

Transnet National Ports Authority

an Operating Division of **TRANSNET SOC LTD**

[Registration Number 1990/000900/30]

REQUEST FOR PROPOSAL (RFP)

FOR THE PROVISION OF THE PORT ROAD UPGRADE AND REHABILITATION PHASE ONE: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY FOR A PERIOD OF 18 MONTHS

RFP NUMBER	: TNPA/2025/06/0004/99874/RFP
ISSUE DATE	: 29 AUGUST 2025
COMPULSORY CLARIFICATION MEETING	: 08 SEPTEMBER 2025
CLOSING DATE	: 30 SEPTEMBER 2025
CLOSING TIME	: 16h00
TENDER VALIDITY PERIOD	: 12 WEEKS FROM CLOSING DATE

Contents

Number Heading

The Tender

Part T1: Tendering Procedures

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

Part T2: Returnable Documents

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

The Contract

Part C1: Agreements and Contract Data

- C1.1 Form of Offer and Acceptance
- C1.2 Contract Data (Parts 1 & 2)
- C1.3 Form of Guarantee

Part C2: Pricing Data

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

Part C3: Scope of Work

- C3.1 Works Information

Part C4: Site Information

- C4.1 Site Information



Annexures

- CIDB Terms & Conditions
- Transnet Insurance Policy
- Specifications
- Drawings
- Health and Safety Specifications

The Tender

Part T1: Tendering Procedures

T1.1 Tender Notice and Invitation

T1.1 TENDER NOTICE AND INVITATION TO TENDER

SECTION 1: NOTICE TO TENDERERS

1. INVITATION TO TENDER

Responses to this Tender [hereinafter referred to as a **Tender**] are requested from persons, companies, close corporations or enterprises [hereinafter referred to as a Tenderer].

It is estimated that tenderers must have a CIDB contractor grading designation of 9CE.

"The CIDB Standard for Developing Skills through Infrastructure Contracts, published in Government Gazette 43495 dated 3 July 2020 is applicable to this project".

"The CIDB Standard for Indirect Targeting for Enterprise Development through Construction works Contracts, published in Gazette Notice No.36190 of 25 February 2013 is applicable to this project"

DESCRIPTION	FOR THE PROVISION OF THE PORT ROAD UPGRADE AND REHABILITATION PHASE ONE: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY FOR A PERIOD OF 18 MONTHS.
TENDER DOWNLOADING	This Tender may be downloaded directly from the National Treasury eTender Publication Portal at www.etenders.gov.za and the Transnet website at https://transnetetenders.azurewebsites.net (please use Google Chrome to access Transnet link) FREE OF CHARGE.

COMPULSORY TENDER CLARIFICATION MEETING	A Compulsory Tender Clarification Meeting will be conducted at Port of Richards Bay, Employee Care Centre (ECC), Ventura Road, Richards Bay on the 08 September 2025, at 10:00am [10 O'clock] for a period of $\pm$ 3 (three) hours. [Tenderers to provide own transportation and accommodation]. The Compulsory Tender Clarification Meeting will start punctually, and information will not be repeated for the benefit of Tenderers arriving late.

	A Site visit/walk will take place, tenderers are to note: • Tenderers are required to wear safety shoes, goggles, long sleeve shirts, high visibility vests and hard hats. • Tenderers without the recommended PPE will not be allowed on the site walk. • Tenderers and their employees, visitors, clients and customers entering Transnet Offices, Depots, Workshops and Stores will have to undergo breathalyser testing. • All forms of firearms are prohibited on Transnet properties and premises. • The relevant persons attending the meeting must ensure that their identity documents, passports or driver's licences are on them for inspection at the access control gates. Certificate of Attendance in the form set out in the Returnable Schedule T2.2-01 hereto must be completed and submitted with your Tender as proof of attendance is required for a compulsory site meeting and/or tender briefing. Tenderers are required to bring this Returnable Schedule T2.2-01 to the Compulsory Tender Clarification Meeting to be signed by the Employer's Representative. Tenderers failing to attend the compulsory tender briefing will be disqualified.
CLOSING DATE	16h00 on 30 September 2025 Tenderers must ensure that tenders are uploaded timeously onto the system. No late tender submissions will be accepted.

2. TENDER SUBMISSION

Transnet has implemented a new electronic tender submission system, the e-Tender Submission Portal, in line with the overall Transnet digitalization strategy where suppliers can view advertised tenders, register their information, log their intent to respond to tenders and upload their tender proposals/responses on to the system.

a) The Transnet e-Tender Submission Portal can be accessed as follows:

Log on to the Transnet eTenders management platform website (<https://transnetetenders.azurewebsites.net>).

- Click on "ADVERTISED TENDERS" to view advertised tenders;
- Click on "SIGN IN/REGISTER – for tenderders to register their information (must fill in all mandatory information);

- Click on "SIGN IN/REGISTER" - to sign in if already registered;
 - Toggle (click to switch) the "Log an Intent" button to submit a tender;
 - Submit tender documents by uploading them into the system against each tender selected.
 - **Tenderers are required to ensure that electronic tender submissions are done at least a day before the closing date to prevent issues which they may encounter due to their internet speed, bandwidth or the size of the number of uploads they are submitting. Transnet will not be held liable for any challenges experienced by tenderers as a result of the technical challenges. Please do not wait for the last hour to submit. A Tenderer can upload 30mb per upload and multiple uploads are permitted.**
- b) The tender offers to this tender will be opened as soon as possible after the closing date and time. Transnet shall not, at the opening of tenders, disclose to any other company any confidential details pertaining to the Tender Offers / information received, i.e., pricing, delivery, etc. The names and locations of the Tenderers will be divulged to other Tenderers upon request.
- c) Submissions must not contain documents relating to any Tender other than that shown on the submission.

3. CONFIDENTIALITY

All information related to this RFP is to be treated with strict confidentiality. In this regard Tenderers are required to certify that they have acquainted themselves with the Non-Disclosure Agreement. All information related to a subsequent contract, both during and after completion thereof, will be treated with strict confidence. Should the need however arise to divulge any information gleaned from provision of the Works, which is either directly or indirectly related to Transnet's business, written approval to divulge such information must be obtained from Transnet.

4. DISCLAIMERS

Tenderers are hereby advised that Transnet is not committed to any course of action as a result of its issuance of this Tender and/or its receipt of a tender offer. In particular, please note that Transnet reserves the right to:

- 4.1. Award the business to the highest scoring Tenderer/s unless objective criteria justify the award to another tenderer.
- 4.2. Not necessarily accept the lowest priced tender or an alternative Tender;
- 4.3. Go to the open market if the quoted rates (for award of work) are deemed unreasonable;
- 4.4. Should the Tenderers be awarded business on strength of information furnished by the Tenderer, which after conclusion of the contract is proved to have been incorrect, Transnet reserves the right to terminate the contract;
- 4.5. Request audited financial statements or other documentation for the purposes of a due diligence exercise;
- 4.6. Not accept any changes or purported changes by the Tenderer to the tender rates after the closing date;
- 4.7. Verify any information supplied by a Tenderer by submitting a tender, the Tenderer/s hereby irrevocably grant the necessary consent to the Transnet to do so;
- 4.8. Conduct the evaluation process in parallel. The evaluation of Tenderers at any given stage must therefore not be interpreted to mean that Tenderers have necessarily passed any previous stage(s);
- 4.9. Unless otherwise expressly stated, each tender lodged in response to the invitation to tender shall be deemed to be an offer by the Tenderer. The Employer has the right in its sole and unfettered discretion not to accept any offer.
- 4.10. Not be held liable if tenderers do not provide the correct contact details during the clarification session and do not receive the latest information regarding this RFP with the possible consequence of being disadvantaged or disqualified as a result thereof.
- 4.11. Transnet reserves the right to exclude any Tenderers from the tender process who has been convicted of a serious breach of law during the preceding 5 [five] years including but not limited to breaches of the Competition Act 89 of 1998, as amended. Tenderers are required to indicate in tender returnable [clause 12 on T2.2-25], [**Breach of Law**] whether or not they have been found guilty of a serious breach of law during the past 5 [five] years.

4.12. Transnet reserves the right to perform a risk analysis on the preferred tenderer to ascertain if any of the following might present an unacceptable commercial risk to the employer:

- *unduly high or unduly low tendered rates or amounts in the tender offer;*
- *contract data of contract provided by the tenderer; or*
- *the contents of the tender returnables which are to be included in the contract.*

5. Transnet will not reimburse any Tenderer for any preparatory costs or other work performed in connection with this Tender, whether or not the Tenderer is awarded a contract.

6. NATIONAL TREASURY'S CENTRAL SUPPLIER DATABASE

Tenderer are required to self-register on National Treasury's Central Supplier Database (CSD) which has been established to centrally administer supplier information for all organs of state and facilitate the verification of certain key supplier information. The CSD can be accessed at <https://secure.csd.gov.za/>. Tenderer are required to provide the following to Transnet in order to enable it to verify information on the CSD:

Supplier Number..... and Unique registration reference number..... (Tender Data)

**Transnet urges its clients, suppliers and the general public
to report any fraud or corruption to
TIP-OFFS ANONYMOUS: 0800 003 056 OR Transnet@tip-offs.com**

ANNEXURE A

[illegible]

"HOW TO" GUIDE FOR BIDDERS

REGISTER ON ETENDER PORTAL

ACCESS TENDERS

NB: Do not wait for the last minute to register or to upload a tender. Ensure you complete your process at least 1 day (24 hours) before the closing date

TENDERERS TO NOTE WHEN UPLOADING DOCUMENTS TO ONLY USE ALPHA NUMERIC AND NO SPECIAL CHARACTERS TO BE USED

Go to Google Chrome



In the address bar type: <https://transnetetenders.azurewebsites.net>



https://transnetetender.b2clogin.com/transnetetender.onmicrosoft.com/b2c_1_signupsignin/oauth2/v2.0/authorize?client



Sign in with your email address

Email Address

Password

[Forgot your password?](#)

Sign in

Don't have an account? [Sign up now](#)

If not already registered, click on Sign up now.

Ensure that the email you use to sign in is the same as the email that you received from the tender invite on the email, otherwise you will not see the tender

[← Cancel](#)



[Send verification code](#)

Country/Region



[Create](#)

Complete all fields, before selecting “Send verification code” and confirm that all information is correct.

VERY IMPORTANT: Each field needs to be completed and not to be left blank

If you do not have a central Supplier Database number, enter the same company registration number in that field.

Send verification code

After completing all fields, select "Send verification code". The code will be sent to your email.

< Cancel



Verification code has been sent to your inbox. Please copy it to the input box below.

abc@gmail.com

Verification Code

Copy the code as received on the email and paste it in the Verification code field
Then click on Verify code

Verify code

Send new code

.....

Forgot your password?

Sign in

Don't have an account? [Sign up now](#)

Then click on Sign in

Once registered and signed in, the home screen will have “WELCOME (Registered user)”

DO NOT use secondary email address, USE THE SAME EMAIL ADDRESS WHICH YOU RECEIVE INVITES FOR BIDDING

To view / search for tenders, click on ADVERTISED TENDERS

Tender Invitation For Tender Ref # TE/2022/04/0697/RFQ - Message (HTML)

File Message Help Tell me what you want to do

Delete Archive Reply Reply All Forward Share to Teams ATM signed To Manager Team Email Move Tags Editing Read Aloud Translate Zoom Send to OneNote Viva Insights

Tender Invitation For Tender Ref # TE/2022/04/0697/RFQ

SRV-TCC-Etender
To noreply@transnet.net

This message was sent with Low importance.

Dear Suppliers,
You have been invited to bid and respond to the following tender:

Name Of Tender : TE22-SRX-1FG-02068
Description : STOP; TOP BUNK, OD 19.5 X HT 6.5 MM
Tender Number : TE/2022/04/0697/RFQ

Access to this tender will be granted by using this email when you sign up/sign in. To access the tender information

Kind Regards,
Transnet eTenders

When a bidder receives an email to quote, the bidder needs to register with the email address of the recipient that received the email. If already registered, sign in.

NOTE: The details on this email is intended for guidance only and not to be used on the live system

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

ADVERTISED TENDERS

Open Tenders Other Tenders

Show entries Search:

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TCC/2021/11/0031/RFQ	For the supply and installation of an air compressor	For the supply and installation of an air compressor for indoor shooting range that operates the laser system and supply air to air guns utilised during training and conduct maintenance on air supply system and hoses.		12/10/2021 12:00:00 PM	Closed	View Details
TFR/2021/12/0014/RFQ	ELECTRICAL MATERIAL (CABLES)	SUPPLY AND DELIVERY OF ELECTRICAL MATERIAL (CABLES) FOR A ONCE OFF PERIOD		12/13/2021 4:00:00 PM	Closed	View Details
TFR/2021/12/0017/RFQ	CRAC_JHB_36509.	FOR THE SUPPLY AND DELIVERY OF HIGH BACK CHAIRS FOR CTC OFFICES IN CENTRAL, EASTERN AND WESTERN REGIONS, FOR A ONCE OFF PERIOD.		12/14/2021 10:00:00 AM	Closed	View Details
TFR/2021/12/0015/RFQ	CRAC-JHB-36313	FOR THE SUPPLY AND DELIVERY OF VARIOUS CLAMPS, TERMINAL LUGS, DROPPER CLIPS AND		1/13/2022 12:00:00	Closed	View Details

When signed in, select "ADVERTISED TENDERS".

To manually search and change the view from Closed to Open, click twice on arrow next to "Tender Status". The arrow pointing down will change to blue and open tenders will be displayed.

HOME
ADVERTISED TENDERS
MY SUBMITTED INTENTS
MY BID DOCUMENT SUBMISSIONS
CONTACT
WELCOME TESTING
SIGN OUT

ADVERTISED TENDERS

Open Tenders
Other Tenders

Show
▼
entries
Search:

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TE/2022/04/0450/RFQ	VALVE:L-1 LOAD DET,WAGONS AIRBRAKE	VALVE:L-1 LOAD DET,WAGONS AIRBRAKE-062101802 VALVE; TYPE: L-1 LOAD DETECTOR, MEDIA FOR WHICH DESIGNED: WAGONS AIRBRAKE, CONNECTION TYPE: FLANGE, SPECIAL FEATURES: BLUE, WITHOUT PIPE BRACKET; SIMILAR ITEM: 062004338		4/8/2022 10:00:00 AM	Open	View Details
TE/2022/04/0494/RFQ	GEAR OIL	OIL, GEAR TYPE SYNTHETIC BRAND NAME MOBILGEAR SHC SERIES GRADE SCH 6800 VISCOSITY RATING 220 TO 320 FLASH POINT 234 DEG C COLOR ORANGE CONTAINER TYPE SACHET 250 G CONTAINER CAPACITY 14 KG FOR USE ON: 39-200 GM, 15E AND 19E LOCOMOTIVES		4/8/2022 10:00:00 AM	Open	View Details
TE/2022/04/0495/RFQ	SUPPLY OF CORROSION (NALCOOL) - APPROVED	ITEM NUMBER - 077807563 INHIBITOR, CORROSION; TYPE: COOL-C18, COLOR: RED,		4/8/2022 10:00:00	Open	View Details



HOME
ADVERTISED TENDERS
MY SUBMITTED INTENTS
MY BID DOCUMENT SUBMISSIONS
CONTACT
WELCOME TESTING
SIGN OUT

ADVERTISED TENDERS

Open Tenders
Other Tenders

Show
▼
entries
Search: TE/2022/04/0697/RFQ

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM		4/13/2022 10:00:00 AM	Open	View Details

To search for a specific tender, the tender number, tender name or description can be used for searching.

ADVERTISED TENDERS

Open Tenders
Other Tenders

Show
▼
entries
Search: TE22-SRX-1FG-02068

Reference Number	Tender Name	Description	Briefing Session	Closing Date	Tender Status	
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM		4/13/2022 10:00:00	Open	View Details

When the tender has been identified, click on "View Details"

When the “View Details” has been selected, the following screen will be displayed where the attachments can be viewed or downloaded.

HOME
ADVERTISED TENDERS
MY SUBMITTED INTENTS
MY BID DOCUMENT SUBMISSIONS
CONTACT
WELCOME TESTING
SIGN OUT

TENDER DETAILS

Tender Details

Tender Reference Number	TE/2022/04/0697/RFQ
Name Of Tender	TE22-SRX-1FG-02068
Description	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM
Tender Type	RFQ
Contact Person	Charl du Preez Transnet Engineering SLR
Contact Person Email Address	Charl.duPreez@transnet.net
Date Published	4/7/2022 3:51:47 PM
Closing Date	4/13/2022 10:00:00 AM
Briefing Date And Time	
Briefing Details	
Location Of Service	Coaches, Salt River

Briefing Session
Closing Date
4/13/2022 10:00:00 AM
Attachments

2.14 Standard Terms and Conditions of Contract f

2.18 Supplier Integrity Pact_April 2020_v1.pdf

2.19 Non Disclosure Agreement_April 2020_v1.pdf

2.9 Request for Quotations TE22-SRX-1FG-02068,

Log An Intent To Bid
☐

If interested to bid, on the same page there's an option to select: **Log an Intent to Bid**. Once selected, an option will appear to “**Submit Intent**” or “**Cancel**”. Click on **Submit Intent**

Tender Details

Tender Reference Number	TE/2022/04/0697/RFQ
Name Of Tender	TE22-SRX-1FG-02068
Description	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM
Tender Type	RFQ
Contact Person	Charl du Preez Transnet Engineering SLR
Contact Person Email Address	Charl.duPreez@transnet.net
Date Published	4/7/2022 3:51:47 PM
Closing Date	4/13/2022 10:00:00 AM
Briefing Date And Time	
Briefing Details	
Location Of Service	Coaches, Salt River
Name Of Institution	TE
Tender Category	Goods
Tender Status	Open

Briefing Session
Closing Date
4/13/2022 10:00:00 AM
Attachments

2.14 Standard Terms and Conditions of Contract f

2.18 Supplier Integrity Pact_April 2020_v1.pdf

2.19 Non Disclosure Agreement_April 2020_v1.pdf

2.9 Request for Quotations TE22-SRX-1FG-02068,

Log An Intent To Bid
☒

Tender Details

Tender Reference Number

Name Of Tender

Description

Tender Type RFQ

Contact Person Charl du Preez Transnet Engineering SLR

Contact Person Email Address Charl.duPreez@transnet.net

Date Published 4/7/2022 3:51:47 PM

Closing Date 4/13/2022 10:00:00 AM

Briefing Date And Time

Briefing Details

Location Of Service

Name Of Institution

Tender Category

Tender Status

Intent to Bid

Your request to log an intent to bid has been successfully submitted.

Close

When the "Submit Intent" is selected, a message will appear to indicate that the request was successfully submitted. Click on close and wait for the next screen.

Briefing Session

Closing Date 4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract for
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf
- 2.9 Request for Quotations TE22-SRX-1FG-02068.pdf

Log An Intent To Bid

☒

[Submit Intent](#) [Cancel](#)



delivering freight reliably

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

MY SUBMISSION INTENTS

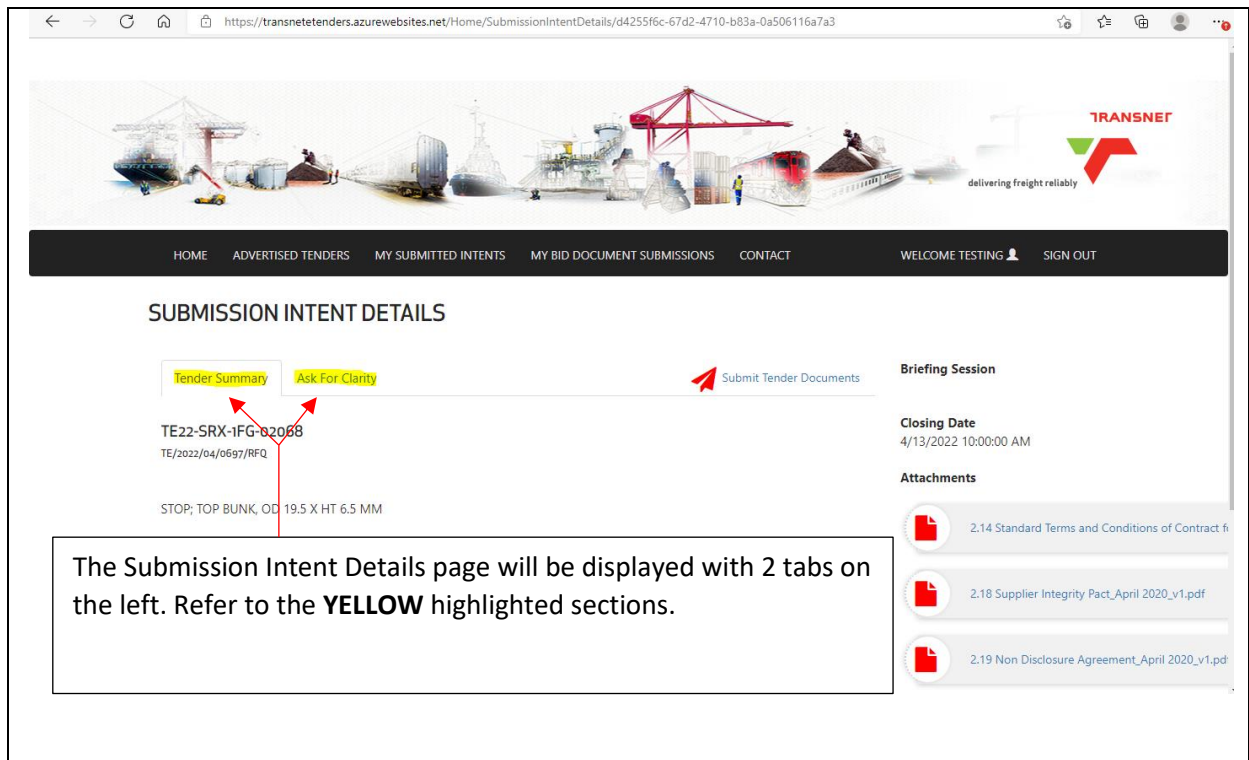
Show 10 entries

Tender Reference Number	Name	Description Of Tender	Briefing Session Date	Closing Date	View Details
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	STOP; TOP BUNK, OD 19.5 X HT 6.5 MM		4/13/2022 10:00:00 AM	View Details

Showing 1 to 1 of 1 entries

Previous 1 Next

The screen should be updated and load the "MY SUBMITTED INTENTS". To proceed to capturing your bid documents, click on "View Details"



https://transnettenders.azurewebsites.net/Home/SubmissionIntentDetails/d4255f6c-67d2-4710-b83a-0a506116a7a3

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

SUBMISSION INTENT DETAILS

Tender Summary **Ask For Clarity** [Submit Tender Documents](#)

TE22-SRX-1FG-02068
TE/2022/04/0697/RFQ

STOP, TOP BUNK, OD 19.5 X HT 6.5 MM

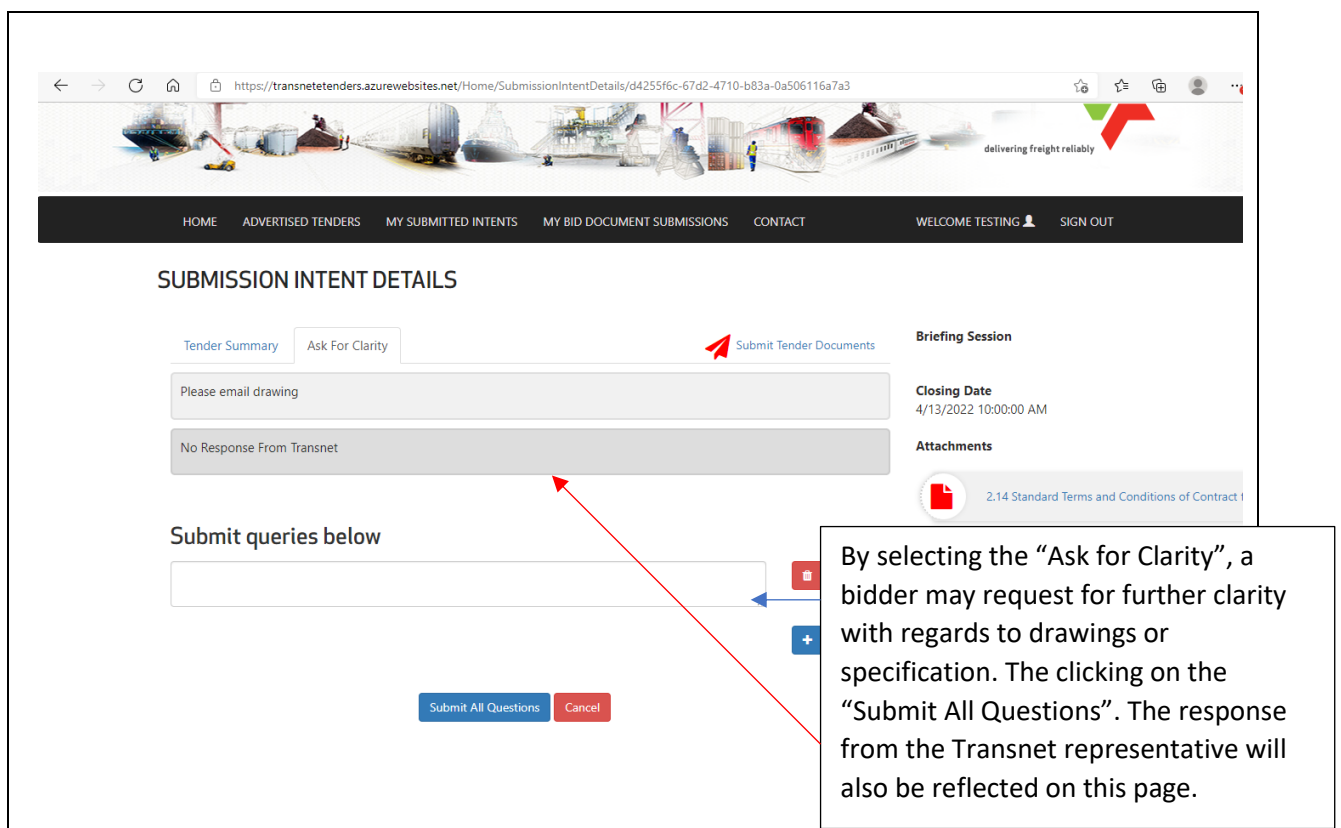
Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract fi
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf

The Submission Intent Details page will be displayed with 2 tabs on the left. Refer to the **YELLOW** highlighted sections.



https://transnettenders.azurewebsites.net/Home/SubmissionIntentDetails/d4255f6c-67d2-4710-b83a-0a506116a7a3

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS MY BID DOCUMENT SUBMISSIONS CONTACT WELCOME TESTING SIGN OUT

SUBMISSION INTENT DETAILS

Tender Summary **Ask For Clarity** [Submit Tender Documents](#)

Please email drawing

No Response From Transnet

Submit queries below

[Submit All Questions](#) [Cancel](#)

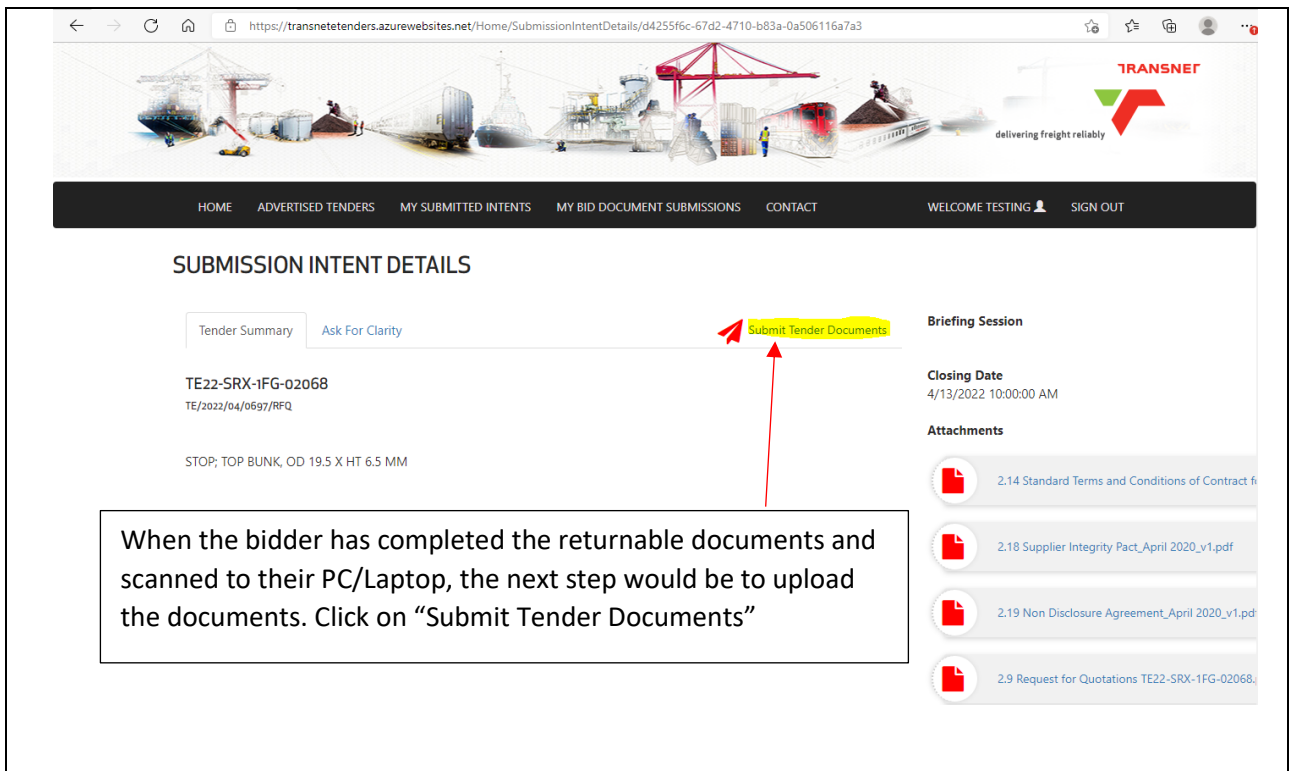
Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract 1

By selecting the "Ask for Clarity", a bidder may request for further clarity with regards to drawings or specification. The clicking on the "Submit All Questions". The response from the Transnet representative will also be reflected on this page.



