for the city's residents through the establishment of an Integrated Rapid Public Transport Network (IRPTN). This public transport service in the City will ultimately be in line with Government's PT Action Agenda as approved by Cabinet in 2008 where all the major cities have been mandated to create and implement fully integrated public transport networks over the next 15 years.

The eThekwini Municipality has completed a comprehensive plan for the project. The planning yielded a public transport system with special features that are currently not available in the public transport system. The network will comprise an integrated package of rail and rapid bus trunk routes with dedicated Right of Ways (ROW), feeder and complimentary services for public transport. The system will be universally accessible. The following are the key system features:

- Trunk Routes with dedicated Right of Ways (ROW),
- Feeder Routes to Trunk routes,
- Complementary Routes,
- Transfer and Terminal Stations,
- Park and Ride Facilities,
- Information, Communication Technologies (Integrated Fare Management and Intelligent Transport Systems),
- Fleet,
- Non-Motorised Transport Facilities,
- Depots, and
- A Transport Management Centre.

The IRPTN has 9 corridors that would make up the proposed public transport network. In the first phase of the IRPTN, 3 Corridors have been designed and being implemented, that three Corridors being the C1, C3 and C9.

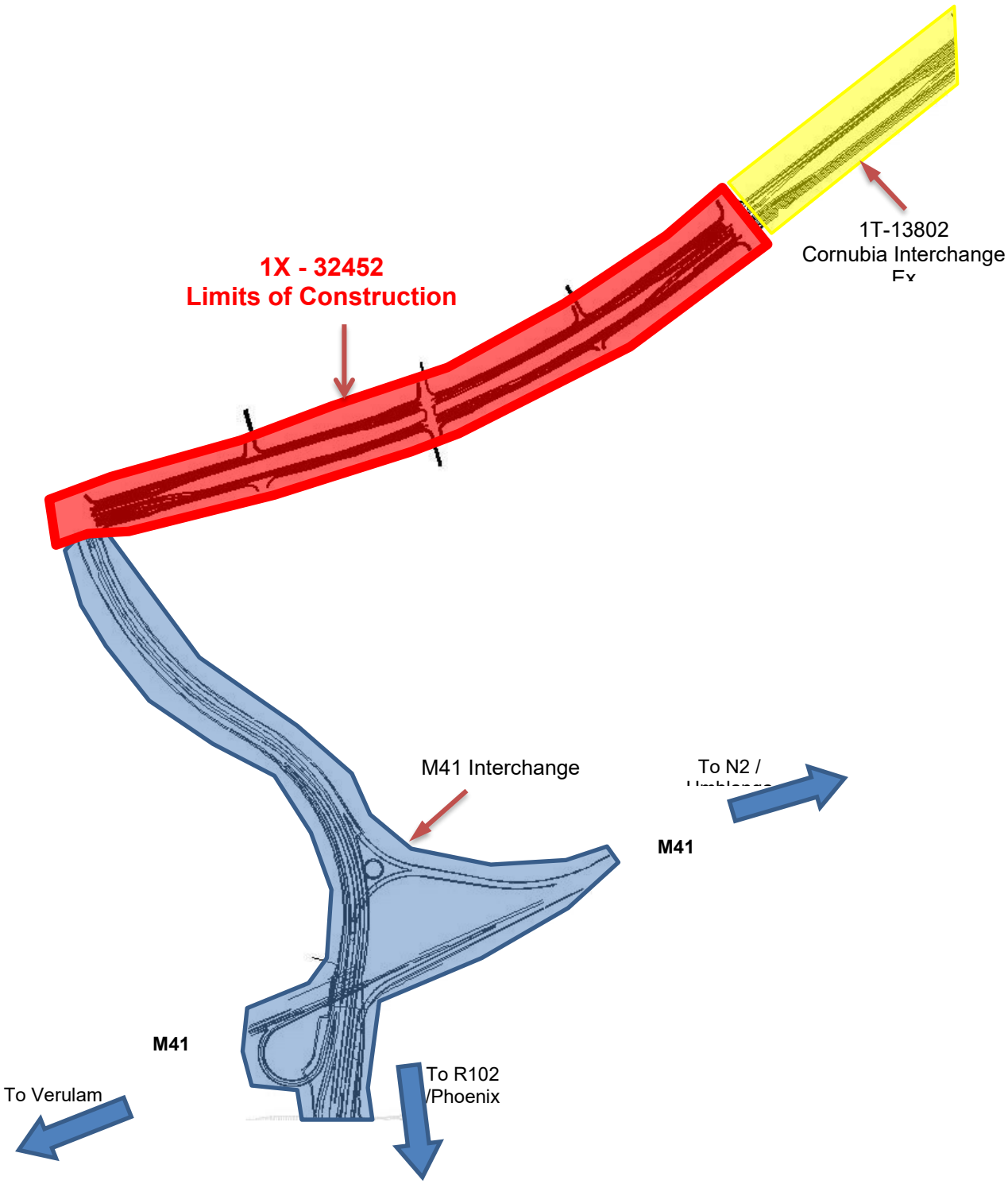
The above-mentioned Corridors originate at the Bridge City terminal and terminate at the City Centre, Pinetown Centre, and Umhlanga Rocks Town Centre, respectively.

The C9 corridor has been divided into 7 work packages and this contract (1X-32452) is for work package 6A. It is the construction of the C9 corridor along Cornubia Boulevard from the proposed Dube West-Cornubia Boulevard intersection to the proposed Dube East-Cornubia Boulevard intersection and its associated works.

C3.1.1.2 Description of Works

[The project involves the construction of the IRPTN, Go! Durban, C9 Route, Work Package 6A, Cornubia Boulevard, from the proposed Dube West-Cornubia Boulevard intersection to the proposed Dube East-Cornubia Boulevard intersection. The project is flanked by the proposed Dube West arterial road on the West and by the proposed Dube East link on the East. The construction of roads, sidewalks, stormwater drainage systems, foul water systems, watermains, ducts, landscaping, street lighting, ancillary works and all road works items forms part of this contract.

C3.1.2 Description of Site and Access



C3.1.3 Nature of Ground and Subsoil Conditions

The geology and subsoil conditions along Cornubia Boulevard are highly variable. The inferred geology for this area has been described in Annexure C.4.2 of the Contract Document.

C 3.1.4 Scope of Work

Title	**Scope of work**
Function and broad outline of contents	**The construction of a new road link flanked by the proposed Dube West and Dube East roads. Comprising of C9 IRPTN bus route (RoW), single lanes in each direction, chainage 0 – 1630 and C9 Mixed Use lanes (MU), minimum two lanes in each direction, chainage 0 – 1630**

The scope includes the following works:

- Bulk earthworks;
- Reinforced concrete retaining walls;
- Stormwater drainage system;
- Installation of service ducts;
- Landscaping;
- Protection Works;
- Traffic Accommodation

Traffic Accommodation

The Contractor will need to design a traffic accommodation plan which will need to be submitted to the City's Traffic Operations Department within the ETA for acceptance.

Stormwater

Stormwater drainage facilities will be constructed under this contract. This includes for the construction of a closed subsurface drainage system consisting of concrete pipes as per approved drawings. This network will need to tie into the existing drainage facilities.

C3.2: PROJECT SPECIFICATION

PREAMBLE

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

C3.2.1 GENERAL

PS.1 PROGRAMME AND METHOD OF WORK

This Clause is to be read in conjunction with the provisions and obligations as contained in SANS 1921-1 and SANS 1921-2.

PS.1.1 Preliminary Programme

The Contractor shall include with his tender a preliminary programme on the prescribed form (see Part T2.2 : Preliminary Programme) 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 (refer to Clause 5.12.2.2) and special non-working days (refer to Clause 5.1.1.1) as specified in the in the Contract Data.

PS.1.2 Programme in Terms of Clause 5.6 of the General Conditions of Contract

It is essential that the construction programme, which shall conform in all respects to Clause 5.6 of the General Conditions of Contract, be furnished within the time stated in the Contract Data (refer to Clause 5.3.1/2).

The preliminary programme to be submitted with the tender shall be used as basis for this programme.

The Tenderer's attention is drawn to the fact that a number of factors will affect the programming of and method of carrying out the works. The more important of these are:

(a) **Relocation of Services**: The notice period required for the relocation of services is 45 calendar days from date of proving and providing of notice.

Those known existing services in the area of the works have been depicted on the contract drawings. It is evident; however, that the status of existing service records as far as can be ascertained might not reflect the actual situation in the field. As such, due allowance has been made in the Bill of Quantities for the proving of services where directed by the Engineer.

b) Tying into and liaising with the appointed contractors for Work Package 4B and 6B

The appointed contractor for work package 6A must allow in his programme tying of Cornubia Boulevard into work package 4B and work package 6B.

c) Sequence of Works

The appointed contractor for work package 6A must allow in his programme for traffic accommodation and maintenance of all existing accesses as well as the functionality of all existing intersections for the duration of the contract.

a) Watermain special items

The notice period required for the items required for watermains, fittings, steel pipes etc, is 45 calendar days from date of providing of notice.

e) Vehicular access to private property is to be maintained.

f) Planning of works: the following is envisaged: Refer to Annexure C4.11

Phase 1 –

1. Contractor to divert traffic in both directions along Dube East Road for the partial construction of the Dube East – Cornubia Boulevard intersection as diagrammatically depicted in Phase 1 (Annexure C4.11). Before diverting any traffic, the contractor shall make provision for a 6.5m wide road. This may require the removal of the existing islands and make provision for temporary lane marking signage and traffic control and possible widening along Dube East Road to accommodate existing traffic movements.
2. Traffic travelling along the existing Cornubia Boulevard will continue to use the existing road while the construction of the left-hand side carriageway of Cornubia Boulevard is constructed.
3. Construction of the right-hand carriageways from Dube West up to Chainage 1310 (contractor to provide at least 4m access to the existing accesses)
4. Contractor to postpone the construction of the kerb and channel for the permanent works from Ch 1290 to 1320 to allow for traffic accommodation to the adjacent properties
5. Contractor to create a temporary access road across the medians in order to divert traffic onto the left-hand carriageway

Phase 2 –

1. Traffic will be diverted onto the newly constructed Left hand side carriageway of Cornubia Boulevard, while the contractor can construct the right-hand side carriageways from Ch 1310 to 1615

Phase 3 –

1. Contractor to divert traffic along Dube East Road in both directions for the partial construction of the Dube East – Cornubia Boulevard intersection as diagrammatically depicted in Phase 3 (Annexure C4.11). This requires temporary lane marking, signage and traffic control.
2. Contractor may construct the kerb and channel (permanent works) between Ch 1290 and 1320.

Phase 4 –

1. Contractor will maintain the temporary diverted route adopted in Phase 3 for traffic moving in both directions along Dube East Road for the partial construction of the Dube East – Cornubia Boulevard intersection as diagrammatically depicted in Phase 4 (Annexure C4.11).

Contractor to liaise with the appointed contractor of 1T-13802 to ensure delivery access is maintained to the Cornubia Mall at all times.

PS.2 ACCOMMODATION OF TRAFFIC

This Clause is to be read in conjunction with the provisions and obligations as contained in SANS 1921-1 and SANS 1921-2.

PS.2.1 Requirements for Accommodation of Traffic

PS.2.1.1 General

The Contractor shall make provision for accommodating all pedestrian and vehicular movement in the area of the works. Allowance shall be made in the relevant rates for any barricades and signs required. 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.

Clause 4.10.4 of SANS 1921-2 : 2004 shall be replaced with the following :

Road signs and markings shall comply with the requirements of SANS 1200 MM and / or The South African Road Traffic Signs Manual - Volume 2 : Roadworks Signing.

Particular reference is made to Programme in Terms of Clause 5.6 of the GCC wherein the Engineer has provided direction on how the works may be constructed (Annexure C4.11). Should the contractor adopt this method of construction then he must provide a traffic deviation plan to the Engineer for approval prior to the commencement of the works. The Contractor shall remain the custodian of the Traffic Deviation Plan and accept all responsibility relating to the plan even on approval of the plan by the Engineer.

Should the Contractor propose an alternative method of construction, then a detailed programme of the sequence of works as well as the traffic deviation plan must be provided to the Engineer

for approval prior to the commencement of the works. Again, the Engineer's approval of the plan would not exonerate the contractor from being the custodian of the plan and of accepting full responsibility for the plan.
It should be noted that the proposed construction of the work package 4B and 6B may affect the traffic accommodation of this project, thus liaison with the appointed Contractors' may be required.

Clause 4.10.4 of SANS 1921-2: 2004 shall be replaced with the following:
"Road signs and markings shall comply with the requirements of "The South African Road Traffic Signs Manual - Volume 2: Roadworks Signing".

PS.2.1.2 Basic Requirements

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

The Contractor 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 Employer's Agent 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 ensure that the existing property accesses are maintained at all times. Where necessary the Contractor shall make allowance in the rates for completing the work required to the accesses out of normal hours.

PS.2.1.3 Traffic Safety Officer

A full time Traffic Safety Officer is a requirement on this project. The Contractor shall nominate a suitable member of his staff (fully qualified and substantially experienced) as traffic safety officer to be responsible for the arrangement and maintenance of all the measures for the accommodation of traffic for the duration of the project.
Duties of the traffic safety officer shall be in compliance with the Occupational Health and Safety Act 1993 and the Construction Regulations 2014.

PS.2.1.4 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.

PS.2.1.5 Pedestrian movement

The Contractor shall make provision for accommodating all pedestrian movements in the area of the works.

The contractor is to make sure that his provisions within the contract will allow him to adequately carry out these functions successfully and shall make allowance in the relevant rates for any barricades and signs required.

PS.2.1.6 Temporary Reinstatement

Provided always that if in the course or for the purpose of the execution of the works or any part thereof any road or way shall have been broken up, then notwithstanding anything herein contained:

(a) if the permanent reinstatement of such road or way is to be carried out by the appropriate authority or by some person other than the contractor (or any subcontractor to him), the contractor shall at his own cost and independently of any requirement of or notice from the Engineer be responsible for the making good of any subsidence or shrinkage or other defect, imperfection or fault in the temporary reinstatement of such road or way, and for the execution of any necessary repair or amendment thereof from whatever cause the necessity arises, until the end of the period of maintenance in respect of works beneath such road or way until the authority or other person as aforesaid shall have taken possession of the site for the purpose of carrying out permanent reinstatement (whichever is the earlier), and shall indemnify and save harmless that Council against and from any damage or injury to the Council or to third parties arising out of or in consequence of any neglect or failure of the Contractor to comply with the foregoing obligations or any of them and against and from all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

(b) where the authority or person as aforesaid shall take possession of the site as aforesaid in sections or lengths, the responsibility of the contractor under paragraph (a) of this sub-clause shall cease in regard to any such section or length at the time possession thereof is so taken, but shall during the continuance of the said period of maintenance continue in regard to any length of which possession has not been taken and the indemnity given by the contractor under the said paragraph shall be construed and have effect accordingly.

PS.2.1.7 Providing Access to Properties

The scope of works for this project requires that the work be carried out by the contractor in phases. The Contractor's programme must show sequence of construction which shall be approved by the Engineer prior to commencement of the contract. Traffic accommodation and maintenance of all existing accesses as well as the functionality of all existing intersections shall be provided by the Contractor at all times for the duration of the contract. To this end suitable crossings shall be constructed by the Contractor where required.

As stated in clause PS.2.1.1, the Engineer has provided direction on how the works **may** be constructed (Annexure C4.11).

However, should the contractor adopt this method of construction, he shall acquire approval of and arrange with the occupiers and owners of the affected properties to temporarily close off a portion of property access, and/or road access. The Contractor shall give due notice of the intended closure and its duration to the occupiers of the affected properties and shall re-instate such accesses at the agreed time. Any such closures (partial or otherwise) shall be arranged between the Contractor and the occupiers and shall not absolve the Contractor from his obligations under the Contract to provide access at all times.

The Contractor shall also be responsible for the maintenance of all temporary roads and footpaths for the duration over which it is required and for removing same when they are no longer required.

The method of construction proposed by the Engineer requires the Contractor to do the following with regards to the temporary property access:

- Temporarily leave an opening in the kerb and channel of the permanent works- Phase 1: Annexure C4.11
- Construct a temporary access road which cuts through the sidewalk and median areas using temporary road layer works over the sidewalk and median areas. - Phase 1: Annexure C4.11
- Close the gap in the kerb and channel by completing the construction of the kerb and channel as per the permanent works at such time whereby the temporary access is no longer required.
- Removal of temporary road at such time where it is no longer required
- Construction of sidewalk and medians as per the permanent works

The method of construction proposed by the Engineer for maintaining the functionality of the existing Dube-East – Cornubia Boulevard intersection is described in Annexure C4.11 and the success of this proposal is based on the Contractor's interaction with the appointed Contractor of 1T-13802 to ensure that delivery access to the Cornubia Mall is maintained. This proposal shall not absolve the Contractor from his obligations under the Contract to provide access at all times.

No direct payment will be made for the cost of providing access. Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract.

PS.2.1.8 Penalties for Non-Compliance of Traffic Accommodation Clauses

A penalty of R1000/day shall be to the Contractor's account should he/she not comply with the relevant clauses regarding accommodation of traffic flows required for this project.

A Time related cost of R1000/hour shall be applicable for delay caused by the above-mentioned non-compliance. The measurement of time shall be from when the Level of Service in vehicular

capacity has reduced due to the act of non-compliance to the time that the Level of Service is restored to before the incident had occurred.

PS.3. SERVICES

This Clause is to be read in conjunction with the provisions and obligations as contained in SANS 1921-1 and SANS 1921-2.

PS.3.1 Existing Services

The Tenderer's attention is drawn to existing services within the area. Although every effort has been made to depict these services accurately the positions shown must be regarded as approximate.

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 comply with the conditions for dealing with existing services as attached in C3.5, Particular Specifications and approach the relevant authorities for additional information where applicable

PS. 3.2 Proving Underground Services

This clause must be read in conjunction with Clause DB.5.1.2, the requirements of which shall be extended to cover all earthworks operations whether for trenching or bulk earthworks, in the vicinity of underground services.

It is stressed that all services in a particular area must be proven before commencing work in that area.

Insofar as bulk earthworks are concerned, where services are indicated on the drawings or where from site observations can reasonably be expected that such services are likely to exist where excavations are to take place, the Contractor shall without instructions from the Employer's Agent carefully excavate by hand to expose and prove their positions.

The cost of the proving trenches is to be included in the work covered by Clause DA.8.3.

When a service is not located in its expected position the Contractor shall immediately report such circumstances to the Employer's Agent who will decide what further searching or other necessary action is to be carried out and shall instruct the Contractor accordingly. The cost of this additional searching shall be to the Council's cost and shall be paid for under DB.8.19 - Proving Existing Services.

Should any service be damaged by the Contractor in carrying out the works and should it be found that the procedure as laid down in this clause has not been followed then all costs in connection with the repair of the service will be to the Contractor's account.

When electrical cables are not in the positions shown on drawings of eThekwini Electricity and cannot be found after proving trenches have been put down, assistance may be obtained by calling an official of the Works Branch on Telephone No. 311-1111 during office hours, or by contacting Control on Telephone No. 305-7171 after hours.

It should be noted that 33,000 Volt and 132,000 Volt cables may only be exposed by the eThekwini Electricity's personnel. The cables are usually protected by concrete covering slabs, and therefore if the slabs are inadvertently exposed, excavation work must stop, and the eThekwini Electricity shall be contacted immediately on the above telephone numbers.

Proving of services shall be completed at least 45 calendar days in advance of the actual programmed date for commencing work in the area. The position of these services located must be co-ordinated and levelled by the Contractor, and the information given in writing to the Employer's Agent's Representative.

The requirements of this clause do not relieve the Contractor of any obligations as detailed in the Conditions of Contract or under Clause 4.17 of SANS 1921-1.

PS. 3.3 New Services and Relocation of Existing

This clause shall be read in conjunction with Clause PS.1 and 2.

New services are either to be installed by the Contractor as part of the contract or by others during the contract period. In the latter case excavation and subsequent backfilling of the trench from the top of the bedding layer shall generally be carried out by the Contractor.

Relocation of services shall generally be carried out by the relevant services organisation. Generally, their work shall include the excavating and bedding the service which will include backfilling to a depth of approximately 300 mm above the service. The remainder of the backfilling shall be carried out by the Contractor.

Generally, work shall only commence on the installation of new services once the bulk earthworks have been completed and roughly trimmed to level along a substantial portion of the services route. In addition, no sidewalk, verge, median or island shall be surfaced or topsoiled until all work on the services has been completed.

Services affected by the contract are described as follows:

- PS.4 : Watermains;
- PS.5 : Sewers;
- PS.6 : Stormwater;
- PS.7 : Electrical Plant
- PS.8 : Service Providers

Further to the above, tenderers are referred to the services drawing and are to note that several minor cables / pipes may be encountered during excavation works which may require to be relocated to some extent. It is anticipated that the 45-day period required under PS.3.2 will allow sufficient time for these relocations.

PS.3.4 Accommodation of Services

Further to Clauses PS.1, PS.2 and PS.3 of this specification, tenderers are to note that allowance must be made under this item and / or the appropriate rates, for all costs incurred as a result of complying with these clauses. It shall also cover liaison with the services organisations and accommodation of their work gangs / contractors on site.

PS.4 WATERMAINS

PS.4.1 General

The contractor shall prove the position of water lines and ensure they are not damaged during construction. The proving of these water lines shall be included in the tenderer's rates for excavation.

There are watermains with diameters ranging up to 400mm dia trunk mains along the route (Steel, MPVC and UPVC pipes).

The construction of the new watermain line will be as per the eThekwini Water Department Specifications. An allowance has been included in the BOQ for the main contractor to secure a subcontractor, who shall be approved by Metro Water, to undertake the laying of the new infrastructure while the connection to the existing main will be done by Metro Water. Civil works will be carried out by the Main contractor. An item has been allowed in the BOQ for the construction of all watermain relocations and ancillary works.

The Main Contractor will let out a tender to approved service providers. On receipt of the priced tenders, the Contractor shall forward the tenders to the Metro Water Department who will undertake an evaluation of the tenders and provide a recommendation to the Main Contractor for appointment. The appointed tenderer shall then become the Domestic Sub-Contractor of the Main Contractor. The said sub-contractor shall undertake the work done which shall be inspected and approved by the Metro Water Department. It is stressed that the 45-day period is the minimum period required to enable Metro Water to be on site timeously.

PS.4.2 Water Main Valve Access

Due to the dangerous situation occurring when water main valves are covered over, the Contractor shall maintain access to all water main valves at all times. During asphalt layer work, after each pass by the paving machine, the valves shall be exposed and access maintained in a safe condition.

Whatever method the Contractor chooses to use for this work, the cost of raising the valves from existing level to ultimate level shall be paid only once, irrespective of the number of times the valve is uncovered. Spacer rings required for the height adjustment of valve covers shall be supplied by the Water and Waste Service Unit. Tolerances on valve cover levels shall be as specified in clause PH.6.5. Before final setting in position of valve covers the Contractor shall liaise with the Engineer regarding the direction in which covers shall be placed.

PS.4.3 Restriction on Compactive Equipment

The Contractor is to note that there are existing watermains that traverse the site. Special care is to be taken in close proximity to these mains and connections.
The existing mains and connections shall be proved on site by the Contractor prior to any construction work commencing in the vicinity of the watermains.

Under no circumstances will heavy road-making equipment, other heavy plant or vibratory compaction equipment be permitted to operate within 800 mm vertically or horizontally of the existing mains or connections. The permissible compaction plant within this restricted area shall be the equivalent of a "Bomag 90" under static compaction, or similar approved plant. When the roadworks are far enough advanced to provide a minimum of 800 mm cover to the existing mains, the above restriction will fall away.

The Contractor is to take cognisance of the above requirements when entering rates in the Bill of Quantities and in the programming of the works. No claim for additional payment based on the inability to use plant as a result of the requirements of this clause will be accepted. The Contractor will be held liable for any costs should the watermain or electrical cables be damaged during construction of the road.

PS.4.4 Amendments to SANS 1200

PS.4.4.1 Earthworks (Pipe Trenches) – Refer To Part DB

PS.DB.3 Materials

PS.DB.3.5 Backfill Materials

Add the following paragraphs to sub clause 3.5:

"(c) Cement-stabilized backfilling

Backfilling shall, where directed by the Engineer, be stabilized with 5% cement. The aggregate shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed with 5% cement and shall be compacted in layers of 100 mm thick to 90% of modified AASHTO density unless specified otherwise.

(d) Soilcrete backfilling

The aggregate for soilcrete shall be mixed with 5% cement and shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed in a concrete mixer with the cement and enough water to acquire a consistency that allows the mixture to be placed with vibrators to fill all voids between the pipe and the sides of the trench. Shuttering shall be used where necessary."

PS.DB.3.7 SELECTION

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

“The Contractor is required to use selective methods of excavating and if required, shall at his own cost, screen, wash or otherwise treat excavated material in order to produce material suitable for the bedding.”

PS.DB.5 CONSTRUCTION

PS.DB.5.1 PRECAUTIONS

PS.DB.5.1.5 Removal of existing pipelines

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

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

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

PS.DB.5.2 MINIMUM BASE WIDTHS

Replace paragraph (a) with the following:

"Where two pipes are placed in the same trench, they shall be 300 mm apart or as indicated on the Drawings and the specified side allowance shall still be applicable."

Add the following after paragraph b)

"The above is not applicable to trenches for subsurface drains or ducts.

Trenches for subsurface drains shall be excavated to the dimensions and gradients shown on the Drawings or directed by the Engineer.

The specified width of trenches and the width of the excavation measured for payment shall not be less than 0,5 m, but the Contractor may reduce the actual width with the Engineer's permission. For trenches less than 600mm deep the side allowance may be reduced to 150mm."

PS.DB.5.4 EXCAVATION

Add the following:

"Except where otherwise specified, trenches shall be of such a depth that the minimum cover over the pipes shall be 600 mm in servitudes and in road reserves the minimum cover shall be 1 000 mm."

PS.DB.5.6 BACKFILL

PS.DB.5.6.3 Disposal of soft excavation material

Replace the words "unless otherwise required in the project specification." *at the end of sub clause 5.6.3 with:*

"… or to spoil in accordance with the requirements of sub clause PSD 5.2.2.3, as instructed by the Engineer."

Add the following new sub clauses in clause 5:

PS.DB.5.11 REMOVAL OF EXISTING PIPES

Where shown on the Drawings or where so instructed by the Engineer, the Contractor shall excavate, expose and remove from the ground, existing water pipelines.

If so instructed by the Engineer, the Contractor shall, before commencing with the excavation of the pipeline, expose the pipeline to be removed by means of careful hand excavation at positions agreed with the Engineer. Measurement and payment for locating the exact positions of the pipelines where required by the Engineer shall be made in accordance with and under item PSD 8.3.8.1.

Thereafter, the existing pipelines to be removed shall be carefully opened up by machine excavation to a depth of not more than 300 mm above the pipes after which the whole pipeline shall be fully exposed by means of careful hand excavation. The excavation width shall comply with sub clause 5.2.

The pipes and all specials encountered (e.g. bends, valves, valve box covers and the like) shall be removed from the trench in a manner as to avoid causing damage and as approved by the Engineer, cleaned sufficiently as to allow inspection of the pipes and specials by the Engineer and stacked in such a manner as will facilitate the inspection of each pipe and special by the Engineer.

Pipes and specials declared suitable by the Engineer for reuse shall be transported to the Contractor's store/yard (for collection by the Employer), where they shall be off-loaded and neatly stacked to the satisfaction of the Engineer. The Contractor shall be responsible for obtaining a written receipt of all pipes so delivered to the Employer's store/yard.

Pipes and specials which are declared unsuitable by the Engineer for reuse shall be transported to a spoil site and covered with spoil material to a depth of not less than 300 mm.

After removal of the pipelines, the trenches shall be backfilled using the excavated material and compacted to 90% modified AASHTO density. The provisions of sub clauses 5.6 and 5.7 shall apply.

PS.DB.8 MEASUREMENT AND PAYMENT

PS.DB.8.3 SCHEDULED ITEMS

PS.DB.8.3.2 Excavation

(a) Excavate in all materials, for trenches, backfill compact and dispose of surplus material

Replace "of 1,0 m" *in the first sentence of 8.3.2(a) with:*

"as specified in the Schedule of Quantities."

In the third paragraph add the word “shoring” *after* “…excavation,”

(b) Extra over item (a) above for:

Add the following at the end of the existing subitem 2:

"No payments will be made under subitems (1) and (2) in respect of any materials measured and paid for under subitem 3 below."

And add the following new subitems in 8.3.2(b):

"(3) Hand excavation where ordered by the Engineer in:

(a) Soft material .....Unit: m³

(b) Intermediate material .....Unit: m³

(c) Hard material .....Unit: m³

The unit of measurement shall be the cubic metre of material, measured in place according to the authorised dimensions, which was excavated by hand on the specific prior written instructions of the Engineer; provided always that the Engineer’s said instruction shall have stated that measurement and payment for such hand excavation will be in accordance with this item.

The tendered rate shall include full compensation for the additional cost, effort and time resulting from excavating in the respective materials using hand methods only.

The Engineer shall not be obliged to authorise payment under this item in respect of any hand excavation carried out (whether ordered in writing or otherwise), which hand excavation was in any case necessary to achieve compliance by the Contractor with his obligations under the Contract to

(i) utilise construction appropriate to the nature of the specific parts of the works; and/or

(ii) protect existing structures and/or services; and/or

(iii) comply with all prevailing legislation and regulations.

(4) Backfill stabilized with 5% cement were directed by the Engineer .....Unit: m³

The unit of measurement shall be the cubic metre of backfill material, measured in place after compaction according to the authorised dimensions, which was stabilized on the Engineer’s instructions in accordance with sub clause PSDB 3.5(c).

The tendered rate shall include full compensation for supplying the cement and for selecting, mixing, backfilling and compacting the stabilized material to 90% of modified AASHTO density.

(5) Soilcrete backfill where directed by the Engineer ..... Unit: m³

The unit of measurement shall be the cubic metre of soilcrete placed on the Engineer’s instructions in accordance with sub clause PSDB 3.5(d), measured in place according to the authorised dimensions.

The tendered rate shall include full compensation for supplying the cement and for selecting, mixing and placing the soilcrete as well as for the cost of shuttering if required."

Add the following subitems in 8.3.2 after subitem 8.3.2(c):

"(d) Excavate in all materials for stormwater inlet and outlet structures

irrespective of depth, and backfill around structures: ..... Unit: m³

The unit of measurement shall be the cubic metre of material excavated, measured in place according to the authorised dimensions, and excluding the volume of material excavated and paid for under subitem (a).

The tendered rate shall include for the costs of excavating in all materials, backfilling, compacting, trimming and tidying the final surface around the structure, disposing of surplus and unsuitable materials within the free-haul distance and, where applicable, selecting and keeping separate, excavated material suitable for use as backfill.

(e) Excavate open drains in all materials .....Unit: m³

The tendered rates shall include full compensation for excavating in all materials within the dimensions specified or authorised by the Engineer and to the specified lines and profiles, for the disposal of surplus and unsuitable excavated material where applicable, and in the case of item (d), for backfilling with suitable approved material compacted to 90% of modified AASHTO density around the structures.

(f) Extra over subitems (d) and (e) for excavating in:

(1) Intermediate material ..... Unit: m³

(2) Hard rock material ..... Unit: m³

Measurement and payment shall be in accordance with the provisions of 8.3.2(b) of SABS 1200 D (as amended)."

PS.DB.8.3.3 Excavation ancillaries

PS.DB.8.3.3.4 Overhaul

Replace the contents of this item with the following:

"Measurement and payment shall be in accordance with sub clause PSD 5.2.5 and PSD 8.3.6."

PS.DB.8.3.8 Removal of existing pipes and cables

(a) Excavate in all materials to 300 mm above the pipelines or cable .....Unit: m³

The unit of measurement shall be the cubic metre of material excavated for the removal of pipelines in accordance with PSDB 5.11, measured in place according to the authorised dimensions. Depth shall be measured from the ground surface on the centreline of the pipeline/cable to 300 mm above the cable or pipe barrel.

The tendered rate shall include for excavating by any method in all materials and placing the excavated material alongside the trench.

(b) Excavate by hand to expose pipes/cable .....Unit: m

The unit of measurement shall be the linear metre of pipeline finally exposed by hand excavation methods, measured in plain view along the centreline of the pipeline, irrespective of the class of pipe/cable. Separate items will be scheduled for each different diameters of pipe/cable. The pipe volume as well as the volume of all associated structures such as junction boxes, manholes, valve chambers and the like shall be excluded from the volume of excavation measured.

The tendered rates shall be in full and final compensation for excavating by hand methods from a depth of 300 mm above the cable or pipe barrel in accordance with PSDB 5.1.5 to expose the pipe to its bottom, irrespective of the type or class of pipe, as well as for excavating by hand around junction boxes, manholes, valve chambers and the like.

(c) Remove pipes/cable from trench and stack for inspection ..... Unit: m

The unit of measurement shall be the linear metre of each type and diameter of pipe/cable removed from the trench in accordance with sub clause 5.11, measured in plan view along the centreline of the pipeline/cable, without deduction for specials, junction boxes, manholes, valve chambers and the like as may be encountered. Separate items shall be scheduled for each different class and diameter of pipe/cable.

The tendered rates shall be fully inclusive for uncoupling the individual pipes, cables and specials, all additional excavation as may be necessary to facilitate the insertion of lifting slings or the utilisation of other lifting equipment, the provision and utilisation of all such lifting equipment as may be necessary (e.g. cranes), for lifting the pipes/cables and specials out of the trench, cleaning and stacking them along the side of the trench for inspection, attending during the Engineer's inspection and recording the Engineer's decisions on each pipe/cable/special. The tendered rate shall further include for the demolition and removal from the trench of all associated structures as may be encountered, such as junction boxes, inlet and outlet structures, valve chambers, anchor blocks and the like, and the loading and removal of the debris to spoil.