Submission Intent Details

Tender Summary Ask For Clarity **Submit Tender Documents**

TE22-SRX-1FG-02068
TE/2022/04/0697/RFQ

STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

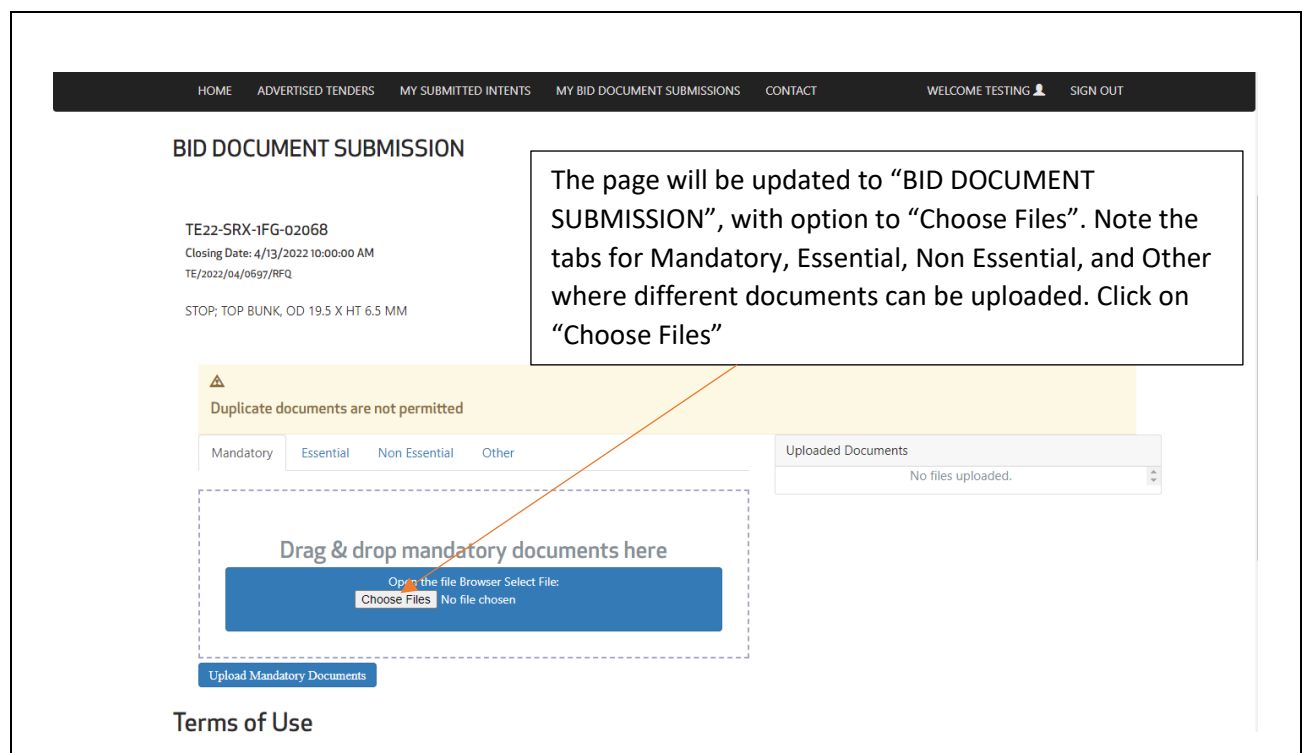
Briefing Session

Closing Date
4/13/2022 10:00:00 AM

Attachments

- 2.14 Standard Terms and Conditions of Contract f
- 2.18 Supplier Integrity Pact_April 2020_v1.pdf
- 2.19 Non Disclosure Agreement_April 2020_v1.pdf
- 2.9 Request for Quotations TE22-SRX-1FG-02068.

When the bidder has completed the returnable documents and scanned to their PC/Laptop, the next step would be to upload the documents. Click on “Submit Tender Documents”



BID DOCUMENT SUBMISSION

TE22-SRX-1FG-02068
Closing Date: 4/13/2022 10:00:00 AM
TE/2022/04/0697/RFQ

STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

Choose Files

The page will be updated to “BID DOCUMENT SUBMISSION”, with option to “Choose Files”. Note the tabs for Mandatory, Essential, Non Essential, and Other where different documents can be uploaded. Click on “Choose Files”

Duplicate documents are not permitted

Mandatory Essential Non Essential Other

Uploaded Documents
No files uploaded.

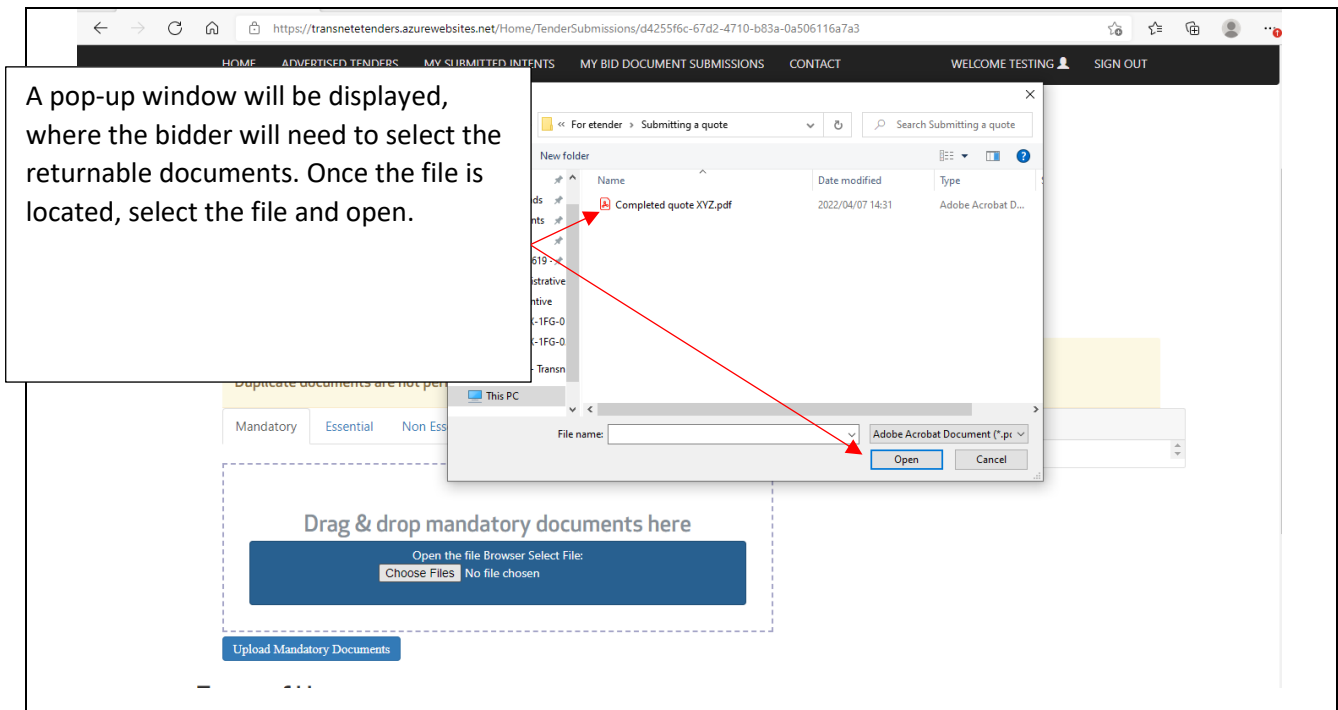
Drag & drop mandatory documents here

Open the file Browser Select File:
Choose Files No file chosen

Upload Mandatory Documents

Terms of Use

A pop-up window will be displayed, where the bidder will need to select the returnable documents. Once the file is located, select the file and open.



BID DOCUMENT SUBMISSION

TE22-SRX-IFG-02068
Closing Date: 4/13/2022 10:00:00 AM
TE/2022/04/0697/RFQ
STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

Duplicate documents are not permitted

Mandatory Essential Non Essential Other

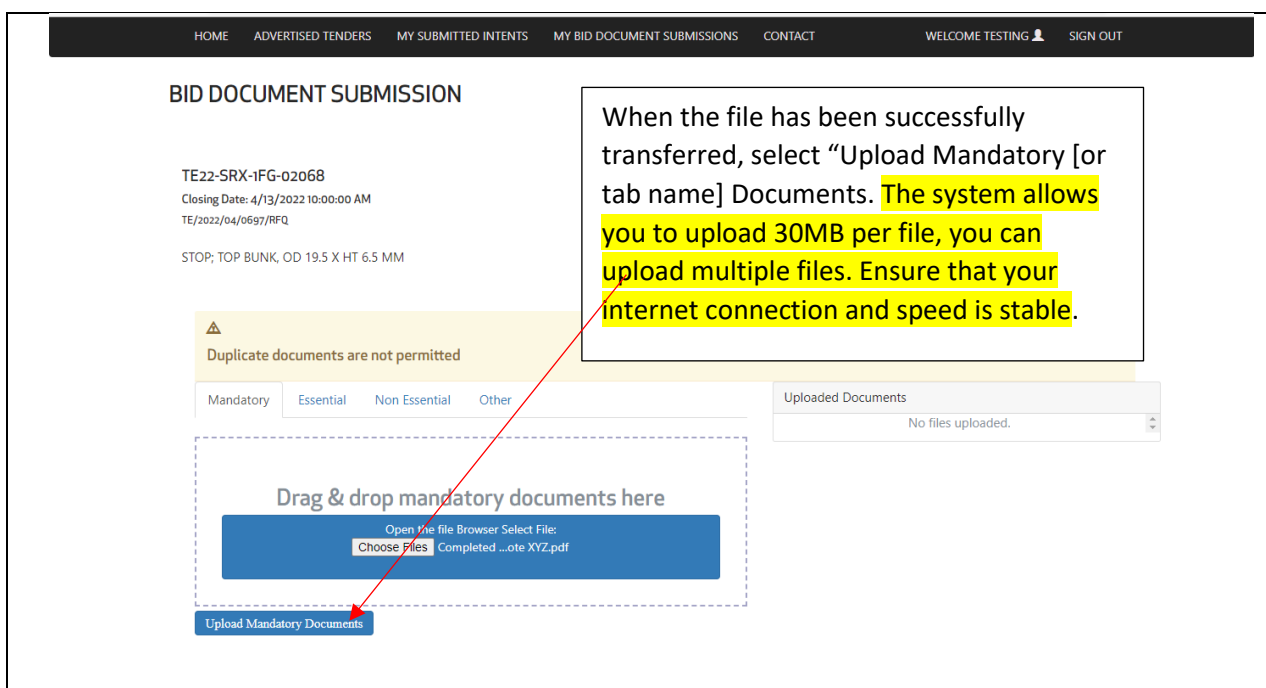
Drag & drop mandatory documents here

Open the file Browser Select File:
Choose Files Completed ...ote XYZ.pdf

Upload Mandatory Documents

Uploaded Documents
No files uploaded.

When the file has been successfully transferred, select "Upload Mandatory [or tab name] Documents. The system allows you to upload 30MB per file, you can upload multiple files. Ensure that your internet connection and speed is stable.



The “Uploaded Documents” section will be updated to confirm that the document was uploaded, then click on “Submit Bid”

TE/2022/04/0697/RFQ

STOP; TOP BUNK, OD 19.5 X HT 6.5 MM

⚠ Duplicate documents are not permitted

Mandatory Essential Non Essential Other

Drag & drop mandatory documents here

Open the file Browser Select File:
Choose Files No file chosen

Upload Mandatory Documents

Uploaded Documents

Completed quote XYZ.pdf - Document Type: Mandatory Documents

Delete

Terms of Use

Information provided by the bidder through this portal constitute a binding bid submission/response and a commitment to deliver Transnet requirements. Kindly note that the system automatically ranks the outcome of the evaluation of price and BBBEE scoring based on the information provided. Pricing and BBBEE information provided is the responsibility of the bidder to ensure correctness and Transnet will only consider your latest submission made before the closing date.

← Back

→ Submit Bid

HOME ADVERTISED TENDERS MY SUBMITTED INTENTS **MY BID DOCUMENT SUBMISSIONS** CONTACT WELCOME TESTING SIGN OUT

MY BID DOCUMENT SUBMISSIONS

Show 10 entries Search:

Tender Reference Number	Name	Date Submitted	Company Name	View Details
TE/2022/04/0697/RFQ	TE22-SRX-1FG-02068	4/8/2022 8:59:06 AM	Transnet Engineering	View Details

Showing 1 to 1 of 1 entries

Previous 1 Next

The screen will progress to “MY BID DOCUMENT SUBMISSION”, where the “View Details” can be selected to confirm that all required information is submitted correctly.

T1.2 Tender Data

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annexure C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts published in Board Notice 423 of 2019 in Government Gazette No 42622 of 8 August 2019.

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

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

- a) The contractor shall achieve in the performance of the contract the Contract Skills Development Goals (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts (published in GN 43495 of 3 July 2020).
- b) The contractor shall achieve in the performance of the contract the Contract Participation Goals (CPG) related to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction Works Contracts (published in GN 36190 of 25 February 2013)

Clause	Data
C.1.1 The <i>Employer</i> is	Transnet SOC Ltd (Reg No. 1990/000900/30)
C.1.2 The tender documents issued by the <i>Employer</i> comprise:	
Part T: The Tender	
Part T1: Tendering procedures	T1.1 Tender notice and invitation to tender T1.2 Tender data
Part T2 : Returnable documents	T2.1 List of returnable documents T2.2 Returnable schedules
Part C: The contract	
Part C1: Agreements and contract data	C1.1 Form of offer and acceptance C1.2 Contract data (Part 1 & 2) C1.3 Form of Securities

Part C2: Pricing data	C2.1 Pricing instructions C2.2 Bill of Quantities
Part C3: Scope of work	C3.1 Works Information
Part C4: Site information	C4.1 Site information
Annexures	- CIDB Terms & Conditions - Transnet Insurance Policy - Specifications - Drawings
C.1.4	The Employer's agent is:
	Name: Jo-Ann McCann
	Address: Transnet National Ports Authority 237 Mahatma Ghandi Road Durban 4001
	Tel No. 031 361 1272
	E – mail TENDERENQUIRIES@transnet.net

C.2.1 Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:

Administrative & Substantive Responsiveness

1. Stage One - Eligibility with regards to attendance at the compulsory clarification meeting:

An authorised representative of the tendering entity or a representative of a tendering entity that intends to form a Joint Venture (JV) must attend the compulsory clarification meeting in terms of C2.7

2. Stage Two - Eligibility in terms of the Construction Industry Development Board:

- c) Only those tenderers who are registered with the CIDB or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or

25(7A) of the Construction Industry Development Regulations, designation of **9CE** class of construction work, are eligible to have their tenders evaluated.

d) Joint Venture (JV)

Joint ventures are eligible to submit tenders subject to the following:

1. every member of the joint venture is registered with the CIDB;
2. the lead partner has a contractor grading designation of not lower than one level below the required class of construction works under consideration and possesses the required recognition status; and
3. the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a **9CE** class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations.

The tenderer shall provide a certified copy of its signed joint venture agreement

Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.

3. Stage Three - Functionality:

Only those tenderers who obtain the minimum qualifying score for functionality will be evaluated further in terms of price and the applicable preference point system. The minimum qualifying score for functionality is **60** points.

The evaluation criteria for measuring functionality and the points for each criteria and, if any, each sub-criterion is as stated in C.3.11 below.

Any tenderer that fails to meet the stipulated pre-qualifying criteria will be regarded as an unacceptable tender.

4. Stage Four – Price and Preference

C.2.7 The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. **Tenderers must complete and sign the attendance register.** Addenda will be issued to and tenders will only be received from those tendering entities including those entities that intends forming a joint venture appearing on the attendance register.

Tenderers are also **required to bring their RFP document to the briefing session and have their returnable document T2.2-01 certificate of attendance** signed off by the Employer's authorised representative.

C.2.12 No alternative tender offers will be considered.

C.2.13.3 Each tender offer shall be in the **English Language**.

C.2.13.5 The *Employer's* details and identification details that are to be shown on each tender offer are as follows:

Identification details:

C.2.13.9 Telephonic, telegraphic, facsimile or e-mailed tender offers will not be accepted.

C.2.15 The closing time for submission of tender offers is:

Time: **16h00** on the **30 September 2025**

Location: The Transnet e-Tender Submission Portal:

(<https://transnetetenders.azurewebsites.net>);

NO LATE TENDERS WILL BE ACCEPTED

C.2.16 The tender offer validity period is **12 weeks** after the closing date. Tenderers are to note that they may be requested to extend the validity period of their tender, on the same terms and conditions, if Transnet's internal evaluation and governance approval processes has not been finalised within the validity period.

C.2.23 The tenderer is required to submit with his tender:

1. A valid Tax Clearance Certificate issued by the South African Revenue Services.

Tenderers also to provide Transnet with a TCS PIN to verify Tenderer's compliance status.

2. A **valid B-BBEE Certificate** from a Verification Agency accredited by the South African Accreditation System [**SANAS**], or a **sworn affidavit** confirming annual turnover and level of black ownership in case of all EMEs and QSEs with 51% black ownership or more together with the tender;

3. A valid CIDB certificate in the correct designated grading;

4. Proof of registration on the Central Supplier Database;

5. Letter of Good Standing with the Workmen's compensation fund by the tendering entity or separate Letters of Good Standing from all members of a newly constituted JV.

Note: Refer to Section T2.1 for List of Returnable Documents

C3.11 Only tenders that achieve the minimum qualifying score for functionality will be evaluated further in accordance with the 90/10 preference points systems as described in the Preferential Procurement Regulations.

90 tender evaluation points will be allocated where the financial value of one or more responsive tenders received have a value equal to or above R50 million, inclusive of all applicable taxes.

Up to 10 tender evaluation points will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed.

Should the B-BBEE rating not be provided, tenderers with no verification will score zero points for preferencing.

Note: Transnet reserves the right to carry out an independent audit of the tenderer's scorecard components at any stage from the date of close of the tenders until completion of the contract.

The minimum number of evaluation points for functionality is **60**

Stage Three: Functionality Criteria

The functionality criteria and maximum score in respect of each of the criteria are as follows.

Functionality criteria	Sub-criteria	Sub-criteria points	Maximum number of points
T2.2-03 Programme	Starting date and completion date are stated, with total overall duration. The programme does not exceed 18 months.	1	10
	Activities to be logically tied link using critical path method (CPM). (Show the Critical path, Predecessors and Successors Column.	2	
	All activities as per level 4.	2	

	The TNPA activities calendar on the schedule should represent the actual work week/month used. E.g., weekends, public holidays are marked as non-working days from start to finish Date.	1	
	All activity durations to be realistic and activities that can be measured in days, weeks, and months. (Show the duration Column).	2	
	The Bidder is required to produce as minimum a program that is compatible with MS Project or Primavera (Software) in PDF	2	
T2.2-04 Quality Management	Project Quality Plan (as per NPA-QUAL-REQ-014.1).	4	10
	Quality Control Plans (as per TNPA- QUAL-REQ-014.1).	5	
	A signed Quality Policy based on International Organization for Standardizations (ISO 9001).	1	
T2.2-05 Environmental Management	Environmental Management Plan (EMP)	5	10
	Environmental Policy.	3	
	Declaration of Understanding (DOU).	2	

T2.2-06 Health and Safety	Safety, Health & Environmental Policy signed by the Chief Executive Officer.	1	15
	Detailed Roles & Responsibilities, such as S16.2 CEO, CR8.1 Construction. Manager, CR8.5 Safety.	2	
	Project specific Baseline Risk Assessment (RA), indicating major activities of the project.	4	
	Project Specific health and safety plan.	6	
	Evidence that the Principal Contractor have made adequate provisions for the cost of Health & Safety "Activity Schedule": CR 3(5) (b)(iii) read with CR 5(1)(g).	2	
T2.2-07 Approach Paper	Project Understanding and Scope.	2	25
	Material Quality and Technical Specifications.	3	
	Traffic Management Plan.	5	
	Construction Methodology.	10	
	Risk Management.	5	

T2.2-08 Company's Previous Experience	Construction of Heavy-Duty concrete pavement on Roads including Parking's, and/or Airport runways. Upgrade and Rehabilitation of Road Stormwater Management System Construction (V-drains, silt-traps, pipelines etc.).	25 5	30
Maximum possible score for Functionality			100

Functionality shall be scored independently by not less than 3 (three) evaluators and averaged in accordance with the following schedules:

- T2.2-03 Programme
- T2.2-04 Quality Plan Management
- T2.2-05 Environmental Management
- T2.2-06 Health & Safety Requirements
- T2.2-07 Approach Paper
- T2.2-08 Company's Previous Experience

Each evaluation criteria will be assessed in terms of scores of 0, 20, 40, 60, 80 or 100. The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for functionality, unless scored collectively. (See CIDB Inform Practice Note #9).

Note: Any tender not complying with the above-mentioned requirements, will be regarded as non-responsive and will therefore not be considered for further evaluation. This note must be read in conjunction with Clause C.2.1.

Stage Four – Preference Points System: Only tenders that achieve the minimum qualifying 60 points for Technical Criteria will be evaluated further in accordance with the 90/10 preference points system as described in Preferential Procurement Regulations.

- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

Preference points for this tender shall be awarded for:

Evaluation Criteria	Final Weighted Scores
Price	90
Specific goals - Scorecard	10
TOTAL SCORE:	100

(Specific Goals = 10 points) tender evaluation points will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed. **Should the evidence required for any of the Specific Goals applicable in this tender not be provided, a tenderer will score zero preference points for that particular "Specific Goal".**

In terms of Transnet Preferential Procurement Policy (TPPP) and Procurement Manuals, the following preference points must be awarded to a tenderer who provides the relevant required evidence for claiming points.

Selected Specific Goal	Number of points allocated (10)
B-BBEE Status Level of Contributor 1 or 2.	02
The promotion of supplier development through subcontracting for a minimum of 30% of the value of a contract to South African companies which	08

are: EMEs and/or QSEs 51% black owned.	
Non-Compliant and/or B-BBEE Level 3-8 contributors.	0

The following Table represents the evidence to be submitted for claiming preference points for applicable specific goals in a particular tender:

Specific Goals	Acceptable Evidence
B-BBEE Status Level of Contributor 1 or 2.	A Valid B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines.
The promotion of supplier development through subcontracting for a minimum of 30% of the value of a contract to South African companies which are: EMEs and/or QSEs 51% black owned.	- Sub-contracting agreement(s) and declaration. - Sub-contractors Valid B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate as per DTIC guidelines.

C.3.13 Tender offers will only be accepted if:

1. The tenderer or any of its directors/shareholders is not 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;
2. the tenderer does not appear on Transnet's list for restricted tenderers and National Treasury's list of Tender Defaulters;

-
3. the tenderer has fully and properly completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process and persons in the employ of the state.
 4. Transnet reserves the right to award the tender to the tenderer who scores the highest number of points overall, unless there are **objective criteria** which will justify the award of the tender to another tenderer. Objective criteria include but are not limited to the outcome of a due diligence exercise to be conducted. The due diligence exercise may take the following factors into account inter alia; the tenderer:
 - Bidder(s) is not in good standing with Transnet National Ports Authority due to a poor track record of past performance with Transnet SOC Ltd and or Transnet National Ports Authority;
 - There is clear, uncontrived and/or overwhelming evidence and/or facts that the bidder has or continues to be in breach of any of the provisions contained in the Integrity Pact (T2.2-23);
 - The Probity check undertaken by Transnet National Ports Authority establishes the existence of any unmitigated risks which would have a negative impact on the project;
 - Unless the appointment of the bidder would result in a negative impact on Transnet's Return on Investment;
 - It is necessary to rotate Suppliers to promote opportunities for other suppliers, in circumstances where the bidder has been awarded business previously and the award of the tender will result in inequitable allocation of business;
 - The tenderer or its members, directors, partners:
 - Is under restrictions as contemplated in the Integrity Pact (T2.2-23)
 - Is a subject of a process of restriction by Transnet or other state institution that Transnet may be aware of and there is a clear, uncontrived and/or overwhelming evidence and/or facts in relation to the alleged wrongdoing on the basis of which the restriction process has been initiated;
 - In relation to the proposed contract, a due diligence exercise to validate the bidder's proposal that demonstrate that it 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;

- Has no legal capacity to enter into the contract;
- Is insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, being wound up, has its affairs administered pursuant to a court order, has ceased or suspended their business activities, or is subject to legal proceedings in respect of any of the foregoing;
- Does not comply with the legal requirements, if any, stated in the tender data; and
- Not able to perform the contract free of conflicts of interest.

C.3.17 The number of paper copies of the signed contract to be provided by the Employer is 1 (one).

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 fulfill 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; or
- 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 BBEE 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 BBEE 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:	
Requirement	Qualitative interpretation of goal
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.



Part T2: Returnable Documents

T2.1: List of Returnable Documents

T2.1 List of Returnable Documents

2.1.1 These schedules are required for pre-qualification and eligibility purposes:

T2.2-01 **Stage One** - Eligibility with regards to attendance at the compulsory clarification meeting

T2.2-02 **Stage Two as per CIDB: Eligibility Criteria Schedule – 9 CE**

2.1.2 Stage Three as per CIDB: these schedules will be utilised for evaluation purposes:

T2.2-03 **Evaluation Schedule:** Programme

T2.2-04 **Evaluation Schedule:** Quality Plan

T2.2-05 **Evaluation Schedule:** Environmental Management

T2.2-06 **Evaluation Schedule:** Health and Safety Requirements

: TNPA Estimate Health and Safety Cost Breakdown

: Health, Safety Questionnaire

T2.2-07 **Evaluation Schedule:** Approach Paper

T2.2-08 **Evaluation Schedule:** Companies Previous experience

Stage Four: Price and Preference

T2.2-18 List of Sub-Contractors

Acceptable Evidence
A Valid B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines.
- Sub-contracting agreement(s) and declaration. - Sub-contractors Valid B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate as per DTIC guidelines.

2.1.3 Returnable Schedules:

General:

- T2.2-10 Authority to submit tender
- T2.2-11 Record of addenda to tender documents
- T2.2-12 Letter of Good Standing
- T2.2-13 Risk Elements
- T2.2-14 Proposed Organisation Staffing
- T2.2-15 Site Establishment requirements
- T2.2-16 Availability of Equipment and Other Resources
- T2.2-17 Capacity and Ability to meet Delivery Schedule

2.1.4 Agreement and Commitment by Tenderer:

- T2.2-19 DPIP or FPPO
- T2.2-20 Agreement in terms of Protection of Personal Information Act, 4 of 2013 ("POPIA")
- T2.2-21 Non-Disclosure Agreement
- T2.2-22 RFP Declaration Form
- T2.2-23 Service Provider Integrity Pact
- T2.2-24 Certificate of Acquaintance with Tender Document
- T2.2-25 RFP – Breach of Law
- T2.2-26 CIDB SFU ANNEX G Compulsory Enterprise Questionnaire
- T2.2-27 Supplier Code of Conduct
- T2.2-28 Job Creation
- T2.2-29 Organogram & CV's of Key Persons

2.1.5 Bonds/Guarantees/Financial/Insurance:

- T2.2-30 Insurance provided by the Contractor
- T2.2-31 Form of Intent to provide a Performance Guarantee
- T2.2-32 Forecast Rate of Invoicing
- T2.2-33 Three (3) years audited financial statements

2.1.6 Transnet Vendor Registration Form:

- T2.2-34 Transnet Vendor Registration Form

Note 1: In the case of the CIDB Standard for Skills Development there are NO returnable documents (except for pricing the relevant section of the Bill of Quantities). Following award of the contract to the successful tenderer, the employer shall provide to the Contractor the following documents which shall be completed by the Contractor and submitted within the stipulated period.