(d) Deliver pipes and specials declared reusable:

(i) Pipes/cable ..... Unit: m

The unit of measurement shall be the linear metre of pipe/cable declared reusable by the Engineer and delivered to the address specified in sub clause PSDB 5.11. Separate items will be scheduled for each different type and class of pipe/cable.

The tendered rates shall be fully inclusive for loading the pipes/cables at the side of the trench, transporting to and off-loading at the location specified in PSDB 5.11, and carefully stacking separately according to the type, class and diameter of the pipes/cables.

(ii) Specials ..... Unit: number

The unit of measurement shall be the number of specials declared reusable by the Engineer in accordance with sub clause PSDB 5.11 above, irrespective of the type or diameter of the special, delivered to the address specified in sub clause PSDB 5.11.

The tendered rate shall be fully inclusive for loading the specials at the side of the trench, transporting to and off-loading at the location specified in PSDB 5.11, and carefully stacking separately according to the type, class and diameter of the specials.

(e) Dispose of pipes, cables and specials unsuitable for reuse:

(i) Pipes/cables ..... Unit: m

The unit of measurement shall be the linear metre of pipe declared by the Engineer to be unsuitable for reuse and disposed of by the Contractor in accordance with the requirements of PSDB 5.11.5. Separate items will be scheduled for different types and diameters of pipe.

The tendered rates shall be fully inclusive for loading the pipes/cables at the side of the trench, transporting to and off-loading at the specified yard or spoil site and dealing with them as specified in PSDB 5.11.5.

(ii) Specials ..... Unit: number

The unit of measurement shall be the number of specials declared by the Engineer to be unsuitable for reuse and disposed of by the Contractor in accordance with the requirements of PSDB 5.11.5. Separate items will be scheduled for different types of special.

The tendered rate shall include for loading the specials at the side of the trench transporting them to and off-loading them at the spoil site and dealing with them as specified in PSDB 5.11.5.

(f) Backfill and compact trench ..... Unit: m³

The unit of measurement shall be the cubic metre of compacted fill, measured tight according to the authorised dimensions of the trench.

The tendered rate shall be fully inclusive for placing excavated material in the trench and compacting in accordance with sub clauses 5.6 and 5.7.

(g) Make up deficiency in backfill material ..... Unit: m³

The unit of measurement shall be the cubic metre of backfill obtained from sources other than the trench excavated for the purposes of removing the pipeline in order to make up any deficiencies in backfill material resulting from the volume previously occupied by the pipeline.

Except that the volume shall be determined as the external volume of the pipes removed together with the external volume of all ancillary structures removed along the pipeline, measurement and payment shall be in accordance with 8.3.3.1 of SABS 1200 DB.

PS.4.4.2 MEDIUM-PRESSURE PIPELINES – Refer To Part L of SANS 1200

PS.L.3 MATERIAL

PS.L.3.1 GENERAL

Add the following paragraphs:

"Each type of pipe delivered to the Site shall be of a standard length corresponding to the standard lengths offered by the pipe manufacturer in his catalogue, with a maximum permissible variation in length of ± 2%.

A pipe that is shorter or longer than the defined standard will be rejected by the Engineer, except when such non-standard lengths are required in terms of the Contract and have been specifically manufactured or cut as such by the pipe manufacturer or supplier.

The Contractor shall supply and install all pipes and fittings for the works.

All flanges on flanged couplings shall be drilled in accordance with Table 16 of BS4504.

All bends shall be minimum radius bends unless otherwise specified or indicated on drawings. The specials shall comply with the requirements of SANS Specification 719 unless otherwise specified and shall be manufactured with API schedule 40 pipes. Where specials have to be attached by welding the diameters of the specials shall exactly match those of the pipes supplied.

The Contractor shall supply all other flanges on pipes and specials, suitable for the welding of the pipes and specials in accordance with Table 16 of BS 4504.

Bolts and Nuts shall be in accordance with SABS 1700 unless otherwise approved by the Engineer and shall project two threads beyond the run-out of the nuts. All bolts and nuts and washers shall be hot dip galvanised."

PS.L.3.4 STEEL PIPES, FITTINGS AND SPECIALS

PS.L.3.4.1 General

PS.L.3.4.3 Pipes of nominal bore over 150 mm

Add the following:

"All steel pipes shall comply with the eThekwini specifications for materials and coatings to protect against corrosion.

Where flanges are required, they shall comply with the pressure rating of the fittings, SABS 1123 table 1600 unless otherwise indicated on the Drawings."

PS.L.3.4.4 Fittings and Specials

Add the following:

The lining and wrapping of specials, which are to be butt-welded, is to be terminated 100 mm from the end of the pipe. The lining of specials which are to be sleeve welded shall be taken to the end of the pipe and the wrapping is to be terminated 100 mm from the end. On flanged specials the wrapping and lining is to be taken to the end of the pipe.

Pipes up to and including 500 mm shall be sleeve welded with the sleeve having a width of 100 mm and the internal diameter being the measured outside diameter of pipe plus 3 mm. The ends of pipes shall be plain finished.

All specials shall be protected in accordance with clauses PSL 3.9.2.3. All electrodes used for welding of joints shall comply with SABS 455.

PS.L.3.8 JOINTING MATERIAL

PS.L.3.8.2 Flexible Couplings

Add the following:

"Where flexible couplings are called for, they shall be the double flanged and sleeve type, manufactured from rolled steel, and fitted with rubber rings suitable for jointing plain-ended pipes. They shall be of the slip-on type coupling and couplings comprising bolt over arrangements shall not be acceptable.

The rubber jointing rings shall be manufactured from first grade natural rubber to B.S. 2494 Class D. All bolts and nuts shall comply with SABS 135 or SABS. 136. Each sleeve shall be fitted with a centre register unless stated otherwise in the Project Specification.

Each coupling shall permit a repeated movement of 10 mm to cater for thermal expansion and contraction of the pipe, and allow for the following angular deflections:

6° up to and including 600 mm diameter;

5° over 600 mm up to and including 750 mm diameter;

4° over 750 mm up to and including 9000 mm diameter;

3° over 900 mm up to and including 1 200 mm diameter;

2° over 1200 mm diameter."

PS.L.3.8.3 Flanges and Accessories

Add the following:

"Gaskets shall be manufactured from 'Klinger 200' or other approved material which complies with the requirements for Grade B of B.S. 2815.

All gaskets shall be 3 mm thick and cut so that the annular section is completely within the bolt circle, i.e., ring gaskets with no bolt holes.

All gaskets shall be purpose made. Hand cutting and trimming of gaskets on site will not be acceptable.

Care should be taken to ensure that all gaskets are packed properly and are not damaged by bending. For larger sizes the gaskets shall be suitably supported by wooden frames during transit and while in store.

Any item of pipework that is found to have flanges that are incorrectly drilled shall be rejected. Reaming of bolt holes to oversize dimensions in order to make a particular piece fit shall not be permitted."

PS.L.3.9 CORROSION PROTECTION

PS.L.3.9.2 Steel pipes

PS.L.3.9.2.1 Steel pipes of nominal bore up to 150 mm

Add the following:

"Steel pipes shall be galvanized where shown on the Drawings.

Concrete lining to steel pipes shall be in accordance with SABS471 and1083 and the lining thickness shall be 6mm"

PS.L.3.9.2.2 Steel pipes of nominal bore over 150 mm

Add the following:

"Steel pipes shall be hot-dip galvanized where shown on the Drawings and as specified in sub-sub clause 3.9.2.1.

Concrete lining to steel pipes shall be in accordance with SABS471 and1083 and the lining thickness shall be:

Diameter between 150mm and 300mm -10mm thick

Diameter 300mm and over - 12,5mm thick."

PS.L.3.9.2.3 Repairs to Coatings and Linings

Replace the clause with the following:

"FBMDPE, fusion-bonded epoxy coated and solvent free liquid epoxy lined or cement-mortar lined pipe shall be repaired as specified in this clause.

A. External Repairs

A1. Detection of Defects in Coating by Holiday Tests

Each pipe length shall first be placed on suitable dunnage adjacent to the trench. The Contractor shall then arrange for Holiday tests to be undertaken on the accessible portion of the pipe coating surface by the non-destructive testing firm appointed in terms of this contract document or the Engineer's representative, whichever is applicable. It shall be a requirement

of this contract that the Holiday testing device utilised be calibrated and approved by the Engineer prior to the conducting of any Holiday tests.

A2. Surface Preparation

a) Defects in epoxy coating detected by holiday testing

At each pinhole detected by the Holiday test, the surrounding area shall be abraded to 25 mm beyond the defective area. It is noted that any cluster of pinholes within a radius of 25 mm shall be regarded as one defect. The abrasion shall be carried out with clean emery paper of 80 to 100 mesh so as to provide a suitably rough surface profile without causing the removal of excessive amounts of coating material.

b) Damage to FBMDPE and epoxy coating caused by welding, damage at joints and bends and damage at scour and air valve tees, crotch plates and buried valves.

i) All damaged and blistered FBMDPE and epoxy coating caused by welding shall be removed back to sound epoxy coating by mechanical grinding or other approved means.

ii) The exposed steel surface shall be power or hand wire brushed to remove dirt, scale, rust and other foreign matter to a surface equivalent to a Class 2 finish. Weld spatter shall be removed by chipping or grinding to a smooth surface flush with the surrounding steel. Welds shall have a smooth contour free from sharp edges, protrusions and undercut. Sharp edges and protrusions shall be removed by grinding to a smooth radius of curvature of not less than 3 mm.

iii) The surrounding sound FBMDPE and epoxy surface shall be abraded to a distance of 50 mm beyond the defective area. The abrasion shall be carried out with clean emery paper of profile without causing the removal of excessive amounts of protective material.

A3. Cleaning of Area to be Repaired

Grease and oil shall be removed with a non-volatile solvent (eg “Aquasolve”, “Arc Nr.261 Safety Solvent Cleaner” or similar approved). The surface shall then be cleaned with potable water and allowed to dry completely.

A4. Methods of Repair to be Carried Out

A4a) Defects in epoxy coating detected by Holiday tests

i) The roughened area of coating and the defect shall be repaired by the application of a two-part solventless epoxy repair kit (eg “Copon Hycote 151”, “Arc 982” or similar approved) to a minimum dry film thickness of 300 microns. The epoxy repair material shall be applied in accordance with the manufacturer’s instructions and allowed to dry for 24 hours.

ii) 24 Hours after the application of the epoxy repair material described above, the pipes may be placed in the trench and rotated so that the underside of the pipe, which was not Holiday tested at the side of the trench, may be tested.

iii) The pipe coating any defects detected on the now uppermost surface of the pipe shall be prepared in accordance with the requirements of A.2(a) and A.3 above.

iv) The prepared surface shall then be primed and patched (or wrapped in the case of the coating reinstatement of joints) with Denso Ultraflex System, or similar approved. The following criteria shall be strictly in accordance with the manufacturer's instructions:

- surface preparation
- application of the primer
- application of the tape
- recommended minimum overlap width (where applicable)
- capping of overlap joints (where applicable).

v) Notwithstanding the above, the tape cover strip shall overlap the sound FBMDPE and epoxy coating by at least 50 mm (in the case of patches) and 100 mm (in the case of joint wraps) and shall be applied in layers if necessary to form a final cover patch or strip at least 2,5 mm thick. The tape repair for FBMDPE defects shall be continuously, spirally wrapped around the complete circumference of the pipe with a minimum overlap of 25 mm.

vi) The dielectric resistance of the tape cover strip shall not be less than that of the FBMDPE (10 000 V) or fusion-bonded epoxy coating (3 500 V).

A4b) Defects in FBMDPE coating detected by Holiday tests

Where the repair area is less than 650 mm², the application of a hot spatula shall be used to repair the defect, provided there is a residual layer of polyethylene still adhering strongly to the steel surface.

A4c) Defects in FBMDPE coating other than those detected by Holiday tests

Any single repair area less than 0.1m² shall be carried out in accordance with A.4.b above. The number of repairs shall be limited to three per pipe or fitting. The length of such repair shall not exceed the nominal pipe diameter in the circumferential direction, nor twice the nominal pipe diameter in the longitudinal direction.

A4d) Patch Repairs to Pipes Damaged by Welding

Patch repairs to pipes damaged by welding shall be carried out in accordance with the requirements of A.4.a(iv), A.4.a(v) and A.4.a(vi) above.

A4e) Patch Repairs to Pipes that will be Exposed to Ultra-Violet Light

i) Repairs shall be carried out in accordance with the requirements of A.4.a(i) above with due allowance being made for the 24-hour curing period.

ii) The pipe surface shall then be coated with two coats of "ABE Silvakote" or similar approved bitumen base aluminium paint applied with brush or roller to a final minimum dry film thickness of 80 micrometers. The over coating time shall be as per the manufacturer's instructions.

A4f) Joint repairs (including bends) on pipes that are to be buried

i) Repairs shall be carried out in accordance with the requirements of A.4.a(iv), A.4.a(v) and A.4.a(vi) above.

ii) No airgap will be permitted between the tape and steel surface and tape width and application tension shall be such as to ensure that the tape “dresses down” over steel surface irregularities. This applies particularly on bell-end pipes.

iii) Gusseted bends requiring two or more welded joints shall be fully externally wrapped extending 150 mm outside the two outermost welded joints.

A4g) Scour and air valve tees and crotch plates

i) Scour and air valve tees and crotch plates that are to be buried shall be protected in accordance with the requirements of A.4.a(i) above with due allowance being made for the 24-hour curing period.

ii) Exposed specials in chambers including valves, flanges, crotch plates, flexible couplings etc shall be protected by the application of “Copon Hycote 151”, “Arc 982” or similar approved epoxy coating to a minimum dry film thickness of 300 microns. Surface preparation and application shall be strictly in accordance with the manufacturer’s instructions.

iii) When coating valves, care shall be taken to prevent the epoxy coating covering the descriptive name plates and flow direction indicators on the valves by masking off these plates.

A4h) Buried Valves

Buried valves or other appurtenances with intricate shapes will be inappropriate for wrapping with a tape system. Such items shall be protected by the application of a zinc-rich epoxy primer such as “Berger Master”, “Zinc Anode 304” followed by two coats of a pitch extended epoxy resin coating such as “Fosroc Nitocote ET550”, “Epilux 5 Coal Tar Epoxy” or similar approved to a minimum dry film thickness of 250 microns.

Alternatively, a petrolatum system “Denso” type or similar approved may be employed and then wrapped in polythene sheeting to the approval of the Engineer.

A4f) Repair of 3LPE Coating

The Contractor shall submit to the Engineer its methods and materials proposed to be used for executing a coating repair and shall receive approval from the Engineer prior to use. In open storage the repair coating materials must be able to withstand a temperature of at least (+) 80°C without impairing its serviceability and properties. The Contractor shall furnish manufacturer's test certificates for the repair materials clearly establishing the compliance of the repair materials with the applicable coating requirements. All pipes shall have sound external coating with no holiday or porosity on 100% of the surface. Defects, repairs and acceptability criteria shall be as follows:

i) Pipes showing porosities or very small damage not picked up during holiday test and having a surface less than 0.5 cm2 or linear damage (cut) of less than 3 cm shall be repaired by stick using material of same quality.

ii) Damages caused to coating by handling such as scratches, cuts, dents, gouges, not picked up during holiday test, having a total reduced thickness on damaged portion not less than 2 mm and an area not exceeding 20 cm2 shall be rebuilt by heat shrink patch only and without exposing to bare metal.

iii) Defects of size exceeding above mentioned area or holidays of width less than 300 mm shall be repaired with heat shrink repair patch by exposing the bare metal surface.

iv) Defects exceeding the above and in number not exceeding 2 per pipe and linear length not exceeding 500 mm shall be repaired using heat shrinkable sleeves of HTLP 80 or equivalent.

v) Pipes with bigger damage shall be stripped and recoated.

vi) In case of coating defect close to coating cut back, CONTRACTOR shall remove the coating throughout the entire circumference of the pipe down to the steel surface and increase the coating cut back length. Now if the coating cut back exceeds 150 mm of linear length of pipe then the coating shall be repaired by the use of heat shrink sleeves thereby making up the coating cut back length of 130 mm. Notwithstanding the above, under no circumstances, if the defect exceeds 70 mm from the original coating cut back length, the entire coating shall be removed and the pipe shall be recycled through the entire coating procedure. Irrespective of type of repair, the maximum numbers of repair of coating shall be as follows:

vii) Holiday repair of size <100 cm2 attributable to process of coating application shall be maximum one number per pipe.

viii) In addition to the above, defects to be repaired by heat shrink patch/sleeve shall be maximum 2 (two) per pipe.

Defects exceeding the above limits shall cause pipe coating rejection, stripping and recoating. The above is exclusive of the repairs warranted due to testing as per this specification. All repairs carried out to coating for whatever reason shall be to the account of CONTRACTOR.

Cosmetic damages occurring in the polyethylene layer only need not be repaired by exposing up to steel surface, as deemed fit by the Engineer's representative. In any case the CONTRACTOR shall establish his material, methods and procedure of repair that result in an acceptable quality of product by testing and shall receive approval from the Engineer prior to use. Testing of repairs shall be in the same form as testing coating. All repairs shall result in a coating thickness no less than the parent coating thickness. CONTRACTOR shall test repairs to coating as and when required by the Engineer.

B. Internal Repairs – Epoxy Lined Pipes

B1. Detection of Defects in Epoxy Lining by Holiday tests

Each pipe length shall be first placed in position in the trench, welded to the preceding pipe and the lining at the joint reinstated (see B.2.b of this Clause). Once all work is complete in a particular length of pipe, the Contractor shall arrange for the testing of the pipe with a "wet sponge" detector set at 90 Volts in order to detect any electrical insulation defects.

B2. Surface Preparation

B2a) Defects in epoxy lining detected by holiday testing

At each pinhole detected by the Holiday test, the surrounding area shall be abraded to 25 mm beyond the defective area. It is to be noted that any cluster of pinholes within a radius of 25 mm shall be regarded as one defect. The abrasion shall be carried out with clean emery paper of 80 to 100 grit so as to provide a suitably rough surface profile without causing the removal of excessive amounts of coating material.

B2b) Epoxy lining damaged by construction operations, joint repairs (including bends), lining to scour and air valve tees, access openings, stubs and valve bypasses

i) In order to avoid damage to the pipe lining occurring as a result of construction activities, all possible care shall be exercised during construction, the following procedures being required:

Wet sacking or rubber matting shall be placed on the pipe invert at areas where welding or flame cutting operations are in progress to prevent damage to coating from weld spatter or molten metal. This requirement shall be strictly enforced.

Foam shall be provided for the placing of tools etc. on the internal pipe surface.

Soft-soled shoes shall be worn by all personnel working inside the pipe.

ii) All damaged and blistered epoxy lining shall be removed back to sound epoxy by mechanical grinding or other approved means.

iii) The exposed steel surface shall then be prepared in accordance with the requirements of section A.2.b(ii) and 1.2.b(iii) of the clause.

B3. Cleaning of Area to be Repaired

Grease and oil shall be removed with a non-volatile solvent (eg "Aquasolve", "Arc Nr.261 Safety Solvent Cleaner" or similar approved). The surface shall then be cleaned with potable water and allowed to dry completely. To this end adequate ventilation shall be provided.

B4. Methods to Repair to be Carried Out

B4a) Defects in epoxy coating detected by Holiday tests

i) The roughened area of lining and the defect shall then be repaired by the application of a solvent free epoxy repair material (such as "Copon Hycote 151", "Arc 982", "Arc 855", or similar approved) to a minimum dry thickness of 300 microns.

A "halo" of 1 to 2 mm of the abraded material shall be left uncovered around the repair.

The patch material shall be of a different colour to the pipe lining material.

ii) In the application of the epoxy the following shall be strictly in compliance with the manufacturer's instructions:

- Method of application (type of brush or roller.)
- Over coating time
- Temperature range for application
- Mix proportions of activator to base. This shall be strictly enforced and splitting of manufacturer-supplied packs shall be allowed only if subsequent blending is carried out strictly by mass to the correct proportions.
- Method of mixing base and activator.
- Number of coats to achieve the specified thickness.
- Safety aspects e.g., eye and hand protection, ventilation, fire precautions, etc.

iii) After the repair has been adequately cured, the repair and the surrounding 250 mm of epoxy lining shall be tested for electrical insulation defects. No defects will be permitted.

B4b) Patch Repairs to Pipes Damaged by Construction Operations and Joint Repairs (including Bends)

i) The roughened area of lining shall be repaired as described in B.4.a (i) above.

ii) The requirements of Clauses B.4.a (ii) and (iii) above shall then be complied with.

B4c) Lining to scour and air valve tees, access openings, stubs and valve bypasses

i) The repair procedure shall be as described in B.4.a (i), (ii) and (iii) above.

ii) The epoxy repair material shall be applied to overlap the existing sound cement mortar lining by 25 mm at access openings, valve bypasses and scour tees.

C. Internal Repairs – Cement-mortar Lined Pipes

C1. The internal surface of the bellmouth is to be power or hand wire brushed from the pipe end to the cement mortar lining to remove dirt, scale, rust and other foreign matter.

C2. Any grease and oil shall be removed from the pipe surface with a non-volatile solvent (e.g "Aquasolve", "Arc Nr 261 Safety Solvent Cleaner" or similar approved). The surface shall then be cleaned with water and dried and a 50 mm wide x 20 mm thick band of "Epidermix 338" or similar approved shall be applied internally on the uncoated steel adjacent to the cement lining.

C3. The plain end of the adjoining pipe shall be pushed into the bellmouth in such a way that the Epidermix band is compressed and makes contact with the transverse face of the concrete lining of both pipes. The excess lining material which is squeezed into the pipe shall be removed by drawing a plug which is 5 mm smaller in diameter than the bore of the pipe, across the joint. The plug shall be so shaped as to apply a smooth even surface to the lining material at the joint.

C3b) Pipes larger than 500 mm diameter

1. The exposed steel surface shall be power or hand wire brushed to remove dirt, scale, rust and other foreign matter. Burrs, weld spatter etc shall be filed away.

2. Any grease and oil shall be removed from the pipe surface with a non-volatile solvent (e.g “Aquasolve”, “Arc Nr 261 Safety Solvent Cleaner” or similar approved), flushed with potable water and completely dried.

3. The joint shall then be made good with “Epidermix 338” or similar approved, neatly formed to meet the adjacent cement mortar.

4. The requirements of Clause C (a).4 shall similarly apply to pipes larger than 500 mm diameter.”

PS.L.3.9.6 Corrosive soil

Add the following:

"Where shown on the Drawings, steel pipes in contact with corrosive soil shall be wrapped with Denso tape or an equivalent approved product, strictly in accordance with the manufacturer's instructions."

PS.L.3.10 VALVES

Replace the contents of this sub clause with the following:

"Valves shall comply with the following requirements:

(a) They shall close clockwise and shall have a non-rising spindle and handwheel.

(b) They shall be class 16 valves complying with SABS 664.

(c) They shall comply with the requirements of SABS 1123 table 1600.

(d) All valves shall comply with eThekwini specifications."

PS.L.4 PLANT

PS.L.4.1 HANDLING AND RIGGING

Add the following:

“The Contractor shall supply, operate and maintain an adequate fleet of vehicles including cranes to be used for the safe conveyance of the pipes, specials and fittings. The pipes and specials shall be handled with care at all times to avoid damage to them or to the protective coatings. The equipment for the purpose of loading, transporting, unloading and moving and the manner in which they are handled shall be subject to the approval of the Engineer.

During transport, the pipes and specials shall be supported on suitable pipe saddles such that all pipes and specials shall be separated so as not to bear against each other and shall be handled with care at all times to avoid damage to them or to the protective coatings. The equipment for the purpose of loading, transporting, unloading and moving and the manner in which they are handled shall be subject to the approval of the Engineer.

The use of bare cables, chains, hooks or narrow skids will not be permitted and the Contractor shall supply canvas slings and padded skids and ramps of a sufficient width to prevent damage to the protective coating. The dragging or skidding of pipes and specials in contact with the ground shall not be permitted.

When handling 12m pipe lengths the pipes shall be lifted with band slings (minimum 300 mm wide) placed centrally around pipe at two points 6 metres apart."

PS.L.5 CONSTRUCTION

PS.L.5.1 LAYING

PS.L.5.1.1 General

Add the following:

"It is of paramount importance that the right type and class of pipe be laid as shown on the longitudinal sections. Invert levels shown on the drawings are the levels of the interior surface of the pipes at the lowest point of cross section. However, levels at vertical curves shall be determined when the exact location of pipe joints within the influence of the curve is known.

Pipes and specials shall be lowered gently and carefully into the trench without jarring or bumping by crane, derrick or other approved lifting tackle and care shall be taken not to damage the pipe or its sheathing. Pipes and specials with soft sheathing shall be supported in stout wide canvas slings and no wooden blocks shall be used to support such pipes, either on the side or in the trench. Any supports required shall be formed with fine sand gravel.

The Contractor shall ensure that all pipe barrels are evenly supported over the whole of their length and that no weight is taken by the joints. The trench bottom, shall, where necessary, be accurately trimmed by hand and each pipe shall be firmly bedded down before backfilling is commenced.

The Contractor's special attention is drawn to the requirements for work in confined spaces and for shoring of trenches.

It is noted that a through flow of air is required when work is to be carried out inside the pipeline. The necessary electrical equipment and fittings must be provided to produce this airflow. An Item in the Schedule of Quantities has been provided for complying with these requirements."

PS.L.5.1.2 Damage

Add the following:

"Inspection at the Laying Site

All pipes, specials, valves and fittings shall be carefully examined by the Contractor for internal and external damage at the following stages:

(a) on arrival at laying site;

(b) prior to laying;

(c) after laying;

(d) prior to backfilling; and

(e) during backfilling.

All damage or defects of any kind shall be repaired by the Contractor in accordance with Clause 3.9.2.3 and to the satisfaction of the Engineer immediately after detection at any of the above inspections. Where, in the opinion of the Engineer, satisfactory repairs are practicable, the damaged materials shall be replaced by the Contractor at his own cost."

PS.L.5.1.3 Keeping Pipelines Clean

Add the following:

"Exposed ends of the pipe in the trench shall be tightly closed by a suitable mild steel end cap at all times when pipelaying is not in progress."

Add the following sub clause:

PS.L.5.1.5 Stacking of Pipes and Specials

Where a pipeyard is provided, all pipes and specials shall be neatly and methodically arranged on the ground on delivery, as directed by the Engineer.

They shall be segregated according to diameters and working pressures and the various stacks shall be arranged and separated in such a way that a pipe of any diameter and working pressure can be located from the stacked position for transportation to its laying position without necessity of moving other pipes."

PS.L.5.2 JOINTING METHODS

PS.L.5.2.2 Flanges (Steel Pipelines)

Add the following:

"Flanges to fittings or joints will generally be to SABS 1123. Where SABS 1123 does not apply, BSEN:1092 1 2007 will.

Contractors are to allow in the rates for the supply and installation of mild steel pressed washers (two per bolt) for all flanged fittings. The washers shall have an ID of 2 mm greater than that of the bolt. Tenderers are to ensure that the length of the bolt includes allowance for the washers.

All bolts, nuts and washers used are to be electro galvanised and yellow passivated."

PS.L.5.2.3 Welding (Steel Pipelines of Diameter 600 mm or greater)

Add the following:

"Welding Procedures

Prior to the commencement of field welding, welding procedures shall be established and approved by the Engineer and thereafter such welding procedures shall be adhered to during subsequent construction and shall not be altered unless specifically authorised by the Engineer.

Tenderers shall, if required by the Engineer, provide a detailed description of all aspects of the welding technique to be employed both in jointing pipes in assemblies above trench level and in executing in-situ welds whether above or below ground level. The information required shall include a drawing of the prepared end for sleeve or butt-welding of flanges and pipes and shall describe the backing rings which must be removed. Records shall be kept by the Contractor to enable each weld to be subsequently identified with the welder concerned.

Procedure Qualification Tests

Before the Contractor commences routine field welding the procedure tests laid down in API 1104 clause 1.4 shall be carried out.

The minimum number of root bead welds, the minimum number of second bead welders and the type of clamp used (internal or external) shall be given in the description of the welding technique as specified above.

The Contractor shall maintain a record of all welders employed on the works giving particulars of each individual welder's qualification tests carried out in terms of API 1104, the cost of which shall be borne by the Contractor. Qualification testing of welders shall be conducted in the presence of the Engineer or his representative.

Before a welder is employed on tack or root welds, he shall carry out a test tack and root weld on a pipe of the same materials and under conditions as close as possible to those experienced on the actual pipeline.

If icicles are present in the bore of the pipes or the weld metal projects more than 5 mm the welder shall not be permitted to undertake tack or root welding. The completed test weld pieces shall be visually examined and then radiographed. Should the weld appear sound it shall be subjected to approved root and face bend tests. Test pieces shall be retained by the Contractor and marked so that they can be identified with the welder carrying out the test.

Weather

Field welding shall not be performed when the surfaces to be welded are wet or during periods of high wind unless the operator and the work are properly protected and sheltered in an approved manner.

Preparation of Joint

Where scarf cutting of the pipe ends is required in the field the pipe ends shall be prepared by machining or machine flame cutting. Hand flame cutting shall not be permitted except under the following circumstances;

Field Welding

Steel pipes may be cut by hand flame as follows:

(a) In the case of cement lined steel pipe, the cement lining shall be chipped back 50 mm after the initial cut and the pipe then re-cut ±10 mm from the original cut in order to remove any "blow-back".

(b) In the case of epoxy lined steel pipe, all damaged lining shall be removed and reinstated in compliance with the Clause 3.9.2.3.

(c) All flame cuts shall be made good by grinding to form the correct gap between steel sections prior to welding.

(d) Bevels may be cut by flame provided they are made good by grinding.

When jointing pieces by butt-welding the number of tack welds applied shall be kept to a minimum to be effective in holding the pipe ends securely and to maintain the required root gap prior to welding but shall in any case be not less than four.

Double ending of pipework shall not be allowed on 12m pipe lengths."

PS.L.5.3 SETTING OF VALVES, SPECIALS AND FITTINGS

Add the following:

"Valves and fittings shall be installed in accordance with the manufacturer's instructions. Valves shall be enclosed in chambers in accordance with the drawings and specifications and shall be installed with their operating spindles vertical. The Contractor shall supply the insertions and bolts necessary for the installation of the valves.

Jet dispersers shall be of the cone and splitter type cast in iron or steel with heavy zinc galvanising, to the Engineer's approval. Flanges and bolts shall be sealed in mastic after installation.

All air valves shall be set level.

All scour valves shall be installed in such a way that the spindle is vertical.

<u>The Storage, Commissioning and Installation of Butterfly Valves</u>

Butterfly valves shall be stored, installed and commissioned so that the valve blade seal is protected at all times from oxidation, ozone attack and the ingress of dirt.

<u>Storage</u>

i) It is preferable that the valve is stored in the vertical position.

ii) The valve should be stored in the cracked position (i.e. not shut).

iii) The valve should not be stored in the vicinity of electrical equipment.

iv) The valve should be stored under cover and protected from temperature extremes.

<u>Installation and Commissioning</u>

i) Prior to the installation of the valve, all dust and dirt should be washed off the valve, particularly the seal, seat and any tapped holes in the valve body.

ii) The seals of all valves shall be checked for complete closure when the valve blade is in the fully closed position. (See seal adjustment below).

iii) The valve must not be lifted by the hand lever, valve actuator or the handwheel.

iv) The valve must not be used for lining up the pipework.

v) The valve should be left in the fully open position after installation and prior to commissioning of the system.

Seal Adjustment

To adjust the seal, a 0,004" feeler gauge and an Allen key are required.

With the valve in the fully closed position, it should be possible only with difficulty to introduce the feeler gauge between the valve blade seal and the seat.

If, due to seal movement during storage the feeler gauge can easily pass between the seal and seat, then the clamp ring socket head cap screws in the vicinity of the gap should be finger tightened with the Allen key so as to push the seal out and close the gap.

Payment

All costs incurred for the seal adjustment as stipulated above shall be included in the respective rates for installation of the valves."

PS.L.5.6 VALVE AND HYDRANT CHAMBERS

PS.L.5.6.1 General

Replace the words "drawing L-1" *in the second line with* "the Drawings".

PS.L.5.6.2 Construction of chambers

Replace the words "drawing L-1, L-2 and L-3" *in the fourth line with* "the Drawings".

Add the following sub clauses:

PS.L.5.11 STANDPIPES

Standpipes shall be erected in the positions and to the details shown on the Drawings.

PS.L.5.12 MARKER BLOCKS

The type of marker blocks shall be manufactured and positioned as shown on the Drawings.

PS.L.5.13 PIPELINE ROUTE MARKERS

Route markers for the various water pipelines shall be erected in the positions and shall be manufactured according to the details shown on the Drawings.

PS.L.5.14 PAINTED MARKERS

Painted markers on the road or kerb surface for the various water fittings shall be painted using propriety brand road paint in the positions and according to the details shown on the Drawings."

PS.L.7 TESTING

PS.L.7.1 GENERAL

Add the following:

"Inspection

Facilities shall be provided to the Engineer so that he may be able to inspect, during the process of welding, any layer of weld metal. The Engineer may require any defective welds either to be cut out and rewelded or repaired at his discretion. The Contractor shall clean thoroughly all welds prior to inspection. The Engineer may require a number of completed joints, selected at random, to be cut for mechanical tests or to be selected for visual inspection, micro examination or examination by other means. When the Engineer orders the Contractor in writing to cut out and test joints the Contractor shall be paid for such work at daywork rates.

If as a result of inspection and testing, the work of any welder is found to be unsatisfactory, the welder shall not be permitted to continue welding under this contract.

Standards of Acceptability

The completed welds shall comply with the requirements of clause 6.0 of API 1104. Work on which unauthorised repairs have been carried out may be rejected.

Repairs to Minor Faults

Faulty welds shall be rectified in accordance with clause 7.0 of API 1104.

All costs relative to the repair of faulty joints, including removal and replacement of the backfill and making good the wrapping and lining shall be borne by the Contractor."

PS.L.7.2 INITIAL TESTS ON WELDED STEEL PIPES

PS.L.7.2.1 Dye-Penetrant Test

Add the following:

"All fillet welds shall be dye penetrant tested. Any reduction in the percentage of welds to be tested shall be at the sole discretion of the Engineer"

PS.L.7.2.2 Radiographic Examination

Add the following:

"All butt welds shall be radiographically tested. Any reduction in the percentage of welds to be tested shall be at the sole discretion of the Engineer."

PS.L.7.3 STANDARD HYDRAULIC PIPE TEST

PS.L.7.3.1 Test pressure and time of test

Replace L 7.3.1.1, 7.3.1.2, 7.3.1.3 and 7.3.1.4 with the following:

"Static Test

When the pipeline is filled with water, all scours and hydrants shall be opened fully for one minute or until the water emerges clean.

Pressure Test

A suitable pump shall be connected to the pipeline at a mutually agreed point.

The pressure in the pipeline under test shall be raised slowly by means of the pump and measured by a pressure gauge connected to the pipeline.

PS.L.7.3.1.2

The required test pressure for all steel pipework shall be 1800 kPA and for Class 12 mPVC pipe works it shall be 1500 kPa measured at the lowest point of the pipeline(s)

The hydraulic testing of the pipelines is to be carried out in two stages:

a) The pressure test as described above is to be carried out with the pipeline fully blanked and all valves in the open position. All costs relating to this work inclusive of scouring, supplying and install blank flanges, spade pieces etc are to be included in the rate for testing. The minimum duration of this test will be 8 hours and 2 hours on non-steel pipelines.

b) On successful completion of the pressure test as per (a) above, the Contractor is to remove all temporary blank flanges, spade pieces, etc. and pressurise the line to maximum working pressure against closed valves. Should any valve not be drop tight at this pressure the Contractor is to advise the Engineer in writing of all defects encountered. The duration of this test shall be 2 hours. (An item has been allowed for this work in the Schedule of Quantities).

All tests shall be carried out in the presence of the Engineer at such times and in such manner as he may direct.

The hydraulic testing of pipelines against closed valves shall not be allowed and provision shall therefore be made by the Contractor for the supply of all necessary bullnoses and blank flanges.

The Employee shall make allowance in the Bill for the Contractor to arrange for water for the first instance of testing. However, any subsequent tests shall be charged to the Contractor's account.

A water connection will be provided by eThekwini Water for filling the pipeline for testing purposes.

The Contractor shall, at his own cost, provide a suitable means of conveying water from this connection to the mains to be tested, as well as a connection on the new pipeline in order that it may be filled. This connection shall be capped or removed to the satisfaction of the Engineer upon

completion of the hydraulic test. Payment of this shall be allowed for under the rates for the hydraulic testing of the pipeline.

For hydraulic testing of the pipes sections after installations, as per Clause 7.3 of SABS 1200L, each test section shall be chosen such that it is subjected to a test pressure not exceeding 250m water head at the lowest point and not less than 180m at the highest point. This pressure shall be obtained by continuous pumping so as to ensure a gradual increase of pressure until the specified value is obtained.

After the entire piping system has been laid and all parts thereof have been tested to the satisfaction of the Engineers or the Engineers Representative and backfilled, the pipe system will be put into operation and the Contractor shall inspect and commission the same in the presence of the Engineer/his representative, to ensure that all valves and other equipment are operating satisfactory and to check that all pipe supports, brackets and the like are capable of withstanding the loads imposed on them.

Any faults or defects which are detected during this inspection shall be repaired by the Contractor, or where necessary, the defective parts or materials shall be replaced by the Contractor, to the satisfaction of the Engineer, all at the Contractors expense.

All items of equipment not specifically mentioned in the Specifications, shall be inspected during the commissioning period for proper operation and to verify that these items comply with the requirements of the Specification."

PS.L.7.4 TESTS ON EPOXY COATINGS

Add the following:

"e) Wet sponge test of SFE lining.

The Employer on submission of the originals of the test results and respective invoices to the Engineer will reimburse the Contractor for the cost of all successful tests.

Holiday testing of the tape wrapping and epoxy coating of the pipeline shall be carried out on site by the Contractor. However, at the Engineer's discretion, quotations may be called for holiday testing of the epoxy coating of the pipeline for quality assurance purposes, from a reputable non-destructive testing firm. The rate submitted shall be per linear metre.

i) Notwithstanding the requirements of any other specification contained in or referred to in this document, the holiday testing of the epoxy coating shall be performed with the apparatus set at 10 000V for FBMDPE coating and 3500V for FBE and SFE coating.

ii) The holiday testing of the tape wrap system shall be performed with the apparatus set at 3 500V.

The non-destructive testing firm approved by the Engineer shall be a nominated sub-contractor to the main Contractor.

It shall be the responsibility of the Contractor to ensure that all test points along the pipeline are individually referenced and that this reference be reflected on the reports. Each test point (e.g.

pipeline joints, butt joints in pipe specials, etc.) shall be indelibly marked on the pipe and cross-referenced to the pipeline chainage.

A DCVG survey will be carried out by the Employer after the issue of the Completion Certificate and the Contractor will be required to repair all defects discovered by the survey at his own cost.

The cost shall include excavation, repair materials, bedding, backfill and reinstatement to the satisfaction of the Engineer.

The Contractor shall ensure that the full length of the pipe to be placed in the trench is patched and holiday-tested prior to the pipe being laid in the trench. Holiday testing of the joints in the trench shall be carried out on completion of the welding and the required non-destructive testing by the Contractor."

PS.L.8 MEASUREMENT AND PAYMENT

PS.L.8.2 SCHEDULED ITEMS

PS.L.8.2.11 Anchor blocks/Thrust blocks and pedestals

Insert "concrete" *before* "and" *in the last line of the last paragraph.*

Add the following:

"The tendered rates shall also include the wrapping of uPVC pipes and fittings with Denso tape or a similar approved material where the pipes and fittings come into contact with concrete."

Add the following items:

PS.L.8.2.17 Marker blocks

(a) The type of marker will be indicated in the scheduled item with reference to drawing e.g route, fitting or painted) .....Unit: number

The tendered rate shall include full compensation for all excavation and backfill, labour, equipment and materials to manufacture and install the blocks as shown on the Drawings.

PS.L.8.2.18 Connection to existing main supply pipe……. Unit: number

The tendered rate shall include full compensation for the cost of excavation, connection to existing main supply pipe, removal of surplus material, all labour, cutting and trimming of pipes and equipment necessary to make the connection and all liaisons with the local authorities.

(a) Connect to end of existing line (state diameter and type)

(b) Cut and tie into existing line (state diameter and type)

PS.L.8.2.19 Extra-over for testing

.01 Holiday test on arrival on site .....Unit: m

This must be done in accordance with PSL 7.4.

.02 Holiday test on laid pipe ..... Unit: m

This must be done in accordance with PSL 7.4.

.03 Dye-Penetrant testing ..... Unit: No.

This must be done in accordance with PSL 7.2.2.

.04 Radiographic testing ..... Unit: No.

This must be done in accordance with PSL 7.2.1.

.05 Water for initial hydraulic tests ..... Unit: Sum

This must be done in accordance with PSL 7.3.1.2 and will include all costs required to collect the water, transport onto site and fill the pipeline."

PS.L.8.2.20 Extra-over for removal of:

.01 Existing Airvalve ..... Unit: No.

.02 Existing Scour Valve ..... Unit: No.

.03 Existing Isolation Valve ..... Unit: No.

PS.4.4.3 BEDDING (PIPES) – Refer to Part LB

PS.LB.3 MATERIALS

PS.LB.3.1 SELECTED GRANULAR MATERIAL

Replace the contents of this sub clause with the following:

"Selected granular material shall have a PI not exceeding 6 and shall be free from sharp-edged particles exceeding 19 mm."

PS.LB.3.2 SELECTED FILL MATERIAL

Add the following:

"Selected fill material used for bedding shall, where indicated on the Drawings be stabilized with cement as specified under sub clause PSDB 3.5(c) with the percentage cement as stated in the bill."

PS.LB.3.3 BEDDING

Add the following:

"uPVC and HDPE pipes are deemed to be flexible pipes for the purposes of this sub clause."

PS.LB.3.4 SELECTION

PS.LB.3.4.1 Suitable material available from trench excavation

Delete the word “not” *in the third line and replace the words* "(but is not required)" *in the fifth line with the words* "(at his own cost)".

PS.LB.3.4.2 Suitable material not available from trench excavation

Add the following:

“Where trench bottoms are exceptionally wet the Engineer may instruct the use of 13mm or 19mm single sized crushed stone as a bedding or drainage layer. A geotextile shall be used to wrap around the stone or act as a separation layer as directed.”

PS.LB.8 MEASUREMENT AND PAYMENT

PS.LB.8.1 PRINCIPLES

PS.LB.8.1.5 Disposal of displaced material

Replace the contents of this sub clause with the following:

"Material displaced by the pipeline and by imported material from sources other than trench excavation, shall be disposed of at an approved site furnished by the Contractor. No haulage is payable for such material."

PS.LB.8.1.6 Freehaul

Replace the contents of the item with:

“The transport for earthworks will be as per PSD 5.2.5.”

PS.LB.8.2 SCHEDULED ITEMS

PS.LB.8.2.2 Supply only of bedding by importation

PS.LB.8.2.2.2 From Commercial sources

Add the following:

“(c) Crushed stone (size stated)”

PS.LB.8.2.5 Overhaul

Replace the contents of the item with:

“Overhaul will be as per PSD 8.3.6.”

Add the following items:

PS.LB.8.2.6 Extra over items 8.2.1 and 8.2.2 for bedding stabilized with cement ……Unit: m³

The tendered rate shall include full compensation for selecting of material, cement, mixing, backfilling and compacting the stabilized material to 90% of modified AASHTO density.

PS.5 SEWERS

The construction of a new sewer line along Cornubia Boulevard, and the adjusting of Sewer Manholes cover levels form part of this contract.

PS.5.1 Blockage of Foul Water Sewers

The Contractor shall be responsible for ensuring that cementitious sludge, sand and rubble from the works do not enter the foul water reticulation system. The Contractor shall be liable for any costs incurred by the Council or others as a result of blockages.

PS.6 STORMWATER

Stormwater drainage will be in the form of minor works.

The minor works will comprise of the following:

- construction of varying sizes of concrete pipes ranging in size from 375mm diameter to 1200mm diameter,
- numerous subsoil drains, either conventional subsoils or the Flo-drain system,
- numerous catchpits and manholes of varying configurations, and
- concrete and natural V-drains
- Construction of headwalls and other dissipating structures.

PS.6.1 Blockage Stormwater and Sewers

The Contractor shall be responsible for ensuring that cementitious sludge, sand and rubble from the works do not enter the stormwater reticulation system. The Contractor shall be liable for any costs incurred by the Council or others as a result of blockages in the reticulation system attributed to failure to comply with the above requirement.

PS.7 ELECTRICAL PLANT

Tenderers are to read this clause in conjunction with Clause PS.2 and PS.3.

PS.7.1 General

Various types of electrical cables including medium voltage, low voltage, street lighting and domestic connection cables may be affected by the contract. The laying, relocation and jointing of all cables will be carried out by Metro Electricity's work gangs, or agents appointed by them, whilst the excavation and backfilling forms part of this contract. Close liaison will therefore be necessary with Metro Electricity throughout the contract.

PS.7.1 Street Lighting

New street lighting will be done by the Metro Electricity, sleeves shall be done by the Contractor. An allowance has been included in the BOQ for the main contractor to supply and install new street lighting.

The Electricity Department shall provide the Street lighting layouts and details, Bill of Quantities and a list of approved service providers to the Main Contractor who will let out a tender to the said service providers.

On receipt of the priced tenders, the Contractor shall forward the tenders to the Electricity Department who will undertake an evaluation of the tenders and provide a recommendation to the Main Contractor for appointment. The Electricity Contractor shall then become the Domestic Sub-Contractor of the Main Contractor. The said sub-contractor shall undertake the electricity work which shall be inspected and approved by the Electricity Department. The Electricity Department will undertake measurement and confirm payment that needs to be made to the sub-contractor by the Main Contractor. The civil works will be carried out by the main contractor.

PS.7.2 MV / LV Cables

Certain M.V. cables may need to be lowered/ relocated within the contract area. The actual cable work associated with this relocation and / or replacement and/or lowering of these cables will be carried out by Metro Electricity and it is stressed that the 45 day period referred to in Clause PS.3 is the minimum period required to enable Metro Electricity to be on site timeously.

An allowance has been included in the BOQ for the main contractor to secure a subcontractor, who shall be approved by Metro Electricity, to undertake the laying of the cables. The Electricity Department shall provide a Bill of Quantities and list of electricity approved service providers to the Main Contractor who will let out a tender to the said service providers. On receipt of the priced tenders, the Contractor shall forward the tenders to the Electricity Department who will undertake an evaluation of the tenders and provide a recommendation to the Main Contractor for appointment. The Electricity Contractor shall then become the Domestic Sub-Contractor of the Main Contractor.

The said sub-contractor shall undertake the electricity work which shall be inspected and approved by the Electricity Department. The Electricity Department will undertake measurement and confirm payment that needs to be made to the sub-contractor by the Main Contractor. The civil works will be carried out by the main contractor. It is stressed that the four-week period is the minimum period required to enable Metro Electricity to be on site timeously.

PS.7.3 Relocation of Existing Services

Should it be necessary to adjust the line, level and / or position of any service not catered for in the contract to enable the construction to proceed the Contractor shall on no account effect such adjustment himself but shall notify the Engineer who will arrange for the work to be carried out at no cost to the Contractor.

PS.8 SERVICE PROVIDERS

The tenderers attention is drawn to the fact that copper cables and fibre optic cables may exist in the contract area.

PS.9 CONSTRUCTION AND MANAGEMENT REQUIREMENTS

PS.9.1 General

Various types of Services from different service providers are affected by the contract. The laying, relocation and jointing of all cables will be carried out by the respective service provider, or agents appointed by them, whilst the excavation and backfilling forms part of this contract. Close liaison will therefore be necessary with service providers throughout the contract.

The Contractor is referred to SANS 1921: 2004 parts 1, 2, 3 and 5: 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.

PS.9.2 Quality Assurance (QA) *(Read with SANS 1921)*

The Contractor will be solely responsible for the production of 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.

PS.9.3 Management and disposal of water *(Read with SANS 1921)*

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.

PS.9.4 Disposal of spoil or surplus material *(Read with SANS 1921)*

The Contractor may dispose surplus and / or unsuitable material in legal spoil areas of his own choice subject to the approval of the Engineer. He shall be responsible for all arrangements necessary to obtain such spoil sites.

PS.10 MANAGEMENT OF THE ENVIRONMENT

The Contractor shall pay special attention to the following:

PS.10.1 Natural Vegetation

The Contractor shall confine his operation to as small an area of the site as may be practical for the purpose of constructing the works.

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 where directed by the Engineer.

PS.10.2 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.

PS.10.3 Environmental Management Plan

In addition to the above, all requirements according to the Environmental Management Plan as well as the terms and conditions of the Environmental Authorisation as detailed in C3.4 : Particular Specifications, shall be adhered to.
Contractor to allow in his rates for the appointment of the Environmental Control Officer.

PS.11 OCCUPATIONAL HEALTH AND SAFETY

In addition to any statutory obligations, the Contractor shall always carry out all works required by this contract in accordance with existing Departmental Safety Regulations and the contractor shall familiarize with the said regulations prior to tendering and/or accepting this contract.

PS.11.1 General Statement

When considering the safety on site the Contractor's attention is drawn to the following:

(1) The works will require machinery and plant of varying size.

(2) The raw asphalt used will be delivered to site at a high temperature, which, after processing, remains hot for some time.

(3) The contractor working directly adjacent to other projects/contractors.

(4) The manual moving of heavy pre-cast products will be required.

(5) The area is also bounded by business/residential/private properties.

(6) The gradient of the site varies along different sections of the site. Plant and machinery need to be well controlled. Run-off from the site will have to be well managed.

(9) The contractor shall be working adjacent to other contractors which may result in plant, labour, materials etc passing/working in the site area.

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

For the purpose of this contract the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of Section 37(2) of the Occupational Health and Safety Act.

PS.11.2 Health and Safety Specifications and Plans to be submitted at tender stage

PS.11.2.1 Employer's Health and Safety Specification

The Employer's Health and Safety Specification is included in Part C3.3: Particular Specifications.

PS.11.2.2 Tenderer's Health and Safety Plan

At tender stage only a brief overview of the tenderer's perception on the safety requirements for this contract will be adequate. This will be attached to Part T2.1: List of Returnable Schedules Forms, and Certificates.

Only the successful Tenderer shall submit a separate Health and Safety Plan as required in terms of Regulation 5 of the Occupational Health and Safety Act 1993 Construction Regulations 2003, and referred to in Part T2.

The detailed safety plan will take into consideration the site-specific risks as mentioned under PS.11.1 and must cover at least the following:

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

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or 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. A generic plan will not be acceptable.

PS.11.3 Cost of compliance with the OHSA Construction Regulations

The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract. Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

Items that may qualify for remuneration will be specified in the Employer's Health and Safety Specification.

PS.12 PREFERENTIAL PROCUREMENT

For the purpose of this contract the Contractor shall comply with the preferential procurement statement provided in Part F.2.26 of the Tender Data and the eThekwini Municipality's document contained in Section C3.3 : Particular Specifications.

PS.12.1 COMMUNITY LIAISON OFFICER

The ward councillors in whose wards (Ward 35 and 102) work is to be done will, collectively, identify a community liaison officer (CLO) for the project and make the person known to the Contractor within two days of being requested to do so. The Contractor will be required to enter a written contract with the CLO that specifies:

- The hours of work and the wage rate of the CLO.
- The duration of the appointment.
- The duties to be undertaken by the CLO which could include :
- Assisting in all respects relating to the recruitment of local labour.
- Acting as a source of information for the community and councillors on issues related to the contract.
- Keeping the Contractor advised on community issues and issues pertaining to local security.
- Assisting in setting up any meetings or negotiations with affected parties.
- Keeping a written record of any labour or community issue that may arise.
- Any other duties that may be required by the Contractor.

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

The Contractor shall have the right to replace labour that is not performing adequately. Should such occasion arise, it must be done in conjunction with the CLO. The Contractor will be paid 7.5% of the CLO cost as handling costs.

PS.12.2 EMPLOYMENT OF LOCAL LABOUR

The contractor will be required to employ local labour as specified in the Part C3.4: Particular Specifications - “Policy for the Use of CLOs and Local Labour” of this Contract document. The contractor will be required to ensure that a minimum of 100% of the labour force is made up of local labour. For the purposes of this contract, “Local labour” will be deemed to be any persons

who reside within Wards 35 and 102. The contractor will be required to provide proof of authenticity of local labour. Signed confirmation by the appointed CLO will suffice for this.

The Contractor is to submit proof of employment of local labour.
No additional costs will be entertained due to this Particular Specification. The contractor will remain responsible for providing proper supervision of all labour, and will be responsible for the quality of work produced.

PS.14 SITE FACILITIES AVAILABLE

PS.14.1 Contractor's camp site and depot *(Read with SANS 1921 - 1: 2004 clause 4.14)*

(a) Contractor's camp site/store yard

The Contractor's office for this contract shall be as required to fulfill his obligations under the Contract. The Contractor is responsible to provide a suitable site for his camp and to provide accommodation for his personnel and laborer's. If the Employer can make any specific site available to the Contractor, such site will be pointed out to the Contractor.

However, the Contractor may, if he prefers to have a camp site at another location of the work site, that he first obtains the written permission of the landowner, and subsequently the Engineer, to do so.

Any clearing of the site that is necessary and the making good after de-establishment will be the responsibility of the Contractor.

In addition to the requirements of SABS 1200 A clause 8.3.2.2 the following conditions shall also apply:-

(i) None of the existing roads shall be damaged in any way.

(ii) No waterborne sewerage facilities or potable water connection are available on the site. The Contractor shall make his own arrangements in this regard.

(iii) No electrical facilities exist on site.

(iv) It shall be the responsibility of the Contractor to make good any damage caused to the camp site area or any improvements on it, including services, and for reinstating it to its former condition when vacated. The standard of reinstatement must be to the satisfaction of the Engineer; Deputy Head: Real Estate and/or Deputy Head of Parks, Recreation and Beaches Department; or other owner. Particular attention should be directed to these requirements and written clearances from the relevant Departments or other owners will be required.

(b) Notice Board

The typical notice board layout is given in Section C4.5. The following requirements shall apply with regards to the notice board:

(i) The wording in the space for "Name of Contract" shall be**: Go! Durban, IRPTN, Corridor C9, Work Package 6B: Cornubia Boulevard.**

The Contractor must allow for 2 notice boards in his tendered rate.

PS.14.2 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.

Chemical toilets only will be allowed where temporary facilities have to be provided.

PS.14.3 Power supply, water and other services

The Contractor shall make his own arrangements concerning the supply of electrical power, water and all other services. No direct payment will be made for the provision of electricity, water 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, or in the Contractor's preliminary and general items as the case may be.

(a) Water for Works

The Contractor shall allow in his Establishment rates for the securing of a suitable water supply, the payment of any connection fee and for any water charges for the duration of the contract.

(b) Power Supply for Works

The Contractor shall allow in his Establishment rates for the securing a legal electrical connection, the payment of any connection fee and for any electrical charges for the duration of the contract.

PS.15 SITE FACILITIES REQUIRED

PS.15.1 Temporary offices

The Contractor shall make provision to secure formal office space for the Engineer and his team within the Mount Edgecombe area with general security arrangements. The offices are to be a formal structure / building with all necessary amenities. The contractor shall provide the Engineer with three possible buildings for use of which the Engineer will select one. The Contractor shall then enter into a lease agreement with the owners of the building to secure use of the building for the duration of the contract.

There shall be a minimum of:

- 6 Nos. (six) lockable air-conditioned offices with area of 9 to 12m², all fully furnished,
- 1 No. (one) of 18m^2 air-conditioned office to be used as a boardroom,
- 2 Nos.(two) sanitary facilities,
- 1 No. (one) kitchen with cupboards, a fridge, microwave oven, and hot and cold water, and
- 8 (six) shaded carports for the sole use of the Engineer and his site personnel.

The offices shall allow for a desk with 4 drawers, filing cabinet, drawing racks, 1 swivel chair and 2 padded chairs. All the necessary insurance shall be provided for all the above equipment.

The contractor will be required to provide maintenance/cleaning to the Engineer's office for the duration of the contract.

PS.15.1.1 Payment

The unit of measurement for the offices shall be a combination of a fixed charged item and a time related item. The payment of this item must be included in the Bill of Quantities under Preliminary and General, Section 1, Part AB.

The fixed charged item shall cover the cost of the lease of the building for the duration of the contract, all furnishings, the provision of services together with the payment of all necessary fees and administration.

A PC Sum item has been allowed in the BOQ for the payment of the lease of the building as well as for the provision of furnishings with general security arrangements together with the payment of all necessary fees and administration.

The time related item shall cover the cost for the duration of the contract of the maintenance of the office and furnishings, and the daily cleaning.

PS.16 COMMUNITY AND PUBLIC RELATIONS

During the course of the contract, the Employer / Engineer may need to engage with the community and other interested and affected parties. The engagement may be in the form of electronic media, pamphlet distribution or meetings. All costs relating to this aspect will be paid for through the relevant item in the BOQ in Section 1, Part AB. An item has also been allowed for in the BOQ for the contractor's administration cost in this regard. It is a percentage of the cost of the Community and Public Relations item.

PS.17 TRAFFIC SIGNALS

The Route consists of 3 (three) signalised intersections.
The ETA Signals Department shall provide a Bill Of Quantities and list of eTA approved Traffic Signal Service Providers to the Main Contractor who shall let out a tender to the said service providers. On receipt of the priced tenders, the Contractor shall forward the tenders to the eTA who will undertake an evaluation of the tenders and provide a recommendation to the Main Contractor for appointment. The Traffic Signals Contractor shall then become the Domestic Sub-Contractor of the Main Contractor. The said sub-contractor shall undertake the Traffic Signal work which shall be inspected and approved by the eTA. The eTA will undertake measurement and confirm payment that needs to be made to the sub-contractor by the Main Contractor. The civil works will be carried out by the main contractor.

PS.18 SITE SECURITY

The Contractor shall, for the duration of the contract, provide sufficient security and watchmen to adequately ensure the safety and protection of the works, the Contractor's staff, including local labour and sub-contractors, and all site plant and construction equipment required for the works.

Site Security, in conjunction with the SAPS (where necessary), shall be responsible for removal of disruptive elements, that may interrupt the progress of the contract through acts such as, but not limited to, intimidation, threats of disruption, violent disruption, or criminal and illegal activity by the local community or independent organisations or entities that may result in slowing down or partial or total stoppage of the works.

Payment for this item shall be made under Section 1, Part AB of the Bill of Quantities.

C3.3: STANDARD SPECIFICATIONS

C3.3.1 The Specifications on which this contract is based are the eThekiwini Municipality's (City of Durban) Standard Engineering Specifications (hereafter referred to as the Standard Engineering Specifications). This document is obtainable separately, and Tenderers shall obtain their own copies of the applicable Sections.

Part	Description	Date of Issue	
AB	General Specifications	July	1992
B	Site Clearance	March	1990
C	Concrete Work	February	1987

DA	Earthworks: Bulk	January	1985
DB	Earthworks for Pipe Trenches	July	1992
DC	Earthworks for Concrete Lined Canals		
DD	Earthworks for Structures		
EB	Graded Crushed Stone	December	1988
EC	Cement Treated Graded Crushed Stone	December	1988
ED	Road Asphalt	July	1992
EF	Kerbs and Haunches	July	1992
EG	Sidewalks, Footpaths and Median Areas	July	1992
EH	Steel Guardrails & Conc. Median Barriers		
EJ	Concrete Interlocking Block Surfaces		
EL	Dumprock Subgrade Improvement		
EQ	Plant-Mixed Paver Laid Pavement Layers	August	1990
F	Protection Works	July	1992
H	Reinforced Earth		
J	Piling		
PG	Non-Pressure Pipelines and Pc Culverts	July	1992
PH	Manholes and Appurtenant Drainage Works	July	1992
PG	Lateral Support Systems		
S	Reinstatement	March	1993
TA	Road Signs	October	1989
TB	Road Markings	October	1989

C3.3.2 AMENDMENTS TO THE STANDARD SPECIFICATIONS

INTRODUCTION

In certain clauses the standard, standardized and particular 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 alternative or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains additional specifications required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix PS followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or 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 PS, but followed by a new number which follows on the last clause or item number used in the relevant section of the standard specifications.

PS AB	General Specifications
PS B	Site Clearance
PS C	Concrete Work
PS DA	Earthworks: Bulk
PS DB	Earthworks for Pipe Trenches
PS DC	Earthworks for Concrete Lined Canals
PS DD	Earthworks for Structures
PS EA	Lime Stabilisation
PS EC	Cement Treated Graded Crushed Stone
PS ED	Road Asphalt
PS EE	Pre-coated Stone Chippings
PS EF	Kerbs and Haunches
PS EG	Sidewalks, Footpaths and Median Areas
PS EH	Steel Guardrails & Conc. Median Barriers
PS EJ	Concrete Interlocking Block Surfaces
PS EL	Dumprock Subgrade Improvement
PS F	Protection Works
PS H	Reinforced Earth
PS J	Piling
PS PG	Non-Pressure Pipelines and PC Culverts
PS PH	Manholes and Appurtenant Drainage Works
PS PG	Lateral Support Systems
PS S	Reinstatement
PS TA	Road Signs
PS TB	Road Markings

PS.AB PRELIMINARY AND GENERAL SPECIFICATION

INDEX **PAGE**

PS.AB.1 SITE FACILITIES

PS.AB.1.1 Temporary Offices for Engineer and Staff

The offices for the Engineer and staff shall be situated in the Mount Edgecombe area with general security arrangements as per Clause PS.15.

In addition to this, the Contractor shall make allowance for office space for the Engineer and staff to be situated in the Site camp area

(a) Engineer's Offices in site camp

(i) 4 No. (Four) of equivalent Type 1 lockable air-conditioned offices as are specified in Clause AB.2.2 of the Departmental Technical Specification but modified to dimensions of at least 3m x 3m or 3m x 4m per office. Number of chairs to be reduced to 3 chairs, ie 1 swivel and 2 standard padded chairs per office,

(ii) 2 No. (one) Toilet facilities with wash basins (1 Male and 1 Female),

(iii) 1 No. (one) 18m^2 air-conditioned office to be used as a boardroom, including table, chairs and a 2m long x 1m high board.

(iv) 5 No. covered car ports adjacent to the above offices.

(v) All necessary insurance shall be provided for all the equipment.

(b) Materials Testing

(i) A 10 m x 10 m x 100 mm concrete material/sample drying slab.

(ii) 2 No. 3 m x 1,5 m x 500 mm plastered brickwork, covered cube curing baths. The baths shall have automatic temperature control.

(c) Stationery and office equipment for engineer

(i) Print, photocopy and scanning machine,

(ii) The offices shall allow for an L-shaped desk with 4 drawers, a filing cabinet, a drawing rack, 1 swivel chair and 2 padded chairs. All the necessary insurance shall be provided for all the above equipment.

(iii) The Boardroom shall have a boardroom table with chairs to accommodate for a minimum of 10 people.

(iv) The 4 offices and the Boardroom shall have a white board marker and a pin-up Board mounted on the wall.

Areas around Site Office

The access and other roads around the Engineer's Offices and the laboratory shall be treated to make them dust free either by crushed stone, suitable dust-laying oils, or bituminous surfacing being used or other approved means being adopted. They shall be well drained and kept trafficable and free from mud at all times. Footpaths shall be similarly treated to provide convenient access to all buildings.

A Prime Cost Item has been included in Section 1, Part AB of the Bill of Quantities for the provision of ancillary laboratory equipment.

Allowance for the costs of the above listed items must be made under the relevant items in Part AB - Preliminary and General of the Bill of Quantities.

PS.AB.1.2 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. Due to the limited space around the proposed works, no vacant Municipal property is available. However, a possible site camp location has been provided, refer to Annexure C4.4 that the Contractor may use for the duration of the contract. Should the contractor choose to occupy an alternative site, the Contractor shall be required to engage directly with the landowner.

(a) Contractor's Camp Site / Store Yard

The Contractor must secure written permission of the landowner confirming that permission has been granted or that an agreement is in place for the use of the privately owned land. This documentation must be submitted to the Engineer.

Any clearing of the site that is necessary and the making good after de-establishment will be the responsibility of the Contractor.

In addition to the requirements of SABS 1200A Clause 8.3.2.2 the following conditions shall also apply:

(i) None of the existing roads shall be damaged in any way.
(ii) No waterborne sewerage facilities or potable water connection are available on the site. The Contractor shall make his own arrangements in this regard.
(iii) No electrical facilities exist on site.
(iv) It shall be the responsibility of the Contractor to make good any damage caused to the camp site area or any improvements on it, including services, and for reinstating it to its former condition when vacated. The standard of reinstatement must be to the

satisfaction of the Engineer; Director: Real Estate and/or Director of Parks, Recreation and Beaches Department; or another owner. Particular attention should be directed to these requirements and written clearances from the relevant Departments or other owners will be required.

PS.AB.1.3 Accommodation of Employees

No employees except for security guards will be allowed to sleep or be accommodated on the site in urban areas.
No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site.
No informal housing or squatting will be allowed.
The 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.

PS.AB.1.4 Power Supply, Water and other Services

The Contractor shall make his own arrangements concerning the supply of electrical power, water and all other services. No direct payment will be made for the provision of electricity, water 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, or in the Contractor's preliminary and general items as the case may be.

(a) Water for Works

The Contractor shall allow in his Establishment rates for the securing of a suitable water supply, the payment of any connection fee and for any water charges for the duration of the contract.

(b) Power Supply for Works

The power supply authority is eThekwini Electricity Service Unit. The Contractor will be responsible for arranging for whatever temporary supplies may be required and he will be required to bear all costs involved and to pay the ruling tariffs applicable to such supplies.

(c) Telecommunication

The method telecommunication may be either through fixed land line in which case 4 landlines must be made available and connected to the Engineer and his staff's offices, one line per office. Alternatively, should it be impractical to connect a fixed land line, the communication shall be by way of cellular communication, in which case the contractor will provide the Engineer and the Engineer's team with airtime.

PS.AB.2 SERVICES CONNECTION FEE

Further to Clause AB.2.3 a prime cost item has been included in Section 1, Part AB in the Bill of Quantities. This item covers the connection fee for the following services to the camp site area for the Engineer's office:

(i)	Electricity	:	Connection of one single phase 220 volt 60 amps electrical supply to the site distribution box.
(ii)	Water	:	25 mm Diameter connection.
(iii)	Telephone	:	4 lines

Should the Contractor require either additional connection or an increased power supply any additional costs shall be to the Contractor's account.
Payment under Section 1, Part AB: Item 2 will be based on the actual accounts for the connection fees described above.

PS.AB.3 ROAD DEVIATIONS AND TRAFFIC CONTROL

(a) An allowance has been made in the Bill of Quantities for deviations, Section 1, Part AB, Item6. Costs of any other deviations required by the Contractor shall be included in the rates tendered.