- *A1 – List of Recognized Skills Development Agencies (21 days after acceptance),*
- *A2 – Baseline Training Plan (21 days after acceptance),*
- *A3 – Project Interim Report (21 days after the end of each reporting period),*
- *A4 – Supervisor Agreement (21 days after acceptance), and*
- *A5 – Project Completion Report (21 days after Final Completion)*

In respect of the CIDB Standard for Indirect Targeting & Enterprise Development, there are NO returnable documents (except for pricing the relevant section of the Bill of Quantities). Following award of the contract to the successful tenderer, the employer shall provide to the Contractor the following documents which shall be completed by the Contractor and submitted within the stipulated period:

- *The Needs Analysis (60 days after acceptance),*
- *The Project Interim Report (21 days after the end of each reporting period),*
- *The Project Completion Report (21 days after Final Completion), and*
- *The Declaration (21 days after acceptance).*

2.2 C1.1 Offer portion of Form of Offer & Acceptance

2.3 C1.2 Contract Data

2.4 C1.3 Forms of Securities

2.5 C2.1 Pricing Instructions (Bill of Quantities) Option B

2.6 C2.2 Bill of Quantities

**These Schedules are required for
Evaluation Purposes**

T2.2-01: ELIGIBILITY CRITERIA SCHEDULE: CERTIFICATE OF ATTENDANCE AT TENDER CLARIFICATION MEETING

This is to certify that

Represented by: _____ (Company Name)

(Name and Surname)

Was represented at the compulsory tender clarification meeting

Held at:		
On (date)		Starting time:

Particulars of person(s) attending the meeting:

Name _____ Signature _____
Capacity _____

Attendance of the above company at the meeting was confirmed:

Name _____ Signature _____
For and on Behalf of the
Employers Agent. Date _____

T2.2-02: ELIGIBILITY CRITERIA SCHEDULE - CIDB GRADING DESIGNATION

Note to tenderers:

Tenderers are to indicate their CIDB Grading by filling in the table below. **Attach a copy of the CIDB Grading Designation or evidence of being capable of being so registered.**

CRS Number	Status	Grading	Expiry Date

1. Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a **9CE** class of construction work, are eligible to have their tenders evaluated.

2. Joint Venture (JV)

Joint ventures are eligible to submit tenders subject to the following:

1. every member of the joint venture is registered with the CIDB;
2. the lead partner has a contractor grading designation of not lower than one level one level below the required grading designation in the class of construction works under consideration and possesses the required recognition status; and
3. the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a **9CE** class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations
4. the Contractor shall provide the employer with a certified copy of its signed joint venture agreement;
5. and in the event that the joint venture is an 'Incorporated Joint Venture' the Memorandum of Incorporation to be provided within 4 (four) weeks of the Contract Date.

TECHNICAL EVALUATION SCHEDULES

T2.2-03: Evaluation Schedule: Programme

The Tenderer details the programme for evaluation and attaches it to this schedule. In addition, the Tenderer is to provide an electronic copy of the programme in Primavera or Microsoft Project. (NB: Transnet system only accept PDF documents, so document MUST all be in PDF)

The Tenderer's attention is drawn to core clause 31 of the NEC3 Engineering and Construction contract regarding the items to be shown on a programme.

The tenderer shall provide the proposed programme detailed to minimum of level 4 showing as a minimum the following:

Ability to provide the services:

Ability to provide the services in terms of the *Employer's* requirements within the required timeframe indicating, in a logical sequence, the order and timing of the services that will take place in order to Provide the Works clearly indicating the capacity & capability to achieve the dates stated in the Contract Data.

Provision of Dates:

The *Contractor* clearly indicates in the schedule all key milestones, activities & information related to the following –

- Float,
- Time Risk Allowances,
- Health and safety requirements,
- Procedures set out in this contract,
- Work by the *Employer* and Others,
- Access to a part of the site if later than its *access date*,
- Acceptances,
- Plant & Materials and other things to be provided by the employer,
- Information by Others,
- *starting date*, *access dates*, Key Dates and Completion Date
- planned Completion for each Key Date for each option and the complete works

Resourcing & Equipment:

The *Tenderer indicates* for each operation, a statement of how the *Tenderer* plans to do the work identifying the principal Equipment and other resources which he plans to use.

The Programme to indicate the following Columns as a minimum:

Activity Name	Duration	Start Date	Finish Date	Predecessor	Successor	Float	Calendar	Resources	cashflow

The *Contractor's* programme shows the following levels:

- Level 1 Master Schedule – defines the major operations and interfaces between engineering design, procurement, fabrication and assembly of Plant and Materials, transportation, construction, testing and pre-commissioning, commissioning and Completion.
- Level 2 Project Schedule – summary schedules 'rolled up' from Level 3 Project Schedule described below
- Level 3 Project Schedule – detailed schedules generated to demonstrate all operations identified on the programme from the starting date to Completion.
- Level 4 Project Schedule – detailed discipline speciality level developed and maintained by the *Contractor* relating to all operations identified on the programme representing the daily activities by each discipline.

The table below provides the allocation of points:

	Evaluation Criteria	Weighting
1	Starting date and completion date are stated, With total overall duration the programme does not exceed 18 months.	1
2	Activities to be logically tied link using critical path method (CPM). (Show the Critical path, Predecessors and Successors Column.	2
3	All activities as per level 4.	2
4	The TNPA activities calendar on the schedule should represent the actual work week/month used. E.g., weekends, public holidays are marked as non-working days from start to finish date.	1
5	All activity durations to be realistic and activities that can be measured in days, Weeks, and Months. (Show the duration Column).	2
6	The Bidder is required to produce at minimum a program that is compatible with MS Project or Primavera (Software) in PDF.	2
	TOTAL	10

The scoring of the Programme will be as follows:

10 POINTS	PROGRAMME (10 POINTS)					
	0	20	40	60	80	100
(1) Point Start date and completion date are stated, with total overall duration. The programme does not exceed 18 months.	No Response or Starting date and completion date not shown.	Starting date and completion date with total overall duration is more than 20 months.	Starting date and completion date with total overall duration is More than 18 months; but less than and/or equal to 20 months.	Starting date and completion date with total overall duration is 18 months.	Starting date and completion date with total overall duration is less than 18 months; but greater and/or equal to 16 months.	Starting date and completion date with total overall duration is less than 16 months.
(2) Points Activities to be logically tied link using critical path method (CPM). (Show the Critical path, Predecessors and Successors Column.	No response or programme does not link activities using CPM.	All Activities on the Critical Path are partially linked using CPM and there are open ends in both the Predecessors and Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart).	All Activities on Critical Path are partially linked using CPM and there are open ends in either the Predecessors or Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart).	All Activities on Critical Path are properly linked using CPM and no open ends in between Predecessors and Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart).	All Activities on Critical Path are properly linked using CPM and no open ends in between Predecessors and Successors (Show the Critical path, Predecessors and Successors Column or Gantt Chart) No open ends in between Predecessors and Successors on Sub critical and all activities linked.	All Activities on Critical Path properly linked using CPM and no open ends in between Predecessors and Successors (Show the Critical path, Predecessors and Successors Column) No open ends in between Predecessors and Successors on Sub critical and all

						activities linked and linking on Work Breakdown Structures (WBS).
(2) Points All activities as per level 4.	No response or partially complete or schedule submission is not level 4 or 3 or 2 (i.e., Level 1).	The schedule is partially complete (level 2) No Allowances for critical Employer's.	The schedule is detailed (level 3), with or without Allowances for critical Employer's reviews.	The schedule is complete and detailed (level 4), Allowances for critical Employer's reviews.	The schedule is complete and detailed (Level 4) Allowances for critical Employer's reviews and Key Milestones, submitted.	The schedule is complete and detailed (Level 4) Allowances for critical Employer's reviews, Key Milestones and Basis of schedule submitted.
(1) Point The TNPA activities calendar on the schedule should represent the actual work week/month used. e.g., weekends, public holidays are marked as non-working days from start to finish date.	No response or activities calendar date not submitted.	The TNPA activities calendar on the schedule represent the actual Weekends and Public holidays marked as working days, covering all phases within the project scope from start to finish date.	The TNPA activities calendar on the schedule represent the actual Weekends only marked as working days, not covering all phases within the project scope from start to finish date.	The TNPA activities calendar on the schedule represent the actual Weekends, public holidays marked as non-working days, cover all phases within the project scope from start to finish date.	The TNPA activities calendar on the schedule represent the actual Weekends, public holidays, and builders break marked as non-working days, cover all phases within the project scope from start to finish date.	The TNPA activities calendar on the schedule represent the actual Weekends, public holidays, and builders' breaks are marked as non-working days, cover all phases within the project scope and Time Risk

						Allowance (TRA) from start to finish date
(2) Points All activity durations to be realistic and activities that can be measured in days, weeks, and months. (Show the duration Column).	No response or Activities duration do not show the duration Column.	All Activities durations to be realistic and are broken down into Months (Show the duration Column).	All Activities durations to be realistic and are broken down into Months and Weeks (Show the duration Column).	All activities durations to be realistic and are broken down into Months, Weeks, and days (Show the duration Column).	All activities durations to be realistic and are broken down into Weeks and days (Show the duration Column).	All activities durations to be realistic and are broken down into days (Show the duration Column).
(2) Points The Bidder is required to produce as minimum a program that is compatible with MS Project or Primavera (Software) in PDF.	No response or program not submitted with Microsoft Project, Primavera P6 nor Excel.	Program submitted is not compatible with either Microsoft Project, Primavera P6 nor Excel.	Programme submitted in Excel.	Submitted a program that is compatible with Microsoft project or Primavera P6.	Submitted a program that is compatible with Microsoft project or Primavera P6 including resource loading (Show the resource Column or Gantt Chart).	Submitted a program that is compatible with Microsoft project or Primavera P6 including resource loading and cashflow forecast (Show the resource and cost Column or Gantt Chart).

Attached submissions to this schedule:

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

T2.2-04: Evaluation Schedule - Quality Management

With Reference to Standard – TNPA-QUAL-REQ-014.1 General Quality Requirements for Suppliers and Contractors and ISO9001:2015 Quality Management Systems.

Due consideration must be given to the deliverables required to execute and complete the contract as per the Quality Management Standard stated in the Works Information and should include but not be limited to:

1. The **Project Quality Plan (PQP)** details how the Contractor's Quality System will be applied to the Scope of Work specified in the contract and shall include the following as key elements:
 - 1) A brief **project scope of works** includes a description of the **Contractor's Project organization**, with key positions and responsibilities identified and individuals named. The organization structure shall also indicate resources committed to the management and co-ordination of Quality Assurance/Quality Control (QA/QC) activities. **(Resource allocation)**.
 - 2) Provide a description of how documents provided by Transnet to the Contractor/created by Contractor are to be managed. **(Documentation management and control)**.
 - 3) Include Quality activities relevant to the Scope of Work, identifying applicable procedures, reviews, audits, controls and records used to control and verify compliance with specified Contractual requirements. **(Performance evaluation and monitoring)**.
 - 4) Include a listing of all Special Processes (e.g. non-destructive testing, cube testing, aggregate testing, Ductility Testing, Viscosity testing etc.) envisaged for use. **(Inspection and Testing)**.
 - 5) Control of externally provided services. **(Subcontractors and Suppliers)**.
2. **Quality Control Plan (QCP)** specific to the Project limited to:
 1. Removal and Reinstallation of Rails. **(20%)**
 2. Earthworks and Road Construction. **(60%)**
 3. Jetting, cleaning and flushing of Drainage Structures and Construction of new drainage structures. **(20%)**

The Quality Control Plans shall be Project Specific as per the Scope of Work and shall include the following as key elements:

- 1) Detailed sequence of activities (**Mandatory documents, Pre-construction, construction/operation activity sequences, Post construction activities, etc.**).
- 2) Include applicable procedures/code/drawings and specifications (**Documented procedures/ Standards/ Code/ regulation/ specification/ Drawing where applicable to each listed activity**).
- 3) Include all intervention points (i.e. hold, witness, verify) per listed activities in the QCP. (**Clearly indicate how the inspection intervention by relevant parties will be categorized per activity listed in the QCP**).
- 4) Include all Verification documentation/Field inspection checklist (**Clearly indicate the verification records per each activity such as Certificates, reports, forms, checklist, method statements, Plans etc**).
- 5) Include all relevant signatories (i.e. Contractor, Approved Inspection Authority (AIA), Transnet) (**Clearly indicate the sign-off intervention for all responsible parties per QCP**).

This QCP shall identify all inspection, test, and verification requirements to meet Contractual obligations, specifications, drawings, and related details including destructive and non-destructive testing, witness, and hold points.

3. A signed **Quality Policy** based on International Organisation for Standardisation (ISO 9001) that displays the five key policy requirements. These requirements include:
 1. Is appropriate to the purpose and context of the organization and supports its strategic direction,
 2. Provides a framework for setting quality objectives,
 3. Includes a commitment to satisfy applicable requirements,
 4. Includes a commitment to continual improvement of the quality management system, and
 5. Is communicated and understood within the organization.



Attached submissions to this schedule:

.....

.....

.....

.....

.....

.....

Quality (10)	Evaluation Category	Maximum Score	Evaluation Criteria	Rating
Quality Requirements	Project Quality Plan (as per TNPA-QUAL-REQ-014.1) The Project Quality Plan (PQP) details how the Contractor's Quality System will be applied to the Scope of Work specified in the contract and shall include the following as key elements: 1) A brief project scope of works includes a description of the Contractor's Project organization, with key positions and responsibilities identified and individuals named. The organization structure shall also indicate resources committed to the management and co-ordination of Quality Assurance/Quality Control (QA/QC) activities. (Resource allocation) 2) Provide a description of how documents provided by Transnet to the Contractor/created by Contractor are to be managed. (Documentation management and control). 3) Include Quality activities relevant to the Scope of Work, identifying applicable procedures, reviews, audits, controls and records used to control and verify compliance with specified Contractual requirements. (Performance evaluation and monitoring) 4) Include a listing of all Special Processes (e.g. non-destructive testing, cube testing, aggregate testing, Ductility Testing, Viscosity testing etc.) envisaged for use. (Inspection and Testing). 5) Control of externally provided services. (Subcontractors and Suppliers).	4	No response /Inadequate information to determine score.	0
			One (1) of the five (5) key elements met.	20
			Two (2) of the five (5) key elements met.	40
			Three (3) of the five (5) key elements met.	60
			Four (4) of the five (5) key elements met.	80
			All five (5) key requirements met.	100



	Quality Policy Quality Policy shall include the following key policy elements: 1) is appropriate to the purpose and context of the organization and supports its strategic direction, 2) provides framework for setting quality objectives, 3) includes a commitment to satisfy applicable requirements, 4) includes a commitment to continual improvement of QMS, and 5) is communicated and understood within the organization.	1	No response One (1) of the five (5) key policy elements met. Two (2) of the five (5) key policy elements met. Three (3) of the five (5) key policy elements met. Four (4) of the five (5) key elements met. All five (5) key elements met.	0 20 40 60 80 100



Quality Control Plans (as per TNPA-QUAL-REQ-014.1) Quality Control Plan (QCP) specific to the Project limited to: 1. Removal and Reinstallation of Rails. – 20% 2. Earthworks and Road Construction. – 60% 3. Jetting, cleaning and flushing of Drainage Structures and Construction of Drainage structures. – 20% The Quality Control Plans shall be Project Specific as per the Scope of Work and shall include the following as key elements: 1) Detailed sequence of activities (Mandatory documents, Pre-construction, construction/operation activity sequences, Post construction activities, etc.). 2) Include applicable procedures/code/drawings and specifications (Documented procedures/ Standards/ Code/ regulation/ specification/ Drawing where applicable to each listed activity). 3) Include all intervention points (i.e. hold, witness, verify) per listed activities in the QCP. (Clearly indicate how the inspection intervention by relevant parties will be categorized per activity listed in the QCP).	5	Removal and Reinstallation of Rails.	1	Earthworks and Road	3	Drainage structures	1
		No response	0	No response	0	No response	0
		One (1) of five (5) key elements met.	20	One (1) of five (5) key elements met.	20	One (1) of five (5) key elements met.	20
		Two (2) of five (5) key elements met.	40	Two (2) of five (5) key elements met.	40	Two (2) of five (5) key elements met.	40
		Three (3) of five (5) key elements met.	60	Three (3) of five (5) key elements met.	60	Three (3) of five (5) key elements met.	60
		Four (4) of five (5) key elements met.	80	Four (4) of five (5) key elements met.	80	Four (4) of five (5) key elements met.	80
		All five (5) key elements are met.	100	All five (5) key elements are met.	100	All five (5) key elements are met.	



	4) Include all verification documentation/field inspection checklist (Clearly indicate the verification records per each activity such as Certificates, reports, forms, checklist, method statements, Plans etc.). 5) Include all relevant signatories (i.e. Contractor, Approved Inspection Authority (AIA), Transnet) (Clearly indicate the sign-off intervention for all responsible parties per QCP).							

T2.2-05: Evaluation Schedule: Environmental Management

The Tenderer must review the following documents in preparation to meeting the environmental requirements, namely:

- a) Transnet Integrated Management System (TIMS) Policy Commitment Statement.
- b) Transnet Standard Operating Procedure for Construction Environmental Management (SOP CEMP) 009-TCC-CLO-SUS-11386 Rev 1.0.
- c) Transnet Contractor Environmental and Sustainability Specification Guidelines (CESS) TRN-IMS-GRP-GDL-014.4 Rev 3.0.
- d) DFFE Environmental Maintenance Management Plan for the Maintenance Activities Port of Richards Bay.

Note: Project Environmental Specification (PES) to be shared with the successful bidder once obtained.

1. The tenderer must provide a **Project Specific Environmental Management Plan**. This plan must be clear on the following:
 - a. Identify the environmental impacts that need to be avoided, managed and mitigated, describe how those impacts will be avoided, managed and mitigated (impact management actions).
 - b. The method and frequency of monitoring the implementation of the impact management actions.
 - c. A description of how the environmental incidents will be managed on site.
 - d. An indication of the roles and responsibilities in the implementation of the impact management actions.
 - e. Records to be kept.
 - f. How non-conformance/non-compliance will be dealt with.
2. The tenderer must provide an **environmental policy** signed by Top Management that displays the following key components, namely:
 - Commitment to comply with all applicable environmental laws, regulations and standards
 - Commitment to pollution prevention
 - Emphasize the organisation's commitment to continual improvement in environmental performance



- Address the sustainable use of resources/ resource conservation
- Is communicated to all employees working for or on behalf of the Contractor

Note: An unsigned or undated Policy will be allocated a score of 20

3. Declaration of Understanding to demonstrate understanding of Transnet's environmental governance framework and enough financial provision for compliance with the environmental requirements.

Attached submissions to this schedule:

.....

The scoring of the Tenderer's Environmental Submission will be as follows:

	Environmental Management Plan (EMP)	Environmental Policy	Declaration of Understanding (DOU)
Points	5	3	2
0	The Tenderer has submitted no information to determine a score.	The Tenderer has submitted no information to determine a score.	The Tenderer has submitted no information to determine a score.
20	EMP responds to one (1) or two (2) of the items listed under 1 above.	Policy addresses one (1) of the required elements listed under 2 above.	DOU submitted but not signed by relevant company representative and witnesses.
40	EMP responds to three (3) of the items listed under 1 above.	Policy addresses two (2) of the required elements listed under 2 above.	DOU only signed by relevant company representative with no witnesses' signatures.
60	EMP responds to four (4) of the items listed under 1 above.	Policy addresses three (3) of the required elements listed under 2 above and is possibly able to meet the Employer's requirements.	DOU signed by all relevant company representatives with signatures.
80	EMP responds to five (5) of the items listed under 1 above.	Policy addresses four (4) of the required elements listed under 2 above and is likely to ensure compliance with the stated Employer's requirements.	DOU signed by all relevant company representatives with signatures and not dated
100	EMP responds to all the items listed under 1 above.	Policy addresses five (5) of the required elements listed under 2 above and is likely to ensure compliance with the stated Employer's requirements.	DOU submitted and completely signed by all company representatives including witnesses.

T2.2-5a : DECLARATION OF UNDERSTANDING

PROJECT NAME:		DOCUMENT NO:	
PROJECT NO:		DATE:	
CONTRACTOR:		CONTRACT NO:	

I,

(Name)_____
(Designation)_____
(Representing)

Declare that I have read and understood the contents of the Transnet Integrated Management System Policy Commitment Statement, Construction Environmental Management Plan (ENV-STD-001 Rev 04), Standard Environmental Specification (ENV-STD-002 Rev04), Project Environmental Specification (PES), the Occupational Health & Safety Act and Regulations and associated documents for the above mentioned project and contract.

I also declare that I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications for the aforementioned Contract. In addition, I will, as far as is reasonably practicable, ensure that financial provision has been made to meet environmental and Safety requirements during the contract period.

Signed	Signature	Date
Place		
Witness 1:	Signature	Date
Witness 2:		

T2.2-06: Evaluation Schedule: Health and Safety Requirement

Submit the following documents as a minimum with your tender:

- 1.** Safety, Health & Environmental Policy signed by the Chief Executive Officer. List the five elements -
 - 1.1. Commitment to Safety, prevention of pollution,
 - 1.2. Continual improvement,
 - 1.3. Compliance to legal requirements, appropriate to the nature of contractor's activities,
 - 1.4. Hold management accountable for development of the safety systems.
 - 1.5. Include objectives and targets.

- 2.** Detailed Roles & Responsibilities, such as S16.2 CEO, CR8.1 Construction Manager, CR8.5 Safety officer, CR8.7 Construction Supervisor, CR9.1 Risk Assessor, CR 12 Temporary works designer and 17.1 SHE Reps, etc. as per the Occupational health and safety Act 85 of 1993.
 - 2.1 S16.2 CEO
 - 2.2 8.1 Construction Manager -SACPCMP registration as Pr. Construction Manager,
 - 2.3 8.5 SACPCMP Registered Construction Health and Safety officer,
 - 2.4 Construction Supervisor,
 - 2.5 Risk Assessor,
 - 2.6 CR 12 Temporary works designer and
 - 2.7 17.1 SHE Rep as per the Occupational health and safety Act 85 of 1993.

- 3.** Project specific Baseline Risk Assessment (RA), indicating major activities of the project namely:
 - 3.1 Site Establishment
 - 3.2 Traffic Accommodation
 - 3.3 Heavy mobile plant and Equipment usage
 - 3.4 Excavation of existing road layerworks.
 - 3.5 Cleaning and construction of new storm water system.
 - 3.6 Auxillary Road Works (Road Painting & Signage)
 - 3.7 Pavement layerworks (Concrete works)

4. Project health and safety plan which comprises of, but not limited to the following minimum elements

- 4.1 Legal and site specific requirements
- 4.2 Competency, training and awareness.
- 4.3 Subcontractor selection.
- 4.4 Incident management
- 4.5 Communication, Participation and Consultation
- 4.6 Operational Control
- 4.7 Performance assessment and auditing

5. Evidence that the Principal Contractor have made adequate provisions for the cost of Health & Safety "Activity Schedule": CR 3(5) (b)(iii) read with CR 5(1)(g).

6. Complete and return with tender documentation the Contractor Safety Questionnaire included to this Evaluation Schedule as a returnable.

Attached submissions to this schedule:

The scoring of the Tenderer's Health and safety requirements will be as follows:

Points (15)	1	2	4	6	2
	Policy (State points allocated) 1. Commitment to Safety, prevention of pollution, 2. Continual improvement, 3. Compliance to legal requirements, appropriate to the nature of the Contractor's activities. 4. Hold management accountable for development of the safety systems. 5. Include objectives and targets.	Roles & Responsibilities 1. S16.2 CEO 2. 8.1 Construction Manager -SACPCMP registration as Pr. Construction Manager, 3. 8.5 SACPMP Registered Construction Health and Safety officer, 4. 8.7 Construction Supervisor, 5. 9.1 Risk Assessor, 6. CR 12 Temporary works designer and 7. 17.1 SHE Rep as per the Occupational health and safety Act 85 of 1993.	Baseline risk assessment Indicating major activities of the project namely: 1. Site Establishment. 2. Traffic accomodation 3. Heavy mobile plant and equipment usage. 4. Excavation of existing road layerworks. 5. Cleaning and construction of new storm water system. 6. Auxillary Roads Works (Road Paininting & Signage). 7. Pavement layerworks (concrete works).	Project Specific Health and Safety Plan in accordance with Project Health and Safety Specification. The Health and Safety Plan must comprise of, but not limited to the following minimum elements: 1. Legal and site specific requirements 2. Competency, training and awareness. 3. Subcontractor selection. 4. Incident management 5. Communication, Participation and Consultation. 6. Operational Control 7. Perfomance assessment and auditing.	TNPA Estimate Health and Safety Cost Breakdown Submission of completed cost breakdown sheet covering health and safety budget allocation.

Score 0	The Tenderer has submitted no information or an unsigned policy to determine a score.				
Score 20	One (1) of the 5 key policy components are recognized and meet the <i>Employer's</i> requirement and it is signed by the Chief Executive Officer.	One (1) to two (2) of 7 Roles and Responsibilities in accordance with the Works Information, the Occupational Health and Safety Act as per Construction Regulations and TNPA Health and Safety Specification.	One (1) to two (2) of 7 major activities in the project are addressed in the baseline risk assessment.	One (1) to two (2) of 7 Above elements of Health and Safety plan are addressed.	Health and safety budget submitted in the returnable schedule is inadequate to achieve the required standard of service, 0% to 1% of the tender value.
Score 40	Two (2) of the 5 key policy components are recognized and meet the <i>Employer's</i> requirement and it is signed by the Chief Executive Officer.	Three (3) to four (4) of 7 Roles and Responsibilities are in accordance with the Works Information, the Occupational Health and Safety Act as per Construction Regulations and TNPA Health and Safety Specification.	Three (3) to four (4) of 7 major activities in the project are addressed in the baseline risk assessment.	Three (3) to four (4) of 7 Above elements of Health and Safety plan are addressed.	Health and safety Budget submitted in the returnable schedule will not be met employers objectives, above 1% but less or equal to 2% of the tender value.
Score 60	Three (3) of the 5 key policy components are recognized and meet the <i>Employer's</i>	Five (5) of 7 Roles and Responsibilities are in accordance with the Works Information, the Occupational	Five (5) of 7 major activities in the project are addressed in the baseline risk assessment.	Five (5) of 7 Above elements of Health and Safety plan are addressed.	Health and safety Budget submitted in the returnable schedule will met employers objectives, above 2% but

	requirements and it is signed by the Chief Executive Officer.	Health and Safety Act as per Construction Regulations and TNPA Health and Safety Specification.			less or equal to 3% of the tender value.
Score 80	Four (4) of the 5 key policy components are recognized and meets the <i>Employer's</i> requirements and it is signed by the Chief Executive Officer.	Six (6) of seven (7) Roles and Responsibilities are in accordance with the Works Information, the Occupational Health and Safety Act as per Construction Regulations and TNPA Health and Safety Specification.	Six (6) of 7 major activities in the project are addressed in the baseline risk assessment.	Six (6) of 7 Above elements of Health and Safety plan are addressed.	Health and safety Budget submitted in the returnable schedule will met employers objectives, above 3% but less or equal to 4% of the tender value.
Score 100	All five (5) key policy components are recognized and meets the <i>Employer's</i> requirements and it is signed by the Chief Executive Officer.	All seven (7) Roles and Responsibilities are in accordance with the Works Information, the Occupational Health and Safety Act as per Construction Regulations and TNPA Health and Safety Specification.	All seven (7) Major Activities in the project are addressed in the baseline risk assessment.	All seven (7) Above elements of Health and Safety plan are addressed.	Health and safety Budget submitted in the returnable schedule will met employers objectives, above 4% of the tender value.

TNPA Estimate Health and Safety Cost Breakdown

Tenderer (Company)	Responsible Person	Designation	Date
Project/Tender Title	Project/Tender No.	Project Location / Description	

#	Cost element	Unit Cost (R)	# of Units	Total Cost (R)
1.	Human Resources			
2.	Systems Documentation			
3.	Meetings & Administration			
4.	H&S Training			
5.	PPE & Safety Equipment			
6.	Signage & Barricading			
7.	Workplace Facilities			
8.	Emergency & Rescue Measures			
9.	Hygiene Surveys & Monitoring			
10.	Medical Surveillance			
11.	Safe Transport of Workers			
12.	HazMat Management (e.g., asbestos /silica)			
13.	Substance Abuse Testing (3 kits @R500 pm)			
14.	H&S Reward & Recognition			

Total Health and Safety Estimate (R)	
Total Estimate Value (R)	
H&S Cost as % of Tender value	

Total Estimate Value to be carried forward to the BoQ.