(b) Deviations required by the Contractor shall comply with the requirements of Clause AB.7. Details shall be submitted to the Engineer for approval at least four weeks in advance of date on which it is anticipated that work on the deviation will commence.

(c) On deviations provided in terms of (b) above the Contractor shall ensure at all times and during all weather conditions that all temporary surfaces that are intended to carry traffic are in fact trafficable with regard to reasonable standards of safety and comfort. No additional payment shall be made to the Contractor for compliance with this clause.

(d) Unless indicated otherwise over the entire length and for the duration of the contract, traffic is required to be accommodated at all times.

(d) At all times signposting shall be detailed in the part of this document : "Safety in Road Construction".

PS.AB.4 NOTICE BOARD

The typical notice board layout is given in Annexure C4.5. The following requirements shall apply with regards to the notice board. As per the BOQ, two (2) number notices boards are to be provided for the contract.

PS.AB.5 PROGRESS PHOTOGRAPHS

A provisional sum has been included under Part AB for digital photographs and aerial photographs to be taken, as well as for the installation of a CCTV camera. The photographs shall be taken monthly across the entire site, including aerial photos, at the discretion of the engineer.

The contractor is required to supply framed (Frame Size: 614 x 440 mm) coloured A2 pictures of the entire completed project on Photographic Paper on Practical Completion of the entire project and a full set of digital soft copies of all aerial photographs taken. All photographs supplied will become the sole property of eThekwini Municipality. The number of photographs supplied by the contractor will be as instructed by the Engineer.

CCTV cameras shall be mounted on a gantry/mast in a position as directed by the Engineer's Representative. The cameras shall work wireless and connect to a dedicated computer in the Engineer's Offices. The cameras shall be controlled remotely from the computer. The camera is to work of a 12V battery. Cost to include for the supply and installation of the cameras, gantry/mast, 12V battery, inverter if necessary, entry level computer compatible to the cameras, cables and sundries.

PS.AB.6 SUPPLY OF PLANT, MATERIAL AND LABOUR

Except where otherwise specified the Contractor shall at his own expense supply and provide all the construction plant, temporary works, materials for both temporary and permanent works, labour (including supervision thereof), transport to and from the site and in and about the works and other things of every kind required for the construction, completion and where specified, maintenance of the works. The contractor shall also make his own arrangements with the proper authorities and at his own cost for the supply of water, electricity and any other services he may require for the construction and completion of the works.

PS.AB.7 TESTING

LABORATORIES

The following types of laboratories shall be required:

Soils laboratories, bituminous – materials laboratories, chemical laboratories, and concrete – testing laboratories.

The size, layout and other details of the laboratories shall be as detailed on the schedules of fittings, equipment and furniture.

The laboratories, fittings, furniture and equipment shall be as follows:

(i) Ordinary chairs, telephone extensions, 15 ampere 220 volt electricity plugs points, air conditioners, heaters and lights shall meet the same requirements as specified for offices.

(ii) Shelf space provided against walls shall be of robust construction and shelving shall be of suitable timber or fibre – cement material, depending on requirements. Shelving below work – tables shall be 390 mm above floor level. And above working areas, 1980 mm above floor level.

(iii) Work – bench areas shall be of two types as may be required:
   (1) Of wooden construction: the top shall be hard and smooth and free from warping or other defects.
   (2) With concrete tops: the tops shall be at least 75 mm thick concrete slabs with a smooth, hard steel – trowelled finish.
   All work – benches shall be robust and their upper surfaces shall be 920 mm above floor level.

(iv) Gas installations shall consist of the necessary gas cylinders, regulators, tubing and taps.

(v) High stools for use at work – benches shall be robust and, if of fixed height, shall be 800 mm high.

(vi) Where required, a 380 volt 3 – phase electric power supply shall be provided. Power points for the purpose .power points for evens and a crusher shall be 1,2 m above floor level.

(vii) Concrete working floors shall be at least 125 mm thick and provided with a hard smooth finish. The working areas shall be either entirely open or under a shelter as may be required.

(viii) Wash basin shall be as prescribed either of stainless steel or precast concrete with an area of at least 0, 3 $m^2$and a minimum depth of 0, 3 m . They shall be provided with swan – neck type laboratory taps and drain pipes.

(ix) A supply of fresh clean potable water at a constant head of not less than 3 m at the taps shall be provided. Storage capacity in respect of the laboratory water supply shall not less than 700 litres.

(x) Fire extinguishers shall be of the all-purpose dry power type manufactured to BS 1721 and suitable for types A, B, C and E fires. The extinguishers shall contain not less than 9,0kg of extinguishing chemical and shall be fitted to the wall at suitable positions by means of quick – release brackets. They shall be freshly charged and the seals shall be unbroken.

(xi) Extractor fans, where required, shall be so mounted as to operate noiselessly. They shall have a capacity of at least 0, 15 kW each. Extractor fans shall be spark proof.

(xii) Fume cupboards shall be constructed in accordance with the details shown on the drawings.

(xiii) Where required, concrete footings and pedestals shall be constructed to the dimensions indicated by the engineer for installing certain testing equipment.

(xiv) When required, bath for curing concrete test cubes, beams and cylinders shall be provided. The baths shall be rectangular in shape and regarding the inside dimensions the width shall not exceed 1,0 m and the depth shall not exceed 0,6 m. the baths shall have automatic temperature control.

(xv) When required, an 0, 3 m^3 capacity refrigerator shall be supplied.

(xvi) Approved voltage stabilizers shall be fitted to all electrical power points.

At the commencement of the contract, the Engineer will prepare a tender document for the establishment and operation of the three types of laboratories required on site. The Tender will be let out by the contractor. On close of tenders, the tenders will be returned to the Contractor who in turn will return to Engineer for evaluation. The Engineer will recommend the most responsive tender to the Contractor, which if accepted by the Contractor, will appointed the most responsive tenderer. Should the Contractor not be in agreement to the Engineer's recommendations, then he shall substantiate same for the Engineer's consideration.

An item for the provision of the Laboratory equipment, personnel, testing and related activities to cover the Employer's contribution towards the onsite Laboratory has been provided for in the BOQ in Section 1, Part AB. The Contractor's rates elsewhere in the BOQ should make an allowance for his cost of the material testing.

The following is required for the Laboratory for the duration of the contract:

i) Establishment and operation, including supply of equipment of complete Concrete Laboratory,
ii) Establishment and operation, including supply of equipment of complete Soil Laboratory,
iii) Establishment and operation, including supply of equipment of complete Asphalt Laboratory,
iv) Establishment and operation, including supply of equipment of Major items : Compactor Marshall,

v) Establishment and operation, including supply of equipment of Major items : Centrifuge (S.M.M),

vi) Establishment and operation, including supply of equipment of Major items: Compactors (Mod. AASHTO) (complete)

vii) Establishment and operation, including supply of equipment of Major items : Crusher (Large)

viii) Establishment and operation, including supply of equipment of Major items : CBR / UCS / ITS Press,

ix) Establishment and operation, including supply of equipment of Major items : Concrete Press (cubes),

x) Establishment and operation, including supply of equipment of Major items : CPN / Troxler (Complete),

xi) Establishment and operation, including supply of equipment of Major items : Press Marshall,

xii) Establishment and operation, including supply of equipment of Major items : Penetrometer (Electronic),

xiii) Establishment and operation, including supply of equipment of Major items : Saw Diamond,

xiv) Establishment and operation, including supply of equipment of Major items : 20mm Concrete Drill with Generator,

xv) Computers, printers and software,

xvi) Consumables,

xvii) Laboratory personnel, sampling and field works, and

xviii) Off-site testing for Specialist Test.

PS.AB.8 SECURITY

The Contractor shall, for the duration of the contract, provide sufficient security and watchmen to adequately ensure the safety and protection of the Employer's site personnel, the Engineer and his site personnel, the works, the Contractor's staff, including local labour and sub-contractors, and all site plant and construction equipment required for the works.

Site Security, in conjunction with the SAPS (where necessary), shall be responsible for removal of disruptive elements, that may interrupt the progress of the contract through acts such as, but not limited to, intimidation, threats of disruption, violent disruption, or criminal and illegal activity by the local community or independent organisations or entities that may result in slowing down or partial or total stoppage of the works.

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.

Payment for this item shall be made under Section 1, Part AB of the Bill of Quantities.

PS.AB.9 AS – BUILT DATA

The Tenderer shall note lump sum Item in, Section 1, Part AB covering the submission of as-built data.

The contractor shall supply the Engineer with an electronic copy and hard copy of:

(a) A list of surveyed co-ordinates of all work carried out.
(b) A list of surveyed co-ordinates of all road edge, dwellings, fencing and services within the vicinity of the works.
(c) A0 hard copies.
(d) The survey must include:
    - All new works carried out: kerb line including channel, road edge, road markings, edge of sidewalks, trees, access points, services (existing and new), different hatching to indicate different types of surfacing.

The contractor must also give the Engineer a materials as-built spreadsheet in the format approved by the Senior Manager of the Pavement and Geotechnical Laboratory –City Engineers.

The Certificate of Completion shall not be issued unless the above information has been forwarded and approved by the Engineer.

PS.AB.10 PROTECTION OF DWELLINGS, BUSINESSES AND PRIVATE PROPERTIES

The contractor will be required to work within restricted areas in between existing properties. All necessary precautions must be taken by the contractor not to damage the properties and its surroundings. Should the contractor cause any damage due to the construction of works, the cost to rectify the damage will be to the contractor. The contractor must also carry the appropriate insurance to cover loss of personal property or lives.

- Special attention is drawn to the use of compaction/vibratory equipment. The Contractor must take extra precaution to ensure that the use of construction equipment does not cause direct and indirect damage on structures/buildings in the vicinity of the construction area. Any damage caused will be to the contractors account.
- Negligence of any sort by the Contractor/Sub-contractor or any person employed by the contractor, the cost to correct the error will be to the contractor.
- The Contractor shall take precautions not to damage any plant, structure or property being that of the eThekwini Municipality or that of any third party for the duration of the contract. The Contractor will be held liable for any damage he causes, willfully or un-willfully, either that of the eThekwini Municipality or that of any other third party.
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PS.AB.11 BARRIERS FOR ACCOMMODATION OF TRAFFIC

The contractor shall use New Jersey barriers, steel barriers or similar products as approved by the Engineer. The rate shall be in meters (m) and shall include the supply and installation of

barriers for the accommodation of traffic. The Contractor's rate for the placement and transportation of the barriers in and around the construction site as when required.

PS.AB.12 ADDITIONAL SURVEY

An item has been provided in the bill of quantities for additional survey to be undertaken upon the Engineer's request by the contractor for the Engineer's use. An item for handling cost has been provided in the bill of quantities for the Contractor administration in this regard.

PS.AB.13 SUPPLY OF DELINEATORS DAMAGED DURING CONSTRUCTION

The initial supply, installation and maintenance of delineators has been allowed for in the bill of quantities, Section 1, Part AB. Damaged delineators due to causes that have weathered and are considered not fit for use by the Engineer or the Traffic Officer, shall be regarded as a maintenance item and shall be replaced at the contractor's cost as detailed in Clause AB.7.

PS.AB.14 SEISMIC VELOCITY TESTING

Due to the large volume of the bulk earthworks on this project, and the variability of material from soft to hard, the method of Seismic Velocity Testing shall be used to determine the classification of the material to be excavated. Should the Contractor believe that the material to be excavated is not considered as 'soft' material or that it may be more adverse in terms of hardness than that agreed to by the Engineer, then a seismic velocity test must be undertaken before any further excavation is undertaken. Alternatively, should the Engineer consider the material to be changing in classification to a less adverse classification, in other words not as hard as the material that was being cut, the Engineer may order a seismic test to be undertaken.

All requests for seismic testing must be approved by the Engineer before the test can be undertaken. Should the contractor make gratuitous claims for the test to be undertaken when it is apparent that the material has not changed to a harder classified material, then the test may proceed at risk in that should the test results indicate the material has not changed to a harder classification, then the contractor shall bear the cost of the test. Alternatively, should the test results indicate that the material has changed classification to a harder type material the cost for the test will be paid for through the contract under the relevant item in the bill of quantities in Section 1, Part AB.

An item has also been allowed for in the bill of quantities for the contractor's administration cost in this regard. It is a percentage of the cost of the testing.

PS.AB.15 AD-HOC ADJUDICATION

Alternate dispute resolution for the contract will commence with Ad-hoc Adjudication as per GCC, Clause 10.5.2.

The number of Adjudicators to be used on each unsettled claim shall be 1 (one) or 3 (three) depending on the complexity and value of the claim. The number of adjudicators to be used per unsettled claim shall be jointly agreed between the Employer and the Contractor, failing such agreement, the number of adjudicators to be used shall be 3 (three).

All proposed Adjudicators must be registered with SAICE and the Association of Arbitrators as an Adjudicator at the least.

An item has been allowed in the bill of quantities under Section 1, Part AB for the partial costs of the appointment and services of the Adjudicator(s). This item shall cover only 50% of the Adjudicator's(s) cost which shall be the Employers contribution only. The Contractor shall be responsible for payment of his (the Contractor) costs and shall not be allowed for in the contract.

An item has also been allowed for in the bill of quantities for the contractor's administration cost in this regard. It is a percentage of the cost of 50% of the Adjudicator's fees.

PS.AB.18 PENALTIES FOR NON-COMPLIANCE WITH TRAFFIC RULES

For every road and traffic rule violation by the Contractor and his Sub-Contractor's, Suppliers and labourers (including local labour), he shall be charged a penalty for that offence. The engineer will raise the charge. An item has been provided in the bill of quantities for the application of the penalty. Refer to Clause PS2.1.7

A fixed cost of R1000 shall be applicable for every event of non-compliance.

A Time related cost of R1000/hour shall be applicable for delay caused by the above-mentioned non-compliance. The measurement of time shall be from when the Level of Service in vehicular capacity has reduced due to the act of non-compliance to the time that the Level of Service is restored to before the incident had occurred.

PS.B SITE CLEARANCE

INDEX

PS.B.1 REMOVAL OF BRICKWORK

The cross reference to Clause B.8.18 in Clause B.8.9 shall be amended to refer to Clause B.8.21.

PS.B.2 REMOVAL OF ROADWAYS

The Tenderer's attention is drawn to the fact that the measurement of roadways is based on the types of materials as listed under Clause B.5.6 and not the full depth of the in-situ road layers. The unit of measurement shall be the cubic metre (m^3) measured loose by means of tally loads. The rate shall include for loading and transporting the material to an approved tip site within a 25km radius.

PS.B.3 REMOVAL OF EXCESS SCARIFIED MATERIAL TO SPOIL

After the scarifying of roads/hardened areas, the Engineer may instruct the Contractor to spoil a certain amount of the scarified material.
The unit of measurement shall be the cubic metre (m^3) measured loose by means of tally loads.
The rate shall include for loading the material and transporting to an approved tip.

PS.B.4 SEAL ENDS OF PIPES WITH GRADE 15/26 CONCRETE

The unit of measurement shall be the cubic metre (m^3) and the rate shall include for all the materials, labour and plant necessary to seal the ends of pipes as directed on site by the Engineer.

PS.B.5 SEAL ENDS OF PIPES WITH 230 mm BRICKWORK

All brickwork shall conform to the relevant clauses in Part F, Departmental Specification for Protection Works.
The unit of measurement shall be the square metre (m^2) and the rate shall include for all the materials, labour and plant necessary to seal the ends of the pipes as directed on site by the Engineer.

PS.B.6 REMOVAL OF STREET SIGNS AND POSTS

The unit of measurement shall be number (No.) and the rate shall include for the labour and plant necessary for the careful removal of the signs, loading and either:

(a) storing on site for re-use, or;
(b) transporting to the approved tip and dumping.

PS.B.7 REMOVAL OF CONCRETE INLET COVERS AND FRAMES

The unit of measurement shall be number (No.) and the rate shall include for the labour and plant necessary for the careful removal of the inlet covers and frames, loading and either:

(a) storing on site for re-use, or;
(b) transporting to the Municipal store at Alice Street, Durban and off-loading, or;
(c) transporting to the approved tip and dumping.

PS.B.8 REMOVAL OF CAST IRON COVERS

The unit of measurement shall be number (No.) and the rate shall include for the labour and plant necessary for the careful removal of the signs, loading and either:

(a) storing on site for re-use, or;
(b) transporting to the Municipal store at Alice Street, Durban and off-loading, or;
(c) transporting to the approved tip and dumping.

PS.B.9 DEMOLITION OF MANHOLES AND INLETS

The unit of measurement shall be number (No.) and the rate shall include for the labour, plant and material necessary for:

(a) breaking down brickwork to 1 m below formation level;
(b) sealing the incoming and outgoing pipes with concrete;
(c) backfilling with clean, coarse sand and compacting to 95% MOD AASHTO;
(d) storing manhole covers on site for re-use or spoiling to tip.

PS.B.10 REMOVAL OF PIPE CULVERTS

The unit of measure is metre (m). The rate shall cover labour and plant necessary for the removal of the existing pipe culverts, loading and spoiling at the approved spoil site. The rate also includes for excavation.

PS.B.11 REMOVAL OF STRUCTURES

Further to Clause B.8.8, tenders are to note that the rate tendered for the removal of the structure is to include for the breaking up and removal of the floor slab. The rate is to also include for the removal of all rubble to spoil.

The removal of underground brickwork and concrete forming the foundations shall be paid for under Clauses B.8.9 and B.8.10 respectively.

PS.B.12 CLEANING OF STORMWATER DRAINS

The existing stormwater drains will require clearing by means of high-pressure jetting. The contractor is to ensure that all silt / debris from the line is removed and carted to spoil. The unit of measurement is meter (m) irrespective of pipe diameter.

PS.DA EARTHWORKS: BULK

INDEX

PS.DA.1 INTERPRETATIONS

The following shall be added to the list of definitions.

Top of earthworks: The top of earthworks shall be defined as the underside of the selected layers under roads, the base under sidewalks and the underside of the topsoil layer under verges and embankments.

PS.DA.2 GEOTECHNICAL INFORMATION

Tenderer's attention is drawn to Part C.4 of this contract document, which describes the inferred geology of the area. Tenderers should note that the materials in this area are highly variable and should allow for this variability in their rates.

PS.DA.3 TOPSOIL

Tenderers are to note that the quantity of topsoil from site may vary in depth due to the sites geology. If more than 200mm of topsoil is required to be removed, then approval from the Engineer is required prior to the removal of the additional material.
The volume of topsoil to be stockpiled for later use is included in Section 3, Part DA, Item 1 of the bill of quantities.
The balance of the topsoil removed is to be spoiled at an approved dump site. Payment for the disposal of the topsoil is included under Section 3, Part DA, Item 2 of the bill of quantities and includes for haulage of the material within a radius of 2km of the site.

PS.DA.4 EXCAVATION OF MATERIAL FROM SITE

(a) Further to Clauses DA.8.1 and DA.8.3 Tenderer's are to note that the measurement of excavation of material on site is based on the cut volumes in place before excavation between the original ground levels after stripping of topsoil and the top of earthworks calculated from cross sections as described in Clause DA.8. No allowance will be made for bulking or shrinkage and it shall be assumed that 1 cubic metre of excavated material from the site shall form 1 cubic metre of compacted fill.

(b) The nature of the roadworks is some of the excavation shall be in restricted conditions. No additional payment shall be made for such excavation and the Tenderer shall therefore make allowance in the rates for Bulk Earthworks for any additional work or hand excavation.

(c) The Contractor's attention is drawn to the possible presence of watermains in the road reserve area. The Contractor shall limit the size and type of construction plant used in this area so as not to damage any existing watermain. Any damage to the watermain due to the size and type of construction plant used will be to the Contractor's account.

No additional payment will be made for compliance with this clause and Tenderer's shall include in the relevant rate for all extra plant, labour and materials required to work in these areas.

(d) Further to Clause DA 8.3, the rate for the excavation of unsuitable/excess material to spoil Section 3, Part DA, Item 3 of the bill of quantities shall also include for the haulage and royalties of such material within a 2km radius of the site.

(e) Further to Clause DA 8.3, the rate for the excavation of unsuitable/excess material to spoil in the median areas Section 3, Part DA, Item 4 of the bill of quantities shall also include for the haulage and royalties of such material within a 2km radius of the site. The contractor shall acquire prior approval from the Engineer before spoiling material in the median areas. This material shall be compacted in maximum 300mm layers to 90% MOD AASHTO.

(f) Further to Clause DA 8.3, Section 3, Part DA, Item 6 of the bill of quantities the rate of excavation of material to stockpile for blending as directed by the Engineer shall also include for the haulage and royalties of such material within a 2km radius of the site.

(g) Further to Clause DA 8.3, Section 3, Part DA, Item 7 of the bill of quantities the rate of excavation of material directly into fill shall also include for the haulage and royalties of such material within a 2km radius of the site.

PS.DA.5 EXCAVATE UNSUITABLE MATERIAL BELOW EMBANKMENTS OR FORMATION

Further to Clause DA.8.3 the rate shall also include for trimming the area excavated to the required level and compaction of the in-situ material.

PS.DA.6 SUITABLE FILL MATERIALS

PS.DA.6.1 Import suitable G9 or better fill material

The fill material shall conform to the requirements for a G9 or better Material as described in TRH 14 with the following Amendments:-

(a) The material shall be free of weathered shale and will be subject to the approval of the Engineer.

PS.DA.6.2 Blending of materials

The methodology for determining the optimal mix ratio for the blending of materials to satisfy the TRH14 specification of acquiring a G9 or better material shall be as per the Engineer's instructions. This instruction can only be given once a suitable material source from site has been identified.
The Contractor shall keep the materials to be blended separate from each other. The materials should then be spread uniformly over each other.

A grader can be used to mix the materials by processing the combined depths of the materials and spreading it until the blended materials are homogeneous.

The contractor shall have in place monitoring procedures to prevent contamination of the selected materials, to ensure correct proportions are mixed and to ensure a homogeneous material is produced.

Quality control tests must be carried out to ensure that the blended material conforms to the requirements for a G9 or better Material as described in TRH 14 and PS.DA.6.1 above.

The contractor shall include in his rate for the plant required to process the blending of the materials and spread the material.

PS.DA.7 COMPACTION OF FILL

The second paragraph of Clause DA.8.5 is to be amended by substituting "top of earthworks" for 'formation' where it occurs.

PS.DA.8 FORMATION

The Tenderers shall make full allowance in the rates for areas of formation in cut or where the fill layer thickness is less than 150 mm. The contractor shall not be paid separately for formation that is within 150mm of the existing ground line.

PS.DA.9 TOLERANCES

Clause DA.6 shall be amended to read as follows:

The allowable tolerances shall be:

(a) the design angle ± 2 degrees for the angle of the cut or fill slope;

(b) not less than the design width, nor more than 300 mm greater than the design width for the transverse horizontal embankment width at any level; and

(c) the layer thickness ± 20 mm for topsoil;

(d) For the formation, the Contractor will be required to place level pegs longitudinally at 10 m intervals on the road construction contract and elevation tolerances shall be taken on a section of the works. (When a portion of the works is less than 500 m² one tolerance reading per 10 m² shall be taken).

In any section the average of the elevations taken shall be such that the average thickness of the succeeding layer or layers above the formation shall be not less than that specified/nor greater than that specified plus 20 mm.

The standard deviation of the differences between the actual and design levels shall not be greater than 10 mm.

PS.DA.10 DEDUCTIONS FOR RETESTS

Deductions for re-tests is expanded in Clause PS.5.5 of this Project Specification.

PS.DA.11 OVERHAUL

Notwithstanding the requirements of Clause DA.8.10 no additional payment shall be made for overhaul.

PS.DA.12 STOCKPILE HANDLING

Cut material suitable for fill, shall be placed directly into fill without being stockpiled. If this is not possible, the Tenderer shall stockpile material as directed by the Engineer.
As directed by the Engineer, the Contractor may be instructed by the Engineer to stockpile material excavated from site for blending.

PS.DA.13 STOCKPILE AREAS

Cut material should ideally be moved directly to fill unless there are circumstances that prevent the contractor from doing so. Moving of material from cut to stockpile shall only be done with the approval of the Engineer. The exact location shall be pointed out by the Engineer. The unit of measurement shall be cubic meter (m^3) and shall include for labour, plant, and material.

PS.DA.14 RESTRICTED EXCAVATION

The nature of the roadworks is such that a portion of the excavation may be in restricted conditions.

PS.DA.15 GEO-FABRIC BLANKET

The geo-fabric shall comply with Clause PG.3.8. In addition to the afore-mentioned clause, there have been many new developments in the geotextile industry with each manufacture detailing its own specification. The instruction from the Engineer to use a certain geotextile shall require the Contractor to supply and install that geotextile or an approved equivalent by the Engineer.

The unit of measurement shall be the square metre (m^2). The rate shall include for the supply of the material, laying, joining, cutting and waste.

PS.DA.16 EXCAVATION OF MATERIALS

The nature of the roadworks is such that some excavation may be in concrete / asphalt amongst other intermediate / hard and soft materials.

Quantities for any concrete / asphalt requiring breaking up with the use of excavators / breakers shall be measured prior to excavation and agreed upon by the Engineer. Area to be excavated shall measured in square meters (m^2) multiplied by the depth / thickness of the material.

The unit of measure is an extra over (m^3), i.e. an additional cost over and above the main pay Section 3, Part DA . The rate shall cover labour and plant necessary for removal of abandoned roadways, sidewalk / median, concrete sidewalks, scoops, pedestrian and vehicular, interlocking blocks, asphalt paving, brick paving, precast kerb / channel and base, precast kerb/ fillet and base, underground reinforced / unreinforced concrete / builders rubble.

No additional payment shall be made for restricted excavation and the Tenderer shall therefore make allowance in the rates for any additional work or hand excavation.

PS.DA.17 EXCAVATION OF ROAD LAYERS

Existing road layerworks, shall be excavated as restricted excavation ensuring no contaminating between layers and either:

(a) storing on site for re-use, or;
(b) transporting and off-loading to the Municipal Depot, either in Malacca in Durban North or the Phoenix Depot,
(c) transporting to the Municipal deport in Verulam and off-loading or
(d) spoiling at an approved tip site within a 25km radius.

The Contractor's rate for the removal of the layerworks, excluding the asphalt, shall include for the full operation, inclusive of haulage, and is to include for the restricted operation as well.

PS.DA.18 CHOKING OF G5 MATERIAL INTO DUMPROCK LAYER

After the dumprock layer has been processed and approved by the Engineer, G5 material shall be imported and spread over the dumprock layer. The G5 material must fill the voids of the upper surface of the dumprock and then be used to provide for level/uniform surface on the dumprock layer. Rate to include for importing, spreading, choking, spreading again and then rolled with a steel drum roller with vibration. On completion of the rolling and vibration, all voids are to be closed to provide a uniform surface. A light roll without vibration by the roller may be required again. The unit of measurement shall be in tonnes (t) and the quantity used will be based on the tally slips. All original tally slips to be received by the Resident Engineer.

PS.DA.19 ESTABLISHMENT OF DOZER AT THE LANDFILL SITE

Some excavated material from site may need to be spoiled at a landfill site. Should a Dozer be required at the landfill site for the leveling of the spoiled material, the Contractor shall provide a rate

to be priced per day for use as a ‘wet’ rate and shall include for an operator as well. The Establishment and de-establishment of the plant at the Landfill site shall be allowed as well.

PS.DA.20 CHANGE IN SITE TOPOGRAPHY

Contractor should take cognizance of the changes in site topography that have taken place and are currently underway due to the ongoing development of the Cornubia precinct. A section of Cornubia Boulevard from approximately Chainage 1250 to Chainage 1630 has already been platformed, amongst the other activities that have taken place in the area. Notwithstanding this, no additional payment shall be made and the contractor shall therefore make allowance in his rates for these inconveniences.

PS.DB EARTHWORKS FOR PIPE TRENCHES

INDEX

PS.DB.1 BEDDING AND BACKFILL MATERIALS

PS.DB.1.1 General

1) The measurement for bedding shall be the total through length along the centre of the pipeline measured HORIZONTALLY with deductions made for line valve chambers.
2) Bedding material required for the backfill of bell holes will be paid for by the Council.
3) The unit of measurement for bedding shall be the Linear Meter (m), and the rate shall include for the placing and compacting of the bedding material up to the underside of the backfill for the various pipe diameters.
4) Separate items have been included in the Bill of Quantities for the provision of bedding material from a Contractor's commercial source.
5) Backfill materials shall comply with Clause DB.3.4. An item has been allowed in the Bill of Quantities for the importation of backfill material where so ordered by the Engineer.
6) The Contractor shall allow for haulage in the rate for provision of imported bedding and backfill. No overhaul will be paid for these items.

PS.DB.1.1 Watermains

1) Notwithstanding Clause DB.3.6 of Part DB : "Earthworks for Pipe Trenches", only a clean sand containing no particles of diameter exceeding 10mm, having a Plasticity Index (P.I.) not exceeding 10 and free from vegetation and lumps shall be used for the bedding cradle and selected fill blanket. It is anticipated that most of the bedding material will have to be provided from an off-site source. Bedding shall be constructed to the dimensions required for Class 'C' bedding.

2) Contractors are advised that the choice, placement and compaction of bedding and backfill materials are critical to the satisfactory performance of steel pipes. Therefore, strict adherence to all specifications in this regard will be enforced.

PS.DB.1.2 Sewer Pipes

1) Bedding for the sewers shall be class "C" for rigid pipe or "flexible" for flexible pipes. Where the sewer pipe offered is classified in accordance with SABS 0102 part 1 1987 as a rigid pipe, the bedding shall be class "B" and for flexible / semi-flexible pipes, the bedding shall be as for flexible pipes as detailed in the Standard Engineering Specification Part DB, Earthworks for pipe trenches. However, in the case of flexible / semi-flexible pipes the material to be used in the selected fill blanket and selected fill bedding cradle shall be selected granular material.

PS.DB.1.3 Stormwater Pipes

All bedding to stormwater pipes on this Contractor shall be either Type “A”, "B" or Type "C" as is specified in Part DB of the Departmental Technical Specification.

PS.DB.1.4 Telkom Ducts

Notwithstanding Clause DB.3.6 of Part DB : "Earthworks for Pipe Trenches", only a clean sand containing no particles of diameter exceeding 10 mm, having a Plasticity Index (P.I.) not exceeding 10 and free from vegetation and lumps shall be used for the bedding cradle and selected fill blanket. It is anticipated that most of the bedding material will have to be provided from an off-site source. Bedding shall be constructed to the dimensions as is detailed on Drawing No. 38589 : "Telkom Cable Ducts and Junction Box Details".

PS.DB.2 EXCAVATION AND BACKFILLING - EXISTING SERVICES

The Tenderer's attention is drawn to the presence of existing services in the area. The Contractor may find it impractical to use mechanical plant for excavation on some portions of the works due to conditions caused by the presence of these services.

The Tenderer's attention is further drawn to the fact that his rates for excavation and backfilling must include for all costs associated with working around these existing services and their protection and accommodation, as no claim for extra payment will be accepted for increased working space or for the inability to use plant in any circumstances.

PS.DB.3 EXCAVATION, BACKFILLING AND REINSTATEMENT OF TRENCHES (CLAUSE DB.5.3.2)

Further to and notwithstanding the requirements of the Departmental Specification, Part DB, the following requirements in respect of trench excavation, backfilling and reinstatement shall be adhered to :

1) It is considered that portion of the excavated material will not comply with the specification for material suitable for backfilling. It will be the Contractor’s responsibility to use selective methods of excavation to ensure that this unsuitable material does not contaminate other materials suitable for reuse.

2) It is anticipated that a fair portion of the material excavated for trenches in existing natural ground is likely to be classified as "Rock" in terms of Part DB of the Departmental Technical Specification, and that blasting methods will be employed to facilitate excavation. Tenderers are to note that the unit of measurement shall be the linear metre (m), and that the rate tendered shall be inclusive of all work or operations necessary to drill, blast, excavate, backfill, spoil or stockpile the material.

3) It is considered that portion of the excavated material will not comply with the specification for material suitable for backfilling in areas subject to traffic loading. An item has been included in the Bill of Quantities for the disposal of unsuitable material to tip and the Contractor's tendered rate for this item shall include for stockpiling if deemed necessary.

4) Where the Contractor chooses to trench by open excavation e.g., battering sides of the trenches, this over-excavation shall not be backfilled with unsuitable excavated material but shall be backfilled with the same imported material as used for the pay-width of the trench. Payment for the imported backfill shall be limited to the pay-width of the trench only and the Contractor shall allow in his rates for any extra backfill material that may be required as a result of over-excavating

5) Notwithstanding the method of trench excavation adopted by the Contractor, the restriction on the maximum trench width as defined in specification Clause DB.6.1 - must be strictly adhered to. Should the Contractor over-excavate the trench then he will be responsible for increasing the pipe strength and / or bedding class to be used, all to his cost.

The measurements for excavation shall be the total through-length along the centre-line of a pipeline measured HORIZONTALLY with deductions for manholes. In addition, trench depth will be measured vertically on the centre-line of the pipeline from the existing ground level to the invert level.

PS.DB.4 SHORING OF TRENCHES TO EXCAVATIONS

The Contractor shall be responsible for the design and installation of all shoring where applicable, which must not only comply with all of the relevant safety regulations pertaining to the provision of safe working conditions in earthwork excavations but also will provide sufficient lateral support to minimise any damage to adjacent structures, services or road surfaces.

In addition to the above and the requirements of Clause DB.5.3.2 (a) all excavations in road reserves and adjacent to structures and where excavations are in excess of 1,0 m in depth shall be supported with close shoring and no open or intermittent shoring of any description will be permitted.

The minimum requirements for shoring of these trench excavations shall be as follows:

1) Either ribbed steel trench sheeting of suitable thickness with an edged return for interlocking or suitably sized timber poling boards or runners are to be used. Adequately sized walings at suitable intervals are to be provided. Struts shall consist of either adjustable tubular steel jacks or timber suitably sized for the load application.

2) The shoring for the excavations shall be progressively installed as the excavation proceeds. Care being taken to ensure the soil is not removed within a minimum 300 mm of the toe of the runners.

3) Installation of shoring after the trench has been excavated to a depth in excess of 1,5 m is not acceptable.

4) Details of the proposed shoring must be supplied to the Engineer at least two weeks before the operation commences. During the backfilling, the sides of the trench including the road layers above any over-excavated sections are to be cut back to a point behind the over excavation.

5) No separate item has been allowed for in the Bill of quantities and the Contractor shall allow in his excavation rates for shoring as necessary.

The cutting back of the trench sides shall be to the Contractor's account. Payment for reinstatement of the road hardening shall be based on the widths given in Clause DB.8.3.3.

PS.DB.5 EXCAVATION FOR SERVICES TO BE LAID BY OTHERS

Where indicated, the Contractor shall be required to excavate a trench for the installation of services by others. (Depth and width of trench shall be confirmed on site). The trench bottom shall be trimmed to comply with the tolerances specified under Clause DB.6.3, after which it shall be taken over by the service organisation. After installation of the services the trench shall be backfilled as part of the bedding operation to approximately 300 mm above the service.

Thereafter the Contractor shall continue the backfilling utilising suitable material from the trench excavation, in 150 mm layers which shall be compacted to 95% Mod. A.A.S.H.T.O. density. The unit of measurement shall be the cubic metre (m^3) and the rate shall cover the work described under Clause DB.8.1.

PS.DB.6 EXCAVATION IN ROAD AND PAVED AREAS

Further to Clause DB.8.7 the rate tendered shall include for saw cutting the existing road asphalt.

PS.DB.7 RESTRICTED EXCAVATION

The nature of the trench excavations are such that a considerable amount of the excavation shall be in restricted conditions. No additional payment shall be made for such excavation and the Tenderer shall therefore make allowance in the rates for any additional work or hand excavation.

PS.DB.8 COMPACTION OF TRENCHES

Further to Clause DB.8.5, Tenderers are to note that in all cases the compaction of the trench bottom and the trench backfill shall be to 95% Mod. AASHTO. An extra-over item has not been included in the Bill of Quantities and tenderers shall include for these costs under the relevant excavate and backfill items.

PS.DB.9 BACKFILLING OF SERVICE TRENCHES

As part of the bedding operation, services laid or relocated by others will be backfilled by them to approximately 300 mm above the service. The backfill shall then be continued by the Contractor up to the original level. The backfilling shall be carried out using suitable material from the trench excavation, in 150 mm layers which shall be compacted to 95% Mod. A.A.S.H.T.O. density.

The unit of measurement shall be the cubic meter (m^3) and the rate shall include for all plant and labour required to select, place and compact the material as specified.

PS.DB.10 OVERHAUL

Notwithstanding the requirements of Clauses DB.8.1 and DB.8.17 no additional payment shall be made for haulage.

PS.DB.11 GEOFABRIC BLANKET

The geofabric to stone bedding must comply with Clause PG.3.8 of Part PG : Non-Pressure Pipelines and Precast Concrete Culverts.

The unit of measurement shall be the square metre (m^2). The rate shall include for its supply, laying, joining, cutting and waste.

PS.DB.12 EXCAVATION FOR CONCRETE LINED DRAIN

The unit of measurement shall be the cubic metre (m^3). The rate shall include for all labour, plant and material necessary for the excavation of soft material to spoil for the concrete lined drain.

The rate shall include for all setting out, clearing and grubbing, excavation by hand or plant, loading the material directly into trucks and transporting the material to the approved tip and disposal.

PS.DB.13 BACKFILLING

Where bedding is compacted by saturation, no backfill material may be placed or compacted on top of this, until such time as the bedding has sufficiently dried.

PS.DB.14 SOIL COMPACTION TESTING

The following are the minimum frequencies for the process control tests to be executed by the Contractor at his own expense:

1. Pipe bedding: one density test on each 9m of pipe trench.

2. Normal trench backfilling: one density test on every layer for every 9m of pipe trench.

3. Backfilling in areas subject to vehicle loads: one test on each layer of 100mm at each road.

The positions of the minimum number of density tests shall be determined randomly by the Contractor and shall be clearly documented with the results. The results of the tests be submitted to the Engineer and shall prove to the Engineer that the work as a whole was done satisfactorily.

PS.DB.15 SAFEGUARDING OF EXCAVATIONS

The precautions for excavations as specified in the relevant clauses in this section shall apply to all trench excavations.

The Contractor or his agent or his representative shall take all the steps necessary to ensure that no person is required or allowed to work in a trench or any other unsupported overhanging excavation which is more than 1,0m deep, and any excavation which has not been adequately supported, shored or braced if there is any danger whatsoever of the sides of the excavation collapsing. The support, shoring or bracing to be designed and constructed by the Contractor, shall be strong and sturdy enough to support the sides of the excavation in question.

The Contractor shall note that this clause does not relieve him of any obligations required in terms of the Occupational Health and Safety Act.

PS.DB.16 BARRICADING EXCAVATIONS

All excavation areas are to be barricaded to the satisfaction of the Engineer

All costs arising from these requirements are to be included in the relevant rates for excavation.

PS.EB GRADED CRUSHED STONE

INDEX

PS.EB.1 SUB-BASE

(a) Details of the source of the supply of the sub-base material are required by the Engineer before roadworks commence.

A Confirmation of Acceptance for this layer will only be issued by the Engineer when levels and densities are correct.

(b) No additional payment shall be made for restricted conditions, and the Tenderer shall therefore make allowance in the rate for the graded crushed stone layer for any additional work (including hand work) required to place, spread, process and compact the layer in restricted conditions.

PS.EB.2 PRIMING

After the issue of the Certificate of Acceptance referred to in PS.EB.1, the sub-base shall then be primed with an Inverted Emulsion Primer conforming to S.A.B.S. 1260 of 1979 and applied at the rate of 0,6 l/m².

PS.EC CEMENT TREATED GRADED CRUSHED STONE

INDEX

PS.EC.1 STABILISED LAYERWORKS

The standard Departmental Specification Part EC has been amended with respect to the following items for the purposes of this contract:

PS.EC.1.1 Supporting Specifications

Replace SABS 471 and SABS 626 with SABS ENV 197-1.

PS.EC.1.2 Cementing Agent

The cement used shall conform to SABS ENV 197-1 and shall be classified as either CEM II/A-S 42.5 or CEM III/A 32.5 respectively.

PS.EC 1.3 Graded Crushed Stone

The material shall conform to the requirements for a **G4** or better material as described in TRH 14:1985 and shall be free of shale or weathered dolerite materials. The following additional requirements shall also be met:

Before stabilising :-

Percent passing 0.425 mm sieve (TMH1-A1)	Max. 15
pH (of fines passing 0.425 mm sieve)	Min. 6

After stabilising :-
Plasticity Index (TMH1-A3) after treatment Max. 6

UCS (7 day) @ 100% Mod. AASHTO
(TMH 1-A14) Min. 1.5 Mpa
Max. preferably < 3.0 MPa

ITS (TMH1-A16T) Min. 250 kPa
Cement content Min. ICL value or 2% by mass of raw material - whichever is greater
Max. 5% by mass of raw material.

PS.EC.1.4 Application

The first paragraph of Clause EC 5.2 shall be replaced with the following :

The rate of application of the stabilising agent when applied by mechanical bulk-spreading equipment and measured by the canvas-patch method, shall be equal to the specified rate of

application not greater than 5% of the rate of application, and no single measurement shall show a value deviating by more than 20% from the specified rate.

PS.EC.1.5 Watering

Further to the requirement of Clause EC 5.4, the moisture content of the stabilised material shall not exceed 80% of the saturation moisture content of the unstabilised material at maximum dry density. Any portion of the work that exceeds this requirement shall be dried and restabilised to the required stabiliser content.

PS.EC.1.6 Testing

Paragraph 1 of Part (a) shall be replaced with the following:

The Contractor is to provide a mix design proposing a stabiliser content proving compliance with the requirements of Clause EC 3.2 using the material he intends using. The mix design shall include an ICL test which will be used to establish the minimum stabiliser content. The final cement content shall be subject to the Engineer's approval.

Further to Item (b) the following additional acceptance test requirements shall apply:

The uniformity of application of the stabiliser shall be ascertained by retrieving a minimum of 10 samples selected randomly over the extent of the works and establishing the stabiliser content of the samples. The samples shall be retrieved immediately before compaction (after the stabiliser has been mixed with the parent material). Not more than 10% of the test results shall fall below the specified stabiliser content and the coefficient of variation of the stabiliser content should be less than 30%. No single measurement shall deviate from the specified rate by more than ∀ 30% of the specified rate.

The following item is to be included under Part EC.5 construction:

PS.EC.1.7 Trial Layer

Prior to the commencement of paving of the layer the Contractor shall construct a section of trial layer to demonstrate his capability of constructing the layer in accordance with the specifications. The trial layer shall be constructed with the same materials, mix proportions and equipment as the Contractor intends using for the main layer.

A trial section of not less than 2 000 m5 shall be submitted for approval. The Engineer shall also have the right to call for a new trial section at any stage of the contract when, in his opinion, changes by the Contractor in the approved equipment, materials, mix or plant warrant such a procedure.

The Contractor may, unless advised of any deficiencies in the trial layer, proceed with the main layer from a time ten days after the completion of the trial section or such earlier time as the Engineer may allow. In the event of deficiencies in the trial layer, the Engineer may order the Contractor to construct further trial sections until a satisfactory section is achieved. The Contractor may then proceed with the main layer from a time ten days after the successful completion of the satisfactory trial section.
An item has been provided in the BOQ for the trial layer section.

PS.EC.1.8 Cement Stabilising Agent

The unit of measurement for the stabilising agent shall be ton (t) of stabilising agent based on the quantity determined in accordance with the authorised rate of application, or actually incorporated within the layer concerned, whichever is the lesser. The rate shall include full compensation for providing the stabilising agent at the works, irrespective of the rate of application specified or ordered and shall allow for the variation of mixing and compaction times of the various stabilising agents.

PS.ED ROAD ASPHALT

INDEX

PS.ED.1 SMOOTHNESS APPLICABLE TO WEARING COURSE (Clause ED.6.2)

The smoothness applicable to the wearing course shall be that specified in this clause and not as in Clause ED 6.2(b). A Category "A" Road is required for all roads constructed under this contract.

(1) The smoothness of the pavement will be determined by using a profilograph and the surface finish shall be tested in accordance with the following specification.

The profile index will be determined using a California type profilograph furnished and operated by the Engineer in the presence of the Contractor. The profilograph shall be moved longitudinally along the pavement at a speed no greater than 5 kph and shall record the surface profile at full scale vertically. The results of the profilograph test will be evaluated as described in the metricated version of Test No. Calif. 526-D.

The Contractor shall furnish paving equipment and employ methods that produce a riding surface having a profile index of 300 mm per kilometre or less for category "A" Roads and 500 mm per kilometre or less for Category "B" Roads. The profile measurements will start 10 m and will terminate 20 m from each bridge approach pavement or existing pavement that is joined by the new pavement in the direction of placement.

Two pavement profiles will be taken of each day's production and the Profile Index shall be defined as the average of the two profiles. The position the profiles are taken will be either on the centre line of each planned traffic lane, if two traffic lanes are paved, or in the wheel paths of the traffic lane (i.e. 1 m from each edge) if only one traffic lane is included in the paved width.

A daily average profile index shall be determined for each day's paving and a profile index of each day's production shall be established as soon as possible. A day's paving is defined as a minimum of 0,1 km of pavement placed in a day. If less than 0,1 km is paved, the day's production will be grouped with the next day's production.

(2) Rectification

The full depth of the layer shall be removed and replaced with fresh material laid and compacted to specification.

Where the surface level is too high or too low the area rectified shall be not less than one lane wide and at least 15 m long for wearing course.

Where the number of surface irregularities exceeds the specified limits the area to be rectified shall be 100 m long and not less than one lane wide.

PS.ED.2 RESTRICTION ON PLACING OF ASPHALT

The Contractor shall, wherever possible, complete the earthworks and compaction to sidewalks prior to the laying of the wearing course on the adjacent section of road so as to prevent construction plant and equipment from damaging the freshly laid wearing course.

PS.ED.3 PATCHING OF EXISTING SURFACE

Where existing roads are to be patched, or prior to resurfacing existing roads, those areas of the existing asphalt pavement which require patching will be marked by the Engineer.

PS.ED.3.1 CONSTRUCTION

In the areas to be patched the in-situ asphalt surfacing shall be removed to a depth of 100 mm. The sides shall be cut vertically with the edges square. The exposed surface shall be swept of all loose material, a tack coat applied to the bottom and sides and then patched with asphalt base course. After compaction the surface of the patch shall be flush with the adjacent road surface.

PS.ED.3.2 MATERIALS

The asphalt base course shall comply with the requirements of Part ED : Road Asphalt.

PS.ED.3.3 Measurement and Payment

The unit of measurement shall be the square metre (m^2) and the rate shall include for removal of the in-situ layers, trimming the sides, compaction, application of the tack coat, supply and laying of the asphalt, loading and haulage to the tip of excess material.

PS.ED.4 BASE COURSE MIX REQUIREMENTS

Further to Clause ED.5.1 the asphalt base course mix used for the roadworks shall comply with the following :

The coarse and fine aggregate and filler shall be combined to produce a continuously graded material, the grading of which shall conform to the following :

Grading Envelope	
Sieve Size in mm	% Passing by Mass
26,5	100
19,0	90 ± 10%
13,2	70 ± 10%
9,5	61 ± 10%
4,75	46 ± 10%
2,36	36 ± 8%
1,18	27 ± 7%
0,6	21 ± 6%
0,3	15 ± 5%
0,15	9 ± 3%
0,075	4 ± 2%
Residual bitumen by mass (40/50 pen) : Specified percentage 4,7 ± 0,3%.	

PS.ED.5 WEARING COURSE

The continuously graded wearing course shall be a compacted layer of hot asphalt (Mix D) of 40 mm, as specified on the contract drawings.

The asphalt shall have the following properties:

Grading Envelope	
Sieve Size in mm	% Passing by Mass
19,0	100
13,2	96 ± 4%
9,5	82 ± 8%
4,75	60 ± 8%
2,36	44 ± 8%
1,18	32 ± 6%
0,6	23 ± 5%
0,3	15 ± 5%
0,15	9 ± 3%
0,075	6 ± 2%

Residual bitumen by mass (40/50 pen) : Specified percentage 5,0 ± 0,3%.

PS.ED.6 LAYING OF ASPHALT

(a) The Contractor shall provide the Engineer with the name of the asphalt Sub-Contractor before asphalt is laid.

The asphalt shall be laid by an approved paving machine. Hand-laying shall be permitted at the Engineer's discretion when the area involved is small. The asphalt shall not be laid if its temperature is below 140 °C.

The asphalt shall be rolled in accordance with the method described in chapter VI of the Asphalt Institute Paving Manual (MS-8). A final density is required of at least 96% of the Marshall density of the mix.

An acceptance certificate for this layer will be issued by the Engineer's inspector when all requirements have been met.

(b) Further to Clause ED.8.1, the rate tendered shall include for all extra work required to lay and compact the asphalt base and make-up courses in restricted areas.

PS.ED.7 LONGITUDINAL/TRANSVERSE JOINTS

Tenderers are to note that the tendered rate per Section 4 Part ED Item 4 are not to include for saw cutting. If the Engineer requires the joint to be saw cut, the saw cutting to the longitudinal joint and transverse joint will be paid for under Section 4 Part ED Item 6 or 7 as an extra over.

A longitudinal joint is to be formed by cutting into the existing road surface by a width of 150 mm to a depth of 50 mm where the new surface is to be tied longitudinally into the adjacent existing pavement. The position of the joint shall be indicated by the Engineer on site. After cutting / milling the joint shall be swept of all loose material and painted with a tack coat.

Cutting of the joints shall only take place immediately prior to the laying of the wearing course.

The unit of measurement shall be linear metre (m). The rate tendered shall cover the neat cutting of the joint, the cutting of the additional 150 mm step into the existing adjacent asphalt base layers and the removal of all the old asphalt to tip off site inclusive of haulage.

PS.ED.8 SAW CUT TO LONGITUDINAL AND TRANSVERSE JOINTS

The saw cut shall be cut with a diamond cutter to a neat uniform line 50 mm deep along the edge of the existing road where directed by the Engineer.

The unit of measurement for the saw cut shall be linear metre (m) and the rate shall cover the overall depth of cut.

PS.ED.9 MILLING OF ROAD SURFACE

Milling of the existing road surface shall be carried out to either reduce levels, to remove unsuitable asphalt layers or to salvage the existing asphalt, as shall be directed by the Engineer.

PS.ED.9.1 METHOD OF WORK

The areas to be milled and the depths of asphalt to be removed shall be indicated either on the drawings or by the Engineer on site. Where it is necessary to maintain traffic over the milled areas the planing shall be programmed to take place immediately prior to the asphalting operation.

The milled material shall be spoiled at the Phoenix Depot and Malaca Road Depot in Durban North. This shall be directed by the Engineer.

After milling, the area shall be swept of all loose material and a tack coat applied at a rate of 0,3 l/m² following which the replacement asphalt shall be laid. On no account shall traffic be permitted to run on the milled surface.

In areas where the existing road base is disturbed by the milling operation, the surface of the base shall be recompacted with static compactive equipment. These areas shall then be primed with MC 30 or MSP 1 applied at a rate of 0,6 l/m². Only after the curing period shall the asphalt be laid.

In certain instances, the Engineer may direct that the disturbed road base be removed and replaced with graded crushed stone or cement treated graded crushed stone.

It is envisaged that the approach and exits to the underpass on the M41, on both carriageways, will be milled to allow for the grading-in of new levels

PS.ED.9.2 MEASUREMENT AND PAYMENT

(1) Milling

The unit of measurement shall be square metre (m^2). The rates shall include the hire of the milling machine, loading and transporting the milled material to a Municipal Depot and sweeping of the surface. In addition, allowance shall be made for working around manhole and valve covers.

(2) Recompacting and Priming of Road Base

The unit of measurement shall be the square metre (m²) and shall be measured extra over to the above item. The rate shall cover the plant and labour required to complete the operation as specified and shall include the supply and application of the prime coat.

PS.ED.10 ASPHALT REINFORCEMENT

The contractor shall install asphalt reinforcement geofabrics where directed by the engineer. **The unit of measurement shall be the square metre (m²).** The rates shall include the supply and installation of the geofabrics. Tack coat shall be excluded from this item.

PS.ED.11 TECHNICAL SPECIFICATION FOR ASPHALT

The following technical specifications shall replace **only the Material Specifications of Part ED.**

11.1. SCOPE

This specification covers the manufacture of hot/warm mix asphalt. There are a total of 15 hot/warm asphalt mixes covered in this specification:-

- 9 sand skeleton mixes
  - Designated “Sa”
  - 3 NMAS mix sizes
    - “10”, “14” mm and “20” mm
  - For use in :-
    - Standard traffic loading and speed conditions (“S”)
    - Heavy traffic loading and speed conditions (“H”)
    - Very Heavy traffic loading and speed conditions (“V”)
    - Extreme traffic loading and speed conditions (“E”)
- 4 SMA (stone skeleton) mixes
  - Designated “SMA”
  - 2 NMAS mix sizes
    - “10” mm and “14” mm
  - For use in :-
    - Very Heavy traffic loading and speed conditions (“V”)
    - Extreme traffic loading and speed conditions (“E”)
- 2 EME mixes
  - Designated “EME”
  - 2 NMAS mix sizes
    - “14” mm and “20” mm
  - For use in :-
    - Extreme traffic loading and speed conditions (“E”)

(A “Sa-H14” mix is thus a Sand Skeleton mix of Nominal Maximum Aggregate Size 14.0mm to be

used in Heavy traffic loading and speed conditions. A description of every mix required can be found in Table 5).

11.2. REFERENCES AND STANDARD SPECIFICATIONS

Reference to the following standard specifications, guideline documents and codes of practice (Table 1) shall be deemed to be references to the latest issues of the relevant documents:-

SANS 9001	Quality management systems – Requirements
SANS 4001-BT1	Penetration grade bitumen
SANS 4001-BT3	Anionic bitumen road emulsions
SANS 4001-BT4	Cationic bitumen road emulsions
SANS 1083	Aggregates from natural sources
SANS 824	Lime for soil stabilization
SANS 50197-1	Cement – Part 1:Composition, specification and conformity criteria for common cements
SANS 1491:Part 1	Portland cement extenders - Part 1:Ground granulated blast-furnace slag
SANS 1491:Part 2	Portland cement extenders - Part 2:Fly ash
Act 85 of 1993	Occupational health and safety act
Act 39 of 2004	National environmental management : Air quality act
Sabita Manual 5	Guidelines for the manufacture and construction of hot mix asphalt
Sabita Manual 27	Guidelines for thin hot mix asphalt wearing courses on residential streets
Sabita Manual 32	Best practice guideline for warm mix asphalt
Sabita Manual 33	Interim design procedure for high modulus asphalt
Sabita Manual 35	Design and use of asphalt in road pavements
Sabita TG1	The use of modified bituminous binder in road construction
TRH 21	Hot mix recycled asphalt

11.3. MATERIAL

11.5.1 Bituminous Binder

Binder selection shall be guided by both the asphalt mix requirements outlined in section 4 and the South African PG Binder Classification System.

Straight run bituminous binders shall conform to SANS 4001-BT1 and shall be selected from penetration grades 10/20, 15/25, 35/50 or 50/70.

Modified binders shall be selected from A-E1, A-E2, A-P1 A-H1 or A-H2 and shall comply with the requirements of Tables 7 and 9 respectively from the Sabita Technical Guideline TG1.

The binder penetration grade, the type of modifier used (as applicable) and the SA PG Binder Classification shall be indicated in the mix design report.

11.5.2 Aggregates

11.5.2.1 Coarse Aggregate

Coarse aggregate shall comprise single sized, clean, unweathered material and shall be free from organic matter and other deleterious substances. The aggregate shall conform to the requirements of Table 2 “Aggregate Quality Requirements”. The grading and dust content of the aggregate shall comply with the requirements of Table 4302/8 of the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998).

11.5.2.2 Fine Aggregate

Fine aggregate shall consist of the mineral matter passing the 5,00 mm sieve and retained on the 0,075 mm sieve and shall consist predominantly of freshly crushed aggregate or clean, natural hard sand. Fine aggregate shall conform to the requirements of Table 2 “Aggregate Quality Requirements”. Material derived from the mechanical crushing or milling of rock shall be well graded between 5.0mm and 0.075mm. The grading and dust content of material derived from the natural disintegration of rock shall comply with the requirements of SANS 1083 Table 1 (Column 2).

The use of natural sands is limited or prohibited in certain asphalt mixes. These limitations are quantified under section 3.2.5 “Aggregate Blends”.

11.5.2.3 Filler

Filler shall comprise the material predominantly passing the 0.075 mm sieve and shall consist of either inert material (crushed rock fines) or an approved active filler or a combination thereof.

Active filler shall consist of either milled blast furnace slag, hydrated lime, Portland cement, fly-ash or a combination of these materials. Active fillers shall conform to the relevant SANS specification for the particular material. Filler shall also conform to the requirements of Table 2 “Aggregate Quality Requirements”.

The permissible active filler content in any asphalt mix shall be no more than 2% by mass of mix aggregates.

11.5.2.4 Reclaimed Asphalt

Fragments of asphalt obtained from the road or from stockpiles of discarded asphalt may be used in the manufacture of asphalt mixes. Reclaimed asphalt (RA) shall be characterized and processed in accordance with the recommendations set out in TRH 21 “Hot mix recycled asphalt”.

The RA content of asphalt mixes shall be limited as noted in Table 3.

Mix Type	Maximum RA Content
Sand Skeleton Mixes	50%
SMA	0%
EME	20%

Table 3 Permissible RA Content

11.5.2.5 Aggregate Blends

Aggregates shall be blended in such a manner so as to produce an asphalt mix conforming to the requirements of each particular mix type and nominal maximum particle size. The required aggregate blending will be achieved through the mix design process.

11.5.2.1.1. Sand Skeleton Mixes

Aggregate gradings are required for 3 nominal maximum particle size (NMPS) mixes (ie. 10mm, 14mm and 20mm). The aggregate grading for these mixes shall be guided by the control points in Table 4.

Sieve Size (mm)	Percent Passing					
	Nominal Maximum Particle Size (NMPS)					
	10mm		14mm		20mm	
	Min.	Min.	Min.	Max.	Min.	Max.
37.5						
28					100	
20			100		80	100
14	100		80	100		85
10	80	100		85		
7.1		85				
5						
2	32	67	28	58	23	49
1						
0.6						
0.3						
0.15						
0.075	2	10	2	10	2	8

Table 4 Sand Skeleton Asphalt Mix Grading Control Points

A maximum of 10% natural sand (by mass of mix aggregates) may be used in sand skeleton mix types Sa-H, Sa-V and Sa-E.

The reclaimed asphalt (RA) content of sand skeleton mixes shall be limited to 50% maximum as noted in Table 3.

11.5.2.1.2. Stone Mastic Asphalt (SMA) Mixes

Stone Mastic Asphalt is a stone skeleton mix type. The aggregate grading for SMA mixes shall be guided by the requirement that the stone skeleton coarse aggregate structure is not dilated by the mastic in the voids of the stone skeleton structure.

The use of “natural” sand shall not be permitted in SMA mixes.

The use of reclaimed asphalt (RA) shall not be permitted in SMA mixes.

SMA grading blends are required for two SMA NMPS mixes :-

- 10mm
- 14mm

11.5.2.1.3. Enrobé à Module Élevé (EME) Mixes

EME aggregate gradings shall be guided by the requirements outlined in Sabita Manual 33 “Interim design procedure for high modulus asphalt”.

The use of “natural” sand shall not be permitted in EME mixes.

The reclaimed asphalt (RA) content of EME mixes shall be limited to 20% maximum as noted in Table 3.

EME grading blends are required for two EME NMPS mixes :-

- 14mm
- 20mm

11.3 Warm Mix Asphalt Technologies/Additives

Warm Mix Asphalt (WMA) technologies/additives shall conform to the appropriate requirements outlined in SABITA Manual 32 “Best practice guideline for warm mix asphalt” and shall be approved prior to use. The contractor shall provide the Roads Provision Department with the name and type of technology/additive to be used together with any other technical information pertinent to its use in the asphalt mix.

Aggregate Property		Coarse Aggregate		Fine Aggregate (Crushed Rock)	Fine Aggregate (Natural Sand)[1]	Combined Total Fine Aggregate	Inert Filler	Active Filler
Parent Material		Clean unweathered crushed rock		Clean unweathered crushed rock	Clean natural fines not obtained from crushed parent rock	-	Unweathered rock dust	Approved commercial non-plastic material
		Sand Skeleton Mixes (Sa, EME)	Stone Skeleton Mixes (SMA)					
Grading		COLTO Standard Speciofications for Road and Bridge Works for State Road Authorities (1998) Table 4302/8		Well graded between 5.0mm and 0.075mm sieves	SANS 1083 Table 1 (Column 2)	Passing 5.0mm sieve	$P_{0.075}$ > 75%	$P_{0.075}$ > 75%
ACV (%) (max.)		25	21	25 (Parent rock)	-	-	-	-
10% FACT (Dry) (Min.)		160 kN	210 kN	-	-	-	-	-
10%FACT (Wet) (Min.)		75% of 10% FACT (Dry) Value	75% of 10% FACT (Dry) Value	-	-	-	-	-
Flakiness Index (Max.)	20mm & 14mm Aggregate	25		-	-	-	-	-
	10mm & 7.1mm Aggregate	30		-	-	-	-	-
	SMA Mixes	20		-	-	-	-	-
Polished Stone Value (Min.)		50		-	-	-	-	-
Water Absorption (%) (Max.)		1.0		1.5	1.5	1.5	-	-
Sand Equivalent (%) (Min.)		-		40	River: 80 / Pit: 50	50	-	-
Methylene Blue Adsorption Value (Max.)		-		0.7	0.7	0.7	-	-
Permissible Content (% by Mass of Mix Aggregates)		-		-	0 - 10 / -	-	-	0 – 2

1. Natural sand is not permitted in SMA mixes.

Table 2 Aggregate Quality Requirements

11.4. HOT/WARM MIX ASPHALT MIXES AND DESIGN

11.5.1 Asphalt Mix Requirements

There are a total of 15 mixes required:-

- 9 sand skeleton mixes (i.e. continuously graded mixes)
- 4 SMA (stone skeleton) mixes
- 2 EME mixes

The required asphalt mixes are depicted in Table 5. However, traffic condition risk profiles require additional higher levels of design for particular mixes (Table 6).

Sand Skeleton Mixes (Sa)		Nominal Maximum Particle Size		
Traffic Condition Category		10.0	14.0	20.0
S	Standard Conditions	Sa-S10	Sa-S14	
H	Heavy Conditions	Sa-H10	Sa-H14	Sa-H20
V	Very Heavy Conditions		Sa-V14	Sa-V20
E	Extreme Conditions		Sa-E14	Sa-E20
Design Level	Mix Types			
Level I	Sa-S10, Sa-S14			
Level II	Sa-H10, Sa-H14, Sa-H20, Sa-V14, Sa-V20			
Level III	Sa-E14, Sa-E20			

Stone Mastic Asphalt (SMA)		Nominal Maximum Particle Size		
Traffic Condition Category		10.0	14.0	20.0
S	Standard Conditions			
H	Heavy Conditions			
V	Very Heavy Conditions	SMA-V10	SMA-V14	
E	Extreme Conditions	SMA-E10	SMA-E14	

Enrobé à Module Élevé (EME)		Nominal Maximum Particle Size		
Traffic Condition Category		10.0	14.0	20.0
S	Standard Conditions			
H	Heavy Conditions			
V	Very Heavy Conditions			
E	Extreme Conditions		EME-E14	EME-E20

Table 5 Asphalt Mix Requirements

Traffic Volume (million E80's)	Traffic Condition Category		
	Traffic Speed (km/h)		
	< 20	20 - 70	> 70
< 3	H	S	S
3 to 10	V	H	H
10 to 30	E	V	V
> 30	E	E	E

Table 6 Traffic Condition Risk Profiles

The typical use of various mix types and mix NMPS is portrayed in Table 7.

Asphalt Mix Use			Mix Type
Mix Nominal Maximum Particle Size (NMPS)			
10.0	14.0	20.0	
Patching/ Handwork			Sa
Wearing Course (Paved)			Sa, SMA
	Base Course (Paved)		Sa, EME

Table 7 Typical Mix Use

11.5.2 Asphalt Mix Design

Asphalt mix designs are required for every mix supplied. Mix designs for each mix type are to be conducted in accordance with the guidelines noted in Table 8.

Sand Skeleton Mixes	Sabita Manual 35	Design and use of asphalt in road pavements
Stone Mastic Asphalt (SMA)	Sabita Manual 35	Design and use of asphalt in road pavements (Appendix B)
Enrobé à Module Élevé (EME)	Sabita Manual 33	Interim design procedure for high modulus asphalt

Table 8 Asphalt Mix Design Guideline Documents

The mix design process shall consist of a laboratory design, a plant trial and (if required) a paved trial. Once satisfied that the laboratory design and plant and paved trials meet the specified mix requirements, the contractor is to document the final mix parameters (i.e. the Job Mix Formula (JMF)). These parameters will be used for production quality control and acceptance purposes (see Table 9).

Grading
Voids in the Mix (@ design compaction)
Binder Content

Table 9 Mix Parameters for the Job Mix Formula

The contractor shall also include the following “mix charateristics” as a part of his mix design submission:-

- A unique identification number for every mix design
- The binder storage constraints (e.g. maximum storage times, etc.)
- The type of modifier used and the modified binder characteristics to TG1 (if applicable)
- Binder classification in terms of the SA PG Binder Classification System
- Whether the asphalt mix is using a Warm Mix Asphalt technology/additive. The contractor shall comment on any modifications to the “standard” mix design process consequential to the use of the Warm Mix Asphalt technology/additive.
- The maximum mix temperature in the truck at the exit from the plant (in line with industry norms)
- The minimum mix temperature in the truck on delivery (in line with industry norms)
- The minimum recommended mix temperature for compaction of the mix on site (in line with industry norms)
- Comment on any asphalt mix characteristics that should be brought to the attention of the asphalt paving/laying team on site (e.g. EME asphalt mix longitudinal joint construction)

Should substantial changes to material types and properties occur, the asphalt mix designs for affected mixes shall be reviewed and where necessary re-constituted and re-submitted for approval.

11.5.2.1 Sand Skeleton Mixes

Designs of sand skeleton asphalt mixes are to be conducted in accordance with the guidelines set out in Sabita Manual 35 “Design and use of asphalt in road pavements”. Designs are to be conducted in accordance with the appropriate level (i.e. I, II and III) as indicated in Table 5.

11.5.2.1.1. Level I Design

The Level I design is aimed primarily at verification of the mix volumetrics. However, a Level I design is a pre-requisite for the Level II and III designs.

Asphalt mixes shall achieve the volumetric criteria noted in Table 11 at the compaction effort noted in Table 10 (or Tables 14 or 17 as applicable) with a design air void content of 4%.

Traffic Condition Category	Marshall	Gyratory
	SANS 3001 AS1	AASHTO T 312
	No. Blows	N_{design}
Standard (S)	75+45	75

	NMPS		
	10	14	20
VMA (min.)	15	14	13
VFB	65 - 75	65 - 75	65 - 75

Table 11 Mix Design Requirements (Level I)

Asphalt mixes designed at Level I shall meet the requirements for the empirical performance tests noted in Table 12.