1. Safe Work Performance

1A	Injury Experience / Historical Performance – Alberta					
	Use the previous three years injury and illness records to complete the following:					
	Year					
	Number of medical treatment cases					
	Number of restricted workday cases					
	Number of lost time injury cases					
	Number of fatal injuries					
	Total recordable frequency					
	Lost time injury frequency					
	Number of worker manhours					
Action taken to prevent re-occurrence						
1	Medical Treatment Case	Any occupational injury or illness requiring treatment provided by a physician or treatment provided under the direction of a physician				
2	Restricted Workday Case	Any occupational injury or illness that prevents a worker from performing any of his/her craft jurisdiction duties				
3	Lost Time injury Cases	Any occupational injury that prevents the worker from performing any work for at least one day				
4	Total Recordable Frequency	Total number of Medical Treatment, Restricted Work and Lost Time Injury cases multiplied by 200,000 then divided by total manhours				
5	Lost Time Injury Frequency	Total number of Lost Time Injury cases multiplied by 200,000 then divide by total manhours				
1B	Workers' Compensation Experience					
	Use the previous three years injury and illness records to complete the following (if applicable):					
	Industry Code:		Industry Classification:			
	Year					
	Industry Rate					
	Contractor Rate					
	% Discount or Surcharge					
	Is your Workers' Compensation account in good standing? (Please provide letter of confirmation)			Yes		No
2. Citations						
2A	Has your company been cited, charged or prosecuted under Health, Safety and/or Environmental Legislation in the last 5 years?			Yes	No	
	If yes, provide details:					

2B	Has your company been cited, charged or prosecuted under the above Legislation in another Country, Region or State? If yes, provide details:			Yes		No	
3. Citations							
	Does your company have a Certificate of Recognition?			Yes		No	
	If yes, what is the	Certificate No:		Issue Date:			
4. Safety Program							
4A	Submit your company written health and safety plan? Submit for provide a copy for review						
4C	Health and safety plan should contain the following elements						
		Yes	No		Yes	No	
	Health and Safety Policy			Competence, Training and Awareness			
	Incident Management, reporting and Investigation			Emergency Preparedness/Response			
	Recordkeeping & Statistics/Manhours Reporting			Hazard Identification and Risk Assessment and Training			
	Reference to Legislation			Permit to Work			
	Site Establishment and Rehabilitation			Safe Work Procedures and Safe operating procedures			
	Roles and Responsibilities			Workplace Inspections			
	Alcohol, Drugs and Other Intoxicating Substances			Occupational Hygiene and Covid19			
	Personal Protective Equipment			Measuring and Monitoring			
	Working at Height			Communication, Participation and Consultation			
	Excavations			Signs and Notices			
4C	Submit your company pocket safety booklet for field distribution?						
5. Training Program							
5A	Attach orientation program for new hire employees? include a course outline. Does it include any of the following:						
		Yes	No		Yes	No	
	General Rules & Regulations			Confined Space Entry			
	Emergency Reporting			Trenching & Excavation			
	Injury Reporting			Signs & Barricades			
	Legislation			Dangerous Holes & Openings			
	Right to Refuse Work			Rigging & Cranes			
	Personal Protective Equipment			Mobile Vehicles			
	Emergency Procedures			Preventative Maintenance			
	Project Safety Committee			Hand & Power Tools			

	Housekeeping			Fire Prevention & Protection		
	Ladders & Scaffolds			Electrical Safety		
	Fall Arrest Standards			Compressed Gas Cylinders		
	Aerial Work Platforms			Weather Extremes		
5B	Submit a program for training newly hired or promoted supervisors? Tenderer must submit an outline for evaluation which include instruction on the following:					
		Yes	No		Yes	No
	Employer Responsibilities			Safety Communication		
	Employee Responsibilities			First Aid/Medical Procedures		
	Due Diligence			New Worker Training		
	Safety Leadership			Environmental Requirements		
	Work Refusals			Hazard Assessment		
	Inspection Processes			Pre-Job Safety Instruction		
	Emergency Procedures			Drug & Alcohol Policy		
	Incident Investigation			Progressive Disciplinary Policy		
	Safe Work Procedures			Safe Work Practices		
	Safety Meetings			Notification Requirements		
6. Safety Activities						
6A	Do you conduct safety inspections?	Yes	No	Weekly	Monthly	Quarterly
	Describe your safety inspection process (include participation, documentation requirements, follow-up, report distribution)					
	Who follows up on inspection action items?					
6B	Do you hold site safety meetings for field employees? If Yes, how often?	Yes	No	Daily	Weekly	Biweekly
6C	Do you hold site meetings where safety is addressed with management and field supervisors?	Yes	No	Weekly	Biweekly	Monthly
6D	Is pre-job safety instruction provided before to each new task?	Yes	No			
	Is the process documented?	Yes	No			
	Who leads the discussion?					
6E	Do you have a hazard assessment process?	Yes	No			
	Are hazard assessments documented?	Yes	No			
	If yes, how are hazard assessments communicated and implemented on each project?					
	Who is responsible for leading the hazard assessment process?					
6F	Submit your company policies and procedures for environmental protection, spill clean-up, reporting, waste disposal, and recycling as part of the Health & Safety Program?					
6G	How does your company measure its H&S success? Attach separate sheet to explain					
7. Safety Stewardship						

7A	Are incident reports and report summaries sent to the following and how often?	Yes	No	Monthly	Quarterly	Annually
	Project/Site Manager					
	Vice President/Managing Director					
	Safety Director/Manager					
	President/Chief Executive Officer					
7B	How are incident records and summaries kept? How often are they reported internally?	Yes	No	Monthly	Quarterly	Annually
	Incidents totalled for the entire company					
	Incidents totalled by project					
	Subtotalled by superintendent					
	Subtotalled by foreman					
7C	How are the costs of individual incidents kept? How often are they reported internally?	Yes	No	Monthly	Quarterly	Annually
	Costs totalled for the entire company					
	Costs totalled by project					
	Subtotalled by superintendent					
	Subtotalled by foreman/general foreman					
7D	Does your company track non-injury incidents?	Yes	No	Monthly	Quarterly	Annually
	Near Miss					
	Property Damage					
	Fire					
	Security					
	Environmental					

8. Personnel

List key health and safety officers planned for this project. Attach resume (CV and qualification and proof of registration with SACPCMP).

Name	Position / Title	Designation	
		Category	SACPCMP Number

9. References

List the last three company's your form has worked for that could verify the quality and management commitment to your occupational Health & Safety program

Name and Company	Address	Telephone Number

T2.2-07: Evaluation Schedule – Approach Paper

Note to Tenderers:

The Tenderer shall attach his approach paper to this page. The approach paper must include as a minimum, but not limited to, the following critical elements (the tenderer shall refer to the Works Information for a full description of the Scope of Works):

The approach paper shall as a minimum contain the following:

- **Project Understanding and Scope**
- **Materials, Quality and Technical Specifications**
- **Traffic Management,**
- **Construction Methodology**
- **Risk Management**

The Tenderer's approach paper demonstrates their understanding of the project deliverables, objectives and serves as a blueprint for how the project will be executed. A methodical, detailed, and proactive construction approach ensures that the Tenderer can deliver the project to the highest degree of quality, within the agreed timelines, and budget.

The approach paper details a sequence of construction activities that is logical and efficient. The tenderer shall clearly articulate each phase of construction, from site preparation to the final finishes, ensuring minimal disruption to existing infrastructure and operations.

The approach paper includes a three (3) month mobilisation period, wherein all project planning, documentation submission and approvals will take place. During this period, the successful tenderer shall apply for all applicable permits and statutory requirements before commencing with any activities on site, which will also include the obtaining of a construction work permit from the Department of Labour.

The approach paper proactively identifies potential risks and provide detailed strategies for their mitigation. The approach paper includes contingency plans that demonstrate the Contractor's readiness to handle challenges and unforeseen events that may arise during construction.

Where applicable, the approach paper includes detailed diagrams and drawings that visually represent construction activities / sequencing.

A comprehensive breakdown of each element evaluated in the Approach Paper is detailed below.

1. Project Understanding and Scope [2]

- a) The approach paper demonstrates a clear understanding of the project objectives and scope and including the duties of the Contractor.
- b) The approach paper must be site-specific, detailed and aligned with the Employer's requirements.
- c) Mobilisation and Demobilisation of critical plant and equipment for concrete road construction including list detailing all the plant and equipment
- d) Mobilisation of key resources (people) including their roles and responsibilities.
- e) Material supply chain including long lead items
- f) Temporary works preparation in accordance with the construction regulations

2. Materials, Quality and Technical Specifications [3]

- a) The approach paper details the specification of materials, including the type and grade of concrete, recycling of existing materials, etc.
- b) The approach paper ensures adherence/compliance with the national South African standards (e.g., SANS, COLTO) relevant to road construction.
- c) Detailed quality control measures, including on-site testing protocols for material quality, compaction, and thickness are included in the approach paper.
- d) Procedures for addressing any non-compliance or defects identified during quality assessments are included in the approach paper.
- e) The approach paper includes a detailed methodology for sourcing, storage, handling and transportation of materials such as cement, drainage structures, sand, stone, bricks, manhole covers and precast structures.

3. Traffic Management Plan [5]

- a) The approach paper outlines a detailed Traffic Management Plan in line with the scope of works.
 - Repair and maintenance of existing roads to accommodate traffic.
 - Frequency of maintenance on the traffic detours.
 - Entire works detailed traffic accommodation plan including working areas, one way traffic and completely closed sections.
 - Traffic accommodation plan for specific working sections, including signage and any other applicable traffic management system to be implemented.
 - Traffic management key personnel and respective roles.

4. Construction Methodology [10]

- a) List of site establishment facilities and equipment (including site laboratory).
- b) List of Equipment to be established on site including use, procurement methodology including. Equipment ownership, or and hiring agreements or framework agreements.
- c) Scope of temporary works including method of preparing traffic bypass routing
- d) Method for identifying and protecting underground services prior to the start of any construction activities.
- e) Setting out and levelling methodology.
- f) Procurement and delivery of materials methodology.
- g) Construction of pavement layers, including the Equipment and Materials to be used for such activities
- h) Detailed description of the milling or excavations process, including equipment to be used, milling or excavation depth, and strategies to address different underlying pavement conditions.
- i) Detailing methodology of the process of preparing in-situ material to lay new proposed layerworks i.e sub-base and lean- concrete mix base material in preparation to lay concrete pavement slab.
- j) Detailed methodology of concrete mix design specifications to ensure design concrete specifications are met.
- k) **Trial concrete paving:** Detailed description of the concrete paving process, including surface texturing, curing methods, and quality control measures during and after paving.
- l) **Actual concrete paving:** Detailed description of the concrete paving process, including surface texturing, curing methods, and quality control measures during and after paving.
- m) Detailed description of the concrete joint forming and sealing process, including timing of saw cutting, surface preparation, application of sealants, curing methods, and quality control measures.
- n) Construction sequencing, aligned with the Employer's proposal, considering constraints due to active industry operations and need for access to their sites during road construction.
- o) Methodology for identifying existing services in preparation for services relocation to tie-in for a new infrastructure.
- p) Detailed stormwater provision as per Design Engineers specifications: connection of new pipe to existing pipeline, concrete (V-drains, chutes, culverts etc.) structure construction including retaining wall or embankment structures construction methodology.

- q) Detailed process of installing road signs, road markings and other road furniture such as bus shelters, road lighting etc

5. **Risk Management [5]**

- a) The Approach Paper identifies potential risks such as delayed material delivery, damaged services, unexpected site conditions, or weather delays etc.
- Identification of risk: Identify all applicable construction risk.
 - Analysis of risk: Evaluating the likelihood and potential impact of identified risks
 - Prioritization of risk: Ranking risks based on their potential severity to focus on the most critical threats
 - Mitigation measures: Implementing strategies to reduce the probability or impact of risks.
 - Monitoring and control of risk: processes and procedures to manage risks effectively and ensure they are within acceptable levels.

Index of documentation attached to this schedule:

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



	Project Understanding and Scope	Material Quality and Technical Specifications	Traffic Management Plan	Construction Methodology	Risk Management
Total Points (25)	2	3	5	10	5
Score 0	The tenderer has submitted no information.	The tenderer has submitted no information or has submitted generic information.	The tenderer has submitted no information.	No information submitted or only generic information provided.	The tenderer has submitted no information.
Score 20	The approach paper addresses one (1) element of the Project Understanding and Scope.	The approach paper addresses one (1) element, lacking detail and specificity regarding materials and quality standards.	The approach paper addresses one (1) element of the Traffic Management Plan.	The approach paper addresses three (3) or less elements of the construction methodology.	The approach paper addresses one (1) element of the Risk Management.
Score 40	The approach paper addresses two (2) elements of the Project Understanding and Scope.	The approach paper addresses two (2) elements, providing some detail on materials and compliance with national standards.	The approach paper addresses two (2) elements of the Traffic Management Plan.	The approach paper addresses between four (4) to six (6) elements of the construction methodology.	The approach paper addresses two (2) elements of the Risk Management.
Score 60	The approach paper addresses three (3) elements of the Project Understanding and Scope.	The approach paper addresses three (3) elements, specifically detailing materials, adherence to standards, and basic quality control measures.	The approach paper addresses three (3) elements of the Traffic Management Plan.	The approach paper addresses between seven (7) to ten (10) elements of the construction methodology.	The approach paper addresses three (3) elements of the Risk Management.
Score 80	The approach paper addresses four (4) elements of the Project Understanding and Scope.	The approach paper addresses four (4) elements with comprehensive details on materials, quality	The approach paper addresses four (4) elements of the Traffic Management Plan.	The approach paper addresses between eleven (11) to thirteen (13) elements of the construction methodology.	The approach paper addresses four (4) elements of the Risk Management.



		standards, and control measures.			
Score 100	The approach paper addresses five (5) or more element of the Project Understanding and Scope.	The approach paper addresses all five (5) elements of the Material Quality and Technical Specifications.	The approach paper addresses five (5) or more element of the Traffic Management Plan.	The approach paper addresses fourteen (14) or more elements of the construction methodology.	The approach paper addresses five (5) or more element of the Risk Management.

T2.2-08: Evaluation Schedule – Company’s Previous Experience

Note to Tenderers:

The Contractor must demonstrate specialized experience in the construction of concrete pavement to ensure the quality and durability of the pavement under harsh conditions. The following outlines the required previous experience:

- The Contractor must have successfully completed at least three projects of similar scope within the past 15 years, these projects should include among others plain jointed concrete pavements requiring joint sealants,
- Tenderers are required to demonstrate their experience in the delivery of road Upgrade and Rehabilitation of heavy-duty industrial concrete road construction projects including parking’s and/or airport runaways and rehabilitation of road stormwater management systems over the last 15 years (Projects completed between 01 January 2010 – 31 August 2025), and to this end shall supply a sufficiently detailed reference letter or certificate of completion with the following details:
 - Client contact details (Previous tenderer client contact).
 - Name of the project.
 - Brief description of project scope.
 - Start and Completion date including duration.

For the submitted reference letter or certificate of completion to be classified as valid, the following criteria must be satisfied:

- The reference letter or certificate of completion must be addressed to the Tenderer.
- The reference letter or certificate of completion needs to be clear and legible.
- Reference letters must be signed by the Tenderer's previous Client and printed on the Tenderer's previous Client’s letterhead.
- Certificates of Completion must be signed by the Client or his representative.
- The project must have been completed in the last 15 years (measured from the date on which this tender closes).

Please note that appointment letters will not be accepted as valid references.

Index of documentation attached to this schedule:

.....

.....

.....

.....

.....



Previous experience category	Weighting	Points					
		Score 0	Score 20	Score 40	Score 60	Score 80	Score 100
Construction of Heavy-Duty concrete pavement on Roads including Parking's, and/or Airport runways.	25	The tenderer has submitted no information, or the tenderer has not submitted valid references or certificates of completion.	The tenderer has successfully completed one (1) similar project and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed two (2) similar projects and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed three (3) similar projects and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed four (4) similar projects and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed five (5) or more similar projects and valid reference letter, or completion certificate is submitted.
Upgrade and Rehabilitation of Road Stormwater Management System Construction (V-drains, silt-traps, pipelines etc.).	5	The tenderer has submitted no information, or the tenderer has not submitted valid references or certificates of completion.	The tenderer has successfully completed one (1) similar project and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed two (2) similar projects and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed three (3) similar projects and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed four (4) similar projects and valid reference letter, or completion certificate is submitted.	The tenderer has successfully completed five (5) or more similar projects and valid reference letter, or completion certificate is submitted.



Fill in as projects as needed for similar previous projects undertaken, starting from the most recent projects completed and attach valid references as previously stated for all projects:

Client Contact Details	Project Name & Brief Description	Completion Date	Contract Value	Reference (Yes/No)

STAGE 4: PRICE & PREFERENCE

Selected Specific Goal	Number of points allocated (10)
B-BBEE Status Level of Contributor 1 or 2.	02
The promotion of supplier development through subcontracting for a minimum of 30% of the value of a contract to South African companies which are: EMEs and/or QSEs 51% black owned.	08
Non-Compliant and/or B-BBEE Level 3-8 contributors.	0

The following Table represents the evidence to be submitted for claiming preference points for applicable specific goals in a particular tender:

Specific Goals	Acceptable Evidence
B-BBEE Status Level of Contributor 1 or 2.	• A Valid B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines.
The promotion of supplier development through subcontracting for a minimum of 30% of the value of a contract to South African companies which are: EMEs and/or QSEs 51% black owned.	• Sub-contracting agreement(s) and declaration. • Sub-contractors Valid B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate as per DTIC guidelines.

T2.2-18: Schedule of Proposed Subcontractors

The tenderer is required to provide details of all the sub-contractors that will be utilised in the execution of the *works*.

- **Tenderer to note that after award, any deviations from this list of proposed sub-contractors will be subject to acceptance by the *Project Manager* in terms of the Conditions of Contract.**
- **Tenderer to provide B-BBEE Certificates for all proposed sub-contractors listed above and attach it to this schedule.**
- **All agreements between the Main Contractor and Sub-Contractors must be attached to this schedule.**

Provide information of the Sub-contractors below:

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
	☐	☐	☐	☐	☐	☐	☐	

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
	☐	☐	☐	☐	☐	☐	☐	

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
	☐	☐	☐	☐	☐	☐	☐	

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships	Military Veterans	
	☐	☐	☐	☐	☐	☐	☐	

The *Contractor* must engage with the local municipal district/wards business forums business entities within the immediate surroundings of the Site/Working Area to maximise business opportunities to satisfy the above requirements. This is to ensure any possible risk pertaining to local business forums are mitigated by the *Contractor* through demonstrating evidence to local business forums when enquired during the execution of the contract.

If support is required Simon.Malindi@transnet.net can be contacted for assistance with regards to local business forums/companies/communities.

Specialist Sub-contractor listed on this list will be taken into consideration when evaluating Previous Experience.

If the tenderer intends to use Sub-contractor staff for evaluation purposes as one of the Key Persons identified in T2.029 Evaluation Schedule: Management & CVs of Key persons, Project Management Organogram: EAP, they may do so provided the sub-consultants company details are listed and attached to this schedule.

If the specialist Sub-contractors are not included on this list, together with the agreements between the sub-contractor and Main *Contractor*. The Specialist Sub-contractors experiences will not be taken into consideration.

General Returnable Schedules

T2.2-10: Authority to submit a Tender

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for his category of organisation or alternatively attach a certified copy of a company / organisation document which provides the same information for the relevant category as requested here.

A - COMPANY	B - PARTNERSHIP	C - JOINT VENTURE	D - SOLE PROPRIETOR

A. Certificate for Company

I, _____ chairperson of the board of directors _____
_____, hereby confirm that by resolution of the board
taken on _____ (date), Mr/Ms _____, acting in
the capacity of _____, was authorised to sign all
documents in connection with this tender offer and any contract resulting from it on behalf of
the company.

Signed

Date

Name

Position

Chairman of the Board of Directors

B. Certificate for Partnership

We, the undersigned, being the **key partners** in the business trading as _____

_____ hereby authorise Mr/Ms _____

acting in the capacity of _____, to sign all documents in connection with the tender offer for Contract _____ and any contract resulting from it on our behalf.

Name	Address	Signature	Date

NOTE: This certificate is to be completed and signed by the full number of Partners necessary to commit the Partnership. Attach additional pages if more space is required.

C. Certificate for Joint Venture

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

Mr/Ms _____, an authorised signatory of the company

_____, acting in the capacity of lead partner, to sign all

documents in connection with the tender offer for Contract _____

_____ and any contract resulting from it on our behalf.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all the partners to the Joint Venture.

Furthermore, we attach to this Schedule a copy of the joint venture agreement which incorporates a statement that all partners are liable jointly and severally for the execution of the contract and that the lead partner is authorised to incur liabilities, receive instructions and payments and be responsible for the entire execution of the contract for and on behalf of any and all the partners.

Name of firm	Address	Authorising signature, name (in caps) and capacity

D. Certificate for Sole Proprietor

I, _____, hereby confirm that I am the sole owner of the
business trading as _____.

Signed

Date

Name

Position

Sole Proprietor

T2.2-11: Record of Addenda to Tender Documents

This schedule as submitted confirms that the following communications received from the *Employer* before the submission of this tender offer, amending the tender documents, have been taken into account in this specific tender offer:

	Date	Title or Details
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		



T2.2-12 Letter/s of Good Standing with the Workmen’s Compensation Fund

Attached to this schedule is the Letter/s of Good Standing.

- 1.
- 2.
- 3.
- 4.

Name of Company/Members of Joint Venture:

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

[illegible]

Part T2: Returnable Schedules
T2.2-13: Risk Elements

T2.2-14: Proposed Organisation and staffing

Attached submissions to this schedule:

.....

.....

.....

.....

.....

.....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.



T2.2-15: Site Establishment Requirements

Tenderers to indicate their Site establishment area requirements:

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

T2.2-16: Availability of Equipment and Other Resources

The Tenderer to submit a list of all Equipment and other resources that will be used to execute the *works* as described in the Works Information.

[illegible]

T2.2-17: Capacity and Ability to meet Delivery Schedule

Note to tenderers:

The Tenderer is required to demonstrate to the *Employer* that the tenderer has sufficient current and future capacity to carry out the work as detailed in the Works Information and that the tenderer has the capacity and plans in place to meet the required delivery schedule as required. To this end, the following must be provided by the Tenderer:

A schedule detailing the following:

- Maximum quantity of work concurrently performed by the Tenderer in the recent past in order to illustrate his potential capacity to design, fabricate and/or construct work of a similar nature;
- Current and future work on his order book, showing quantity and type of equipment;
- Quantity of work for which the Tenderer has tenders in the market or is currently tendering on;
- The work as covered in this Works Information, planned and scheduled as per the Tenderer's capacities and methods but meeting the required delivery schedule.

Index of documentation attached to this schedule:

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

T2.2-19 Domestic Prominent Influential Persons (DPIP) Or Foreign Prominent Public Officials (FPPO)

Transnet is free to procure the services of any person within or outside the Republic of South Africa in accordance with applicable legislation. Transnet shall not conduct or conclude business transactions, with any Respondents without having:

- Considered relevant governance protocols;
- Determined the DPIP or FPPO status of that counterparty; and
- Conducted a risk assessment and due diligence to assess the potential risks that may be posed by the business relationship.

As per the Transnet Domestic Prominent Influential Persons (DPIP) and Foreign Prominent Public Officials (FPPO) and Related Individuals Policy available on Transnet website

<https://www.transnet.net/search/pages/results.aspx?k=FPIDP#k=DPIP>, Respondents are required to disclose any commercial relationship with a DPIP or FPPO (as defined in the Policy) by completing the following section:

The below form contains personal information as defined in the Protection of Personal Information Act, 2013 (the "Act"). By completing the form, the signatory consents to the processing of her/his personal information in accordance with the requirements of the Act. Consent cannot unreasonably be withheld.						
Is the Respondent (Complete with a "Yes" or "No")						
A DPIP/FPPO			Closely Related to a DPIP/FPPO		Closely Associated to a DPIP / FPPO	
List all known business interests, in which a DPIP/FPPO may have a direct/indirect interest or significant participation or involvement.						
No	Name of Entity / Business	Role in the entity / Business (Nature of interest / Participation)	Shareholding %	Registration Number	Status (Mark the applicable option with an X)	
					Active	Non-Active
1						
2						
3						

Respondents declaring a commercial relationship with a DPIP or FPPO are to note that Transnet is required to annually publish on its website a list of all business contracts entered with DPIP or FPPO. This list will include successful Respondents, if applicable.

2. SERVICE LEVELS

2.1 Transnet reserves the right to request that any member of the Service provider's team involved on the Transnet account be replaced if deemed not to be adding value for Transnet.

2.2 The Service provider guarantees that it will achieve a 95% [ninety-five per cent] service level on the following measures:

- a) Random checks on compliance with quality/quantity/specifications
- b) On-time delivery

2.3 The Service provider must provide a telephone number for customer service calls.

2.4 Failure of the Service provider to comply with stated service level requirements will give Transnet the right to cancel the contract in whole, without penalty to Transnet, giving 30 [thirty] calendar days' notice to the Service provider of its intention to do so.

Acceptance of Service Levels:

YES	

NO	

T2.2-20 Agreement in terms of Protection of Personal Information Act, 4 of 2013 ("POPIA")

1. PREAMBLE AND INTRODUCTION

- 1.1. The rights and obligation of the Parties in terms of the Protection of Personal Information Act, 4 of 2013 ("POPIA") are included as forming part of the terms and conditions of this contract.

2. PROTECTION OF PERSONAL INFORMATION

- 2.1. The following terms shall bear the same meaning as contemplated in Section 1 of the Protection of Person information act, No. of 2013 "(POPIA)":
 consent; data subject; electronic communication; information officer; operator; person; personal information; processing; record; Regulator; responsible party; special information; as well as any terms derived from these terms.
- 2.2. The Operator will process all information by the Transnet in terms of the requirements contemplated in Section 4(1) of the POPIA:

Accountability; Processing limitation; Purpose specification; Further processing limitation; Information quality; Openness; Security safeguards and Data subject participation.

- 2.3. The Parties acknowledge and agree that, in relation to personal information of Transnet and the information of a third party that will be processed pursuant to this Agreement , the _____ Operator _____ is (..... insert name of Tenderer/Contractor) hereinafter Operator and the Data subject is "Transnet". Operator will process personal information only with the knowledge and authorisation of Transnet and will treat personal information and the information of a third party which comes to its knowledge as confidential and will not disclose it, unless so required by law or subject to the exceptions contained in the POPIA.
- 2.4. Transnet reserves all the rights afforded to it by the POPIA in the processing of any of its information as contained in this Agreement and the Operator is required to comply with all prescripts as detailed in the POPIA relating to all information concerning Transnet.

- 2.5. In terms of this Agreement, the Operator acknowledges that it will obtain and have access to personal information of Transnet and the information of a third party and agrees that it shall only process the information disclosed by Transnet in terms of this Agreement and only for the purposes as detailed in this Agreement and in accordance with any applicable law.
- 2.6. Should there be a need for the Operator to process the personal information and the information of a third party in a way that is not agreed to in this Agreement, the Operator must request consent from Transnet to the processing of its personal information or and the information of a third party in a manner other than that it was collected for, which consent cannot be unreasonably withheld.
- 2.7. Furthermore, the Operator will not otherwise modify, amend or alter any personal information and the information of a third party submitted by Transnet or disclose or permit the disclosure of any personal information and the information of a third party to any third party without prior written consent from Transnet.
- 2.8. The Operator shall, at all times, ensure compliance with any applicable laws put in place and maintain sufficient measures, policies and systems to manage and secure against all forms of risks to any information that may be shared or accessed pursuant to the services offered to Transnet in terms of this Agreement (physically, through a computer or any other form of electronic communication).
- 2.9. The Operator shall notify Transnet in writing of any unauthorised access to personal information and the information of a third party , cybercrimes or suspected cybercrimes, in its knowledge and report such crimes or suspected crimes to the relevant authorities in accordance with applicable laws, after becoming aware of such crimes or suspected crime. The Operator must inform Transnet of the breach as soon as it has occurred to allow Transnet to take all necessary remedial steps to mitigate the extent of the loss or compromise of personal information and the information of a third party and to restore the integrity of the affected personal information as quickly as is possible.
- 2.10. Transnet may, in writing, request the Operator to confirm and/or make available any personal information and the information of a third party in its possession in relation to

Transnet and if such personal information has been accessed by third parties and the identity thereof in terms of the POPIA.

2.11. Transnet may further request that the Operator correct, delete, destroy, withdraw consent or object to the processing of any personal information and the information of a third party relating to the Transnet or a third party in the Operator's possession in terms of the provision of the POPIA and utilizing Form 2 of the POPIA Regulations .

2.12. In signing this addendum that is in terms of the POPIA, the Operator hereby agrees that it has adequate measures in place to provide protection of the personal information and the information of a third party given to it by Transnet in line with the 8 conditions of the POPIA and that it will provide to Transnet satisfactory evidence of these measures whenever called upon to do so by Transnet.

The Operator is required to provide confirmation that all measures in terms of the POPIA are in place when processing personal information and the information of a third party received from Transnet:

YES	

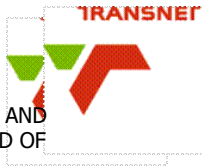
NO	

2.13. Further, the Operator acknowledges that it will be held liable by Transnet should it fail to process personal information in line with the requirements of the POPIA. The Operator will be subject to any civil or criminal action, administrative fines or other penalty or loss that may arise as a result of the processing of any personal information that Transnet submitted to it.

2.14. Should a Tenderer have any complaints or objections to processing of its personal information, by Transnet, the Tenderer can submit a complaint to the Information Regulator on <https://www.justice.gov.za/infoereg/>, click on contact us, click on complaints.IR@justice.gov.za

3. SOLE AGREEMENT

3.1. The Agreement constitute the sole agreement between the parties relating to the subject matter referred to in paragraph 1.1 of this and no amendment/variation/change shall be of any force and effect unless reduced to writing and signed by or on behalf of both parties.



Signed at _____ on this _____ day of _____ 2021

Name: _____

Title: _____

Signature: _____

.....(insert name of
Tenderer/Contractor)

Authorised signatory for and on behalf of

.....(insert name of Tenderer/Contractor) who
warrants that he/she is duly authorised to sign this Agreement.

AS WITNESSES:

1. Name: _____ Signature: _____

2. Name: _____ Signature: _____

T2.2-21 NON-DISCLOSURE AGREEMENT

Note to tenderers: This Non-Disclosure Agreement is to be completed and signed by an authorised signatory:

THIS AGREEMENT is made effective as of day of 20..... by and between:

TRANSNET SOC LTD

(Registration No. 1990/000900/30), a company incorporated and existing under the laws of South Africa, having its principal place of business at 2nd Floor, Waterfall Business Estate, 9 Country Estate Drive, Midrand, 1662, South Africa

and

.....
(Registration No.), a private company incorporated and existing under the laws of South Africa having its principal place of business at
.....
.....