Test	Requirement	Test Method
Modified Lottman (TSR)	0.8 min.	ASTM D 4867 M
Indirect tensile strength (@ 25°C)	900 kPa - 1 650 kPa	ASTM D 6931-07
Dynamic creep (@ 40°C)	10 MPa min.	CSIR RMT 004
Water permeability	0.1mm/s - 4 mm/s	EN 12697-19
Air Permeability (@ 7% Voids) (x $10^{-8}cm^2$)	1.0 max.	TRH 8 App C
Marshall Stability, Flow and Quotient	Report	SANS 3001-AS2

Table 12 Empirical Performance Tests (Level I)

(a)Particular Mix Requirements – Mix Sa-S10

Mix Sa-S10 is to be utilized for lightly trafficked residential streets and patching (handwork). Due attention should be paid to the recommendations of Sabita Manual 27 “Guidelines for thin hot mix asphalt wearing courses on residential streets “ in the design of mix “Sa-S10”. The additional mix characteristics noted in Table 13 are also required.

	NMPS
	10
Filler/Binder Ratio (Max.)	1.3
Binder Film Thickness (Min.)	7.5

Table 13 Mix Design Requirements

(b)Level II Design

The compaction requirements for the Level I design as a precursor to the Level II performance design shall be as noted in Table 14. The design air void content shall be 4%.

	Marshall	Gyratory
	SANS 3001 AS1	AASHTO T 312
Traffic Condition Category	No. Blows	N_{design}
Heavy (H) & Very Heavy (V)	-	100

Table 14 Volumetrics Compaction Requirements (Level II)

In addition to meeting the mix requirements outlined in the Level I design, the mix design at Level II shall meet the performance characteristics noted in Tables 15 and 16.

Property	Test conditions	Specification	Test method
Workability	Superpave gyratory compactor - air voids after 25 gyrations (max.)	7%	ASTM D 6925
Durability	Modified Lottman test conditions (min.)	0.8	ASTM D 4867M
Stiffness/ (dynamic modulus)	Dynamic modulus @ 20°C Loading frequencies of 0.1, 0.5, 1, 5, 10, 25 Hz	Report	AASHTO TP 79
Permanent deformation	HWTT at relevant number of passes	See Table 16	AASHTO T 324
Fatigue	Four-point beam fatigue test @ 10°C, 10Hz to 50% stiffness reduction Strain levels 200, 400, 600με	Report	AASHTO T 321

Table 15 Performance Tests (Level II)

Temperature Zone	6mm Rut	Stripping Point
	No. of Passes (Min.)	
PG 58 Zone	16 000	10 000
PG 64 Zone	20 000	10 000

Table 16 Hamburg Wheel Tracking Test Specifications

(c)Level III Design

The compaction requirements for the Level I design as a precursor to the Level III performance design shall be as noted in Table 17. The design air void content shall be 4%.

Traffic Condition Category	Marshall	Gyratory
	SANS 3001 AS1	AASHTO T 312
	No. Blows	N_{design}
Extreme (E)	-	125

Table 17 Volumetrics Compaction Requirements (Level III)

In addition to meeting the mix requirements outlined in the Level I design, the mix design at Level III shall meet the performance characteristics noted in Tables 15 and 16 with the additional test temperatures for Stiffness and Fatigue as indicated in Table 18.

Property	Test conditions	Specification	Test method
Stiffness (dynamic modulus)	Dynamic modulus @ -5, 5, 20, 40, 55°C Loading frequencies of 0.1, 0.5, 1, 5, 10, 25 Hz	Report	AASHTO TP 79
Fatigue	Four-point beam fatigue test @ 5, 10 and 20°C, 10Hz to 50% stiffness reduction Strain levels 200, 400, 600με	Report	AASHTO T 321

Table 18 Additional Temperatures for Stiffness and Fatigue Tests (Level III)

(b)Stone Mastic Asphalt Mixes

Stone Mastic Asphalt (SMA) mix designs are to be conducted in accordance with the guidelines set out in Sabita Manual 35 “Design and use of asphalt in road pavements – Appendix B”.

SMA mixes are required for two NMPS:-

- 10mm
- 14mm

The mix design should ensure that the fine aggregate mortar should not induce dilation of the coarse aggregate stone skeleton mix after compaction on site thereby ensuring coarse aggregate interlock. Coarse aggregate for both NMPS will be defined as all material retained on the 5mm sieve.

The stability of the fine aggregate mortar will require enhancement with either cellulose fibre or through modification of the binder or both.

The compacted mix should form an impervious surfacing meeting the water permeability and air permeability requirements noted in Table 12.

The SMA mix shall also conform to the requirements in Table 19.

Design Air Void Content (%)	4.0
Bitumen Content (Min.)	6.0
Voids in Mineral Aggregate (VMA) (Min.)	17
Modified Lottman (TSR) (Min.)	0.7
Schellenberg Drainage Test (%) (Max.)	0.3
VCA_{mix}[1] (%)	< VCA_{drc}[2]

Note 1. VCAmix is the voids in coarse aggregate (>5mm) of the compacted mix.
Note 2. VCAdrc is the voids in coarse aggregate (>5mm) of the dry rodded coarse aggregate.

Table 19 SMA Mix Specifications

SMA type “V” and “E” mixes shall be subjected to and shall conform with the performance test requirements noted in Table 15. SMA type “E” mixes shall be subjected to the additional temperature test requirements noted in Table 18.

The SMA-E10 and SMA-E14 mixes shall conform to the Dynamic Modulus and Fatigue testing requirements noted in Table 20 (EME Performance Criteria).

A mix design is required for each SMA mix. The mix design document should clearly document the process followed to meet the desired SMA characteristics.

(c)Enrobé à Module Élevé (EME) Asphalt Mixes

EME mix design are to be conducted in accordance with the guidelines set out in Sabita Manual 33 “Interim design procedure for high modulus asphalt”.

EME mixes are required for two NMPS:-

- 14mm
- 20mm

Performance criteria should conform to the requirements for a Class 2 EME as depicted in Table 20.

Property	Test	Method	**Requirement (Class 2)**
Workability[1]	Gyratory compactor (angle 1.25°), air voids after 45 gyrations	ASTM D6926	≤ 6%
Durability	Modified Lottmann, TSR	ASTM D4867	≥ 0.80
Resistance to permanent deformation	RSST-CH, 55°C, 5000 reps	ASTM T320	≤ 1.1% strain
Dynamic Modulus	Dynamic modulus at 10 Hz, 15°C	ASTM TP62	> 16 GPa
Fatigue	Beam fatigue test at 10 Hz, 10°C, to 50% stiffness reduction Strain levels 200, 400, 600με	ASTM T321	≥ $1x10^6$ reps @ 260 με

Table 20 EME Performance Criteria

EME type “E” mixes shall further be subjected to and shall conform with the performance test requirements for Stiffness (dynamic modulus), Permanent Deformation and Fatigue noted in Table 15 with the additional temperature test requirements noted in Table 18.

A mix design is required for each EME mix. The mix design document should clearly document the process followed to meet the desired EME characteristics.

(d)Warm Mix Asphalt

Should a Warm Mix Asphalt be used in the mix, the mix design shall incorporate the use of such a technology/additive in the mix design process. Any consequential deviations from the guidelines set out in Sabita Manual 35 “Design and use of asphalt in road pavements – Appendix B”, Sabita Manual 33 “Interim design procedure for high modulus asphalt” or standard industry practice shall be brought to the attention of the Roads Provision Department and shall be documented in the mix design report.

(e)Mix Design Approval

No mixes may be supplied without approval of the mix design by the Senior Manager : Pavement & Geotechnical Engineering, Roads Provision Department.

The contractor shall label every mix design with a unique identification number to facilitate traceability of mixes using the mix design.

(a)Mix Design Approval Process

The contractor shall submit his proposed mix design to the Roads Provision Department for acceptance of the mix design at least 2 weeks prior to initial supply of any particular mix.

Upon request by the Roads Provision Department, the contractor shall also supply samples of raw materials. The minimum sample sizes shall be 50 kg for each aggregate type/size and 5 litres of bitumen/binder. The contractor shall also supply any other relevant information as may be requested.

Once satisfied with the content of the mix design, the Senior Manager : Pavement & Geotechnical Engineering (or his nominee) will give signed approval for the mix.

(f)Mix Design Review

Every mix design is to be reviewed at least annually. The review should include verification of the asphalt mix through testing of at least the following characteristics:-

- Binder compliance with SANS 4001-BT1
- Modified binder compliance with TG1
- Binder classification in terms of the SA PG Binder Classification System
- Aggregate and filler compliance with Table 2
- Aggregate BRD, ARD and water absorption
- Mix BRD (@ N_{design}) and MTRD
- Particular mix type characteristics
    - Sand skeleton mixes
        - Level I design mix volumetric and performance characteristics
            - All requirements in Tables 11, 12 and 13 (as applicable) at the appropriate compaction (Table 10 for Level I designs and Table 14 for Level II and III designs.
        - Level II design mix performance characteristics (Table 15)
            - Workability
            - Durability
        - Level III design mix performance characteristics (Table 15)
            - Workability
            - Durability

- SMA mixes
  - All requirements in Table 19
  - SMA mix performance characteristics (Table 15)
    - Durability
- EME mixes
  - Mix performance characteristics (Table 20)
    - Workability
    - Durability

Should the binder, aggregate or mix characteristics of any particular mix differ significantly from the characteristics obtained in the initial mix design, then the mix shall be re-designed to meet the relevant volumetric and performance characteristics. In the event of a dispute over the significance of a particular characteristic, the contractor shall undertake the appropriate performance test to prove compliance with the specification.

(b) ASPHALT PRODUCTION

(a)Mixing Plant

Asphalt shall be manufactured through a batch-mixing or drum-mixing plant (approved by the Roads Provision Department) such that the requirements of this specification can be met in full. The plant shall be operated and kept in a well-maintained condition as directed by the Quality Management System. Records of such maintenance shall be made available on request.

All cold aggregates shall be stockpiled in a manner that precludes the possibility of aggregate contamination. At the very least aggregate stockpiles shall be physically separated on concrete slabs. Undue wetting/saturation of (particularly fine) aggregates shall also be prevented through covering (particularly fine) aggregate stockpiles with reinforced waterproof covers at all times when mixing is not in progress. Natural sand aggregates shall be pre-screened through a 13 mm screen before being fed into the cold feed hoppers.

Sufficient binder storage tanks shall be provided to ensure that adequate reserves are maintained for each binder type held without risk of contamination of binders. Binder storage tanks shall be heated in such a manner that the binder is not degraded during heating. The tanks shall also incorporate a circulating system for the binder.

The plant control panel shall enable the plant operator to have simultaneous view of the critical components of the plant inclusive of :-

- Binder storage temperature
- Cold hopper feed settings
- Hot aggregate bin masses (as appropriate)

- Binder feed rate
- Plant speed (as appropriate)
- Mixing temperature

The plant and its operation shall also conform to the requirements of the following legislation:-

- Occupational Health and Safety Act
- National Environmental Management : Air Quality Act

(b)Quality Control

The quality of mix produced shall be monitored as directed in the contractor's Quality Management System. The asphalt mix constituents (i.e. binder and aggregates), and the asphalt mix produced shall be checked for compliance and consistency on a regular bases through routine process control testing. The results of such testing shall be available for review by the Roads Provision Department at all times.

(a)Quality Management System

The Quality Management System (QMS) should include documentation outlining the asphalt mix design process, the annual mix review process and processes pertaining to delivery of the asphalt mix.

The QMS shall also include any agreed frequency of split sampling of either raw mix constituents or asphalt mixes (prepared as agreed) with the Roads Provision Department. Such samples are to be delivered to the eThekwini Municipality's Bitumen and Asphalt Laboratory located at the Roads Provision Asphalt Plant in uMhlathuzana Road. All samples shall be adequately and uniquely labeled so that the location of any related mix is readily traceable.

The QMS shall also document the processes to be followed whenever a deviation from specifications is identified. The Contractor shall provide full rectification of any work undertaken with such asphalt mix or materials.

Where applicable, testing is to be conducted using the SANS 3001 series of test methods.

The plant laboratory should be SANAS accredited for the tests undertaken. However, should the laboratory not be SANAS accredited, the Roads Provision Department will need to approve the laboratory for any test result to be considered valid.

In line with these processes, the QMS should include as a minimum per mix design, the material characterisation tests included in Table 21.

Quality Control Tests			Minimum Test Frequency
Binder	Penetration		Every batch delivered
	Softening Point		Every batch delivered
	SA PG Binder Classification		1 per 6 months
Aggregate	Coarse Aggregate	Aggregate Grading	Every batch delivered
		Flakiness Index (Max.)	1 per month
		Aggregates BRD, ARD and Water Absorption	1 per month
		ACV, 10%FACT	1 per month
		Polished Stone Value (Coarse Aggregates)	1 every year per stone type and source
	Fine Aggregate	Aggregate Grading	Every batch delivered
		Aggregates BRD, ARD and Water Absorption	1 per month
		Sand Equivalent (Fine Aggregates)	Every batch delivered
		Methylene Blue Adsorption Value	1 per month
Asphalt Mix	Temperature of Mix	In the truck at the exit weighbridge	Every load
		In the truck at the point of delivery	Every load
	Bitumen Content		1 test per 200 tons of output or part thereof per day
	Extracted Mix Aggregate Grading Analysis		1 test per 200 tons of output or part thereof per day
	Voids Analysis (Bulk Relative Density and Maximum Theoretical Relative Density)		1 test per 200 tons of output or part thereof per day

Table 21 Test Frequencies

(b)Process Control

The mix temperature of the mix taken in the truck at the exit to the plant shall not exceed the value stated in the mix design. Furthermore, the temperature of the mix taken in the truck on delivery shall not be less than the value stated in the mix design.

Quality checks on mix production will be based on the Job Mix Formula (JMF) for the approved mix design. Tolerances on variation from the JMF are given in Table 22.

			Permissible Deviation from JMF (%)	
			Individual Results	Average of 3 Consecutive Results
Aggregate Fraction - Grading	Sieve Size (mm)	28	± 5.0	± 3.0
		20	± 5.0	± 3.0
		14	± 5.0	± 3.0
		10	± 5.0	± 3.0
		7.1	± 5.0	± 3.0
		5	± 4.0	± 2.5
		2	± 4.0	± 2.5
		1	± 4.0	± 2.5
		0.6	± 4.0	± 2.5
		0.3	± 3.0	± 2.0
		0.15	± 2.0	± 1.5
		0.075	± 1.0	± 1.0
Voids in the Mix (@ design compaction)			± 1.5	± 1.0
Binder Content			± 0.3	± 0.2

Table 22 Mix Production Property Limits

All process control testing undertaken by the contractor shall be signed off by the responsible person identified in the QMS and shall be made available to the Roads Provision Department.

- All process control test results shall be referenced back to the unique Mix Design reference number.
- Mix extraction gradings shall be made available within 48 hours of the asphalt being manufactured.
- Binder content and void content shall be made available by 08:00am on the day following manufacture of the asphalt.

Should the test results not be provided as required or should the results fall outside the applicable specifications, the Roads Provision Department reserves the right to suspend any supply until the results are produced and the mix is accepted.

The Contractor shall be responsible for rectification of any work completed (or partially completed) with asphalt mix that does not meet the specification to the satisfaction of the Roads Provision Department. The processes related to the rectification of such work shall be outlined in the QMS.

(c)Acceptance Testing

After reviewing the results of the process control testing, the Roads Provision Department may elect to conduct their own testing of the binder, aggregates or asphalt mix produced. A copy of test results will be submitted to the Contractor as soon as they are available.

Should the acceptance tests indicate that the mix (or any part thereof) is not to specification, the cost of any re-test by the Council shall be to the Contractor's account and shall be deducted from any payments owed to the Contractor.

(d)On Site Mix Problems

The contractor shall also make himself available on site should the workability and compaction of the mix during the paving/laying operation be problematic in order to assist in trouble-shooting the cause of such problems. If the root cause of the problem is related to the asphalt mix design, the contractor shall re-evaluate his mix design to correct such issues and re-submit his mix design for approval.

PS.EF KERBS AND HAUNCHES

INDEX

PS.EF.1 KERB AND CHANNEL/FILLET

The kerbing to be used for this contract shall be as follows:

i) Type A Barrier Kerb and Channel/Fillet,

ii) Type A Barrier Kerb and Channel / Fillet – Mini Kerbs for radius less than 2m

iii) Scoop Kerbs and Transition Kerbs, and

iv) Figure 12 Edge restraint Kerbs.

PS.EF.2 ADDITIONAL CONCRETE TO KERB FOUNDATION

The rates tendered for kerbs Type A shall be based on the minimum dimensions indicated section C3.4. Where the base or sub-base layers necessitate an increase in the kerb foundation thickness, the supply of this additional concrete shall be paid for separately. The unit of measurement shall be the cubic metre (m^3) and shall cover the supply and placing of the concrete, compaction and any formwork that may be required.

PS.EF.3 EXCAVATION FOR KERB AND CHANNEL/FILLET IN EXISTING ASPHALT LAYERS

The unit of measurement shall be the cubic metre (m^3). The rate shall include all the materials, labour and plant necessary to cut two parallel joints in the existing asphalt the width of the kerb base to be laid, the excavating, loading and transporting of surplus material to the approved tip.

PS.EF.4 FIGURE 12 KERBS – EDGE RESTRAINTS

Standard Figure 12 kerbs are to be used at the back of the sidewalk so as to retain the back of the sidewalk. The unit of measurement shall be the linear metre (m). The rate shall include for the supply and laying of all the materials, labour and plant inclusive of haulage and royalties.

PS.EG SIDEWALK/MEDIAN AREAS

INDEX

PS.EG.1 SCOPE

This specification covers the construction of asphalt, precast concrete slabbed and brick sidewalks, footpaths and median areas, vehicular and pedestrian scoops and vehicular access hardening.

PS.EG.2 INTERPRETATIONS

PS.EG.2.1 Supporting Specifications

The following standards are referred to in the specification:

S.A.B.S.110 of 1973 - Sealing compounds for the building industry, two component, polysulphide base

S.A.B.S 307 of 1972 - Penetration grade bitumen

S.A.B.S 541 of 2012 - Precast concrete paving slabs

S.A.B.S 1305 of 1980 - Sealing compounds for the building industry, one component, silicone - rubber base.

S.A.B.S 0145 of 1978 - Concrete masonry construction

all as published in General Notice 463 dated 9 July 1982

S.A.B.S. 1077 of 1984 - Sealing compounds for the building and

construction industry, two component polyurethane – base as published in General Notice 148 dated 1 February 1985

Position Paper on Tactile Ground Surface Indicators" published by the National Department of Transport in April 2016

National Technical Requirement 1: Pedestrian Crossings (NTR1: Part 2) published by National Department of Transport in December 2016

SANS 784:2007.

PS.EG.3 MATERIALS

PS.EG.3.1 Asphalt

Grading of the aggregates for asphalt shall be as shown in the table below.

Sieve size mm 9,5 4,75 2,36 1,18 0,60 0,30 0,15 0,075 % passing by mass 100 80±10% 50±10% 34±6% 23±5% 15±5% 9±3% 6±2% - EG.2 - JULY 1992

Coarse Aggregate: Course aggregate shall be freshly quarried stone complying with part "ED: clause ED.3.3.1. Fine Aggregate: Fine aggregate shall comply with part "ED" clause

PS.ED. 3.4.1. Bitumen Content:

5,7% ± 0,3% by mass of 40/50 pen. bitumen complying with SABS. 307

PS.EG.3.2 Graded Crushed Stone

Graded crushed stone shall be as specified in part "EB": Graded Crushed Stone.

PS.EG.3.3 Precast Concrete Paving Slabs

The precast concrete paving shall:

PS.EG.3.3.1

a) be an 300 x 600 x 50mm Precast concrete paver
b) Conform to SANS 541 2017
c) Colour: Light Grey
d) Pattern: laid in a basket weave, Annexure C4.3

PS.EG.3.3.2

a) be an 100 x 200 x 50mm Precast concrete paver
b) Conform to SANS 541 2017
c) Colour: Dark Grey
d) Pattern: As per Annexure C4.3

PS.EG.3.3.3

a) be an 450 x 450 x 50mm Precast concrete paver
b) Conform to SANS 541 2017
c) Colour: Light Grey
d) Pattern: As per Annexure C4.3

PS.EG.3.3.4 Tactile and Directional Paving

a) be 400 x 400 x 50mm Precast concrete paver
b) Conform to SANS 784 2007
c) Colour: Light Grey
d) Specification: As per Annexure C4.12 for compliant TGSI's

PS.EG.3.4 Expansion Joints

The sealer used in the expansion joints shall be polysulphide conforming to BS.4252 of 1967 - Two part polysulphide base sealant for the building industry, as amended.

PS.EG.3.5 Grouting of Paving

The grout to be used shall be a Class II mortar complying with SABS 10145: 2013.

PS.EG.3.6 Approved Weed Killer

The rates tendered for paving of sidewalks is to include the weedkiller "Outpace 100GR" or approved equivalent. The use of the weedkiller will be closely monitored on site, applied on formation and after the placing of the paving.

PS.EG.4 PLANT

Not applicable to this specification.

PS.EG.5 CONSTRUCTION

For all types of construction, the formation to be surfaced shall first be trimmed and compacted to the required tolerance and density.

PS.EG.5.1 Asphalt Areas

These shall consist of a compacted 100 mm thick layer of graded crushed stone overlaid by a compacted 25 mm thick layer of asphalt. After the crushed stone has been compacted and tested, an weed killer approved shall be applied in accordance with the manufacturer's instructions. The asphalt shall be manufactured in an approved hot-mix plant and the maximum mixing temperature shall be 170/C. The asphalt shall not be laid if its temperature falls below 130/C in the supply trucks.

PS.EG.5.2 Precast Concrete Slabbed Areas and Paved Areas

Precast concrete slabs shall be laid on a 50 mm mat of 5 MPa cement mortar with a fall as indicated on the drawings with joints positioned to match those of the adjacent concrete kerbstones where applicable. When the area to be paved is curved, the slabs shall be laid in such a manner that the transverse joints shall be radial from the centre of the curve. When applicable, suitable expansion joints 13 mm wide must be left at ± 18,0 m centres to coincide with expansion joints left in the kerbs. The joint shall consist of a compressible material and polysulphide filler. When necessary the concrete slabs shall be cut to size and fitted neatly around existing surface boxes, guard rail posts, etc. Alternatively, for slabs other than exposed aggregate slabs and at the discretion of the Engineer, in-situ concrete coloured to match adjacent paving slabs, may be used. Where directed by the Engineer the Contractor shall fill in narrow strips etc., not exceeding 100 mm in width, unless otherwise approved by the Engineer, with granolithic concrete 50 mm thick, which shall be compacted and trowelled smooth and flush with the adjoining slabs.

PS.EG.5.2.1 Butt Jointed

Joints between the slabs shall not exceed 3 mm and shall be filled by brushing in a Class II mortar complying with SABS 10145: 2013 as the work proceeds. All surplus mortar shall be carefully cleaned from the surface of paving, kerbs, etc., before it sets hard. The cement mortar shall be cured for a period of 3 days.

PS.EG.5.2.2 Gap Jointed

Joints shall be neatly lined up in both directions and shall have a uniform width of 8 mm. When precast concrete slabs are laid in conjunction with brick paving to form an overall paving pattern, joints shall have a uniform width of 10 mm.

Grouting shall be by the wet grouting method. The slabs shall be saturated prior to the application of the grout. The wet sand/ cement grout (mortar class II complying with SABS 10145:2013) shall be placed into joints using a combination of brush and/or squeegee. A fine hose spray shall be used to remove the excess grout from the surface as the work proceeds. Grouted joints shall be finished to a depth of 2 mm to 5 mm below the paved surface. Each days production shall be grouted that same day unless approved otherwise by the Engineer.

PS.EG.5.2.3 Expansion Joints in Precast Concrete Slabbed Sidewalks/Footways

The sealer used in the expansion joints shall be polysulphide conforming to BS.4252 of 1967 - Two part polysulphide base sealant for the building industry, as amended. The joint filler shall be of compressible material approved by the Engineer. Expansion joints, wherever possible, shall be formed using “Jointex” or similar type material laid simultaneously with the paving and sealed as soon as the grout has cured. Where it is necessary to cut expansion joints these shall be cut before paving is extended past the position of the next expansion join. In both cases the joint shall extend through the sand / cement bedding. Expansion joints shall be at +- 7,5m centres or in positions as indicated on the contract drawings or indicated by the Engineer on site.

PS.EG.5.3 SCOOP AND ACCESS HARDENING CONSTRUCTION

The Tenderer's attention is drawn to the various types of pavement construction for the various types of access. The type of construction applicable to a particular scoop shall either be indicated on the relevant drawings or shall be indicated in writing by the Engineer on site.

PS.EG.5.3.1 Asphalt Access Hardening and Scoops

The specification shall comply with the requirements of clause EG.5.1 with the exception that the pavement layer shall be as follows:

(a) Pedestrian: Graded crushed stone 100 mm thick with an asphalt layer 25 mm thick.
(b) Residential: Graded crushed stone 150 mm thick with an asphalt layer 50 mm thick.
(c) Commercial: Graded crushed stone 150 mm thick with an asphalt layer 80 mm thick.
(d) Industrial: Graded crushed stone 150 mm thick.

PS.EG.5.3.2 Concrete Access Hardening and Scoops

Concrete access hardening and scoops shall consist of cast insitu grade 20/13 concrete laid either directly onto the compacted subgrade or onto a graded crushed stone base. The concrete mix, mixing, batching, transporting, placing compaction and curing shall comply with the requirements of

part C Concrete Work. The surface of the concrete shall have a wood float finish. Pavement layer for the various scoop types shall be:

(a) Pedestrian and Residential: Concrete 100 mm thick.

(b) Commercial: Graded crushed stone 150 mm thick with concrete 100 mm thick.

(c) Industrial: Concrete 225 mm thick.

PS.EG.6 TACTILE AND DIRECTIONAL PAVING

This clause must be read in conjunction with the following published papers “Position Paper on Tactile Ground Surface Indicators” published by the National Department of Transport in April 2016 and “National Technical Requirement 1: Pedestrian Crossings (NTR1: Part 2)” published by National Department of Transport in December 2016 as well as SANS 784 2007.

Tactile indicators forms part of the vision of creating an infrastructure that is universally accessible to all (SANS 10400 Part S1). This specification applies to the supply and installation of Tactile Ground Surface Indicators (TGSIs) on footpaths, medians, etc designed to provide pedestrians with visual and sensory information.

Raised tactile surface tiles supplied must be designed in accordance with SANS 784 2007 and placed in accordance to National Technical Requirement 1: Pedestrian Crossings (NTR1: Part 2). The two types of TGSIs used are the warning indicators and directional indicators. Refer to Annexure C4.12 for examples of compliant TGSI’s.

Samples of all materials to be used shall be approved by the Engineer prior to the commencement of any installation on site. The approved range of samples shall be retained on site by the Engineer and all tiles delivered to site shall be within the tolerance and colour range. These may be warning or directional tiles. A standard tile is 400mm x 400mm in an external pedestrian environment.

PS.EG.7 TOLERANCES

In all cases formation levels shall be within ± 10 mm of the design levels.

PS.EG.7.1 Asphalt Areas

The average thickness of graded crushed stone shall not be less than 100 mm with a tolerance for any single reading of ± 10 mm. The average thickness of the asphalt shall not be less than 25 mm with a tolerance for any single reading of ± 5 mm. The finished surface levels shall be within ± 7 mm of the design levels.

PS.EG.7.2 Precast Concrete Slabbed Areas

The lateral dimensional tolerance of the precast concrete slabs shall be ± 5 mm, and the thickness tolerance ± 3 mm.The average thickness of the lean mix mortar shall not be less than 50 mm with a tolerance for any single reading of ± 7 mm. The finished surface levels shall be within ± 5 mm of the design levels, with a difference of level between adjacent slabs not exceeding 3 mm.

PS.EG.7.3 Asphalt Access Hardening and Scoops

The average thickness of graded crushed stone shall not be less than that specified with a tolerance for any single reading of ± 10 mm. The average thickness of the asphalt shall not be less that specified with a tolerance for any single reading of ± 5 mm. The finished surface levels shall be within ± 7 mm of the design levels.

PS.EG.7.4 Concrete Access Hardening and Scoops

The average thickness of the concrete shall not be less than that specified with a tolerance for any single reading of ± 10 mm. The finished surface levels shall be within ± 5 mm of the design levels.

PS.EG.8 TESTING

The degree of compaction shall be not less than 95% Mod. AASHTO for the formation, not less than 96% Mod. AASHTO for crusher run and not less than 96% of the Marshall density for asphalt where asphalt is required.

The Contractor shall supply samples of the precast units, free of charge to the Physical Environment Service Unit, Materials Laboratory, KE Masinga Road, Durban for testing. Samples of all paving materials shall also be approved by the Engineer prior to the commencement of any paving on site. The approved range of samples shall be retained on site by the Engineer and all pavers delivered to site shall be within the tolerance and colour range.

PS.EG.9 MEASUREMENT AND PAYMENT

PS.EG.9.1 Asphalt Areas

The unit of measurement shall be square metres (m^2) of completed area and the rate shall cover formation preparation, all necessary compaction, supply and application of weed killer, graded crushed stone, protection of adjacent areas and asphalt laid and compacted.

PS.EG.9.2 PAVING using the 300 x 600 x 50mm precast concrete paver (PS.EG.3.3.1)

The unit of measurement shall be square metres (m^2) of the completed area placed and the rate shall cover formation preparation, all necessary compaction, supply and application of weed killer, 100mm graded crushed stone (G5 or better), supply and filling of joints with Class II mortar, and the supply, placing and compacting of the precast concrete pavers on the cement mortar foundation mentioned in PS.EG.5.2. The contractor shall also include in his rate for the cutting of the tiles inclusive of haulage and royalties. The contractor shall ensure that all surface residues of grouting, mortar, etc are cleaned off following installation.

PS.EG.9.3 PAVING using the 100 x 200 x 50mm precast concrete paver (PS.EG.3.3.2)

The unit of measurement shall be square metres (m^2) of the completed area placed and the rate shall cover formation preparation, all necessary compaction, supply and application of weed killer, 100mm graded crushed stone (G5 or better), supply and filling of joints with Class II mortar, and the supply, placing and compacting of the precast concrete pavers on the cement mortar foundation mentioned in PS.EG.5.2. The contractor shall also include in his rate for the cutting of the tiles inclusive of haulage and royalties. The contractor shall ensure that all surface residues of grouting, mortar, etc are cleaned off following installation.

PS.EG.9.4 PAVING using the 450 x 450 x 50mm precast concrete paver (PS.EG.3.3.3)

The unit of measurement shall be square metres (m^2) of the completed area placed and the rate shall cover formation preparation, all necessary compaction, supply and application of weed killer, 100mm graded crushed stone (G5 or better), supply and filling of joints with Class II mortar, and the supply, placing and compacting of the precast concrete pavers on the cement mortar foundation mentioned in PS.EG.5.2. The contractor shall also include in his rate for the cutting of the tiles inclusive of haulage and royalties. The contractor shall ensure that all surface residues of grouting, mortar, etc are cleaned off following installation.

PS.EG.9.5 PAVING using the 400 x 400 x 50mm Tactile and Directional Paving (PS.EG.3.3.4)

The unit of measurement shall be square metres (m^2) of the completed area placed and the rate shall cover formation preparation, all necessary compaction, supply and application of weed killer, 100mm graded crushed stone (G5 or better), supply and filling of joints with Class II mortar, and the supply, placing and compacting of the precast concrete tactile ground surface indicators on the cement mortar foundation mentioned in PS.EG.5.2. The contractor shall also include in his rate for the cutting of the tiles inclusive of haulage and royalties. The contractor shall ensure that all surface residues of grouting, mortar, etc are cleaned off following installation.

PS.EG.9.6 Concrete cast in-situ bullnose

The unit of measurement shall be square metres (m^2) of the completed area constructed. The rate shall cover formation preparation, all necessary compaction, supply and application of weed killer, supply, placing and compacting of Concrete 25/19 MPa, and any shuttering and formwork required. The rate shall also include for a wood float finish to all horizontal surfaces and a steel float finish to all vertical surfaces. The contractor shall ensure that all surface residues of concrete cleaned off following construction.

PS.EH STEEL GUARD RAILS AND CONCRETE MEDIAN BARRIERS

INDEX

PS.EH.1 CONCRETE BOLLARDS

Where required by the Engineer, precast concrete bollards shall be installed in accordance with the details on standard drawing in section C3.4.

The unit of measurement shall be number (no.) and the rate shall include for the excavation for the base, the disposal of surplus material to tip, setting in concrete, backfilling and the preparation and painting of the bollards.

PS.EL DUMPROCK SUBGRADE IMPROVEMENT

INDEX

PS.EL.1 DUMPROCK

Clause EL.3 shall be amended to read as follows:

The dumprock shall consist of fresh to slightly weathered ungraded waste rock from mining activities, blasting or rock excavation. Shales, slates or other laminated mudrocks shall **not** be accepted.

Dumprock shall have a maximum size not more than two-thirds of the compacted thickness of the layer. The rock shall otherwise be ungraded but shall contain less than 10% passing the 37,5 mm sieve when spread on site.

Dumprock shall have a minimum 10% FACT value of 100 KN when dry and 40 KN when tested drained after 24 hours soaking.

Notwithstanding Clause EL, after vibratory techniques are used on the dump rock, a thickness of varying thickness between 300mm to 1000mm, as directed by the Engineer on site, must be achieved. A G5 graded crushed stone material must then be used to fill the voids between the dump rock. This layer must be vibrated into the dump rock and the contractor will stop when the layer of dump rock will not accept any more stone. The measurement of the G5 graded crushed stone will be per tally slip from the weighbridge and will be paid per tonne. A separate item will be scheduled for this item in the BOQ.

Careful consideration must be used when choosing the type of compaction equipment required, as any damage to the surrounding buildings will be to the contractor's account.

Dump rock as defined below is to be used as sub-grade improvement at the discretion of the Engineer after assessment of the prevailing ground conditions.

PS.EL.2 METHOD STATEMENT

The Contractor must provide a Method Statement of the manner in which the Dump Rock layer will be constructed and the precautions to be taken during construction which must then be approved by the by the Engineer.

After the method statement has been approved, a trial layer must be constructed to demonstrate the Contractor's competence with regards to the construction of the Dump Rock layer, (*Refer to PS.EL.3*)

PS.EL.3 TRIAL LAYER

Prior to the commencement of the compaction and layering and filling of the layer the Contractor shall construct a section of trial layer to demonstrate his capability of constructing the layer in

accordance with the specifications. The trial layer shall be constructed with the same materials, mix proportions and equipment as the Contractor intends using for the main layer.

A trial section of approximately 50 m² shall be submitted for approval. The Engineer shall also have the right to call for a new trial section at any stage of the contract when, in his opinion, changes by the Contractor in the approved equipment, materials, mix or plant warrant such a procedure.

The Contractor may, unless advised of any deficiencies in the trial layer, proceed with the main layer from a time two days after the completion of the trial section or such earlier time as the Engineer may allow. In the event of deficiencies in the trial layer, the Engineer may order the Contractor to construct further trial sections until a satisfactory section is achieved. The Contractor may then proceed with the main layer from a time two days after the successful completion of the satisfactory trial section.

PS.F PROTECTION WORKS

PS.F PROTECTION WORKS

PS.F.1 TOPSOILING

PS.F.1.1 Materials

The soil shall be loamy with a well-defined crumb structure, neither too sandy nor too clayey. It shall contain evidence of fibrous plant roots and shall be free from perennial weed root stocks, stone, glass, metallic and plastic substances.

The imported topsoil shall be obtained from a source approved by the Deputy Head : Parks.

A 1 kg sample of the topsoil shall be submitted for approval to the Engineer 4 weeks before the topsoiling operation commences.

PS.F.1.2 Measurement and Payment

The unit of measurement shall be the square metre (m²). Further to Clause F.8.1 and F.8.2, the rate shall include for the purchase, supply, transport, mixing, distributing, spreading, trimming and finishing of the topsoil and compost mixture.

PS.F.2 DRAINAGE GRADE GEOFABRICS

The geofabric to stone bedding must comply with Clause PG.3.8 of Part PG : Non-Pressure Pipelines and Precast Concrete Culverts.

The unit of measurement shall be the square metre (m²). The rate shall include for its supply, laying, joining, cutting and waste.

PS.F.3 BITUMEN IMPREGNATED SOFTBOARD IN EXPANSION JOINTS

The bitumen impregnated softboard shall be 13 mm thick.
The unit of measurement shall be the square metre (m²) and the rate shall include for the supply, cutting, waste. Allowance must also be made for placing/fixing the softboard against the brickwork face of the expansion joint.

PS.F.4 POLYSULPHIDE SEALANT TO FRONT FACE OF EXPANSION JOINTS

The sealer used in the expansion joints shall be polysulphide conforming to B.S. 4254 of 1967 - Two part polysulphide based sealants for the building industry as amended.

The unit of measurement shall be the metre (m) and the rate shall include for the supply of the material, necessary labour and tools to perform the work and wastage.

PS.F.5 50 mm DIAMETER P.V.C. WEEPHOLES

The unit of measurement shall be the number (No.) and the rate shall include for all the materials, labour and tools necessary to construct the weepholes as specified in Clause

F.5.6.2. In addition to the no fines concrete block, the Contractor shall make allowance for the P.V.C. pipe to be filled with a no fines concrete plug. The no fines block to be shall be paid elsewhere.

PS.F.6 PRECAST CONCRETE FENCES

The unit of measurement shall be the metre (m) and the rate shall include for all the materials, labour, plant and tools necessary for the complete construction of the fence as shown on standard Drawing No. 38582.

The rate shall also allow for disposal to tip of all excess excavated material and leaving the area in a tidy and clean condition.

PS.F.7 STANDARD PEDESTRIAN GATE

The unit of measurement shall be the number (No.) and the rate shall include for the supply of all materials, labour and plant necessary for the complete erection of the gate as shown on Drawing No. 38582.

PS.F.8 STANDARD VEHICULAR GATE

The unit of measurement shall be the number (No.) and the rate shall include for the supply of all materials, labour and plant necessary for the complete erection of the gate as shown on Drawing No. 38582.

PS.F.9 OVERHAUL

Notwithstanding the requirements of Clause F.8.1 and Clause F.8.2, no additional payment shall be made for haulage. The rates tendered for items in Part F of the Bill of Quantities shall include the cost of haulage.

PS.F.10 WORKS TO PROPERTY FRONTAGE

A sum has been included in the Bill of Quantities for work to properties fronting on the roadworks and will be used for items not covered elsewhere in the Bill of Quantities.

PS.F.11 OPEN CHANNELS

Where indicated by the Engineer or in the drawings, an open channel shall be formed to the detail provided on the drawings. Construction of the channel shall be along the lines described in Clause F.5.4. Tenderers shall note that details of the channel may vary in section and may have either a concrete or grass sod lining.

Where lining is required, the rate tendered for the channel shall, in addition to the items mentioned in Clause F.8.5, include for all materials, labour and plant required constructing the lining as per detail.

PS.F.12 CATCHWATER BANK DRAIN

Tenderers should note that a portion of the material to be excavated is classified as "Hard" in terms of Part DA, and "Rock" in terms of Part DB of the Departmental Technical Specification.

The rate tendered for the Catchwater Bank Drain shall in addition to the items mentioned in Clause F.8.5 include for all materials, labour and plant required to construct the drain with concrete lining as per the detail provided.

A separate item has been provided in the Bill of Quantities for the concrete lined Catchwater Bank Drain Inlet Channel, the details of which appear on 45115 Sheet 22 - "Special Drainage Details".

The rate tendered shall be Number (No.) and shall include for all materials, labour and plant required to construct the inlet channel as per the detail provided.

PS.F.13 GABION BOX RETAINING WALL AND MATTRESSES

Materials and construction shall be as is specified in Clause F.5.5 and F.6.3, and measurement and payment as is specified in Clause F.8.6 of the Standard Engineering Specification.

PS.F.14 LANDSCAPING

Landscaping would be required on this contract. The Engineer will provide the contractor with a landscaping plan and BOQ of the landscaping required for this contract. The contractor shall let out a tender for the landscaping using the BOQ and Landscaping plan.

A PC Sum item has been provide in Section 13, Part F for the landscaping required. On close of the tender for the landscaping, the contractor shall forward the tenders to the Engineer for evaluation, The Engineer will undertake an evaluation and provide recommendation of the most responsive tenderer to the Contractor. The Employer and Contractor shall jointly agree on the appointment of the tenderer as per the Engineer's recommendation.

An additional item has been provided in the BOQ for the Contractor's administration costs in this regard.

PS.PG NON-PRESSURE PIPELINES AND PC CULVERTS

INDEX

PS.PG.1 CONCRETE SEWER/STORMWATER PIPES

Concrete pipes shall be class 100D or 75D, as detailed in the drawings and schedules. No independent design is required. These pipes shall comply with Departmental Specification Part PG.3.4.2 and shall in addition to this sewer pipes shall have a 19mm thick calcium alumina cement (C.A.C) Lining.

The concrete pipes shall be jointed by means of a spigot and socket joint with a rubber sealing ring.

In addition to a rubber sealing ring the inside face of the joint shall be sealed with a Bitu- joint@ sealant or an approved equivalent.

Failed joints will be redone to the satisfaction of the Engineer.

PS.PG.2 MEASUREMENT AND PAYMENT (PIPELINES)

The unit of measurement shall be linear metres (m). The unit rate for supply shall include for:

- The supply of all pipes completes with couplings and joint material.
- Their inspection, transport to and about site and all handling costs.

The laying, jointing, building pipes into manholes including extrusion welding of water stop/building up where applicable, all cutting preparation and wastage of materials.

Testing as per Clause PG.7 and cleaning of pipelines.

PS.PG.3 BUILDING PIPES INTO MANHOLES (Clause PG 5.5)

The joints on pipes built into manholes for the sewer reticulation shall be located in accordance with the provisions of Clause PG 5.5 and not Clause PG 5.3.1 (d).

The new pipes will have to be connected to the existing trunk sewer in the connection chambers which are to be constructed over the existing trunk sewer. The benching operation of these chambers is to carried out between the hours 23h00 and 06h00 to minimise sewage flow control.

The unit of measurement for building pipes into manholes shall be number (no). The rate is to include for the supply of all labour, equipment and materials required for setting the new pipe to the correct level, making good manhole wall and the disposal of all unsuitable or surplus material as well as flow diversions.

PS.PG.4 SUBSOIL PIPES

The following clause shall replace Clause PG.3.5.

"These shall be "Netlon" plastic subsoil pipes complying with SABS 791 as amended.

Hole Size : 5 ∀ 1 mm Diameter
Diameter of Pipe: 100 ∀ 10 mm.
Pipe Invert : 25% of the circumference of the pipe is to be free from slots or holes to form an invert to the pipe."

PS.PG.5 SUBSOIL DRAINS AND OUTLETS

Subsoil drains shall be type B or C as detailed on standard drawing No. 38575.

Subsoil pipes shall be "Netlon" plastic pipes conforming to SABS 791 or the new Flo Drain system. The outfall end of each run of subsoil drain shall be built into the nearest inlet/manhole or headwall in accordance with Clause PG 5.5, or into a special outlet structure as detailed on the project drawings and measured under part PH.

PS.PG.5.1 CONNECTION OF SUBSOIL DRAINS TO EXISTING STORMWATER SYSTEM

Where subsoil pipes require to be built into an existing stormwater inlet/manhole or headwall, the unit of measurement shall be number (No.)

The rate tendered shall include for all labour and materials to construct the connection in accordance with Clause PG.5.5. and for trimming the geofabric at the connection.

PS.PG.5.2 SUBSOIL TERMINATION STUB

The final 1 metre length of the subsoil drain before the manhole/catchpit shall be 100 mm diameter non-perforated U.P.V.C. pipe. The unit of measurement shall be number (No.). The rate shall include for the supply and laying of the pipe, and for all work necessary to tie into the stormwater manhole/catchpit.

PS.PG.6 STONE FOR SUBSOIL DRAIN FILTER

The following clause shall replace Clause PG.3.10.

"The stone aggregate used for the subsoil drain filter shall consist of 9,5 mm crushed stone conforming to the following grading :

Sieve size mm	132	95	67	475	236
% Passing	100	85 - 100	0 - 55	0 - 25	0 - 5

"

PS.PG.7 RIVER SAND BACKFILL FOR SUBSOIL DRAIN FILTER

The following clause shall replace Clause PG.3.11.

"River sand for subsoil drain filter shall consist of clean river sand conforming to the following grading :-

Sieve size mm	67	475	150	75
% Passing	100	90 -100	0 - 15	0 – 3

and having a Fineness Modulus of 2,0 - 3,5."

PS.PG.8 GEOFABRIC BLANKET

The geofabric shall comply with Clause PG.3.8 and the rate tendered shall include for wrapping the geofabric around either the subsoil pipe, subsoil drain or stone bedding.

PS.PG.9 CONCRETE ENCASEMENT OF DUCTS UNDER CARRIAGEWAYS

Further to Clause PG.8.11.2 the Contractor shall note that concrete grade 20 / 26 shall be used for all duct encasement.

PS.PG.10 BRICK HEADWALLS TO DUCTS

Ducts shall have brick headwalls constructed at each end of the ducts, as shown on standard Drawing No. 38581. Bricks for these headwalls shall be selected good quality clay commons. Mortar shall conform to mix Class A as defined in the latest edition of the Standard Building Regulations. Construction of brickwork shall be as specified in Clause F.5.6.3.

PS.PG.11 SAND / CEMENT MIX BACKFILL TO DUCTS

Rate is per cubic metre (m;) of backfill, (payable up to pay trench width). The rate shall include for the supply of clean coarse granular sand, including all haulage, supply and mixing of cement to the sand in a 1 cement : 10 sand ratio, placing and compacting of the backfill.

PS.PG.12 CABLE DUCT MANHOLES

Cable duct manholes shall consist of 230mm thick brickwork to an external plan dimension of 790x790 on a 200mm thick class 20/26 concrete base. Manhole lid and frame shall be heavy duty concrete – 150mm thick.

PS.PG.13 ALTERNATIVE ROUTING OF SEWER AND STORMWATER LINES

Due to the high number of services that exist in the vicinity of works, it may not be possible to install new services in the positions or sizes indicated on drawings, at all times. Therefore possible re-designs will be required on-site which the contractor needs to take cognisance of in his programming.

PS.PG.14 KAY-TECH FLO-DRAIN OR SIMILAR APPROVED

The Kaytech Flo-Drain or similar approved subsoil drain may be used as an alternative to the conventional subsoil drain system. The Flo-Drain comprises of three elements, ie. geofabric, Flo-net and Flo-drain pipe. The contractor is to combine these elements to make up the Flo-drain. The rate of measurement will be per linear metre (m) and will be for the supply and installation of the system. The excavation and backfill to the Flo-Drain will be paid elsewhere.

PS.PH MANHOLES AND APPURTENANT DRAINAGE WORKS

INDEX

PS.PH.1 MANHOLES AND INLETS

Tenderers are to note that manholes and inlets shall be measured according to type and varying depth only. The rate tendered for the manholes/inlets shall include for the different pipe sizes and benching configurations.

The Contractor shall note that the rate for inlets shall include the cost of the graded channel in front of the inlet and / or splay and the cost of the transition kerb and channel upstream and downstream from each inlet. This will not form part of the payment for kerb and channel.

PS.PH.2 MANHOLES AND APPURTENANT WORKS : REVISED DRAWING NUMBERS

Clause PH.3.2.1.1 second paragraph is replaced by the following:

Details of the precast concrete components of standard manholes are shown in the Standard Drawings referenced in section C3.5 for both foul-water sewers and stormwater drains.

Clause PH.5.11 first paragraph:

Standard drawing 21701 is replaced by drawing 38574.

PS.PH.3 BRICKS

Clause PH.3.1 first paragraph shall be replaced by the following:

"Burnt clay masonry units for foul-water and stormwater sewer manholes, stormwater inlets and inspection chambers shall be Non-Facing Extra (NFX) with a nominal compressive strength of 14 MPa to S.A.B.S. 227:1986.

PS.PH.4 INLET AND OUTLET HEADWALLS

Details of outlet headwalls are as indicated in Standard Drawings referenced in section C3.5 unless otherwise stated. The unit of measure for these headwalls shall be Number (No.) and shall include for all labour, plant and materials required for the construction of the headwall inclusive of the base and cut-off walls.

The construction of brickwork shall be as specified in Clause F.5.6.3. Mortar shall conform to mix Class A as defined in the latest edition of the Standard Building Regulations.

PS.PH.5 CONSTRUCTION OF MANHOLE / INLET OVER EXISTING STORMWATER PIPE

The unit of measurement shall be Number (No.).

Further to Clauses PH.8.2 and PH.8.3 the rate shall include for :

(a) Breaking into the existing pipe.
(b) Cutting and reinstating the ends of the existing pipe.
(c) The restricted working around the existing pipe.
(d) Disposal of any spoil etc., to the tip.

PS.PH.6 BREAK INTO EXISTING BRICK MANHOLE/INLET FOR STORMWATER PIPE

The unit of measurement shall be Number (No.). Separate items have not been scheduled for each diameter of pipe to be connected to a manhole. The unit rate for breaking into a brick manhole to connect a stormwater pipe shall include for all the materials, labour and plant necessary for:

(a) The breaking into the existing manhole, including the demolition of the benching necessary to accommodate the pipe.
(b) The building in of the stormwater pipe, including the re-shaping and making good of benching and the disposal of all resultant rubble to approved tip.

PS.PH.7 CONVERT EXISTING MANHOLES TO INLETS

Where indicated, existing manholes shall be converted to standard inlets as shown in the Standard Drawings referenced in section C3.5. The unit of measurement shall be number (No.) and in addition to the plant, labour and materials required to alter the manhole, the rate shall include for :

(a) removing the existing cover and frame to site for storage;
(b) disposal of any spoil / rubble to tip,
(c) raising/lowering of the inlet cover by 0-300 mm from the original level,
(d) supply and setting of the new inlet covers to the new levels.

Separate items have been included in the Bill of Quantities to cover the different manhole and inlet types.

PS.PH.8 CONVERT EXISTING INLETS TO MANHOLES

Where indicated, existing inlets shall be converted to standard manholes as shown in the Standard Drawings referenced in section C3.5. The unit of measurement shall be number (No.) and in addition to the plant, labour and materials required to alter the inlet, the rate shall include for :

(a) Disposal of any spoil/rubble to tip,
(b) raising/lowering of the manhole cover by 0-300 mm from the original level,
(c) supply and setting of the new manhole covers and frames to the new levels.

Separate items have been included in the Bill of Quantities to cover the different manhole types.

PS.PH.9 BREAK INTO EXISTING BRICK MANHOLE / INLET FOR STORMWATER PIPE

The unit of measurement shall be Number (No.). Separate items have not been scheduled for each diameter of pipe to be connected to a manhole. The unit rate for breaking into a brick manhole to connect a stormwater pipe shall include for all the materials, labour and plant necessary for :

(a) The breaking into the existing manhole, including the demolition of the benching necessary to accommodate the pipe.
(b) The building in of the stormwater pipe, including the re-shaping and making good of benching and the disposal of all resultant rubble to approved tip.

PS.PH.10 BRICK HEAD WALLS TO DUCTS

Ducts shall have brick head walls constructed at each end of the ducts, as shown in Standard Dwg. 38581. Bricks for these head walls shall be selected good quality commons. Mortar shall conform to mix Class A as defined in the latest edition of the Standard Building Regulations. Construction of brickwork shall be as specified in Clause F.5.6.3.

PS.PH.11 ALTERATIONS TO EXISTING MANHOLES AND STORMWATER INLETS INCLUDING RAISING AND LOWERING THE COVERS

Alterations to stormwater structures for this contract may be divided into two categories.

(i) Where the cover is to be raised/lowered and set back less than 300 mm.
(ii) Where the cover is to be raised/lowered and set back a distance of more than 300 mm but less than 800 mm.

In (i) above the Contractor shall be required to demolish a portion of the stormwater structure and corbel the brickwork to support the cover in its new position.

In (ii) above the Contractor shall be required to demolish a portion of the stormwater structure, cast an extension to the base, slab over as required and re-do the brickwork to support the cover in its new position. Details of this work are shown in section C3.4.

PS.PH.12 CABLE DUCT MARKERS FOR ALL SERVICES

Further to the fourth paragraph of Clause PG.5.2.3, and to Clause PG.8.11.3, the Tenderer shall note that the cable duct markers will not be delivered by the Council to site free of charge.

The Tenderer shall make allowance in the rates tendered for both the supply and installation of the cable duct markers; i.e. it will be expected of the Contractor to make suitable arrangements with a commercial supplier in advance of the cable duct markers being required on site.

PS.PH.13 MANHOLES WITH TYPE S1, S2, D3 INLET COVERS

A number of Type "A" and "B" stormwater manholes with various types of inlet covers have been scheduled on this contract. The manholes are schedule by type and in depth increments of 0.5m after the first 1.5m depth from top of manhole.

The unit of measurement shall be number (No.) and the tendered rate for each type shall include for the supply of all labour, plant and materials required to construct the manhole complete in accordance with the Standard Drawings and Specification, and inlet type cover as is specified in the contract drawings.

PS.PH.14 ABANDONED SEWER AND STORMWATER MANHOLES

The existing manholes shall only be abandoned after the new sewer and all connections are completed and operational.

The manholes are to be broken down 1 m below the existing surface level and the void backfilled with suitable material after the incoming and outgoing sewers have been sealed with concrete. Items for this work have been included in the Bill of quantities.

PS.PH.15 REINFORCED CONCRETE SLAB FOR BLINDING M.H.'S

The supply of the reinforced concrete slab 1 500 mm by 1 500 mm by 250 mm thick for blind manholes is inclusive of shuttering, grade 25 / 26 concrete, and reinforcement steel - Y12 at 250 mm centres both ways).

PS.PH.16 REPLACE EXISTING CONCRETE MANHOLE COVER SLAB AND FRAME WITH HEAVY DUTY CAST IRON/ POLYMER CONCRETE TYPE

The unit of measurement shall be number (No.) and the rate shall include for labour, plant and materials necessary for :

- The removal of the existing concrete manhole cover slab and frame.
- Loading and transporting to the approved tip site for dumping.
- Replacing the existing concrete manhole cover slab and frame with the heavy duty cast iron / polymer concrete type.

PS.PH.17 BREAK INTO EXISTING CULVERT FOR STORMWATER PIPE

The unit of measurement shall be Number (No.). Separate items have not been scheduled for each diameter of pipe to be connected to a culvert. The unit rate for breaking into a culvert wall to connect a stormwater pipe shall include for all the materials, labour and plant necessary for :

(a) The breaking into the existing culvert wall to accommodate the pipe.
(b) The building in of the stormwater pipe, including the re-shaping and making good of the culvert wall and the disposal of all resultant rubble to approved tip.

P.S.PH.18 RING MANHOLES (Part PH)

1. 1500 mm diameter precast concrete ring manholes shall be constructed in accordance with Departmental Specification Part PH : Manholes and Appurtenant Drainage Works. The Unit for measurement will be number (No.) and the tendered rate shall include for :

a) The supply of all labour and materials to construct and complete in accordance with the contract drawings, the specifications and the type and size of the manhole specified in the schedule of quantities.

b) The forming of the invert based on a 1100 mm diameter straight channel with benching as shown on Drawing No 38570.

c) Additional excavation in excess of the width and bottom of the trench. Disposal of surplus material and compaction of the excavated bottom to 96 % Mod AASHTO as well as all backfill and compaction.

All concrete work, in situ as well as precast, inclusive of formwork, steel reinforcing materials labour etc. NB. In situ concrete work is to be carried out in accordance with Departmental Engineering Specification Part C.

2. Supply and install Type 2A heavy duty cast iron cover and frame, heavy duty concrete adaptor slab. Payment for the following items will be extra over the payment of the manhole:

a) forming channel and benching including any change in direction.

PS.PH.19 CONNECTIONS TO EXISTING SEWERS MANHOLES

Where new sewer pipes have to be connected to existing manholes, the existing manhole walls are to be broken out and the new sewer pipe built in at the correct line and level. The unit of measurement shall be "**sum**". The rate is to include for the supply of all labour, equipment and materials required for the breaking out of the manhole wall, any modification to the benching of the existing manhole, setting the new pipe to the correct level, making good the manhole wall and benching and the disposal of all unsuitable or surplus material, as well as flow diversions.

PS.PH.20 CONNECTING PIPES INTO THE REINFORCED CONCRETE STRUCTURE

The unit of measurement shall be number (No.) Separate items will be scheduled for each diameter of pipe to be connected to the structure. The unit rate for altering a concrete structure to connect a stormwater pipe shall include for all the materials, labour and plant necessary for:

(a) The boxing out of the structure, including the bending and cutting back of reinforcing to accommodate the pipe.
(b) The building in of the stormwater pipe, including the re-shaping and making good the structure, and the neat cutting back of the pipes flush with the structure.
(c) Pipes shall be measured separately.

PS.PH.21 GALVANISED METAL GRIDS TO COVER V-DRAIN OPENING

Galvanised metal grids shall consist of 8mm round bar (length varies) welded to 75x4mm plate (800mm long) at 50mm c/c bolted onto underside of inlet cover and embedded into the v-drain whilst the concrete is fresh. There shall be one (1) No. metal grid per inlet cover or inlet splay were required. The unit of measurement shall be number (No.) and the tendered rate for each type shall include for the supply of all labour, plant and materials required to manufacture and install the grid. Refer to typical detail in the tender Drawings.

PS.PH.22 POLYMER CONCRETE INLET COVER AND FRAME

The Heavy-Duty Concrete Cover and frame are to be replaced with Polymer Concrete Cover and Frame.

The unit of measurement shall be number (No.) and the tendered rate for each type shall include for the supply of all labour, plant and materials required to undertake the works.

PS.TA ROAD SIGNS

INDEX

PS.TA.1 GENERAL

The Tenderer shall make allowance in the time related rates under Section 1.AB in the Bill of Quantities rates, repositioning, covering/uncovering, relocating or removing temporary signs and other forms of road furniture as required during the progress of the works.

PS.TA.2 ROAD SIGN BOARDS

Further to Item TA.8.1, tenderers are to note that the signs measured under this item are the various types of standard regulatory signs (e.g. stop, yield, keep left etc.).
Notwithstanding the requirements of Clause TA.8.1 the unit of measure shall be number (No.).

PS.TA.3 RE-ERECT ROAD SIGNS

The unit of measurement is number (No.) which shall consist of one pole and one sign.
The rate shall cover the cost of collecting the pole and sign from the site yard and planting of the pole in the PVC sign sleeve or ground, together with compacting the soil around the pole.

PS.TA.4 TEMPORARY ROAD SIGNS

PS.TA.4.1 MATERIALS

All temporary signs shall be manufactured from Chromadek steel plate as detailed under Clause TA.3.3 and retroflective material as follows:

Black	semi-matt finish
Yellow background (with no red material)	Class I
Yellow background (if red material used)	Class II
Red	Class I

With the exception of signs R1, R2, R3, R1.5A and R1.5B, the temporary road signs shall be in accordance with the colour code for temporary road signs.

PS.TA.4.2 ERECTION

The temporary road signs shall be erected in a manner such that the face of the sign is not defaced, obscured or deflected in any way.

Where necessary, for high visibility, the temporary signs shall be erected on 100 mm creosoted gum posts such that the underside of the sign is not less than 2,2 m above ground level. The post/s shall be supported in a drum/s which shall be ballasted and braced or stayed so that

the sign cannot be blown over. In all other instances, the temporary signs shall be adequately secured to a drum.

PS.TA.5 TIMBER POSTS

The timber posts for the temporary sign supports shall be 100 mm diameter creosote gum posts.

PS.TA.6 DRUMS

All drums shall be white painted, 200 litre drums or similar approved by the Engineer. Drums shall not be used for delineation purposes.

PS.TA.7 PROTECTION AND MAINTENANCE

The Contractor shall protect and maintain all road furniture (road signs, delineators, drums, barriers, barricades etc.) throughout the course of the contract and shall be responsible for the cost of replacing any road furniture that may be damaged or stolen.

PS.TB ROAD MARKING

INDEX

PS.TB.1 PLASTIC ROAD MARKING MATERIAL

Further to Clause TB.3.1(c) the plastic road marking material shall comply with the requirements of Specification BS.3262, 1987 Part 3.

(a) The material shall consist of a light-coloured aggregate, pigment and extender, bound together with a thermoplastic resin, plasticised as necessary.

The approximate composition of the material as laid is dependent on the appropriate specification, but for example shall be:

Aggregate	40 parts
Solid Glass Beads	20 parts
Pigment and Extender	20 parts
Binder	20 parts

The proportioning of the various ingredients shall be such that the material, when in a molten state, can be sprayed readily onto the road surface to give an even line of good definition.

(b) Aggregate

The aggregate shall consist of white silica sand, crushed calcite calcined flint, quartz, or other approved aggregate.

(c) Reflectorisation

The solid glass beads incorporated in the mixture shall comply with the Class A category of BS 6088 (1981) that is:

Sieve	% Retained
0,18 mm	0 - 3
0,850 mm	5 - 20
0,425 mm	65 - 95
Below 0,425 mm	0 - 10

Minimum of spherical beads by number 70%

(d) Luminance

The luminance factor of white SPRAYPLASTIC shall be not less than 70.

(e) Flow resistance

The percentage decrease in the height of the cone of SPRAYPLASTIC shall not be more than 25 after testing for 48 hours at 23 C (temperate grade) or 40 C (semi-tropical or tropical grades).

(f) Low Temperature Impact Resistance

SPRAYPLASTIC shall pass the impact test when tested at -10 C (temperate grade) or -1 C (semi-tropical or tropical grades).

(a) Abrasion resistance

The abrasive wear of SPRAYPLASTIC shall typically be less than 0,5 g per 100 revolutions.

PS.TB.2 LETTERING, SYMBOLS AND TRAFFIC ISLAND MARKING

Notwithstanding the requirements of Clause TB.8.1.2, traffic island marking shall be measured under Clause TB.8.1.1 lines.

PS.TB.3 TEMPORARY ROADMARKING

Items have been included in the Bill of Quantities for the provision of temporary road marking using P.V.A. paint.

PS.TB.4 SANDBLASTING

Where directed, the Contractor shall remove existing lane lines and painted islands by sandblasting. The Contractor shall ensure that the method of sandblasting used will not damage the road surface permanently.

The Contractor shall take all necessary precautions to avoid damage to the public traffic during the removal of existing markings.

All loose material remaining on the road after obliteration of markings shall be suitably disposed of to avoid clogging the drainage systems.

The unit of measurement shall be the square metre (m^2). The rate shall include for the successful removal of the paint on the road surface, the continual sweeping and removal of grit and the screening of the sand blasting apparatus to ensure that the dust from the operation does not become a hazard.

PS.TB. 5 PAINTED PRECAST CONCRETE KERBS

The unit of measurement shall be linear metre (m). Separate items have been scheduled for each specified colour and the quantity paid for shall be the actual painted kerb of the exposed front face and the top of the Figure 6 type precast concrete kerb. The kerbs shall be painted alternately in black and white colours where required.

The rate shall include for procuring and furnishing all material, including PVA Road Paint and the necessary equipment, and for painting, protecting, and maintenance as specified.

PS.TB. 6 ROAD STUDS

Five (5) types of road studs / markers will be used on this contract, ie.

i) Solar rechargeable roadstuds,

ii) Uni-directional Road studs- Stimsonite or similar approved,

iii) Bi-directional road studs- Stimsonite or similar approved,

iv) Tempered Glass 360 degrees, and

v) Temporary Roads Marker.

The Temporary Road Markers will be used for all temporary works, ie.deviations / detours. The unit of measurement shall be number (No.). The rate shall include for the installation and removal of the markers. They shall be amber and red in colour.

The Permanent Road Studs will be used in the permanent works. They will be of type (i) to (vi) as detailed above. The unit of measurement shall be number (No.). The rate shall include for the supply and installation of the studs. They shall be white, yellow and red in colour.

C3.4: PARTICULAR SPECIFICATIONS

In addition to the Standardized and Project Specifications the following Particular Specifications / Policies shall apply to this contract:

C3.4.1 Part AH - OHSA 1993 Safety Specification
(26 Pages)

C3.4.2 Standard Environmental Management Plan for Civil Engineering Construction Works
(24 Pages)

C3.4.3 Policy for the use of CLOs and Local labour

3.4.1 eThekwini Municipality Health and Safety Specification

C3.4.2 Baseline Risk Assessment

C3.4.3 Policy for the use of CLOs and Local Labour

POLICY FOR THE USE OF CLOs & LOCAL LABOUR (Policy shown in bold text)

The primary role of the CLOs shall be liaison and facilitation of communication.

This could include inter alia

- assisting in all aspects related to the recruitment of local labour, and advise them of their rights
  - acting as a source of information for the community and Councillors on issues related to the contract
  - keeping the contractor advised on community issues
  - keeping the contractor advised on any issues pertaining to local security
  - assisting in setting up any meetings/ negotiations with affected parties
  - keeping a site diary & recording details of any labour/community issues that may arise
  - monitoring and reporting on general Health & Safety issues on site
  - assisting in HIV/AIDS awareness programmes
  - it must be noted that the CLO has no authority to issue any instructions to the Contractor

The CLO needs to be seen as neutral by all parties, and therefore should endeavour not take sides should conflict arise.

Should the CLO function not involve a full day's work, the CLO will be expected to undertake other work allocated by the Contractor for the balance of each day.

The minimum skills for a CLO shall include:-

An ability to work with others
An ability to communicate in Zulu and English
An ability to communicate in writing
Sound Interpersonal skills

Previous experience in community facilitation, and knowledge of construction work and relevant labour legislation would be an advantage.

The Ward Councillor shall be responsible for the selection of the CLO. The selected CLO shall be accountable to the Contractor.

The Ward Councillor(s) will provide a CLO within 2 days of receiving a request.

The rate of payment for the CLO shall be based on 200% of the Civil Engineering Industry minimum wage(See www.labour.gov.za or www.safcec.co.za)

The CLO shall be employed on a full day basis, for the duration of the contract. When not undertaking specific CLO duties, the CLO will be expected to undertake any other work allocated by the Contractor.

Use of local labour

Responsibility for the identification of a pool of suitable labour shall rest with the CLO, although the contractor shall have the right to choose from that pool.

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

The contractor shall have the right to replace labour that is not performing adequately.

The contractor should ensure that the replacement of any labour due to inadequate performance is done so in conjunction with the CLO.

Local labour shall be paid in accordance with the Civil Engineering Industry minimum wage rate (See www.labour.gov.za or www.safcec.co.za), and all statutory conditions of employment shall be met.

The preferred ratio of local labour to contract labour is 75% to 25%.

C3.5: CONTRACT AND STANDARD DRAWINGS

C3.5.1 CONTRACT DRAWINGS / DETAILS

Book of drawings shall be made available to the tenderer.

C3.5.2 STANDARD DRAWINGS

The Standard Drawings to which these Standard Engineering Specifications refer are listed below.