WHEREAS

Transnet and the Company wish to exchange Information [as defined below] and it is envisaged that each party may from time to time receive Information relating to the other in respect thereof. In consideration of each party making available to the other such Information, the parties jointly agree that any dealings between them shall be subject to the terms and conditions of this Agreement which themselves will be subject to the parameters of the Tender Document.

IT IS HEREBY AGREED

1. INTERPRETATION

In this Agreement:

- 1.1 **Agents** mean directors, officers, employees, agents, professional advisers, contractors or sub-contractors, or any Group member;
- 1.2 **Bid or Bid Document** (hereinafter Tender) means Transnet's Request for Information [RFI] Request for Proposal [RFP] or Request for Quotation [RFQ], as the case may be;
- 1.3 **Confidential Information** means any information or other data relating to one party [the **Disclosing Party**] and/or the business carried on or proposed or intended to be carried on by that party and which is made available for the purposes of the Bid to the other party [the **Receiving Party**] or its Agents by the Disclosing Party or its Agents

or recorded in agreed minutes following oral disclosure and any other information otherwise made available by the Disclosing Party or its Agents to the Receiving Party or its Agents, whether before, on or after the date of this Agreement, and whether in writing or otherwise, including any information, analysis or specifications derived from, containing or reflecting such information but excluding information which:

- 1.3.1 is publicly available at the time of its disclosure or becomes publicly available [other than as a result of disclosure by the Receiving Party or any of its Agents contrary to the terms of this Agreement]; or
- 1.3.2 was lawfully in the possession of the Receiving Party or its Agents [as can be demonstrated by its written records or other reasonable evidence] free of any restriction as to its use or disclosure prior to its being so disclosed; or
- 1.3.3 following such disclosure, becomes available to the Receiving Party or its Agents [as can be demonstrated by its written records or other reasonable evidence] from a source other than the Disclosing Party or its Agents, which source is not bound by any duty of confidentiality owed, directly or indirectly, to the Disclosing Party in relation to such information;
- 1.4 **Group** means any subsidiary, any holding company and any subsidiary of any holding company of either party; and
- 1.5 **Information** means all information in whatever form including, without limitation, any information relating to systems, operations, plans, intentions, market opportunities, know-how, trade secrets and business affairs whether in writing, conveyed orally or by machine-readable medium.

2. CONFIDENTIAL INFORMATION

- 2.1 All Confidential Information given by one party to this Agreement [the **Disclosing Party**] to the other party [the **Receiving Party**] will be treated by the Receiving Party as secret and confidential and will not, without the Disclosing Party's written consent, directly or indirectly communicate or disclose [whether in writing or orally or in any other manner] Confidential Information to any other person other than in accordance with the terms of this Agreement.
- 2.2 The Receiving Party will only use the Confidential Information for the sole purpose of technical and commercial discussions between the parties in relation to the Tender or for the subsequent performance of any contract between the parties in relation to the Tender.

2.3 Notwithstanding clause 2.1 above, the Receiving Party may disclose Confidential Information:

2.3.1 to those of its Agents who strictly need to know the Confidential Information for the sole purpose set out in clause 2.2 above, provided that the Receiving Party shall ensure that such Agents are made aware prior to the disclosure of any part of the Confidential Information that the same is confidential and that they owe a duty of confidence to the Disclosing Party. The Receiving Party shall at all times remain liable for any actions of such Agents that would constitute a breach of this Agreement; or

2.3.2 to the extent required by law or the rules of any applicable regulatory authority, subject to clause 2.4 below.

2.4 In the event that the Receiving Party is required to disclose any Confidential Information in accordance with clause 2.3.2 above, it shall promptly notify the Disclosing Party and cooperate with the Disclosing Party regarding the form, nature, content and purpose of such disclosure or any action which the Disclosing Party may reasonably take to challenge the validity of such requirement.

2.5 In the event that any Confidential Information shall be copied, disclosed or used otherwise than as permitted under this Agreement then, upon becoming aware of the same, without prejudice to any rights or remedies of the Disclosing Party, the Receiving Party shall as soon as practicable notify the Disclosing Party of such event and if requested take such steps [including the institution of legal proceedings] as shall be necessary to remedy [if capable of remedy] the default and/or to prevent further unauthorised copying, disclosure or use.

2.6 All Confidential Information shall remain the property of the Disclosing Party and its disclosure shall not confer on the Receiving Party any rights, including intellectual property rights over the Confidential Information whatsoever, beyond those contained in this Agreement.

3. RECORDS AND RETURN OF INFORMATION

3.1 The Receiving Party agrees to ensure proper and secure storage of all Information and any copies thereof.

3.2 The Receiving Party shall keep a written record, to be supplied to the Disclosing Party upon request, of the Confidential Information provided and any copies made thereof and so far, as is reasonably practicable, of the location of such Confidential Information and any copies thereof.

3.3 The Company shall, within 7 [seven] days of receipt of a written demand from Transnet:

3.3.1 return all written Confidential Information [including all copies]; and

3.3.2 expunge or destroy any Confidential Information from any computer, word processor or other device whatsoever into which it was copied, read or programmed by the Company or on its behalf.

3.4 The Company shall on request supply a certificate signed by a director as to its full compliance with the requirements of clause 3.3.2 above.

4. ANNOUNCEMENTS

4.1 Neither party will make or permit to be made any announcement or disclosure of its prospective interest in the Tender without the prior written consent of the other party.

4.2 Neither party shall make use of the other party's name or any information acquired through its dealings with the other party for publicity or marketing purposes without the prior written consent of the other party.

5. DURATION

The obligations of each party and its Agents under this Agreement shall survive the termination of any discussions or negotiations between the parties regarding the Tender and continue thereafter for a period of 5 [five] years.

6. PRINCIPAL

Each party confirms that it is acting as principal and not as nominee, agent or broker for any other person and that it will be responsible for any costs incurred by it or its advisers in considering or pursuing the Tender and in complying with the terms of this Agreement.

7. ADEQUACY OF DAMAGES

Nothing contained in this Agreement shall be construed as prohibiting the Disclosing Party from pursuing any other remedies available to it, either at law or in equity, for any such threatened or actual breach of this Agreement, including specific performance, recovery of damages or otherwise.

8. PRIVACY AND DATA PROTECTION

8.1 The Receiving Party undertakes to comply with South Africa's general privacy protection in terms Section 14 of the Bill of Rights in connection with this Tender and shall procure

that its personnel shall observe the provisions of such Act [as applicable] or any amendments and re-enactments thereof and any regulations made pursuant thereto.

- 8.2 The Receiving Party warrants that it and its Agents have the appropriate technical and organisational measures in place against unauthorised or unlawful processing of data relating to the Tender and against accidental loss or destruction of, or damage to such data held or processed by them.

9. GENERAL

- 9.1 Neither party may assign the benefit of this Agreement, or any interest hereunder, except with the prior written consent of the other, save that Transnet may assign this Agreement at any time to any member of the Transnet Group.
- 9.2 No failure or delay in exercising any right, power or privilege under this Agreement will operate as a waiver of it, nor will any single or partial exercise of it preclude any further exercise or the exercise of any right, power or privilege under this Agreement or otherwise.
- 9.3 The provisions of this Agreement shall be severable in the event that any of its provisions are held by a court of competent jurisdiction or other applicable authority to be invalid, void or otherwise unenforceable, and the remaining provisions shall remain enforceable to the fullest extent permitted by law.
- 9.4 This Agreement may only be modified by a written agreement duly signed by persons authorised on behalf of each party.
- 9.5 Nothing in this Agreement shall constitute the creation of a partnership, joint venture or agency between the parties.
- 9.6 This Agreement will be governed by and construed in accordance with South African law and the parties irrevocably submit to the exclusive jurisdiction of the South African courts.

Signed

Date

Name

Position

Tenderer



T2.2-22: RFP DECLARATION FORM

NAME OF COMPANY: _____

We _____ do hereby certify that:

1. Transnet has supplied and we have received appropriate tender offers to any/all questions (as applicable) which were submitted by ourselves for tender clarification purposes;
2. we have received all information we deemed necessary for the completion of this Tender;
3. at no stage have we received additional information relating to the subject matter of this tender from Transnet sources, other than information formally received from the designated Transnet contact(s) as nominated in the tender documents;
4. we are satisfied, insofar as our company is concerned, that the processes and procedures adopted by Transnet in issuing this tender and the requirements requested from tenderers in responding to this tender have been conducted in a fair and transparent manner; and
5. furthermore, we acknowledge that a direct relationship exists between a family member and/or an owner / member / director / partner / shareholder (unlisted companies) of our company and an employee or board member of the Transnet Group as indicated below: *[Respondent to indicate if this section is not applicable]*

FULL NAME OF OWNER/MEMBER/DIRECTOR/

PARTNER/SHAREHOLDER:

ADDRESS:

Indicate nature of relationship with Transnet:

[Failure to furnish complete and accurate information in this regard may lead to the disqualification of your response and may preclude a Respondent from doing future business with Transnet]

We declare, to the extent that we are aware or become aware of any relationship between ourselves and Transnet (other than any existing and appropriate business relationship with Transnet) which could unfairly advantage our company in the forthcoming adjudication process, we shall notify Transnet immediately in writing of such circumstances.

6. We accept that any dispute pertaining to this tender will be resolved through the Ombudsman process and will be subject to the Terms of Reference of the Ombudsman. The Ombudsman



process must first be exhausted before judicial review of a decision is sought. (Refer "Important Notice to respondents" below).

7. We further accept that Transnet reserves the right to reverse a tender award or decision based on the recommendations of the Ombudsman without having to follow a formal court process to have such award or decision set aside.
8. We have acquainted ourselves and agree with the content of T2.2-23 "Service Provider Integrity Pact".

For and on behalf of duly authorised thereto
Name:
Signature:
Date:

IMPORTANT NOTICE TO TENDERERS

- Transnet established the SCM Complaints and Allegations Office to investigate any material complaint in respect of any tenders regardless of the value. Should a Respondent have any material concern regarding a tender process, a complaint may be lodged with Transnet SCM Complaints and Allegations Office for further investigation.
- It is incumbent on the Respondent to familiarise himself/herself with the Terms of Reference for the Transnet SCM Complaints and Allegations Office, details of which are available for review at Transnet's website www.transnet.net.
- An official complaint form which will be shared upon receipt of a complaint should be completed and submitted, together with any supporting documentation, to groupscmcomplaints@transnet.net.
- All Respondents should note that a complaint must be made in good faith. If a complaint is made in bad faith, Transnet reserves the right to place such a bidder on its List of Excluded Bidders.

T2.2-23 Service Provider Integrity Pact

Important Note: All potential tenderers must read this document and certify in the RFP Declaration Form that they have acquainted themselves with, and agree with the content.

The contract with the successful tenderer will automatically incorporate this Integrity Pact and shall be deemed as part of the final concluded contract.

INTEGRITY PACT

Between

TRANSNET SOC LTD

Registration Number: 1990/000900/30

("Transnet")

and

The Contractor (hereinafter referred to as the "Tenderer/Service Providers/Contractor")



PREAMBLE

Transnet values full compliance with all relevant laws and regulations, ethical standards and the principles of economical use of resources, fairness and transparency in its relations with its Tenderers/Service Providers/Contractors.

In order to achieve these goals, Transnet and the Tenderer/Service Provider/Contractor hereby enter into this agreement hereinafter referred to as the "Integrity Pact" which will form part of the Tenderer's/Service Provider's/Contractor's application for registration with Transnet as a vendor.

The general purpose of this Integrity Pact is to agree on avoiding all forms of dishonesty, fraud and corruption by following a system that is fair, transparent and free from any undue influence prior to, during and subsequent to the currency of any procurement and/or reverse logistics event and any further contract to be entered into between the Parties, relating to such event.

All Tenderers/Service Providers/Contractor's will be required to sign and comply with undertakings contained in this Integrity Pact, should they want to be registered as a Transnet vendor.

1 OBJECTIVES

1.1 Transnet and the Tenderer/Service Provider/Contractor agree to enter into this Integrity Pact, to avoid all forms of dishonesty, fraud and corruption including practices that are anti-competitive in nature, negotiations made in bad faith and under-pricing by following a system that is fair, transparent and free from any influence/unprejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:

- a) Enable Transnet to obtain the desired contract at a reasonable and competitive price in conformity to the defined specifications of the works, goods and services; and
- b) Enable Tenderers/Service Providers/Contractors to abstain from bribing or participating in any corrupt practice in order to secure the contract.



2 COMMITMENTS OF TRANSNET

Transnet commits to take all measures necessary to prevent dishonesty, fraud and corruption and to observe the following principles:

- 2.1 Transnet hereby undertakes that no employee of Transnet connected directly or indirectly with the sourcing event and ensuing contract, will demand, take a promise for or accept directly or through intermediaries any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the Tenderer, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the tendering process, Tender evaluation, contracting or implementation process related to any contract.
- 2.2 Transnet will, during the registration and tendering process treat all Tenderers/ Service Providers/Contractor with equity, transparency and fairness. Transnet will in particular, before and during the registration process, provide to all Tenderers/ Service Providers/Contractors the same information and will not provide to any Tenderers/Service Providers/Contractors confidential/additional information through which the Tenderers/Service Providers/Contractors could obtain an advantage in relation to any tendering process.
- 2.3 Transnet further confirms that its employees will not favour any prospective Tenderers/Service Providers/Contractors in any form that could afford an undue advantage to a particular Tenderer during the tendering stage, and will further treat all Tenderers/Service Providers/Contractors participating in the tendering process in a fair manner.
- 2.4 Transnet will exclude from the tender process such employees who have any personal interest in the Tenderers/Service Providers/Contractors participating in the tendering process.

3 OBLIGATIONS OF THE TENDERER / SERVICE PROVIDER

- 3.1 Transnet has a '**Zero Gifts**' Policy. No employee is allowed to accept gifts, favours or benefits.
 - a) Transnet officials and employees **shall not** solicit, give or accept, or from agreeing to solicit, give, accept or receive directly or indirectly, any gift, gratuity, favour, entertainment, loan, or anything of monetary value, from any person or juridical entities in the course of official duties or in connection with any operation being managed by, or any transaction which may be affected by the functions of their office.

- b) Transnet officials and employees **shall not** solicit or accept gifts of any kind, from vendors, suppliers, customers, potential employees, potential vendors, and suppliers, or any other individual or organisation irrespective of the value.
 - c) Under **no circumstances** should gifts, business courtesies or hospitality packages be accepted from or given to prospective suppliers participating in a tender process at the respective employee's Operating Division, regardless of retail value.
 - d) Gratuities, bribes or kickbacks of any kind must never be solicited, accepted or offered, either directly or indirectly. This includes money, loans, equity, special privileges, personal favours, benefit or services. Such favours will be considered to constitute corruption.
- 3.2 The Tenderer/Service Provider/Contractor commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its Tender or during any ensuing contract stage in order to secure the contract or in furtherance to secure it and in particular the Tenderer/Service Provider/Contractor commits to the following:
- a) The Tenderer/Service Provider/Contractor will not, directly or through any other person or firm, offer, promise or give to Transnet or to any of Transnet's employees involved in the tendering process or to any third person any material or other benefit or payment, in order to obtain in exchange an advantage during the tendering process; and
 - b) The Tenderer/Service Provider/Contractor will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any employee of Transnet, connected directly or indirectly with the tendering process, or to any person, organisation or third party related to the contract in exchange for any advantage in the tendering, evaluation, contracting and implementation of the contract.
- 3.3 The Tenderer/Service Provider/Contractor will not collude with other parties interested in the contract to preclude a competitive Tender price, impair the transparency, fairness and progress of the tendering process, Tender evaluation, contracting and implementation of the contract. The Tenderer / Service Provider further commits itself to delivering against all agreed upon conditions as stipulated within the contract.



- 3.4 The Tenderer/Service Provider/Contractor will not enter into any illegal or dishonest agreement or understanding, whether formal or informal with other Tenderers/Service Providers/Contractors. This applies in particular to certifications, submissions or non-submission of documents or actions that are restrictive or to introduce cartels into the tendering process.
- 3.5 The Tenderer/Service Provider/Contractor will not commit any criminal offence under the relevant anti-corruption laws of South Africa or any other country. Furthermore, the Tenderer/Service Provider/Contractor will not use for illegitimate purposes or for restrictive purposes or personal gain, or pass on to others, any information provided by Transnet as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 3.6 A Tenderer/Service Provider/Contractor of foreign origin shall disclose the name and address of its agents or representatives in South Africa, if any, involved directly or indirectly in the registration or tendering process. Similarly, the Tenderer / Service Provider / Contractor of South African nationality shall furnish the name and address of the foreign principals, if any, involved directly or indirectly in the registration or tendering process.
- 3.7 The Tenderer/Service Provider/Contractor will not misrepresent facts or furnish false or forged documents or information in order to influence the tendering process to the advantage of the Tenderer/Service Provider/Contractor or detriment of Transnet or other competitors.
- 3.8 Transnet may require the Tenderer/Service Provider/Contractor to furnish Transnet with a copy of its code of conduct. Such code of conduct must address the compliance programme for the implementation of the code of conduct and reject the use of bribes and other dishonest and unethical conduct.
- 3.9 The Tenderer/Service Provider/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 3.10 The Tenderer/Service Provider/Contractor confirms that they will uphold the ten principles of the United Nations Global Compact (UNGC) in the fields of Human Rights, Labour, Anti-Corruption and the Environment when undertaking business with Transnet as follows:
- a) Human Rights
- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

- Principle 2: make sure that they are not complicit in human rights abuses.

b) Labour

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labour;
- Principle 5: the effective abolition of child labour; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

c) Environment

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

d) Anti-Corruption

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

4 INDEPENDENT TENDERING

4.1 For the purposes of that Certificate in relation to any submitted Tender, the Tenderer declares to fully understand that the word "competitor" shall include any individual or organisation, other than the Tenderer, whether or not affiliated with the Tenderer, who:

- a) has been requested to submit a Tender in response to this Tender invitation;
- b) could potentially submit a Tender in response to this Tender invitation, based on their qualifications, abilities or experience; and
- c) provides the same Goods and Services as the Tenderer and/or is in the same line of business as the Tenderer.

4.2 The Tenderer has arrived at his submitted Tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium will not be construed as collusive tendering.

4.3 In particular, without limiting the generality of paragraph 5 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:



- a) prices;
 - b) geographical area where Goods or Services 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 Tender;
 - e) the submission of a Tender which does not meet the specifications and conditions of the RFP; or
 - f) tendering with the intention of not winning the Tender.
- 4.4 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 Goods or Services to which his/her tender relates.
- 4.5 The terms of the Tender as submitted have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official Tender opening or of the awarding of the contract.
- 4.6 Tenderers are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to Tenders and contracts, Tenders 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 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.
- 4.7 Should the Tenderer find any terms or conditions stipulated in any of the relevant documents quoted in the Tender unacceptable, it should indicate which conditions are unacceptable and offer alternatives by written submission on its company letterhead, attached to its submitted Tender. Any such submission shall be subject to review by Transnet's Legal Counsel who shall determine whether the proposed alternative(s) are acceptable or otherwise, as the case may be.

5 DISQUALIFICATION FROM TENDERING PROCESS

- 5.1 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3 of this Integrity Pact or in any other form such as to put its reliability or credibility as a Tenderer/Service Provider/Contractor



into question, Transnet may reject the Tenderer's / Service Provider's / Contractor's application from the registration or tendering process and remove the Tenderer/Service Provider/Contractor from its database, if already registered.

- 5.2 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3, or any material violation, such as to put its reliability or credibility into question. Transnet may after following due procedures and at its own discretion also exclude the Tenderer/Service Provider /Contractor from future tendering processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, which will include amongst others the number of transgressions, the position of the transgressors within the company hierarchy of the Tenderer/Service Provider/Contractor and the amount of the damage. The exclusion will be imposed for up to a maximum of 10 (ten) years. However, Transnet reserves the right to impose a longer period of exclusion, depending on the gravity of the misconduct.
- 5.3 If the Tenderer/Service Provider/Contractor can prove that it has restored the damage caused by it and has installed a suitable corruption prevention system or taken other remedial measures as the circumstances of the case may require, Transnet may at its own discretion revoke the exclusion or suspend the imposed penalty.

6 TRANSNET'S LIST OF EXCLUDED TENDERERS (BLACKLIST)

- 6.1 The process of restriction is used to exclude a company/person from conducting future business with Transnet and other organs of state for a specified period. No Tender shall be awarded to a Tenderer whose name (or any of its members, directors, partners or trustees) appear on the Register of Tender Defaulters kept by National Treasury, or who have been placed on National Treasury's List of Restricted Suppliers. Transnet reserves the right to withdraw an award, or cancel a contract concluded with a Tenderer should it be established, at any time, that a tenderer has been restricted with National Treasury by another government institution.
- 6.2 All the stipulations on Transnet's restriction process as laid down in Transnet's Supply Chain Policy and Procurement Procedures Manual (CPM included) are included herein by way of reference. Below follows a condensed summary of this restriction procedure.

- 6.3 On completion of the restriction procedure, Transnet will submit the restricted entity's details (including the identity number of the individuals and registration number of the entity) to National Treasury for placement on National Treasury's Database of Restricted Suppliers for the specified period of exclusion. National Treasury will make the final decision on whether to restrict an entity from doing business with any organ of state for a period not exceeding 10 years and place the entity concerned on the Database of Restricted Suppliers published on its official website.
- 6.4 The decision to restrict is based on one of the grounds for restriction. The standard of proof to commence the restriction process is whether a "*prima facie*" (i.e., on the face of it) case has been established.
- 6.5 Depending on the seriousness of the misconduct and the strategic importance of the Goods/Services, in addition to restricting a company/person from future business, Transnet may decide to terminate some or all existing contracts with the company/person as well.
- 6.6 A Service Provider or Contractor to Transnet may not subcontract any portion of the contract to a blacklisted company.
- 6.7 Grounds for blacklisting include: If any person/Enterprise which has submitted a Tender, concluded a contract, or, in the capacity of agent or subcontractor, has been associated with such Tender or contract:
- a) Has, in bad faith, withdrawn such Tender after the advertised closing date and time for the receipt of Tenders;
 - b) has, after being notified of the acceptance of his Tender, failed or refused to sign a contract when called upon to do so in terms of any condition forming part of the Tender documents;
 - c) has carried out any contract resulting from such Tender in an unsatisfactory manner or has breached any condition of the contract;
 - d) has offered, promised or given a bribe in relation to the obtaining or execution of the contract;
 - e) has acted in a fraudulent or improper manner or in bad faith towards Transnet or any Government Department or towards any public body, Enterprise or person;
 - f) has made any incorrect statement in a certificate or other communication with regard to the Local Content of his Goods or his B-BBEE status and is unable to prove to the satisfaction of Transnet that:

(i) he made the statement in good faith honestly believing it to be correct;
and

(ii) before making such statement, he took all reasonable steps to satisfy himself of its correctness;

g) caused Transnet damage, or to incur costs in order to meet the contractor's requirements and which could not be recovered from the contractor;

h) has litigated against Transnet in bad faith.

6.8 Grounds for blacklisting include a company/person recorded as being a company or person prohibited from doing business with the public sector on National Treasury's database of Restricted Service Providers or Register of Tender Defaulters.

6.9 Companies associated with the person/s guilty of misconduct (i.e., entities owned, controlled or managed by such persons), any companies subsequently formed by the person(s) guilty of the misconduct and/or an existing company where such person(s) acquires a controlling stake may be considered for blacklisting. The decision to extend the blacklist to associated companies will be at the sole discretion of Transnet.

7 PREVIOUS TRANSGRESSIONS

7.1 The Tenderer/Service Provider/Contractor hereby declares that no previous transgressions resulting in a serious breach of any law, including but not limited to, corruption, fraud, theft, extortion and contraventions of the Competition Act 89 of 1998, which occurred in the last 5 (five) years with any other public sector undertaking, government department or private sector company that could justify its exclusion from its registration on the Tenderer's/Service Provider's/Contractor's database or any tendering process.

7.2 If it is found to be that the Tenderer/Service Provider/Contractor made an incorrect statement on this subject, the Tenderer/Service Provider/Contractor can be rejected from the registration process or removed from the Tenderer/Service Provider/Contractor database, if already registered, for such reason (refer to the Breach of Law Returnable Form contained in the document.)

8 SANCTIONS FOR VIOLATIONS

8.1 Transnet shall also take all or any one of the following actions, wherever required to:

a) Immediately exclude the Tenderer/Service Provider/Contractor from the tendering process or call off the pre-contract negotiations without giving any compensation

the Tenderer/Service Provider/Contractor. However, the proceedings with the other Tenderer/ Service Provider/Contractor may continue;

- b) Immediately cancel the contract, if already awarded or signed, without giving any compensation to the Tenderer/Service Provider/Contractor;
- c) Recover all sums already paid by Transnet;
- d) Encash the advance bank guarantee and performance bond or warranty bond, if furnished by the Tenderer/Service Provider/Contractor, in order to recover the payments, already made by Transnet, along with interest;
- e) Cancel all or any other contracts with the Tenderer/Service Provider/Contractor; and
- f) Exclude the Tenderer/ Service Provider/Contractor from entering into any Tender with Transnet in future.

9 CONFLICTS OF INTEREST

9.1 A conflict of interest includes, inter alia, a situation in which:

- a) A Transnet employee has a personal financial interest in a tendering / supplying entity; and
- b) A Transnet employee has private interests or personal considerations or has an affiliation or a relationship which affects, or may affect, or may be perceived to affect his / her judgment in action in the best interest of Transnet or could affect the employee's motivations for acting in a particular manner, or which could result in, or be perceived as favouritism or nepotism.

9.2 A Transnet employee uses his / her position, or privileges or information obtained while acting in the capacity as an employee for:

- a) Private gain or advancement; or
- b) The expectation of private gain, or advancement, or any other advantage accruing to the employee must be declared in a prescribed form.

Thus, conflicts of interest of any Tender committee member or any person involved in the sourcing process must be declared in a prescribed form.

9.3 If a Tenderer/Service Provider/Contractor has or becomes aware of a conflict of interest i.e., a family, business and / or social relationship between its owner(s)/ member(s)/director(s)/partner(s)/shareholder(s) and a Transnet employee/ member of Transnet's Board of Directors in respect of a Tender which will be considered for the Tender process, the Tenderer/Service Provider/ Contractor:

- a) must disclose the interest and its general nature, in the Request for Proposal ("RFX") declaration form; or

b) must notify Transnet immediately in writing once the circumstances have arisen.

9.4 The Tenderer/Service Provider/Contractor shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any committee member or any person involved in the sourcing process, where this is done, Transnet shall be entitled forthwith to rescind the contract and all other contracts with the Tenderer/Service Provider/Contractor.

10 DISPUTE RESOLUTION

10.1 Transnet recognises that trust and good faith are pivotal to its relationship with its Tenderer / Service Provider / Contractor. When a dispute arises between Transnet and its Tenderer / Service Provider / Contractor, the parties should use their best endeavours to resolve the dispute in an amicable manner, whenever possible. Litigation in bad faith negates the principles of trust and good faith on which commercial relationships are based. Accordingly, following a blacklisting process as mentioned in paragraph 6 above, Transnet will not do business with a company that litigates against it in bad faith or is involved in any action that reflects bad faith on its part. Litigation in bad faith includes, but is not limited to the following instances:

- a) **Vexatious proceedings:** these are frivolous proceedings which have been instituted without proper grounds;
- b) **Perjury:** where a Tenderer / Service Provider / Contractor make a false statement either in giving evidence or on an affidavit;
- c) **Scurrilous allegations:** where a Tenderer / Service Provider / Contractor makes allegations regarding a senior Transnet employee which are without proper foundation, scandalous, abusive or defamatory; and
- d) **Abuse of court process:** when a Tenderer / Service Provider / Contractor abuses the court process in order to gain a competitive advantage during a Tender process.

11 GENERAL

11.1 This Integrity Pact is governed by and interpreted in accordance with the laws of the Republic of South Africa.

11.2 The actions stipulated in this Integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the law relating to any civil or criminal proceedings.

11.3 The validity of this Integrity Pact shall cover all the tendering processes and will be valid for an indefinite period unless cancelled by either Party.



11.4 Should one or several provisions of this Integrity Pact turn out to be invalid the remainder of this Integrity Pact remains valid.

11.5 Should a Tenderer/Service Provider/Contractor be confronted with dishonest, fraudulent or corruptive behaviour of one or more Transnet employees, Transnet expects its Tenderer/Service Provider/Contractor to report this behaviour directly to a senior Transnet official/employee or alternatively by using Transnet's "Tip-Off Anonymous" hotline number 0800 003 056, whereby your confidentiality is guaranteed.

The Parties hereby declare that each of them has read and understood the clauses of this Integrity Pact and shall abide by it. To the best of the Parties' knowledge and belief, the information provided in this Integrity Pact is true and correct.

I duly authorised by the tendering entity, hereby certify that the tendering entity are **fully acquainted** with the contents of the Integrity Pact and further **agree to abide by it** in full.