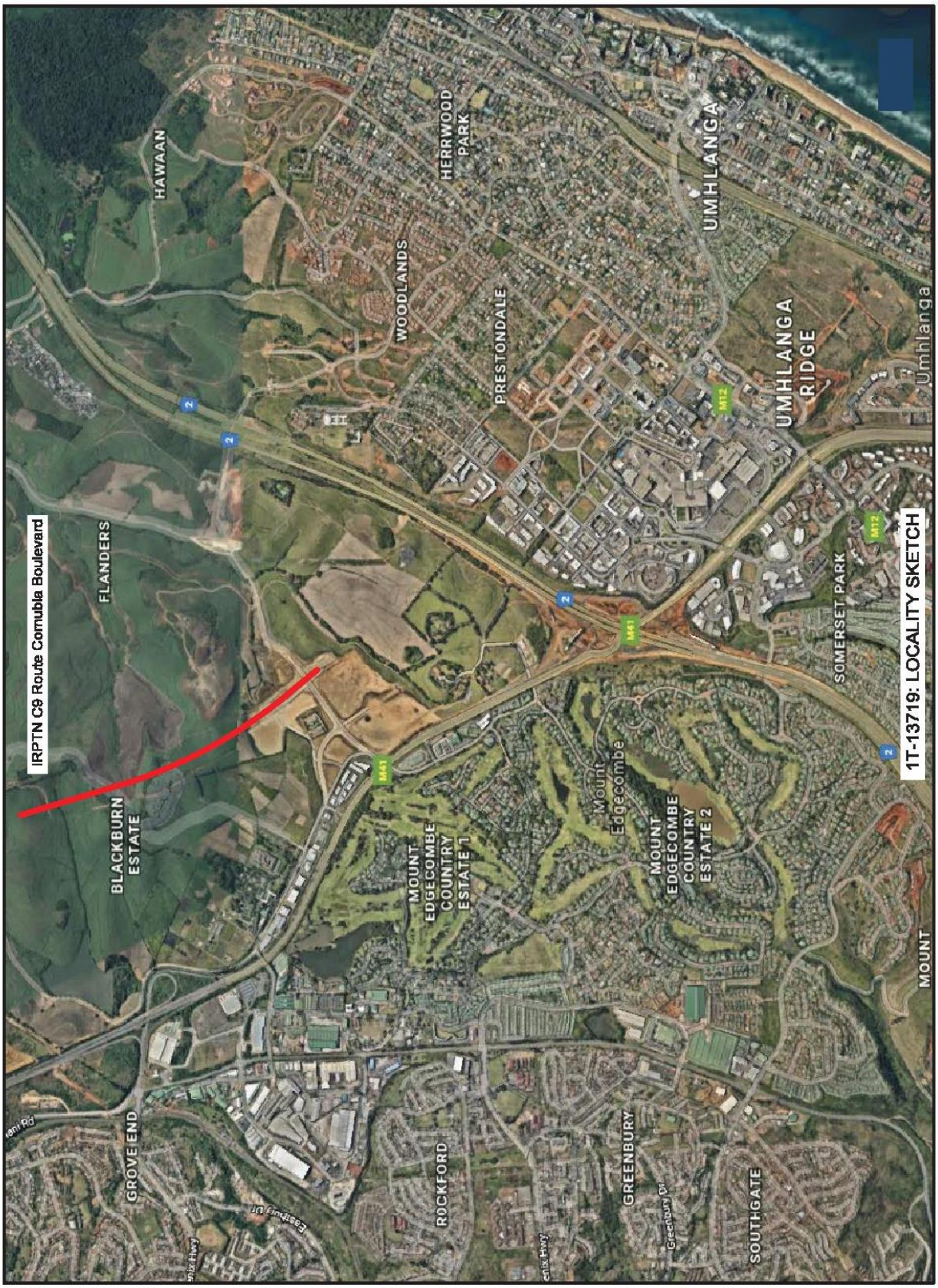
Dwg No	Description	Date of Issue
38570	Ring Manholes	February 1990
38571	Brick Manhole Details	February 1990
38572	Stormwater Inlet Details	February 1990
38573	Stormwater Inlet Special Details	February 1990
38574	Sewer Manholes: Ramp, Backdrop and Channelling Details	February 1990
38575	Sub-Soil Drain, Pipe Bedding and Pipe Protection Details	February 1990
38576	Headwall Details	February 1990
38577	Kerbing Details	February 1990
38578	Concrete Median Barriers	February 1990
38579	Vehicular and Pedestrian Scoops	February 1990
38580	Concrete Bollard and Steel Guard Rail	February 1990
38581	Retaining Wall, PC Steps, Staircase, Cable Ducts and Headwalls	February 1990
38582	Precast Concrete Fencing and Aluminium Gates	February 1990
38583	Wire Mesh Fence and Gate Details	February 1990
38584	Standard Hydrant Thrust Blocks and Trenches	February 1990
38585	Water Connections, Pipework and Fittings	February 1990
38586	DP & TC Manholes - Rectangular	February 1990
38587	DP & TC Manholes - “L” Shaped	February 1990
38588	DP & TC Manholes - “T” Shaped	February 1990
38589	DP & TC Cable Ducts and Junction Box Details	February 1990
43120	Typical Details of Grid Inlets	February 1990

PART C4: SITE INFORMATION

C4 SITE INFORMATION

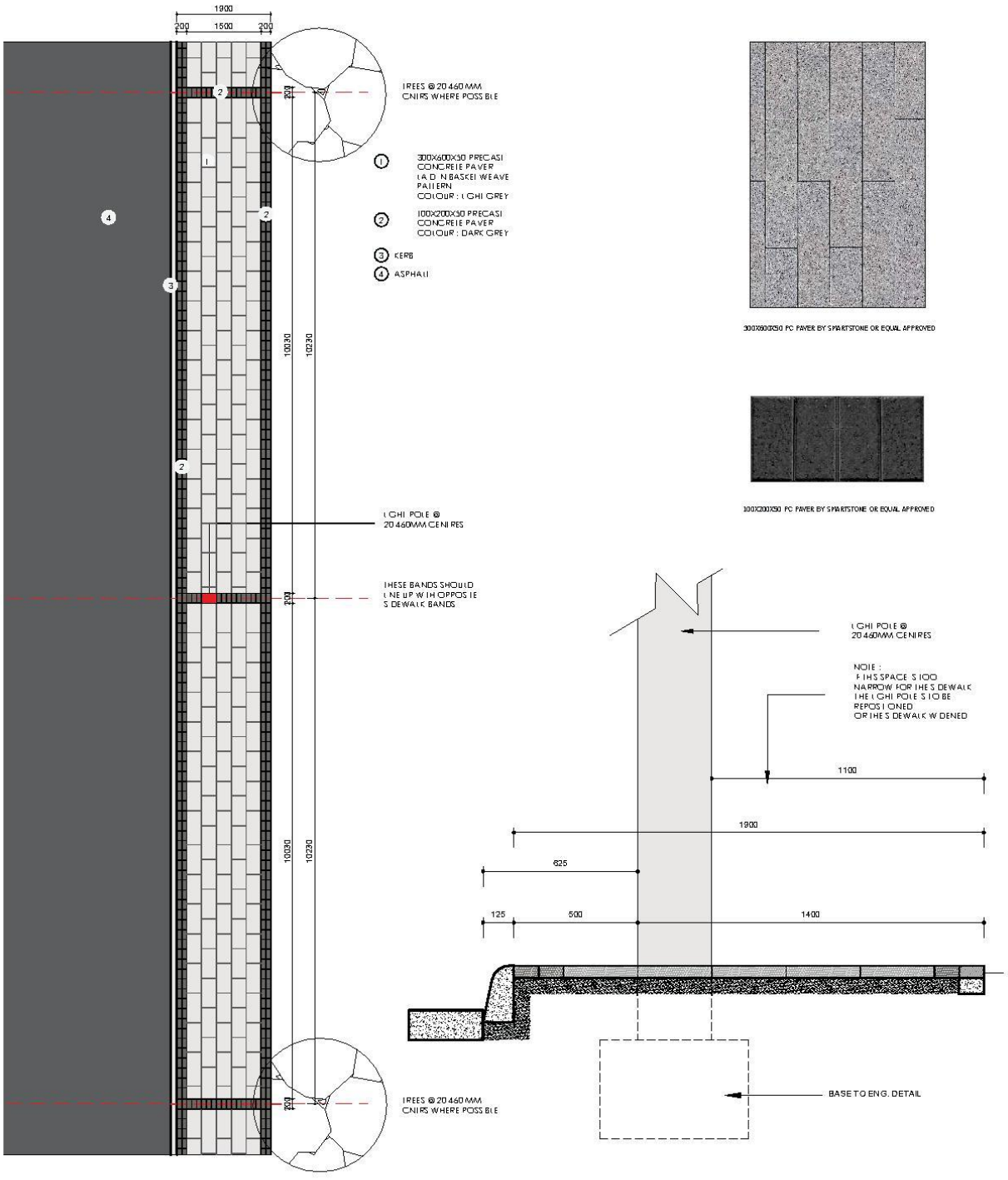
C4.1 Locality Plan
C4.2 Conditions on Site
C4.3 Sidewalk and Median Layout
C4.4 Available Site Camp Location
C4.5 Notice Board
C4.6 Station Platform Drawings
C4.7 Subcontracting: Joint Venture Proforma
C4.8 Subcontracting: Subcontractor Proforma
C4.9 Contractor Performance Assessment Proforma
C4.10 Access to Site
C4.11 Traffic Accommodation Proposal
C4.12 Example of TGSI tiles compliant with SANS 784 2007 and non-compliant tiles

C4.1 LOCALITY PLAN



C4.2 CONDITIONS ON SITE

C4.3 SIDEWALKS AND MEDIAN LAYOUT



ETHEKWINI IRPTN
TYPICAL PAVING DETAIL

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DATE	07/10/2015
DRAWN:	VB
SCALES:	1:50 & 1:100 @ A2
SIZE	A2
REF No.	–

IYER URBAN DESIGN STUDIO

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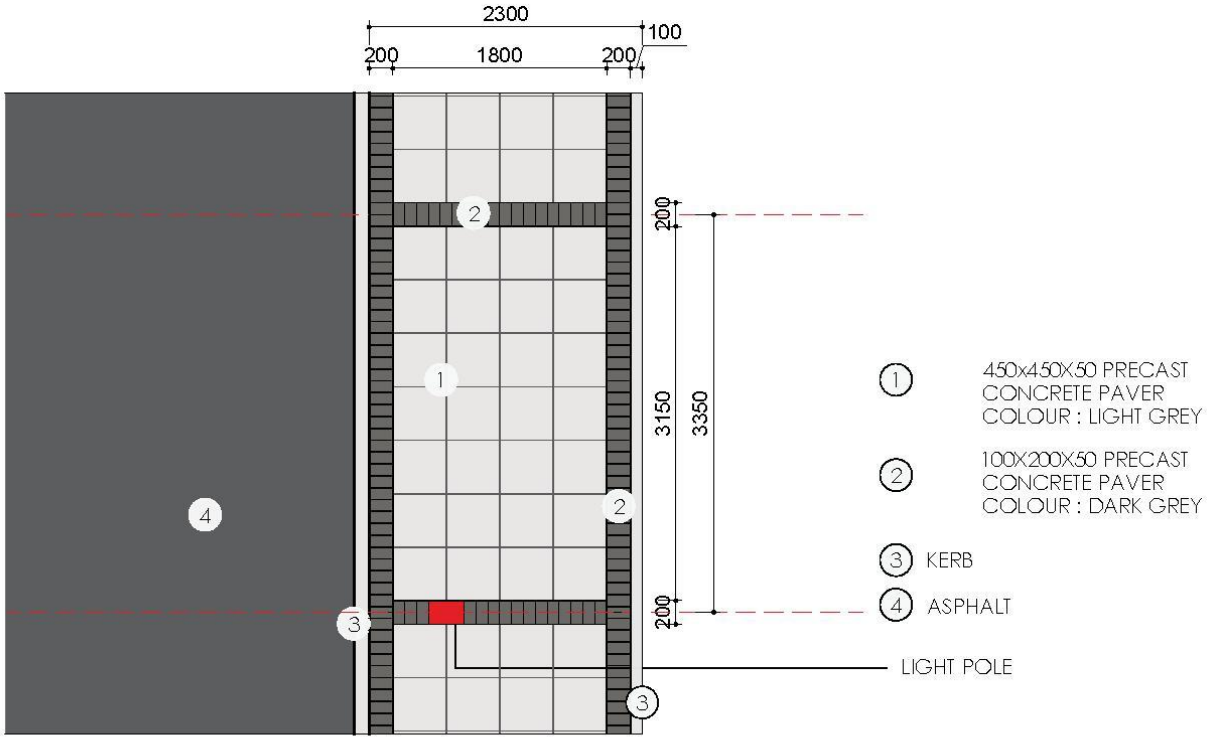
Dwg no.	D-200 001
Rev	0
Date: 07/10/2015	



ETHEKWINI IRPTN
TYPICAL PAVING DETAIL

CHECKED:	GJ
DATE:	07/10/2015
DRAWN:	VB
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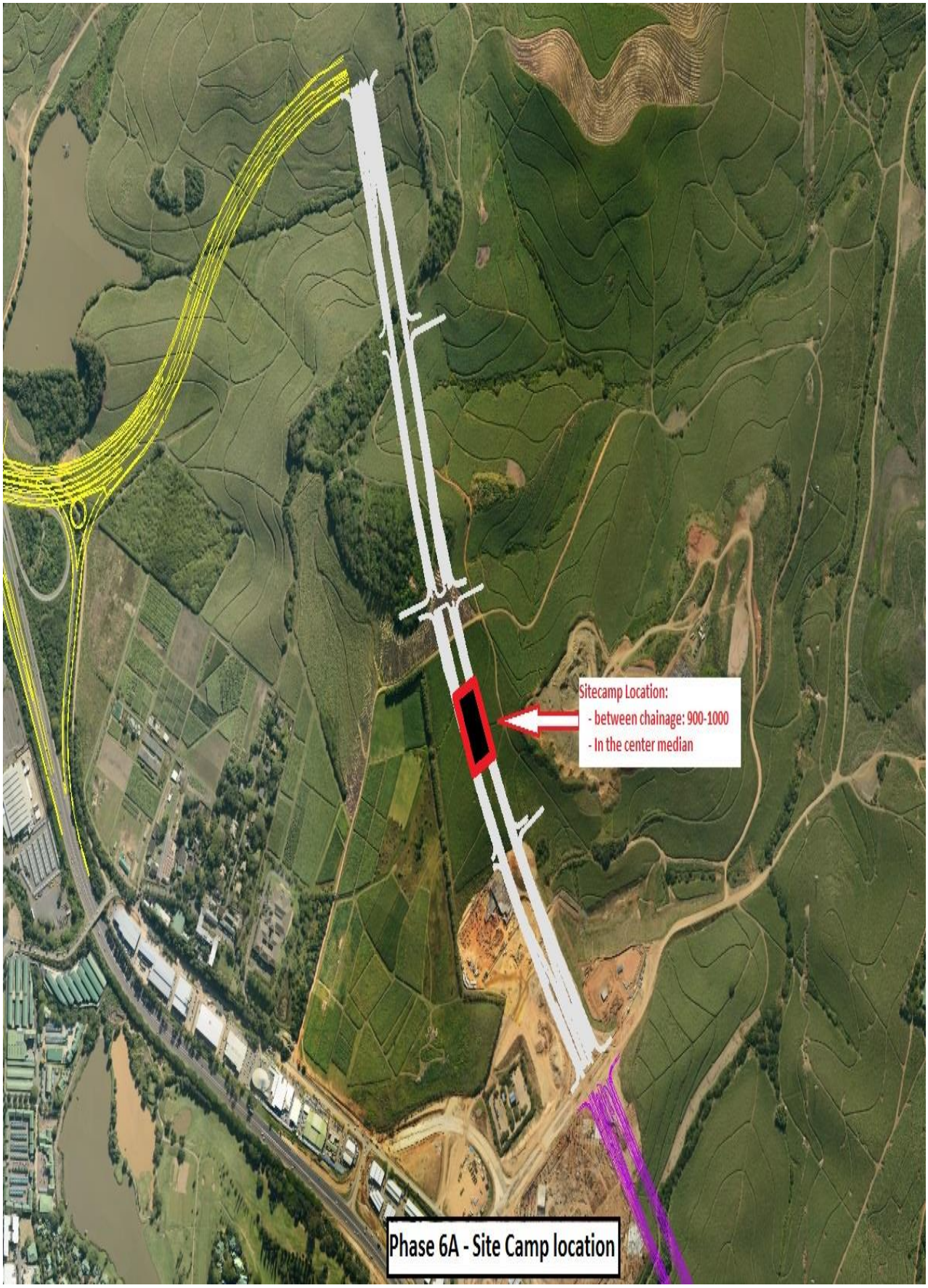
SIZE:	A2
KEY No.	-

IYER

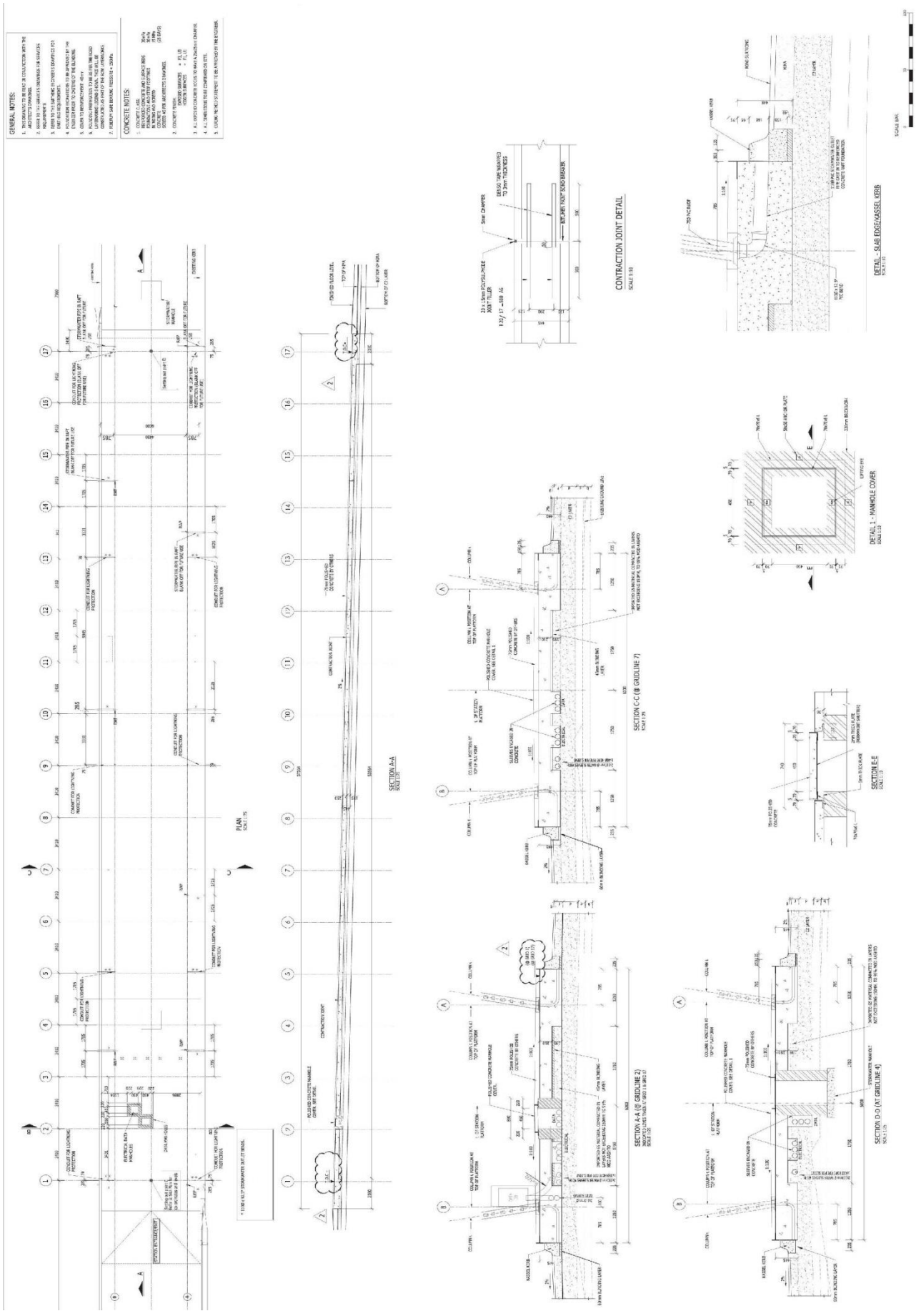
Title: PROPOSED PRECINCT PAVING LAYOUT
Set: D
Dwg no.: D-200 001
Rev: 0
Date: 07/10/2015

C4.4 AVAILABLE SITE CAMP LOCATION



C4.5 NOTICE BOARD LAYOUT

C4.6 STATION PLATFORM DRAWINGS



C4.7 SUBCONTRACTING PLAN: JOINT VENTURE

CONTRACT NUMBER: 1X-32452

SUBCONTRACTING PLAN FOR EQUITY (JOINT VENTURE)

Item Number	Item	% Subcontracting	Subcontracting Value for JV
1	**Contract administration**		
2	**Construction works as per BOQ**		
3	**Other**		
TOTALS			R -

C4.8 SUBCONTRACTING PLAN: SUB-CONTRACTOR

CONTRACT NUMBER: 1x-32452

SUBCONTRACTING PLAN FOR SUB CONTRACTORS

Item Number	Item	% Subcontracting	Subcontracting Value	VALUE OF WORKS TO CE GRADE						
				1CE	2CE	3CE	4CE	5CE	6CE	7CE
TOTALS										

CONSULTANT/CLIENT

CONTRACTOR PERFORMANCE ASSESSMENT

Contract No:

Contract Name:

Contractor:

Contract Duration:

Contractor Value:

Due Completion Date: **Actual Completion Date:**

Assessed By: **Capacity:**

Contact details:

Client:

Contract details:

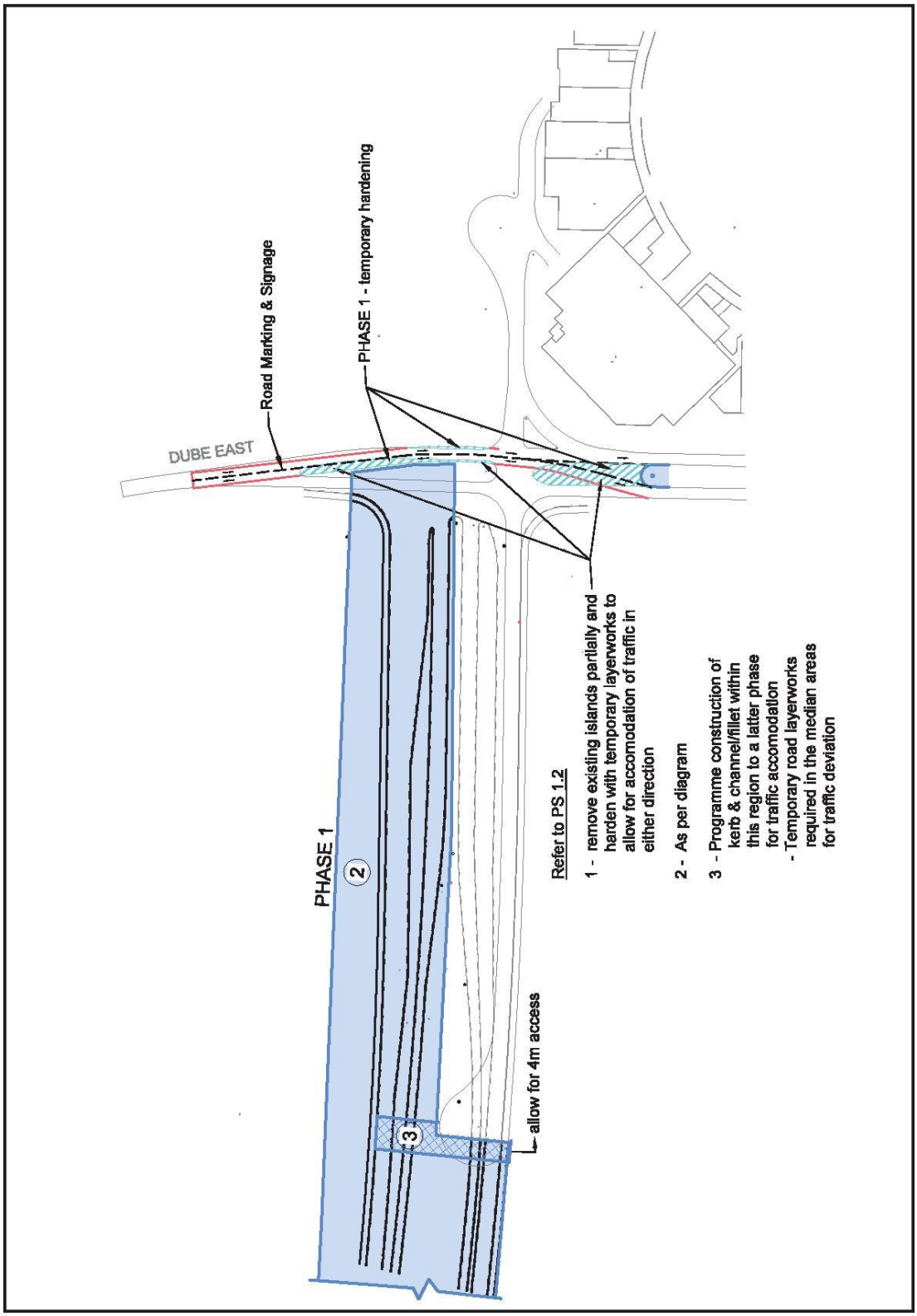
DESCRIPTION*	GOOD	FAIR	POOR
Standard of: Concrete Work			
Road Works			
Asphalt Work			
Kerbing			
Storm Water			
Brickwork			
Knowledge of work undertaken			
Keeping to programme			
Contactability of Contractor			
Overall Performance			
	LOW	**MED**	**HIGH**
Degree of Supervision Required			

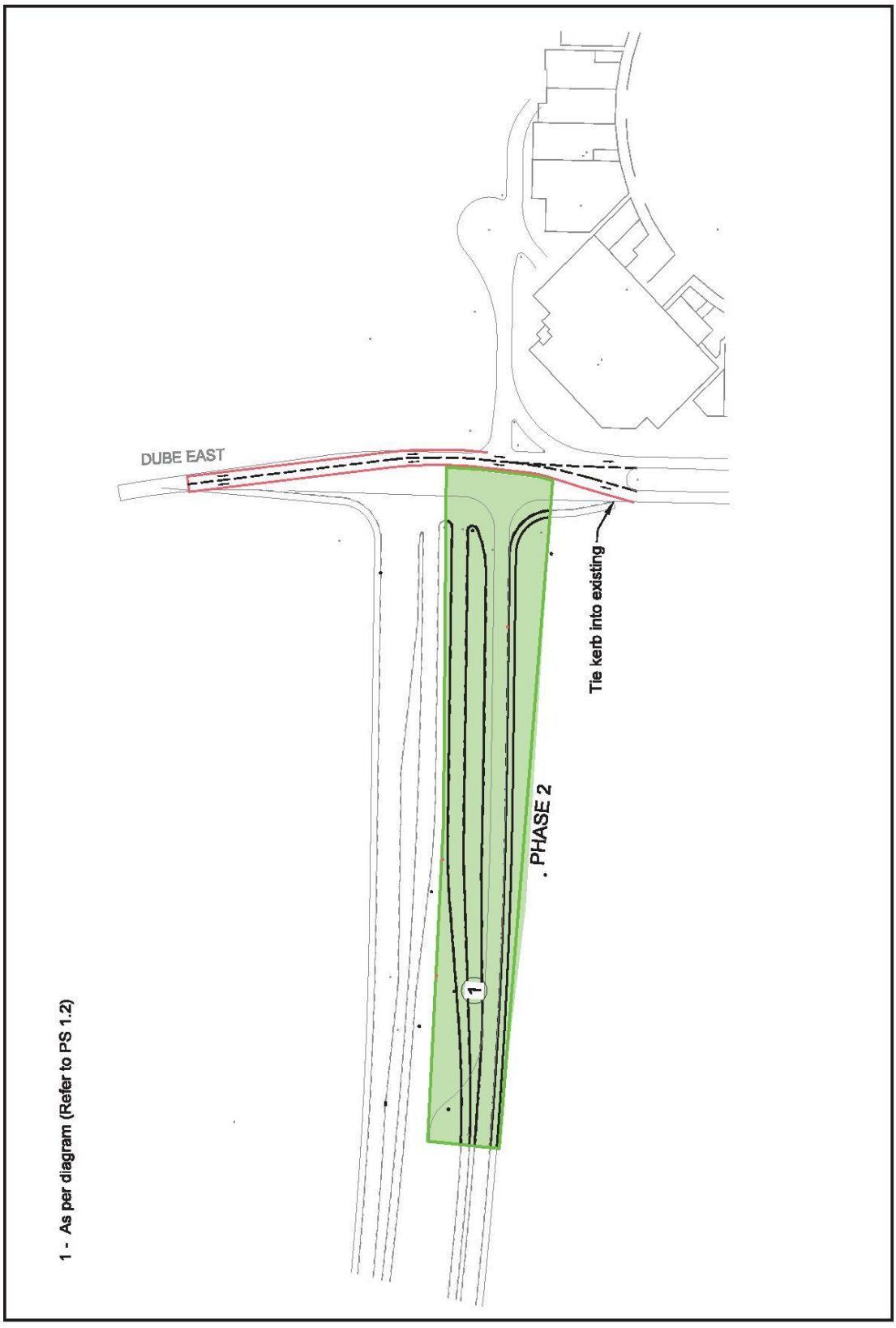
COMMENTS:

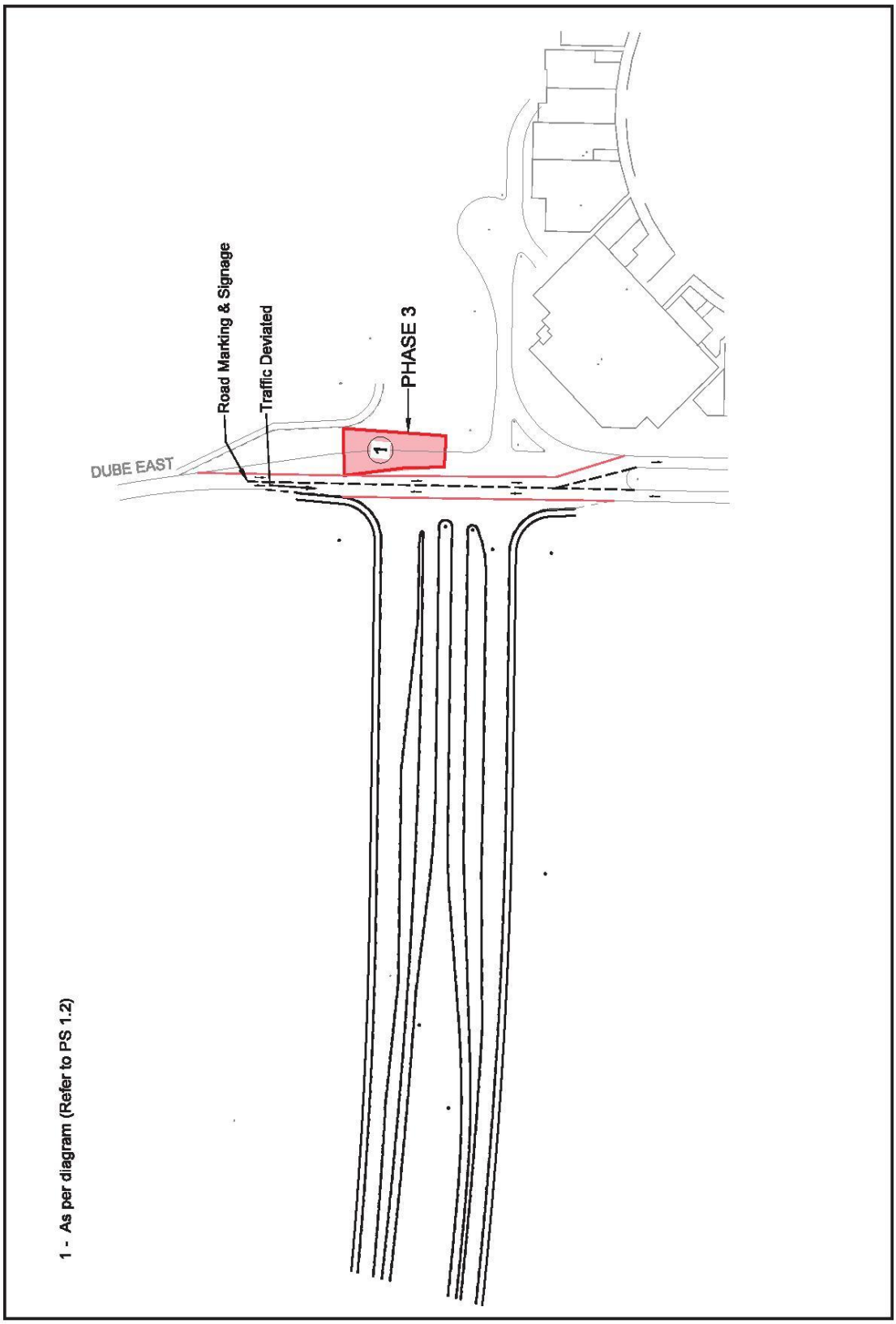
* Descriptions may vary

C4.10 Access to Site

C4.11 Traffic Accommodation Proposal




DUBE EAST
Tie kerb into existing
PHASE 2
1
1 - As per diagram (Refer to PS 1.2)


Road Marking & Signage
Traffic Deviated
PHASE 3
DUBE EAST
1
1 - As per diagram (Refer to PS 1.2)