Signature

Date

T2.2-24 Certificate of Acquaintance with Tender Documents

NAME OF TENDERING ENTITY:

1. By signing this certificate, I/we acknowledge that I/we have made myself/ourselves thoroughly familiar with and agree with all the conditions governing this RFP. This includes those terms and conditions of the Contract, the Supplier Integrity Pact, Non-Disclosure Agreement etc. contained in any printed form stated to form part of the documents thereof, but not limited to those listed in this clause.
2. I/we furthermore agree that Transnet SOC Ltd shall recognise no claim from me/us for relief based on an allegation that I/we overlooked any tender/contract condition or failed to take it into account for the purpose of calculating my/our offered prices or otherwise.
3. I/we understand that the accompanying Tender will be disqualified if this Certificate is found not to be true and complete in every respect.
4. For the purposes of this Certificate and the accompanying Tender, I/we understand that the word "competitor" shall include any individual or organisation, other than the Tenderer, whether or not affiliated with the Tenderer, who:
 - a) has been requested to submit a Tender in response to this Tender invitation;
 - b) could potentially submit a Tender in response to this Tender invitation, based on their qualifications, abilities or experience; and
 - c) provides the same Services as the Tenderer and/or is in the same line of business as the Tenderer
5. The Tenderer has arrived at the accompanying Tender independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium will not be construed as collusive Tendering.
6. In particular, without limiting the generality of paragraph 5 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - a) prices;
 - b) geographical area where Services 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 Tender;

- e) the submission of a tender which does not meet the specifications and conditions of the tender; or
 - f) Tendering with the intention not winning the tender.
7. 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 Services to which this tender relates.
8. The terms of the accompanying tender have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.
9. I/We am/are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders 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. In addition, Tenderers that submit suspicious tenders may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

Signed on this _____ day of _____ 20____

SIGNATURE OF TENDERER

T2.2-25: REQUEST FOR PROPOSAL – BREACH OF LAW

NAME OF COMPANY:

I / We _____ do hereby certify that ***I/we have/have not been*** found guilty during the preceding 5 (five) years of a serious breach of law, including but not limited to a breach of the Competition Act, 89 of 1998, by a court of law, tribunal or other administrative body. The type of breach that the Tenderer is required to disclose excludes relatively minor offences or misdemeanours, e.g. traffic offences.

Where found guilty of such a serious breach, please disclose:

NATURE OF BREACH:

DATE OF BREACH:

Furthermore, I/we acknowledge that Transnet SOC Ltd reserves the right to exclude any Tenderer from the tendering process, should that person or company have been found guilty of a serious breach of law, tribunal or regulatory obligation.

Signed on this _____ day of _____ 20____

SIGNATURE OF TENDER

T2.2-26 : ANNEX G COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars hereunder must be furnished.

In the case of a Joint Venture, separate enterprise questionnaires in respect of each partner/member must be completed and submitted.

Section 1: Name of enterprise: _____

Section 2: VAT registration number, if any: _____

Section 3: CIDB registration number, if any: _____

Section 4: CSD number: _____

Section 5: Particulars of sole proprietors and partners in partnerships

Name	Identity number	Personal income tax number

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 6: Particulars of companies and close corporations

Company registration number _____

Close corporation number _____

Tax reference number: _____

Section 7: The attached SBD4 must be completed for each tender and be attached as a tender requirement.

Section 8: The attached SBD6.1 must be completed for each tender and be attached as a requirement.

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

- i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are 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; and
- 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.

Signed	_____	Date	_____
Name	_____	Position	_____
Enterprise name	_____		

SBD 6.1

PREFERENCE POINTS CLAIM FORM

This preference form must form part of all bids invited. It contains general information and serves as a claim for preference points for Specific Goals contribution. Transnet will award preference points to companies who provide valid proof of evidence as per the table of evidence in paragraph 4.1 below.

1. GENERAL CONDITIONS

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

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

1.2 The value of this bid is estimated to be above R50 000 000 (all applicable taxes included) and therefore the 90/10 preference point system shall be applicable. Despite the stipulated preference point system, Transnet shall use the lowest acceptable bid to determine the applicable preference point system in a situation where all received acceptable bids are received outside the stated preference point system.

1.3 Preference points for this bid shall be awarded for:

- (a) Price;
- (b) B-BBEE Status Level of Contribution; and
- (c) Any other specific goal determined in the Transnet preferential procurement policy

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

DISCRIPTION	90/10 POINTS
PRICE	90
1. B-BBEE Status Level of Contributor 1 or 2 (02 Points) 2. The promotion of supplier development through subcontracting for a minimum of 30% of the value of the contract to South African companies which are: EME's and/or QSE's 51% black owned (08 Points)	10

	100

- 1.5 Failure on the part of a bidder to submit proof of evidence required for any of the specific goals together with the bid will be interpreted to mean that preference points for that specific goal are not claimed.
- 1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

- (a) **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
- (b) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (c) **"B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (d) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the supply/provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;
- (e) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (f) **"EME"** means an Exempted Micro Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (g) **"functionality"** means the ability of a bidder to provide goods or services in accordance with specification as set out in the bid documents
- (h) **"Price"** includes all applicable taxes less all unconditional discounts.
- (i) **"Proof of B-BBEE Status Level of Contributor"**
 - i) the B-BBBEE status level certificate issued by an authorised body or person;
 - ii) a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice; or
 - iii) any other requirement prescribed in terms of the B-BBEE Act.
- (j) **"QSE"** means a Qualifying Small Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (k) **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes

and excise duties.

- (l) **Specific goals**” means targeted advancement areas or categories of persons or groups either previously disadvantaged or falling within the scope of the Reconstruction and Development Programme identified by Transnet to be given preference in allocation of procurement contracts in line with section 2(1) of the PPPFA.

3. POINTS AWARDED FOR PRICE

3.1 THE 90/10 PREFERENCE POINT SYSTEMS

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

90/10

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

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. EVIDENCE REQUIRED FOR CLAIMING SPECIFIC GOALS

- 4.1 In terms of Transnet Preferential Procurement Policy (TPPP) and Procurement Manuals, preference points must be awarded to a bidder for providing evidence in accordance with the table below:

Specific Goals	Acceptable Evidence
B-BBEE Status Level of Contributor 1 or 2.	B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guidelines.
The promotion of supplier development through subcontracting for a minimum of 30% of the value of a contract to South African companies which are: EMEs and/or QSEs 51% black owned.	• Sub-contracting agreement(s) and declaration. • Subcontractors B-BBEE Certificate / Sworn - Affidavit / CIPC B-BBEE Certificate as per DTIC guidelines.

- 4.2 The table below indicates the required proof of B-BBEE status depending on the category of enterprises:

Enterprise	B-BBEE Certificate & Sworn Affidavit
Large	Certificate issued by SANAS accredited verification agency.
QSE	Certificate issued by SANAS accredited verification agency. Sworn Affidavit signed by the authorised QSE representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership (only black-owned QSEs - 51% to 100% Black owned) [Sworn affidavits must substantially comply with the format that can be obtained on the DTI's website at www.dti.gov.za/economic_empowerment/bee_codes.jsp .]
EME¹	Sworn Affidavit signed by the authorised EME representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership. Certificate issued by CIPC (formerly CIPRO) confirming annual turnover and black ownership. Certificate issued by SANAS accredited verification agency only if the EME is being measured on the QSE scorecard.

- 4.3 A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Status Level verification certificate for every separate bid.
- 4.4 Tertiary Institutions and Public Entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.
- 4.5 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

¹ In terms of the Implementation Guide: Preferential Procurement Regulations, 2017, Version 2, paragraph 11.11 provides that in the Transport Sector, EMEs can provide a letter from accounting officer or get verified and be issued with a B-BBEE certificate by SANAS accredited professional or agency as the Transport Sector Code has not been aligned to the generic Codes. EMEs in the Transport Sector are not allowed to provide a sworn affidavit as the generic codes are not applicable to them.

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

4.7 Bidders are to note that the rules pertaining to B-BBEE verification and other B-BBEE requirements may be changed from time to time by regulatory bodies such as National Treasury or the DTI. It is the Bidder's responsibility to ensure that his/her bid complies fully with all B-BBEE requirements at the time of the submission of the bid.

5. BID DECLARATION

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

6. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 6.1

6.1 B-BBEE Status Level of Contribution: . = ...(maximum of 10 points)
 (Points claimed in respect of paragraph 6.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?
 (*Tick applicable box*)

YES	☐	NO	☐

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE.

(*Tick applicable box*)

YES	☐	NO	☐

Refer to Annexure T2.2-18		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

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

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional Supplier/Service provider
- ☐ Other Suppliers/Service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

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

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If a bidder submitted false information regarding its B-BBEE status level of contributor,, which will affect or has affected the evaluation of a bid, or where a bidder has failed to declare any subcontracting arrangements or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have

- (a) disqualify the person from the bidding process;

- (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
- (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- (d) if the successful bidder subcontracted a portion of the bid to another person without disclosing it, Transnet reserves the right to penalise the bidder up to 10 percent of the value of the contract;
- (e) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
- (f) forward the matter for criminal prosecution

WITNESSES

- 1.
- 2.

.....
SIGNATURE(S) OF BIDDERS(S)

DATE:

BIDDER'S DISCLOSURE (SBD 4)

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise, employed by the state?

YES/NO

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or

any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract?

YES/NO

2.3.1 If so, furnish particulars:

.....

3 DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

drafting of the specifications or terms of reference for this bid.

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

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of bidder

T2.2-27 : Supplier Code of Conduct

Transnet SOC Limited aims to achieve the best value for money when buying or selling goods and obtaining services. This however must be done in an open and fair manner that supports and drives a competitive economy. Underpinning our process are several acts and policies that any supplier dealing with Transnet must understand and support. These are:

- The Transnet Procurement Policy – A guide for Tenderers.
- Section 217 of the Constitution - the five pillars of Public PSCM (Procurement and Supply Chain Management): fair, equitable, transparent, competitive and cost effective;
- The Public Finance Management Act (PFMA);
- The Broad Based Black Economic Empowerment Act (BBBEE)
- The Prevention and Combating of Corrupt Activities Act (PRECCA); and
- The Construction Industry Development Board Act (CIDB Act).

This code of conduct has been included in this contract to formally appraise Transnet Suppliers of Transnet's expectations regarding behaviour and conduct of its Suppliers.

Prohibition of Bribes, Kickbacks, Unlawful Payments, and Other Corrupt Practices

Transnet is in the process of transforming itself into a self-sustaining State Owned Enterprise, actively competing in the logistics industry. Our aim is to become a world class, profitable, logistics organisation. As such, our transformation is focused on adopting a performance culture and to adopt behaviours that will enable this transformation.

1. Transnet SOC Limited will not participate in corrupt practices. Therefore, it expects its suppliers to act in a similar manner.

- Transnet and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with, and payments to, our suppliers.
- Employees must not accept or request money or anything of value, directly or indirectly, from suppliers.
- Employees may not receive anything that is calculated to:
 - Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity;
 - Win or retain business or to influence any act or decision of any person involved in sourcing decisions; or
 - Gain an improper advantage.
- There may be times when a supplier is confronted with fraudulent or corrupt behaviour of Transnet employees. We expect our Suppliers to use our "Tip-offs Anonymous" Hot line to report these acts. (0800 003 056).

2. *Transnet SOC Limited is firmly committed to the ideas of free and competitive enterprise.*

- Suppliers are expected to comply with all applicable laws and regulations regarding fair competition and antitrust practices.
- Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing BBBEE spend (fronting).

3. *Transnet's relationship with suppliers requires us to clearly define requirements, to exchange information and share mutual benefits.*

- Generally, suppliers have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
 - Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc);
 - Collusion;
 - Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, BBBEE status, etc.);
 - Corrupt activities listed above; and
 - Harassment, intimidation or other aggressive actions towards Transnet employees.
- Suppliers must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted and the supplier is expected to participate in an honest and straight forward manner.
- Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

Conflicts of Interest

A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of Transnet SOC Limited.

- Doing business with family members.
- Having a financial interest in another company in our industry

Where possible, contracts will be negotiated to include the above in the terms of such contracts. To the extent such terms are not included in contractual obligations and any of the above code is breached, then Transnet reserves its right to review doing business with these suppliers.

I, _____ of _____
(insert name of Director or as per (insert name of Company)
Authority Resolution from Board of
Directors)

hereby acknowledge having read, understood and agree to the terms and conditions set out in the "Transnet Supplier Code of Conduct."

Signed this on day _____ at

Signature

T2.2-28: JOB-CREATION SCHEDULE

The Government has identified State Owned Enterprises sourcing activities as a key enabler to achieve the National Development Plan (NDP) objective of reducing unemployment from the current baseline of 28% to 6%.

In order to give effect to these job creation objectives, Tenderers are required to provide the following undertaking of new jobs that will be created (either by them or by their subcontractors) should they be awarded this tender.

Tenderers to note, that if successful, any deviations from the Job creation Schedule in the contract phase will be subject to acceptance by the *Project Manager* in terms of the Conditions of Contract. Please also note the applicable Z clauses in Contract Data by *Employer*.

- (a) Please indicate total number of new jobs that will be created over the term of the contract:

Total number and value of new jobs created	Total number of new jobs	Total rand value of new jobs created

- (b) Of the total number of new jobs created, please indicate the number and value of new jobs to be created for the following designated groups:

	Total number of new jobs	Total rand value of new jobs
Black men		
Black women		
Black Youth		
Black people living in rural or underdeveloped areas or townships		
Black People with Disabilities		

- (c) Of the total number of new jobs created, please indicate the number of skilled, semi-skilled and unskilled new jobs that will be created over the term of the contract:

	Total number of Skilled jobs	Total number of Semi-skilled jobs	Total number of Unskilled jobs
Black men			
Black women			
Black Youth			
Black people living in rural or underdeveloped areas or townships			
Black People with Disabilities			
Other			

(d) Please indicate the number of new jobs to be created, broken down per quarter over the term of the contract.

Year 1	Q1	Q2	Q3	Q4
Total number of new jobs				
Number of new jobs for Black men				
Number of new jobs for black women				
Number of new jobs for black youth				
Number of new jobs for black people living in rural or underdeveloped areas or townships				
Number of new jobs for black People with Disabilities				
Number of new jobs for other categories				
Number of new skilled jobs				
Number of new semi-skilled jobs				
Number of new unskilled jobs				

Year 2	Q1	Q2	Q3	Q4
Total number of new jobs				
Number of new jobs for Black men				
Number of new jobs for black women				
Number of new jobs for black youth				
Number of new jobs for black people living in rural or underdeveloped areas or townships				
Number of new jobs for black People with Disabilities				
Number of new jobs for other categories				
Number of new skilled jobs				
Number of new semi-skilled jobs				
Number of new unskilled jobs				

T2.2-29: Organogram & CV's of Key Persons

1. The *Contractor* provides an Organogram of all his key people (both as required by the *Employer* and as independently stated by the *Contractor* under Contract Data Part Two) and how such key people communicate with the *Project Manager* and the *Supervisor* and their delegates all as stated at paragraph 2.4 of C3.1 *Employer's Works* Information.

The minimum key people required by the *Employer* for this project are indicated as follows:

2. Comprehensive CV's should be attached to this schedule:

As a minimum each CV should address the following, but not limited to;

- 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) and copies of all these to be attached in the tender submission.

- c) Skills

- d) Name of current employer and position in enterprise

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

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

3. CV's for people proposed for all identified posts including:

Resource	Qualification and experience Requirements
Pr. <i>Project Manager</i> (NEC) - PMI/SACPCMP REGISTERED	- The <i>Project Manager</i> should have a relevant qualification in Civil engineering or Project Management or Construction Management at NQF 7 level. - The <i>Project Manager</i> is required to be professionally registered with the SACPCMP or PMI as a professional <i>Project Manager</i> or professionally registered with the Engineering Council of South Africa (ECSA) as a Professional Civil Engineer. - The <i>Project Manager</i> must have experience with the NEC 3 Engineering and Construction Contract. - The <i>Project Manager</i> must have 15 years' experience in concrete pavement or/and mass concrete works such as dams, runways, bridges, multi-story concrete buildings, etc.
Pr. Site Engineer or site Agent	- Site Engineer should at least have NQF level 7 in Civil engineering and shall be registered with the Engineering Council of South Africa (ECSA) as a Professional Civil Engineer. - The Site Engineer must have a minimum of 10 years working experience in projects of a similar nature to the works, Post registration with ECSA as Pr. Engineer.
Professional Land Surveyor	- The Land Surveyor (LS) shall indicate clear experience in managing and conducting road surveying works. LS experience shall clearly indicate Civil Engineering with land surveying works experience in roads construction. - Land Surveyor shall have more than ten (10) years' work experience and is required to be a professionally registered with South African Geomatics Counsel (SAGC) or relevant body as a Professional Land Surveyor. Land Surveyor shall have a minimum of five (5) years' experience post registration working on roads Projects.

Senior Materials Technician	- Senior Material Technician shall indicate clear experience in road construction and concrete works. - Senior Material Technician shall hold a minimum of NQF7 qualification in civil engineering and have at least 10 years of experience.
Construction Manager	- Construction Manager should at least have NQF level 6 in Civil engineering or construction management and shall be registered with the Engineering Council of South Africa (ECSA) as a Professional or Professional Construction Manager with SACPCMP. - The construction manager must have a minimum of 10 years working experience in projects of a similar nature to the works, Post Professional registration.
Construction Health and Safety Officer	- Health & Safety officer should have valid professional registration with SACPCMP as a Construction health & Safety Officer. - The Health and Safety Officer must have a minimum of five years' experience in similar Civil Construction Projects involving roads construction.
Pr. Quantity surveyor	- Quantity Surveyor should have valid professional registration with SACQSP as a Quantity surveyor. The QS must have a minimum of ten years' experience in similar Civil Construction Projects involving roads construction, stormwater and/or bulk earthworks scope.
Traffic Control Officer	- Traffic control officer has valid NQF level 4 traffic safety offer certificate accredited by CETE or relevant SAQA accreditation body. Must have 5 years work experience as a road construction related traffic control officer.
Quality Manager/ Quality Assurance Officer.	- The Quality Officer should have a relevant Degree/Diploma in Quality, or technical qualification in Civil and related field supplemented by ISO9001:2015 implementation and auditing certificates (Certified qualification in Quality Management Systems). More than 5 years of experience in

	a quality systems environment and relevant experience in similar type Civil construction projects is required.
Environmental Officer/Resource	- The Environmental Officer must be in possession of a B degree in Environmental Management registered with relevant professional body. - The Environmental Officer must have a minimum five (5) years' experience in the construction sector.
Industrial relations manager or Community liaison officer.	- The Industrial Relations Person/Officer should at least have a minimum qualification of a National diploma in Labour Law/Relations with a minimum 5 years' experience in Construction Project industrial relations.

The following table is to be populated by the tenderer identifying the resources for the key roles on the project.

Key Person Role	Name of Resource
Pr. <i>Project Manager</i> (NEC) - PMI/SACPCMP REGISTERED	
Pr. Site Engineer or site Agent	
Professional Land Surveyor	
Senior Materials Technician	
Construction Manager	
Construction H&S Officer	
Pr. Quantity Surveyor	
Traffic Control Officer	
Quality Manager/ Quality Assurance Officer.	
Environmental Officer/Resource	
Industrial relations manager or Community liaison officer.	



Attached submissions to this schedule:

.....

.....

.....

.....

.....

T2.2-30: Insurance provided by the *Contractor*

Clause 84.1 in NEC3 Engineering & Construction Contract (June 2005)(amended June 2006 and April 2013) requires that the *Contractor* provides the insurance stated in the insurance table except any insurance which the *Employer* is to provide as stated in the Contract Data.

Please provide the following details for insurance which the *Contractor* is still to provide. Notwithstanding this information all costs related to insurance are deemed included in the tenderer's rates and prices.

Insurance against (See clause 84.2 of the ECC)	Name of Insurance Company	Cover	Premium
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract			
Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R5 000 000.			
Insurance in respect of loss of or damage to own property and equipment.			
(Other)			

1 April 2025

To Whom It May Concern,

CERTIFICATE OF INSURANCE: TRANSNET (SOC) LIMITED – PRINCIPAL CONTROLLED INSURANCE

In our capacity as Insurance Brokers to the Transnet Group of Companies, we hereby certify that the undermentioned insurances are currently in place:

INSURED:	Transnet (SOC) Limited
PERIOD:	1 April 2025 to 31 March 2026 (Both days inclusive)
DIVISION:	Transnet Freight Rail, Transnet Engineering, Transnet Properties, Transnet Pipelines, Transnet National Ports Authority and Transnet Port Terminals
THE INSURED'S VAT NO:	4720103177
THE INSURED'S COMPANY REGISTRATION NO:	1990/000900/30
POSTAL ADDRESS (Head Office)	Carlton Centre, 150 Commissioner Street, Johannesburg, 2001

CONTRACT WORKS INSURANCE

Cover Provided :	Contract Works - Physical loss or damage to the Property Insured which being materials, plant and other things for incorporation into the permanent works.
Insurer :	Mirabilis (Santam Limited)
Policy Number :	MZAR35023-CAR
The Contract Site :	Any location within the Territorial Limits upon which The Insured Contract is to be executed or carried out as more fully defined in The Insured Contract documents together with so much of the surrounding area as may be required or designated for the performance of The Insured Contract.
Territorial Limits :	The Republic of South Africa.
Additional Co-Insureds:	
The Contractor:	All Contractors undertaking work in connection with The Insured Contract including the Employer to the extent that the Employer undertakes work in connection with The Insured Contract;
Sub-Contractors:	All Sub-Contractors employed by the Contractor and all other Sub- Contractors (whether nominated or otherwise) engaged in fulfilment of The Insured Contract; and to the extent required by any contract or agreement; transporters, suppliers, manufacturers, vendors, other persons, persons providing storage facilities, plant

owners and/or operators in respect of liability loss or damage arising out of The Insured Contract; project managers, architects, land surveyors, quantity surveyors, engineers and other advisors or consultants or sub-consultants appointed in the performance of the Insured Contract activities arising at the Contract Site provided always that any such person shall not be insured hereunder in respect of liability loss or damage arising out of such person's error or omission in the performance of the professional services for which he was appointed;

**Provincial & Government:
Insured Contracts :**

any Local Provincial or Government Department with which the Insured enters into any contract or agreement for the performance of The Insured Contract; all for their respective rights and interests.

All Contracts (including any undertaking awarded or commenced prior to Inception of the Period of Insurance) involving design, construction, Performance Testing and Commissioning in respect of the Works and shall Include capital expenditure, upgrade, modification, maintenance or overhaul, refurbishment, renovation, retrofitting or alterations and additions to existing facilities undertaken by the Insured or other Insured Parties acting on their behalf but **excluding**;

- a) contracts which at award stage have a value in excess of R 1,000,000,000;
- b) contracts with an estimated construction period exceeding 48 months but increasing to 60 months in respect of rail maintenance contracts and Transnet Freight and Rail contracts for logistical support for inline inspections and identification of defects over a 5 year period in respect of Transnet's pipeline assets (excluding Defects Liability/Maintenance period); c) contracts involving construction or erection of petrochemical manufacturing plant(s) but this exclusion shall not apply to pipelines and other associated works undertaken by or on behalf of the Insured;
- d) contracts in or on any aircraft;
- e) Off-shore contracts;
- f) Wet Risk Contracts which at award exceeds R500,000,000;
- g) Dam Contracts
- h) Tunnel contracts which at award exceeds R50,000,000;
- i) Tunnel contracts using tunnel boring machines;
- j) Underground Mining Contracts;
- k) Horizontal Directional Drilling Contracts which at award exceeds R50,000,000;
- l) Horizontal Directional Drilling Contracts where total drilling exceeds 1 km;
- m) Horizontal Directional Drilling Contracts for pipe diameters greater than 76 cm.

Definitions

1. *"Off-shore contracts" means all works and installations in the sea or on the seabed including dredging which are accessible only by ship boat barge or helicopter and do not constitute normal wet works like harbours moles bridges wharves or sewage or cooling water intake or outlet facilities.*
- "OffShore Contracts" shall include oilrigs and oil platforms (but not including oil platforms when connected to the land on completion). The term shall not*

apply to pre-fabrication works on land associated with an Off-Shore Contract.

- 2 *"Wet Risk Contracts" shall mean any Contract and/or Works where more than thirty-five (35) percentile of its value is in a permanent body of water or is below the high water mark of any tidal body of water. The term shall include contracts for the construction of wharves, piers, marinas, causeways, breakwaters, jetties, dry docks and offshore pipelines when connected directly to on-shore facilities and canal developments. Wet Risks shall exclude Off- Shore Contracts;*
- 3 *"Dam Contracts", which term shall include weirs and hydroelectric projects involving the construction of dams or weirs;*
- 4 *"Horizontal Directional Drilling Contracts", means micro-tunnelling work for the construction of tunnels utilising surface based horizontal directional drilling equipment.*
- 5 *Tunnels" means Tunnels (Including declines) involving all of the following;*
 - (a) Works below ground level; and
 - (b) Tunnelling machinery below ground level; and
 - (c) A tunnelling crew operating the machinery below ground level;
 - (d) But shall not include Horizontal Directional Drilling Contracts
- 6 *"Horizontal Directional Drilling Contracts", means micro-tunnelling work for the construction of tunnels utilising surface based horizontal directional drilling equipment.*
- 7 *"Underground Mining Contracts", which shall mean any contract involving underground mining.*

Testing Period: 120 Days not consecutive.

Maintenance Period : 12 Months

Main Policy Extensions :

- Costs & Expenses - Limited to a maximum of R50,000,000.
- Expediting Measures – Limited to a maximum of R50,000,000.
- Professional Fees In Reinstatement Of Property Insured - Limited to a maximum of R50,000,000.
- Costs & Expenses For Removal Of Debris No Damage - Limited to a maximum of R50,000,000.
- Surrounding Property in care custody or control of the contractor – Limited to a maximum of R55,000,000.
- Fire Brigade & Public Authorities - Limited to a maximum of R10,000,000.
- Public Authority Reinstatement Costs - Limited to a maximum of R20,000,000

- Public Relationship Costs - Limited to a maximum of R1,000,000. Records - Limited to a maximum of R2,000,000.
- Removal to Gain Access - Limited to a maximum of R20,000,000
- Road Reserve and Servitude Extensions - Limited to a maximum of R10,000,000
- Search & Locate Costs - Limited to a maximum of R20,000,000.
- Borrowing Of Plant For Commissioning Purposes - Limited to a maximum of R10,000,000
- Escalation during Construction – 30%
- Marine Contribution Clause
- Claim Preparation Costs – Limited to a maximum of R10,000,000

Main Policy Exclusions :

- War
- Nuclear Energy Risks
- Terrorism
- Computer Loss General Exception
- DE4 (All types of Works) for defective material workmanship design plan or specification.
- LEG 3 (Mechanical or Electrical Engineering Works only) for defective material workmanship design plan or specification. Limited to maximum of 10% of the total estimated contract value in the aggregate.
- Loss or damage arising during air transit or any ocean voyage or whilst in storage thereafter.
- Occurring during any defects/maintenance period unless cause occurred prior to such defects/maintenance period
- Disappearance or by shortage revealed during routine inventory or periodic stocktaking.
- Consequential loss of whatsoever nature.
- Normal wear and tear, normal atmospheric conditions, rust, erosion, corrosion or oxidation.
- Due to its own explosion breakdown or derangement occurring after the Testing Period which has operated under load conditions.
- Second hand property due to its own electrical or mechanical breakdown or explosion.
- Cyber and Data
- Beneficial Occupation – 12 months
- Risk Mitigation – Safety Measures with Respect to Precipitation, Flood and Inundation – 10 years return period

Deductibles:

In respect of loss or damage:

the consequences of defective design, specification, materials or workmanship (DE4).

Minor Perils shall mean damage caused by a peril not defined as Major Perils defined above.

Contracts with a contract value :	Major perils	Minor perils
0 to R100,000,000 R25,000	R15,000	R100,000,001 to
R250,000,000 R50,000	R15,000	
R250,000,001 to R500,000,000	R100,000	R25,000
R500,000,001 to R1,000,000,000	R150,000	R25,000

Minimum wet risk deductible of R100,000 per occurrence to apply.

Electrical Cables, Wiring and Accessories 10% of claim minimum R100,000

LEG 3 Deductible (Only in respect of Mechanical and Electrical contracts);

Contracts with a contract value	Deductible
0 to R500,000,000	R1,000,000 per occurrence
R500,000,001 to R1,000,000,000	R1,500,000 per occurrence

PUBLIC LIABILITY

Cover Provided :

Contract Works Public Liability – cover the Insured's legal liability in respect of loss or damage or injury to third parties arising out of work performed in respect of the Insured Contracts.

Insurer :

Stalker Hutchinson (Santam Limited)

Policy Number:

6000/132335

Territorial Limits :

The Republic of South Africa.

Insured Contracts:

All contracts (including any undertaking awarded or commenced prior to inception of the period of Insurance) involving design, construction, performance testing and commissioning in respect of the works and shall include capital expenditure, upgrade, modification, maintenance or overhaul, refurbishment, renovation, retrofitting or alterations and additions to existing facilities undertaken by the Insured or other Insured Parties acting on their behalf but **Excluding:**

- Contracts which at award stage have a value in excess of R 1,000,000,000.
- Contracts with an estimated construction period at award exceeding 48 months but 60 months in respect of contracts awarded prior to 1 April 2020 for rail maintenance contracts For Transnet Freight & Rail and for Transnet Pipeline's logistical support for inline inspections and identification of defects in respect of Transnet's pipeline assets (all excluding Defects Liability/Maintenance period).

- c) Contracts with a Contractual Defects Liability Maintenance Period exceeding 24 months.
- d) Contracts involving construction or erection of petrochemical manufacturing plant(s) but this exclusion shall not apply to pipelines and other associated works undertaken by or on behalf of the Insured.
- e) Contracts in or on any aircraft.

- f) Off-shore contracts - "Off-shore contracts" means all works and installations in the sea or on the seabed and do not constitute normal Wet Risk Contracts like harbours, moles, bridges, wharves or sewage or cooling water intake or outlet facilities, piers, marinas, causeways, breakwaters, jetties, dry docks and offshore pipelines when connected directly to onshore facilities and canal developments. "Off-Shore contracts" shall include oilrigs and oil platforms.

Policy Limits:

Contractors Public Liability	R100,000,000 any one occurrence / unlimited during the Period of Insurance
Contractors Negligent Removal or weakening of Support	R100 000 000 any one occurrence and R100,000,000 per site in the aggregate during the Period of Insurance.
Statutory Legal Defence Costs	*R5 000 000 in the aggregate during the Period of Insurance.
Arrest / Assault / Defamation	*R5 000 000 in the aggregate during the Period of Insurance.
Prevention of Access	*R5 000 000 in the aggregate during the Period of Insurance.
Trespass / Nuisance	*R5 000 000 in the aggregate during the Period of Insurance.
Claims Preparation Costs	R5 000 000 any one occurrence

*Where the limits are noted as in the aggregate during the policy period of insurance, that such aggregated limit is applicable to all Transnet Insured Contracts collectively and in total and does not apply to each contract separately.

Deductible(s) : R50,000 per occurrence but increased to R5,000,000 in respect of Spread of Fire and/or Hot Works and R250,000 in respect of Sudden and Accidental Pollution and/or Goods on the Hook and/or R150,000 in respect of Developers Removal of Support.

General Policy Exclusions :

The policy does not cover:-

- deliberate, conscious and intentional disregard to take reasonable precautions.
☐ fines, penalties, punitive and exemplary damages.
 - Pollution unless caused by a sudden, unintended and unexpected occurrence.
 - cost of removing, nullifying or cleaning up the effects of pollution unless caused by a sudden, unintended and unexpected occurrence.
 - the hazardous nature of asbestos.
 - War And Terrorism Risks.
 - Nuclear Risks.
 - Actual or alleged unlawful competition, unfair practices, abuse of monopoly power, cartel activities
-
- Compulsory Insurance
 - Loss or damage and any consequence therefrom to any Data. •
 - Sanctions Exclusion ☐ Grid Failure

PROFESSIONAL INDEMNITY

Cover Provided :

Professional Indemnity

- a) In respect of damages which the Insured shall become legally liable to pay in consequence of neglect, error or omission by or on behalf of the Insured in the conduct or execution of their Professional Activities and Duties as defined.
- b) Prior To Handover/Rectification - against loss arising out of any defect in the works discovered prior to the issue of any practical completion or take-over certificate provided that any such defects are caused by a negligent breach of a Professional Activity or Duty by the Insured in consequence of neglect, error or omission by or on behalf of the Insured.

Insurer :

Stalker Hutchinson (Santam Limited)

Policy Number:

6000/132337

Jurisdiction :

Worldwide excluding North America

Insured Contracts: All contracts (including any undertaking awarded or commenced prior to inception of the period of Insurance) involving design, construction, performance testing and commissioning in respect of the works and shall include capital expenditure, upgrade, modification, maintenance or overhaul, refurbishment, renovation,

Authorised Financial Services Provider
Registration in South Africa Number 2013/150155/07
Authorized FSP Licence Number 44889

retrofitting or alterations and additions to existing facilities undertaken by the Insured or other Insured Parties acting on their behalf but **Excluding**:

- a) Contracts which at award stage have a value in excess of R 1,000,000,000.
- b) Contracts with an estimated construction period at award exceeding 48 months (excluding Defects Liability/Maintenance period).
- c) Contracts with a Contractual Defects Liability Maintenance Period exceeding 24 months.
- d) Contracts involving construction or erection of petrochemical manufacturing plant(s) but this exclusion shall not apply to pipelines and other associated works undertaken by or on behalf of the Insured.
- e) Contracts in or on any aircraft.
- f) Off-shore contracts - "Off-shore contracts" means all works and installations in the sea or on the seabed and do not constitute normal Wet Risk Contracts like harbours, moles, bridges, wharves or sewage or cooling water intake or outlet facilities, piers, marinas, causeways, breakwaters, jetties, dry docks and offshore pipelines when connected directly to onshore facilities and canal developments. "Off-Shore contracts" shall include oilrigs and oil platforms.

Limit Of Indemnity:

Professional Indemnity - *R100,000,000 in the aggregate during the policy period of insurance.

*Where the limit is noted as in the aggregate during the policy period of insurance, that such aggregated limit is applicable to all Transnet Insured Contracts collectively and in total and does not apply to each contract separately.

Policy Extension Limits Of Indemnity:

Claims Preparation Costs - *R7,500,000 in the aggregate during the policy period of insurance.

Loss of Documents - *R2,000,000 in the aggregate during the policy period of insurance.

Statutory Defence Costs - *R5,000,000 in the aggregate during the policy period of insurance.

Defamation - *R5,000,000 in the aggregate during the policy period of insurance.

Infringement of Copyright - *R5,000,000 in the aggregate during the policy period of insurance.

*Where the limits are noted as in the aggregate during the policy period of insurance, that such aggregated limit is applicable to all Transnet Insured Contracts collectively and in total and does not apply to each contract separately.

Deductibles:

R5,000,000 each and every but R10,000 in respect of Claims Preparation Costs, Loss of Documents, Statutory Defence Costs, Defamation and Infringement Of Copyright.

Policy Special Conditions :

Condition precedent to liability that the Insured is fully qualified and registered with the relevant Industry Body/Association in terms of legislation as applicable.

Prior to hand over/rectification – the insured must give prior written notice to the Insurers of the intention to take remedial action to rectify such defect and obtain the Insurers' written agreement to such action being taken and the costs and expenses expected to be expended.

Policy Main Exclusions:

- Excludes all consequential loss other than cost of re-design, rectification and replacement as a consequence of the defect.
- Excludes Supervision.
- Excludes liability arising out of environmental impairment / pollution
- Excludes the cost of removing, nullifying or cleaning-up the effects of environmental impairment/ pollution.
- Excludes war, invasion, acts of foreign enemies, hostilities or warlike operations (whether war be declared or not), civil war, rebellion, revolution, insurrection, civil commotion assuming the proportions of or amounting to an uprising, military or usurped power, any act of terrorism and nuclear risks.
- Excludes fines, penalties, punitive and exemplary damages, multiplication of compensatory damages and/or any other noncompensating damages of any kind.
- Excludes liability from the hazardous nature of asbestos.
- Excludes medical malpractice.
- Excludes failure to meet contractual requirements relating to efficiency, output or durability.
- Excludes failure to meet completion dates
- Excludes the estimation of probable costs other than cost advice and cost planning services normally provided by a Quantity Surveyor or Project manager.
- Excludes incorrect authorisation of payment.
- Excludes breach of any statutory regulation.
- Excludes liability from the insolvency, liquidation or judicial management of the Insured.
- Excludes the certification of value of work executed by any contractor where the Insured has an equity interest in such contractor;
- Excludes liability due to unlawful competition, unfair practices, abuse of monopoly power, cartel activities or breach of a competitions ac
- Sanctions Exclusion
- Grid Failure

Maksure Place, Waterfall Point
Cnr Waterfall & Woodmead Drive
Waterfall City, 2090
Johannesburg South Africa
Tel +27 11 805 0086
Fax 086 762 7356
Email info@maksure.co.za
Web www.maksure.co.za



This certificate of the insurance cover arranged is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policies issued by Insurers.

Langa Sigodi

A handwritten signature in black ink, consisting of a long horizontal stroke followed by a loop and a short vertical stroke.

Account Executive: Corporate and Global Markets

Authorised Financial Services Provider

Registration in South Africa Number 2013/150155/07
Authorized FSP Licence Number 44889

APPROVED GUARANTEE ISSUERS

ABSA BANK LIMITED GROUP
 BANK OF AMERICA, N.A
 BANK OF CHINA LIMITED GROUP
 BARCLAYS BANK PLC GROUP
 BESA MEMBERS
 BNP PARIBAS GROUP
 CHINA CONSTRUCTION BANK GROUP
 CITIBANK GROUP
 CREDIT SUISSE GROUP
 DEUTSCHE BANK GROUP
 FIRSTSTRAND BANK LIMITED GROUP
 GOLDMAN SACHS INTERNATIONAL
 HSBC HOLDINGS GROUP
 INVESTEC BANK LTD
 JPMORGAN CHASE BANK GROUP
 MORGAN STANLEY
 MACQUARIE BANK LIMITED
 NEDBANK LTD
 SOCIETE GENERALE BANK GROUP
 STANDARD BANK GROUP
 STANDARD CHARTERED BANK GROUP
 AFRICAN BANK LTD
 BIDVEST BANK LTD
 CAPITEC BANK LTD
 DISCOVERY BANK LTD
 GRINDROD BANK LTD

ABN AMRO Bank N.V.
 BANCO BILBAO VIZCAYA ARGENTARIA S.A
 Coöperative Rabobank U.A.
 CREDIT AGRICOLE CORPORATE AND INVESTMENT BANK
 DANSKE BANK
 INDUSTRIAL DEVELOPMENT CORPORATION
 ING Bank N.V.
 KBC BANK
 LANDESBANK BADEN-WUERTTEMBERG
 MIZUHO BANK, LTD
 NATIONAL AUSTRALIA BANK LIMITED
 SKANDINAVISKA ENSKILDA BANKEN
 SUMITOMO MITSUI BANKING CORPORATION
 SVENSKA HANDELSBANKEN AB

AIG SOUTH AFRICA
 CONSTANTIA INSURANCE LTD
 CREDIT GUARANTEE INSURANCE CORPORATION
 GUARDRISK INSURANCE
 HOLLARD INSURANCE COMPANY
 INFINITY INSURANCE

LOMBARD INSURANCE GROUP
MUTUAL & FEDERAL
RENASA INSURANCE COMPANY
SANTAM
BRYTE INSURANCE COMPANY LTD
ZURICH INSURANCE PLC

T2.2-31: Form of Intent to Provide a Performance Guarantee

It is hereby agreed by the Tenderer that a Performance Guarantee drafted **exactly** as provided in the tender documents will be provided by the Guarantor named below, which is a **bank or insurer registered in South Africa**:

Name of Guarantor

(Bank/Insurer)

Address

The Performance Guarantee shall be provided within **2 (Two)** weeks after the Contract Date defined in the contract unless otherwise agreed to by the parties.

Signed

Name

Capacity

On behalf of (name of
tenderer)

Date

Confirmed by Guarantor's Authorised Representative

Signature(s)

Name (print)

Capacity

On behalf of Guarantor
(Bank/insurer)

Date

T2.2-32: Forecast Rate of Invoicing

Tenderer to submit the forecast rate of invoicing (cash-flow) based on the Tender Price and Tender Programme.

Index of documentation attached to this schedule:

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



T2.2-33: Three (3) years audited financial statements

Attached to this schedule is the last three (3) years audited financial statements of the single tenderer/members of the Joint Venture.

NAME OF COMPANY/IES and INDEX OF ATTACHMENTS:

.....

.....

.....

.....

.....

.....

.....

.....

Contractor:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Contractor:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Contractor:

Date of audited financial statement	Total Revenue for year
	R

	R
	R

Proposed Sub-contractor 1:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Proposed Sub-contractor 2:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Proposed Sub-contractor 3:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Proposed Sub-contractor 4:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Proposed Sub-contractor 5:

Date of audited financial statement	Total Revenue for year

	R
	R
	R

Proposed Sub-contractor 6:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

Proposed Sub-contractor 8:

Date of audited financial statement	Total Revue for year
	R
	R
	R

Proposed Sub-contractor 9:

Date of audited financial statement	Total Revenue for year
	R
	R
	R

T2.2-34 SUPPLIER DECLARATION FORM

Transnet Vendor Management has received a request to load / change your company details onto the Transnet vendor master database. Please return the completed Supplier Declaration Form (SDF) together with the required supporting documents as per Appendix A to the Transnet Official who is intending to procure your company's services / products, to enable us to process this request. Please only submit the documentation relevant to your request.

Please Note: all organisations, institutions and individuals who wish to provide goods and/or services to organs of the State must be registered on the National Treasury's Central Supplier Database (CSD). This needs to be done via their portal at <https://secure.csd.gov.za/> **before applying to Transnet.**

General Terms and Conditions:

Please Note: Failure to submit the relevant documentation will delay the vendor creation / change process.

Where applicable, the respective Transnet Operating Division processing your application may request further or additional information from your company.

The Service Provider warrants that the details of its bank account ("the nominated account") provided herein, are correct and acknowledges that payments due to the Supplier will be made into the nominated account. If details of the nominated account should change, the Service Provider must notify Transnet in writing of such change, failing which any payments made by Transnet into the nominated account will constitute a full discharge of the indebtedness of Transnet to the Supplier in respect of the payment so made. Transnet will incur no liability for any payments made to the incorrect account or any costs associated therewith. In such an event, the Service Provider indemnifies and holds Transnet harmless in respect of any payments made to an incorrect bank account and will, on demand, pay Transnet any costs associated herewith.

Transnet expects its suppliers to timeously renew their Tax Clearance and B-BBEE certificates (Large Enterprises and QSEs less than 51% black owned) as well as sworn affidavits in the case of EMEs and QSEs with more than 51% black ownership as per Appendices C and D.

In addition, please take note of the following very important information:

1. If your annual turnover is R10 million or less, then in terms of the DTI Generic Codes of Good Practice, you are classified as an Exempted Micro Enterprise (EME). If your company is classified as an EME, please include in your submission a sworn affidavit confirming your company's most recent annual turnover is less than R10 million and percentage of black ownership and black female ownership in the company (Appendix C) OR B-BBEE certificate issued by a verification agency accredited by SANAS in terms of the EME scorecard should you feel you will be able to attain a better B-BBEE score. It is only in this context that an EME may submit a B-BBEE verification certificate. These EME sworn affidavits must be accepted by the . Government introduced this mechanism specifically to reduce the cost of doing business and regulatory burden for these entities and the template for the sworn affidavit is available at no cost on the website www.thedti.gov.za or EME certificates at CIPC from www.cipic.co.za.

The B-BBEE Commission said "that only time an EME can be verified by a SANAS accredited verification professional is when it wishes to maximise its B-BBEE points and move to a higher B-BBEE recognition level, and that must be done use the QSE Scorecard".

2. If your annual turnover is between R10 million and R50 million, then in terms of the DTI codes, you are classified as a Qualifying Small Enterprise (QSE). A QSE which is at least 51% black owned, is required to submit a sworn affidavit confirming their annual total revenue of between R10 million and R50 million and level of black ownership (Appendix D). QSE 'that does not qualify for 51% of black ownership, are required to submit a B-BBEE verification certificate issued by a verification agency accredited by SANAS their QSEs are required to submit a B-BBEE verification certificate issued by a verification agency accredited by SANAS.

Please Note: B-BBEE certificate and detailed scorecard should be obtained from an accredited rating agency (e.g. SANAS Member).

3. If your annual turnover exceeds R50 million, then in terms of the DTI codes, you are classified as a Large Enterprise. Large Enterprises are required to submit a B-BBEE level verification certificate issued by a verification agency accredited by SANAS.

Please Note: B-BBEE certificate and detailed scorecard should be obtained from an accredited rating agency (e.g. SANAS Member).

4. The supplier to furnish proof to the procurement department as required in the Fourth Schedule of the Income Tax Act. 58 of 1962 whether a supplier of service is to be classified as an "employee", "personal service provider" or "labour broker". Failure to do so will result in the supplier being subject to employee's tax.

5. No payments can be made to a vendor until the vendor has been registered / updated, and no vendor can be registered / updated until the vendor application form, together with its supporting documentation, has been received and processed. No payments can be made to a vendor until the vendor has met / comply with the procurement requirements.

6. It is in line with PPPFA Regulations, only valid B-BBEE status level certificate issued by an unauthorised body or person OR a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice, OR any other requirement prescribed in terms of the Broad- Based Black Economic Empowerment Act.

7. The B-BBEE Commission advises entities and organs of state to reject B-BBEE certificates that have been issued by verification agencies or professionals who are not accredited by South African National Accreditation Systems ("SANAS) as such B-BBEE certificates are invalid for lack of authority and mandate to issue them. A list of SANAS Accredited agencies is available on the SANAS website at www.sanas.co.za.

8. Presenting banking details. Please note: Banks have decided to enable the customers and provide the ability for customers to generate Account Confirmation/Bank Account letters via their online platform; this is a digital approach to the authentication of banking details.

SUPPLIER DECLARATION FORM

Supplier Declaration Form

Important Notice: all organisations, institutions and individuals who wish to provide goods and/or services to organs of the State must be registered on the National Treasury Central Supplier Database (CSD). This needs to be done via their portal at <https://secure.csd.gov.za/> **before applying to Transnet.**

CSD Number (MAAA xxxxxxx):

Company Trading Name						
Company Registered Name						
Company Registration No Or ID No If a Sole Proprietor						
Company Income Tax Number						
Form of Entity	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
	Non-profit (NPO's or NPC)	Personal Liability Co	State Owned Co	National Govt	Provincial Govt	Local Govt
	Educational Institution	Specialised Profession	Financial Institution	Joint Venture	Foreign International	Foreign Branch Office

Did your company previously operate under another name?					Yes	No
If YES state the previous details below:						
Trading Name						
Registered Name						
Company Registration No Or ID No If a Sole Proprietor						
Form of Entity	CC	Trust	Pty Ltd	Limited	Partnership	Sole Proprietor
	Non-profit (NPO's or NPC)	Personal Liability Co	State Owned Co	National Govt	Provincial Govt	Local Govt
	Educational Institution	Specialised Profession	Financial Institution	Joint Venture	Foreign International	Foreign Branch Office

Your Current Company's VAT Registration Status	
VAT Registration Number	
If Exempted from VAT registration , state reason and submit proof from SARS in confirming the exemption status	
If your business entity is not VAT Registered, please submit a current original sworn affidavit (see example in Appendix I). Your Non VAT Registration must be confirmed annually.	

Company Banking Details	Bank Name	

Universal Branch Code		Bank Account Number	

Company Physical Address		Code	
Company Postal Address		Code	
Company Telephone number			
Company Fax Number			
Company E-Mail Address			
Company Website Address			
Company Contact Person Name			
Designation			
Telephone			
Email			

Is your company a Labour Broker?	Yes	No
Main Product / Service Supplied e.g. Stationery / Consulting / Labour etc.		
How many personnel does the business employ?	Full Time	Part Time
Please Note: Should your business employ more than 2 full time employees who are not connected persons as defined in the Income Tax Act, please submit a sworn affidavit, as per Appendix II.		

Most recent Financial Year's Annual Turnover	<R10Million EME	>R10Million <R50Million QSE	>R50Million Large Enterprise

Does your company have a valid proof of B-BBEE status?						Yes	No							
Please indicate your Broad Based BEE status (Level 1 to 9)						1	2	3	4	5	6	7	8	9
Majority Race of Ownership														
% Black Ownership		% Black Women Ownership		% Black Disabled person(s) Ownership		% Black Youth Ownership								
% Black Unemployed		% Black People Living in Rural Areas		% Black Military Veterans										

Please Note: Please provide proof of B-BBEE status as per Appendix C and D:

- Large Enterprise and QSEs with less than 51% black ownership need to obtain a B-BBEE certificate and detailed scorecard from an accredited rating agency;
- EMEs and QSEs with at least 51% black ownership may provide an affidavit using the templates provided in Appendix C and D respectively;
- Black Disabled person(s) ownership will only be accepted if accompanied with a certified letter signed by a physician on the physician's letterhead confirming the disability;
- A certified South African identification document will be required for all Black Youth Ownership.

Supplier Development Information Required	
EMPOWERING SUPPLIER An Empowering Supplier is a B-BBEE compliant Entity which complies with at least three criteria if it is a large Entity, or one criterion if it is a Qualifying Small Enterprise ("QSE"), as detailed in Statement 400 of the New Codes. In terms of the requirements of an Empowering Supplier, numerous companies found it challenging to meet the target of 25% transformation of raw materials or beneficiation including local manufacturing, particularly so, if these companies imported goods or products from offshore. The matter was further compounded by the requirement for 25% of Cost of Sales, excluding labour cost and depreciation, to be procured from local producers or suppliers.	YES ☐ NO ☐
FIRST TIME SUPPLIER A supplier that we haven't as yet Traded within Transnet and will be registered via our database for the 1 st time.	YES ☐ NO ☐

SUPPLIER DEVELOPMENT PLAN Supplier Development Plan is a plan that when we as Transnet award a supplier a long term contract depending on the complexity of the Transaction. We will negotiate supplier development obligations that they must meet throughout the contract duration. e.g. we might request that they (create jobs or do skills development or encourage procurement from designated groups. (BWO, BYO & BDO etc.).	YES ☐ NO ☐
DEVELOPMENT PLAN DOCUMENT Agreed plan that will be crafted with the supplier in regard to their development (It could be for ED OR SD in terms of their developmental needs they may require with the company.	YES ☐ NO ☐ *If Yes- Attach supporting documents
ENTERPRISE DEVELOPMENT BENEFICIARY A supplier that is not as yet in our value chain that we are assisting in their developmental area.	YES ☐ NO ☐
SUPPLIER DEVELOPMENT BENEFICIARY A supplier that we are already doing business with or transacting with and we are also assisting them assisting them in their developmental area e.g. (They might require training or financial assistance etc.)	YES ☐ NO ☐

GRADUATION FROM ED TO SD BENEFICIARY When a supplier that we assisted with as an ED beneficiary then gets awarded a business and we start Transacting with.	YES ☐ NO ☐
ENTERPRISE DEVELOPMENT RECIPIENT A supplier that isn't in our value chain as yet, but we have assisted them with an ED intervention	YES ☐ NO ☐

By signing below, I hereby verify that I am duly authorised to sign for and on behalf of firm / organisation and that all information contained herein and attached herewith are true and correct			
Name and Surname		Designation	
Signature		Date	

APPENDIX B

Affidavit or Solemn Declaration as to VAT registration status

Affidavit or Solemn Declaration

I, _____ solemnly swear/declare
that _____ is not a registered VAT
vendor and is not required to register as a VAT vendor because the combined value of taxable supplies
made by the provider in any 12-month period has not exceeded or is not expected to exceed R1million
threshold, as required in terms of the Value Added Tax Act.

Signature: _____

Designation: _____

Date: _____

Commissioner of Oaths

Thus signed and sworn to before me at _____ on this the _____
day of _____ 20_____,

the Deponent having knowledge that he/she knows and understands the contents of this Affidavit,
and that he/she has no objection to taking the prescribed oath, which he/she regards binding on
his/her conscience and that the allegations herein contained are all true and correct.

Commissioner of Oaths

APPENDIX C

SWORN AFFIDAVIT – B-BBEE QUALIFYING SMALL ENTERPRISE – GENERAL

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.

2. I am a Member / Director / Owner of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Enterprise Physical Address:	
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or (b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black"	Black Designated Groups means:

Designated Groups"	(a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and underdeveloped areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
- Black Youth % = _____%
- Black Disabled % = _____%
- Black Unemployed % = _____%
- Black People living in Rural areas % = _____%
- Black Military Veterans % = _____%
- Based on the Financial Statements/Management Accounts and other information available on the latest financial year-end of _____, the annual Total Revenue was between R10,000,000.00 (Ten Million Rands) and R50,000,000.00 (Fifty Million Rands),

- Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box.**

100% Black Owned	Level One (135% B-BBEE procurement recognition level)	
At Least 51% black owned	Level Two (125% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature

.....

Date

Commissioner of Oaths

Signature & stamp

APPENDIX D

SWORN AFFIDAVIT – B-BBEE EXEMPTED MICRO ENTERPRISE – GENERAL

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
2. I am a Member / Director / Owner of the following enterprise and am duly authorised to act on its behalf:

Enterprise Name:	
Trading Name (If Applicable):	
Registration Number:	
Enterprise Physical Address:	
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):	
Nature of Business:	
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) who are citizens of the Republic of South Africa by birth or descent; or

	(b) who became citizens of the Republic of South Africa by naturalisation- i. before 27 April 1994; or ii. on or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date;"
Definition of "Black Designated Groups"	"Black Designated Groups means: (a) unemployed black people not attending and not required by law to attend an educational institution and not awaiting admission to an educational institution; (b) Black people who are youth as defined in the National Youth Commission Act of 1996; (c) Black people who are persons with disabilities as defined in the Code of Good Practice on employment of people with disabilities issued under the Employment Equity Act; (d) Black people living in rural and under developed areas; (e) Black military veterans who qualifies to be called a military veteran in terms of the Military Veterans Act 18 of 2011;"

3. I hereby declare under Oath that:

- The Enterprise is _____% Black Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Female Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- The Enterprise is _____% Black Designated Group Owned as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,
- Black Designated Group Owned % Breakdown as per the definition stated above:
- Black Youth % = _____%
- Black Disabled % = _____%
- Black Unemployed % = _____%

- Black People living in Rural areas % = _____%
- Black Military Veterans % = _____%
- Based on the Financial Statements/Management Accounts and other information available on the latest financial year-end of _____, the annual Total Revenue was R10,000,000.00 (Ten Million Rands) or less
- Please Confirm on the below table the B-BBEE Level Contributor, **by ticking the applicable box.**

100% Black Owned	Level One (135% B-BBEE procurement recognition)	
At least 51% Black Owned	Level Two (125% B-BBEE procurement recognition level)	
Less than 51% Black Owned	Level Four (100% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the Owners of the Enterprise which I represent in this matter.

5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature

Date

Commissioner of Oaths

Signature & stamp

VENDOR REGISTRATION DOCUMENTS CHECKLIST

Please note that you will have to provide the first two documents on the list (highlighted in red) and the rest will be provided by the supplier:

	Yes	No
1. Complete the "Supplier Declaration Form" (SDF) (commissioned). See attachment.		
2. Complete the "Supplier Code of Conduct" (SCC). See attachment.		
3. Copy of cancelled cheque OR letter from the bank verifying banking details (with bank stamp not older than 3 Months & sign by Bank Teller).		
4. Certified (Not Older than 3 Months) copy of Identity document of Shareholders/Directors/Members (where applicable).		
5. Certified copy of certificate of incorporation, CM29 / CM9 (name change).		
6. Certified copy of share Certificates of Shareholders, CK1 / CK2 (if CC).		
7. A letter with the company's letterhead confirming both Physical and Postal address.		
8. Original or certified copy of SARS Tax Clearance certificate and Vat registration certificate.		
9. BBBEE certificate and detailed scorecard from a SANAS Accredited Verification Agency and/or Sworn Certified Affidavit.		
10. Central Supplier Database (CSD) Summary Registration Report.		

The Contract

C1.1: Form of Offer and Acceptance

C1.1: Form of Offer & Acceptance

Offer

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

**THE PROVISION OF THE PORT ROAD UPGRADE AND REHABILITATION PHASE 1:
UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE
ROADS WITHIN THE PORT OF RICHARDS BAY FOR A PERIOD OF 18 MONTHS**

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

By the representative of the tenderer, deemed to be duly 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 exclusive of VAT is	R
Value Added Tax @ 15% is	R
The offered total of the Prices inclusive of VAT 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 including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

Name &
signature of
witness

(Insert name and address of
organisation)

Date

Tenderer's CIDB registration number:

Acceptance

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

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Works Information
Part C4	Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable 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 Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of 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 securities, 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 working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s)

Name(s)

Capacity

**for the
Employer**

Transnet SOC Ltd

Name &
signature of
witness

*(Insert name and address of
organisation)*

Date

Schedule of Deviations

Note:

1. To be completed by the Employer prior to award of contract. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1		
2		
3		

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only 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 confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

	For the tenderer:	For the Employer
Signature		
Name		
Capacity		
On behalf of	<i>(Insert name and address of organisation)</i>	Transnet SOC Ltd
Name & signature of witness		
Date		

C1.2: Contract Data Part 1 and 2

C1.2 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		B: Priced contract with bill of quantities
	Dispute Resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X1: Price adjustment for inflation
		X2 Changes in the law
		X4: Parent company guarantee
		X7: Delay damages
		X13: Performance Bond
		X16: Retention
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	of the NEC3 Engineering and Construction Contract June 2005 (amended June 2006 and April 2013)	



10.1	The <i>Employer</i> is:	Transnet SOC Ltd (Registration No. 1990/000900/30)
	Address	Registered address: Transnet Corporate Centre 138 Eloff Street Braamfontein Johannesburg 2000
	Having elected its Contractual Address for the purposes of this contract as:	Transnet National Port Authority Pioneer Centre San-Thom Road Port Of Richards Bay 3900
10.1	The <i>Project Manager</i> is: (Name)	TBA
	Address	Pioneer Centre, Port of Richards Bay
	Tel	035 905 3791
	e-mail	TBA
10.1	The <i>Supervisor</i> is: (Name)	TBA
	Address	TBA
	Tel No.	TBA
	e-mail	TBA
11.2(13)	The <i>works</i> are	Port Road Upgrade and Rehabilitation Phase 1: Upgrade and Rehabilitation of Urania, Newark, and Ventura Concrete Roads within the Port of Richards Bay, for a period of 18 months.
11.2(14)	The following matters will be included in the Risk Register	1. Damages to completed <i>works</i> due to rainfall. 2. Ineffective traffic management. 3. Material being stolen from site due to lack of security systems.
11.2(15)	The <i>boundaries of the site</i> are	As stated in Part C4.1.
11.2(16)	The Site Information is in	Part C4
11.2(19)	The <i>Works</i> Information is in	Part C3

12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa subject to the jurisdiction of the Courts of South Africa.
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	Two (2) weeks
2	The Contractor's main responsibilities	No additional data is required for this section of the conditions of contract.
3	Time	
11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	31 May 2027
30.1	The <i>access date</i> is	10 March 2026
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	Two (2) weeks of the Contract Date.
31.2	The <i>starting date</i> is	01 December 2025
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	Two (2) weeks.
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	The Employer reserves the rights to take over completed works prior to the contract Completion Date.
4	Testing and Defects	
42.2	The <i>defects date</i> is	52 (fifty-two) weeks after Completion of the whole of the works.
43.2	The <i>defect correction period</i> is	2 (two) weeks
5	Payment	
50.1	The <i>assessment interval</i> is monthly on the	25th (twenty-fifth) day of each successive month. The Contractor submits a claim for assessment by the quantity surveyor by the 18th of each successive month.
51.1	The <i>currency of this contract</i> is the	South African Rand.



51.2	The period within which payments are made is	Payment will be effected on or before the last day of the month following the month during which a valid tax invoice and statement were received.

51.4	The <i>interest rate</i> is	The prime lending rate of the Rand Merchant Bank.

6 Compensation events

60.1(13) The *weather measurements* to be recorded for each calendar month are, **The cumulative rainfall (mm)**

The number of days with rainfall more than 10mm.

The number of days with a minimum air temperature of less than 0 degrees Celsius.

The number of days with snow lying at 08:00 hours South African Time.

The place where weather is to be recorded (on the Site) is:

The Contractor's Site establishment area

The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:

The Port of Richards Bay

and which are available from:

South African Weather Service 012 367 6023 or info3@weathersa.co.za.

Council for Scientific and Industrial Research (CSIR)'s for the IPOSS Internet link:
<http://41.160.22.38:2880/rbay/index.html>

7	Title	No additional data is required for this section of the conditions of contract.

8 Risks and insurance

80.1 These are additional *Employer's* risks **None**

84.1 The *Employer* provides these insurances from the Insurance Table

1 Insurance against: **Loss of or damage to the *works*, Plant and Materials is as stated in the Insurance policy for Contract *Works*/ Public Liability.**

Cover / indemnity: **to the extent as stated in the insurance policy for Contract *Works* / Public Liability.**

The deductibles are: **as stated in the insurance policy for Contract *Works* / Public Liability.**

2 Insurance against: **Loss of or damage to property (except the *works*, Plant and Materials & Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) arising out of or in connection with the performance of the Contract as stated in the insurance policy for Contract *Works* / Public Liability.**

Cover / indemnity **Is to the extent as stated in the insurance policy for Contract *Works* / Public Liability.**

The deductibles are **as stated in the insurance policy for Contract *Works* / Public Liability.**

3 Insurance against: **Loss of or damage to Equipment (Temporary *Works* only) as stated in the insurance policy for contract *Works* and Public Liability.**

Cover / indemnity **Is to the extent as stated in the insurance policy for Contract *Works* / Public Liability.**

The deductibles are: **As stated in the insurance policy for Contract *Works* / Public Liability.**

4 Insurance against: **Contract *Works* SASRIA insurance subject to the terms, exceptions and conditions of the SASRIA coupon.**



	Cover / indemnity	Cover / indemnity is to the extent provided by the SASRIA coupon.
	The deductibles are	The deductibles are, in respect of each and every theft claim, 0,1% of the contract value subject to a minimum of R2,500 and a maximum of R25,000.
	Note:	The deductibles for the insurance as stated above are listed in the document titled "Certificate of Insurance: Transnet (SOC) Limited Principal Controlled Insurance."
84.1	The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract for any one event is The <i>Contractor</i> provides these additional Insurances	The <i>Contractor</i> must comply at a minimum with the provisions of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 as amended. 1 Where the contract requires that the design of any part of the <i>works</i> shall be provided by the <i>Contractor</i> the <i>Contractor</i> shall satisfy the <i>Employer</i> that professional indemnity insurance cover in connection therewith has been affected. 2 Where the contract involves manufacture, and/or fabrication of Plant & Materials, components or other goods to be incorporated into the <i>works</i> at premises other than the site, the <i>Contractor</i> shall satisfy the <i>Employer</i> that such plant & materials, components or other goods for incorporation in the <i>works</i> are adequately insured during manufacture and/or fabrication and transportation to the site. 3 Should the <i>Employer</i> have an insurable interest in such items during manufacture, and/or fabrication, such interest shall be noted by endorsement to the <i>Contractor's</i> policies of insurance as well as those of any sub-<i>Contractor</i>.

		4 Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R 5 000 000. 5 The insurance coverage referred to in 1, 2, 3, and 4 above shall be obtained from an insurer(s) in terms of an insurance policy approved by the <i>Employer</i>. The <i>Contractor</i> shall arrange with the insurer to submit to the <i>Project Manager</i> the original and the duplicate original of the policy or policies of insurance and the receipts for payment of current premiums, together with a certificate from the insurer or insurance broker concerned, confirming that the policy or policies provide the full coverage as required. The original policy will be returned to the <i>Contractor</i>.
84.2	The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the <i>works</i> , Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract for any one event is	Whatever the <i>Contractor</i> requires in addition to the amount of insurance taken out by the <i>Employer</i> for the same risk.
84.2	The insurance against loss of or damage to the <i>works</i> , Plant and Materials as stated in the insurance policy for contract <i>works</i> and public liability selected from:	Principal Controlled Insurance policy for the Contract.
9	Termination	Additional Conditions are identified in the Z Clauses
10	Data for main Option clause	
B	Priced contract with Bill of Quantities	No additional data is required for this Option.

60.6	The <i>method of measurement</i> is	The Bill of Quantities have been measured in accordance with SANS 1200 and COLTO unless indicated otherwise.		
11	Data for Option W1			
W1.1	The <i>Adjudicator</i> is	Both parties will agree as and when a dispute arises. If the parties cannot reach an agreement on the <i>Adjudicator</i> , the Chairman of the Association of Arbitrators will appoint an <i>Adjudicator</i> .		
W1.2(3)	The <i>Adjudicator nominating body</i> is:	The Chairman of the Association of Arbitrators (Southern Africa).		
	If no <i>Adjudicator nominating body</i> is entered, it is:	the Association of Arbitrators (Southern Africa).		
W1.4(2)	The <i>tribunal</i> is:	Arbitration		
W1.4(5)	The <i>arbitration procedure</i> is	The Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa).		
	The place where arbitration is to be held is	Durban, KwaZulu Natal, South Africa		
	The person or organisation who will choose an arbitrator			
	- if the Parties cannot agree a choice or	The Chairman of the Association of Arbitrators (Southern Africa)		
	- if the arbitration procedure does not state who selects an arbitrator, is			
12	Data for secondary Option clauses			
X1	Price adjustment for inflation			
X1.1(a)	The <i>base date</i> for indices is	August 2025		
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are:	Pro-portion	linked to index for	Index prepared by

0.30

Labour (People)

The Consumer Price Index (CPI) for "All Items" in Table 1 (Consumer price indices for the total country) of the Statistical Release P0141 "Consumer Price Index - Additional Tables" published by Statistics South Africa. (Link- http://www.statssa.gov.za/?page_id=1854&PPN=P0141)



0.15

Plant (Equipment)

The “Plant and Equipment” index in Table 4 (Mining and construction plant and equipment price index) of the Statistical Release P0151.1 “Construction Materials Price Indices” published by Statistics South Africa.
(Link - http://www.statssa.gov.za/?page_id=1854&PPN=P0151.1)

0.18	Material (Civil)	The "Civil Engineering Material - Total" index in Table 6 (Civil engineering material price indices) of the Statistical Release P0151.1 "Construction Materials Price Indices" published by Statistics South Africa. (Link – http://www.statssa.gov.za/?page_id=1854&PPN=P0151.1); and
0.36	Material (Electrical)	The "Electrical Engineering" index in Table 5 (Mechanical and Electrical Engineering Input Price Indices) of the Statistical Release P0151.1 "Construction Materials Price Indices" published by Statistics South Africa.

	0.01	Fuel	The "Diesel" index in Table 1 (PPI for final manufacture d goods) of the Statistical Release P0142.1 "Producer Price Index" published by Statistics South Africa. (Link - http://www.statssa.gov.za/?page_id=1854&PPN=P0142.1)
	1.00		
	0.15	Non-adjustable	
	*Statistical release P0151 – Contract Price Adjustment Provisions (CPAP) Work Group and Selected Materials Indices		
X2	Changes in the law	No additional data is required for this Option	
X4	Parent company guarantee	No additional data is required for this Option	
X7	Delay damages		
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	R35 000.00 per day	
X13	Performance bond		
X13.1	The amount of the performance bond is	5% of the total of the Prices	
X16	Retention		

X16.1	The retention free amount is	Nil
	The retention percentage is	7.5% (no cap on retention percentage)

X18 **Limitation of liability**

X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	Nil
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	The cost of correcting the Defect
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to:	The Total of the Prices at the Contract Date
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	The Total of the Prices at the Contract Date
X18.5	The <i>end of liability date</i> is	Five (5) years after Completion of the whole of the works

Z ***Additional conditions of contract are:***



Z.1 Obligations in respect of Job Creation

Z1.1 It will be a material term of this contract that the *Contractor* must contribute to the *Employer's* job-creation objectives as set out in Returnable Schedule T2.2-28.

Z1.2

The *Contractor's* undertaking as to the number of new jobs created due to the award of this contract as set out in Returnable Schedule T.2.2-28 will constitute a binding agreement throughout the duration of the contract until Completion, if not, it will be deemed that the *Contractor* has failed in full to meet this specific material term of the contract, which may constitute a reason for termination.

Z1.3 The *Contractor* shall provide to the *Employer*, on a monthly basis or upon receiving an instruction to do so by the *Project Manager*, any documentation and/or evidence required by the *Employer*, which in the *Employer's* opinion would be necessary to verify whether the *Contractor* has maintained the job-creation undertaking as stipulated in Returnable Schedule T.2.2-28 The *Contractor* shall provide the said documentation and/or evidence within the period stated or as instructed. The provision of the documentation and/or evidence shall not constitute a compensation event.

Z2	CIDB BUILD Standard Contract Skills Development Goal (CSDG) & Contract Participation Goals (CPG)	The <i>Contractor</i> shall achieve in the performance of the contract the Contract Skills Development Goal (CSDG) established in the CIDB Standard for Developing Skills through Infrastructure Contracts, published in Gazette Notice No.43495 of 3 July 2020. The CSDG stipulated for this contract is 0.25 %.
		The <i>Contractor</i> shall achieve in the performance of the contract the Contract Participation Goals (CPG) relating to the engagement of targeted enterprises as established in the CIDB Standard for Indirect Targeting for Enterprise Development through Construction <i>works</i> Contracts Gazette Notice No.36190 of 25 February 2013.
Z3	Additional clause relating to Performance Bonds and/or Guarantees	
Z3.1		The Performance Guarantee under X13 above shall be an irrevocable, on-demand performance guarantee, to be issued exactly in the form of the Pro Forma documents provided for this purpose under C1.3 (Forms of Securities), in favour of the <i>Employer</i> by a financial institution reasonably acceptable to the <i>Employer</i>.

Z4 Additional clauses relating to Joint Venture

Z4.1

Insert the additional core clause 27.5

27.5. In the instance that the *Contractor* is a joint venture, the *Contractor* shall provide the *Employer* with a certified copy of its signed joint venture agreement, and in the instance that the joint venture is an 'Incorporated Joint Venture,' the Memorandum of Incorporation, within 4 (four) weeks of the Contract Date.

The Joint Venture agreement shall contain but not be limited to the following:

- **A brief description of the Contract and the Deliverables;**
- **The name, physical address, communications addresses and domicilium citandi et executandi of each of the constituents and of the Joint Venture;**
- **The constituent's interests;**
- **A schedule of the insurance policies, sureties, indemnities and guarantees which must be taken out by the Joint Venture and by the individual constituents;**
- **Details of an internal dispute resolution procedure;**
- **Written confirmation by all of the constituents:**
 - i. **of their joint and several liabilities to the *Employer* to Provide the *Works*;**
 - ii. **identification of the lead partner in the joint venture confirming the authority of the lead**

partner to bind the joint venture through the *Contractor's* representative;

iii. Identification of the roles and responsibilities of the constituents to provide the *Works*.

• Financial requirements for the Joint Venture:

iv. the working capital requirements for the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the constituents from time to time;

v. the names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.

Z4.2

Insert additional core clause 27.6

27.6. The *Contractor* shall not alter its composition or legal status of the Joint Venture without the prior approval of the *Employer*.

Z5 Additional obligations in respect of Termination

Z5.1

The following will be included under core clause 91.1:

In the second main bullet, after the word 'partnership' add 'joint venture whether incorporate or otherwise (including any constituent of the joint venture)' and

Under the second main bullet, insert the following additional bullets after the last sub-bullet:

- commenced business rescue proceedings (R22)
- repudiated this Contract (R23)

Z6	Termination Table	The following will be included under core clause 90.2 Termination Table as follows:
Z6.1		Amend "A reason other than R1 – R21" to "A reason other than R1 – R23"
Z6.2		Amend "R1 – R15 or R18" to "R1 – R15, R18, R22 or R23."
Z7	Right Reserved by the Employer to Conduct Vetting through SSA	
Z7.1		The <i>Employer</i> reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any <i>Contractor</i> who has access to National Key Points for the following without limitations: 1. Confidential – this clearance is based on any information which may be used by malicious, opposing or hostile elements to harm the objectives and functions of an organ of state. 2. Secret – clearance is based on any information which may be used by malicious, opposing or hostile elements to disrupt the objectives and functions of an organ of state. 3. Top Secret – this clearance is based on information which may be used by malicious, opposing or hostile elements to neutralise the objectives and functions of an organ of state.

Z8 Additional Clause Relating to Collusion in the Construction Industry

Z8.1

The contract award is made without prejudice to any rights the *Employer* may have to take appropriate action later with regard to any declared tender rigging including blacklisting.

Z9 Protection of Personal Information Act

Z9.1

The *Employer* and the *Contractor* are required to process information obtained for the duration of the Agreement in a manner that is aligned to the Protection of Personal Information Act.

Z10 The first *assessment interval*

Z10.1

In the event that the *Contractor* is not loaded on the vendor data base, the *Project Manager's* first assessment of the amount due will be done once the *Contractor* has been successfully loaded as a vendor on the *Employers* data base following submitting all valid updated documents to the Procurement officer. Therefore, on NEC ECC Clause 50.1 the following text is removed in its entirety "and is no later than the *assessment interval* after the *starting date*".



Z11 **Obligations in respect of subcontracting**

Z11.1 **The *Contractor's* subcontracting percentage as detailed in the tender submission Returnable T2.2-18 will constitute a binding agreement throughout the duration of the contract until Completion, if not, it will be deemed that the *Contractor* has failed in full to meet the material term of the Contract, which may constitute a reason for termination.**

Z11.2 **The *Contractor* shall report to the *Employer* on a monthly basis during the term of the Contract, the amounts spent on each Subcontractor.**

Z11.3

The *Contractor* may not replace any Subcontractor without acceptance of the *Project Manager*. The *Project Manager* shall before acceptance of a replacement by the *Contractor* of any of Subcontractor as detailed in the tender submission returnable T2.2-18, obtain representations or input from the initial Subcontractor to make an informed decision as to the proposed replacement.

The subcontracting arrangement/contract remains between the *Contractor* and Subcontractor.

Z11.4

The *Contractor* shall provide to the *Employer*, upon receiving an instruction to do so, any documentation and/or evidence required by the *Employer*, which in the *Employer's* opinion would be necessary to verify whether the *Contractor* has maintained the subcontracting percentage.

The *Contractor* shall provide the said documentation and/or evidence within the period stated in the instruction. The provision of the documentation and/or evidence shall not constitute a compensation event.

Z11.5

The *Contractor's* Subcontracting percentage as detailed in the tender submission Returnable T2.2-18 will constitute a binding agreement throughout the duration of the contract until Completion, if not, it will be deemed that the material term of the contract, which may constitute a reason for termination.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

The tendering *Contractor* is advised to read both the NEC3 Engineering and Construction Contract - June 2005 (with amendments June 2006 and April 2013) and the relevant parts of its Guidance Notes (ECC3-GN) in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 Guidance Notes.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name):	
	Address	
	Tel No.	
	Fax No.	
11.2(8)	The <i>direct fee percentage</i> is	%
	The <i>subcontracted fee percentage</i> is	%
11.2(18)	The <i>working areas</i> are the Site and	
24.1	The <i>Contractor's</i> key persons are:	
	1 Name:	
	Job:	
	Responsibilities:	
	Qualifications:	
	Experience:	
	2 Name:	
	Job	
	Responsibilities:	
	Qualifications:	

[illegible]

[illegible]

C1.3: Form of Guarantee

C1.3 Forms of Securities

Pro forma Performance Guarantee

For use with the NEC3 Engineering & Construction Contract - June 2005 (with amendments June 2006 and April 2013)

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Option:

Option X13: Performance bond

The pro forma document for this Guarantee is provided here for convenience but is to be treated as part of the *Works Information*.

The organisation providing the Guarantee does so by copying the pro forma document onto its letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

The Performance Bond needs to be issued by an institution that are reasonably acceptable to the *Employer*.

Transnet may choose to not to accept an Issuer. Should the issuer not being accepted, the performance bond needs to be replaced by an issuer that are acceptable to Transnet. Issuers need to be verified for acceptance by Transnet before a performance bond is issued.

Pro-forma Performance Bond (for use with Option X13)

(to be reproduced exactly as shown below on the letterhead of the Surety)

Transnet SOC Ltd
C/o Transnet National Ports Authority
Transnet Corporate Centre
138 Eloff Street
Braamfontein
Johannesburg
2000

Date:

Dear Sirs,

Performance Bond for Contract No. TNPA/2022/11/1352/15874/RFP

With reference to the above numbered contract made or to be made between

Transnet SOC Limited, Registration No. 1990/000900/30 (the *Employer*) and

{Insert registered name and address of the Contractor} (the *Contractor*), for

{Insert details of the works from the Contract Data} (the *works*).

I/We the undersigned

on behalf of the
Guarantor

of physical address

and duly authorised thereto do hereby bind ourselves as Guarantor and co-principal debtors in solidum for the due and faithful performance of all the terms and conditions of the Contract by the *Contractor* and for all losses, damages and expenses that may be suffered or incurred by the *Employer* as a result of non-performance of the Contract by the *Contractor*, subject to the following conditions:

1. The terms *Employer*, *Contractor*, *Project Manager*, *works* and Completion Certificate have the meaning as assigned to them by the *conditions of contract* stated in the Contract Data for the aforesaid Contract.
2. We renounce all benefits from the legal exceptions "Benefit of Exclusion and Division", "No value received" and all other exceptions which might or could be pleaded against the validity of this bond, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted.

3. The *Employer* has the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and without being advised thereof the Guarantor shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Guarantor. Without derogating from the foregoing compromise, extension of the construction period, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this performance bond.
4. This bond will lapse on the earlier of
 - the date that the Guarantor receives a notice from the *Project Manager* stating that the Completion Certificate for the whole of the *works* has been issued, that all amounts due from the *Contractor* as certified in terms of the contract have been received by the *Employer* and that the *Contractor* has fulfilled all his obligations under the Contract, or
 - the date that the Surety issues a replacement Performance Bond for such lesser or higher amount as may be required by the *Project Manager*.
5. Always provided that this bond will not lapse in the event the Guarantor is notified by the *Project Manager*, (before the dates above), of the *Employer's* intention to institute claims and the particulars thereof, in which event this bond shall remain in force until all such claims are paid and settled.
6. The amount of the bond shall be payable to the *Employer* upon the *Employer's* demand and no later than 7 days following the submission to the Guarantor of a certificate signed by the *Project Manager* stating the amount of the *Employer's* losses, damages and expenses incurred as a result of the non-performance aforesaid. The signed certificate shall be deemed to be conclusive proof of the extent of the *Employer's* loss, damage and expense.
7. Our total liability hereunder shall not exceed the sum of:

(say)

R _____

8. This Performance Bond is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa, subject to the jurisdiction of the courts of the Republic of South Africa

Signed _____ on _____ day of _____ 201_
at _____ this _____

Signature(s)

Name(s) (printed)

Position in Guarantor company

Signature of Witness(s)

Name(s) (printed)

Pro forma Parent Company Guarantee (for use with Option X4)

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Transnet SOC Ltd
C/o Transnet [REDACTED]
Transnet Corporate Centre
138 Eloff Street
Braamfontein
Johannesburg
2000

Date:

Dear Sirs,

Parent Company Guarantee for Contract No.

With reference to the above numbered contract made or to be made between

{Transnet SOC Ltd, Registration No. 1990/000900/30}

(the *Employer*) and

{Insert registered name and address of the Contractor}

(the *Contractor*), for

{Insert details of the works from the Contract Data}

(the *works*).

I/We the undersigned

on behalf of the *Contractor's*
parent company

of physical address

and duly authorised thereto do hereby unconditionally guarantee to the *Employer* that the *Contractor* shall Provide the Works in accordance with the above numbered Contract.

1. If for any reason the *Contractor* fails to Provide the Works, we hereby agree to cause to Provide the Works at no additional cost to the *Employer*.
2. If we fail to comply with the terms of this Deed of Guarantee, the *Employer* may itself procure such performance (whether or not the Agreement be formally determined). The *Employer* is to notify us and we shall indemnify the *Employer* for any additional cost or expense it incurs.
3. Our liability shall be as primary obligor and not merely as surety and shall not be impaired or discharged by reason of any arrangement or change in relationship made between the *Contractor* and the *Employer* and/or between us and *Contractor*; nor any alteration in the obligations undertaken by the *Contractor* or in the terms of the Agreement; nor any indulgence, failure, delay by you as to any matter; nor any dissolution or liquidation or such other analogous event of the *Contractor*.

4. The *Employer* shall not be obliged before taking steps to enforce the terms of this Deed of Guarantee to obtain judgement against the *Contractor* in any court or other tribunal, to make or file any claim in liquidation (or analogous proceedings) or to seek any remedy or proceed first against the *Contractor*.
5. This Deed of Guarantee shall be governed by and construed in accordance with the laws of the Republic of South Africa, and we hereby submit to the non-exclusive jurisdiction of any Supreme Court of South Africa with competent jurisdiction.

Signed _____ on this _____ day of _____ 201__
at _____

Signature(s)	
Name(s) (printed)	
Position in parent company	
Signature of Witness(s)	
Name(s) (printed)	

Part C2: Pricing Data

C2.1 Pricing Instructions – Option B

PART 2: PRICING DATA

Document reference	Title	No of pages
C2.1	Pricing instructions: Option B	4
2.2	The <i>bill of quantities</i>	151

C2.1 Pricing instructions: Option B

1. The conditions of contract

1.1. How the contract prices work and assesses it for progress payments

Clause 11 in NEC3 Engineering and Construction Contract, June 2005 and 2013 (ECC) Option B states:

Identified 11

and defined terms 11.2

(21) The Bill of Quantities is the *bill of quantities* as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.

(22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.

(28) The Price for Work Done to Date is the total of :

- the quantity of the work which the *Contractor* has completed for each item in the Bill of Quantities multiplied by the rate and
- a proportion of each lump sum which is the proportion of the work covered by the item which the *Contractor* has completed.

Completed work is work without Defects which would either delay or be covered by immediately following work.

(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

This confirms that Option B is a re-measurement contract, and the bill comprises only items measured using quantities and rates or stated as lump sums. Value related items are not used. Time related items are items measured using rates where the rate is a unit of time.

1.2. Function of the Bill of Quantities

Clause 55.1 in Option B states, "Information in the Bill of Quantities is not Works Information or Site Information". This confirms that instructions to do work or how it is to be done are not included in the Bill, but in the Works Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Works in accordance with the Works Information". Hence the *Contractor* does **not** Provide the Works in accordance with the Bill of Quantities. The Bill of Quantities is only a pricing document.

1.3. Guidance before pricing and measuring

Employers preparing tenders or contract documents, and tendering contractors are advised to consult the sections dealing with the bill of quantities in the NEC3 Engineering and Construction Contract (June 2005) Guidance Notes before preparing the *bill of quantities* or before entering rates and lump sums into the *bill*.

Historically bill of quantities-based contracts in South Africa have been influenced by the different approaches of the civil engineering and building sectors of the industry through their respective discipline based standard forms of contract and methods of measurement. This is particularly apparent in the approach to the Preliminary and General bill. On the other hand, because ECC caters for a number of disciplines in the same contract, including electrical works, a different approach not currently found in local methods of measurement to the Preliminary & General bill items may have been used.

The NEC approach to the P & G bill assumes use will be made of method related charges for Equipment applied to Providing the Works based on durations shown in the Accepted Programme, fixed charges for the use of Equipment that is required throughout the construction phase, time related charges for people working in a supervisory capacity for the period required, and lump sum charges for other facilities or services not directly related to performing work items typically included in other parts of the bill.

2. Measurement and payment

2.1. Symbols

The units of measurement described in the Bill of Quantities are metric units abbreviated as follows:

Abbreviation	Unit
%	percent
h	hour
ha	hectare
kg	kilogram
kl	kilolitre
km	kilometre
km-pass	kilometre-pass
kPa	kilopascal
kW	kilowatt
l	litre
m	metre
mm	millimetre
m ²	square metre
m ² -pass	square metre pass
m ³	cubic metre
m ³ -km	cubic metre-kilometre
MN	meganewton
MN.m	meganewton-metre
MPa	megapascal
No.	number
Prov sum ¹	provisional sum
PC-sum	prime cost sum

¹ Provisional Sums should not be used unless unavoidable. Rather include specifications and associated bill items for the most likely scope of work, and then change later using the compensation event procedure if necessary. This is because tenderers cannot programme effectively for unknown scopes of work

R/only	Rate only
sum	Lump sum
t	ton (1000kg)
W/day	Workday

2.2. General assumptions

- 2.2.1 The Preliminary and General Items (Section 1) shall be priced in accordance with the 'Scope of Work' and other contractual obligations required to complete the work. Fixed preliminary items will be evaluated and paid on a proven cost basis and limited to the tendered amount.
- Time related preliminary items would be paid on the proportion of the following;
 Value of the price for work done to date per Project Managers assessment (excluding activities directly relating to materials, escalation & compensation events) over the contract value excluding preliminaries cost.
- 2.2.2 Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.
- 2.2.3 The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.
- 2.2.4 Clause 63.13 in Option B provides that these rates and Prices may be used as a basis for assessment of compensation events instead of Defined Cost.
- 2.2.5 Where this contract requires detailed drawings, designs or other information to be provided, and no rates or prices are included in the *bill* specifically for such matters, then the *Contractor* is deemed to have allowed for all costs associated with such requirements within the tendered rates and Prices in the Bill of Quantities.
- 2.2.6 An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*. If a number of items are grouped together for pricing purposes, this will be treated as a single lump sum.

- 2.2.7 The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified for payment by the *Project Manager* at each assessment date will be used for determining payments due and not the quantities given in the Bill of Quantities.
- 2.2.8 The short descriptions of the items of payment given in the *bill of quantities* are only for the purposes of identifying the items. More detail regarding the extent of the work entailed under each item is provided in the Works Information.
- 2.2.9 The price against each item shall be deemed to take cognizance of the preambles and supplementary preambles within the *bill of quantities*, works information and all other documentation attached to the tender document.
- 2.2.10 All fluctuations in foreign exchange rates will only be applied on a proven cost basis to the actual cost of the imported materials excluding any mark-ups, labour and profit, etc.
- 2.2.11 All provisional sums stated in the bills of quantities will be treated as compensation events and based on defined costs using the shorter schedule of costs components.
- 2.2.12 **Contract Skills Development Goals (CSDG)**

The contractor shall determine the CSDG expressed in Rand, which shall not be less than the contract amount multiplied by a percentage (%) factor given in Table 2 in the Standard for the applicable class of construction works.

The contractor's attention is brought to the following:

The Employer shall include a line item under the Skills Development in the Final Tender Summary section described as "Minimum Contract Skills Development Goal (CSDG)" as illustrated in table below:

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

Payment to the contractor to accommodate Work Integrated Learners and Candidates for Professional Registration:

The contractor shall apportion the cost of accommodating work integrated learners (P1 and P2 learners) and candidates for professional registration by using Table 3 in the Standard and this cost will be used to determine the value in Rand and will be added to the provisions for training as provided for in the Preliminary & General section in the Bill of Quantities/ Pricing schedules/ Activity schedule.

Supervisors and Mentors

Payment to the contractor for supervision and mentoring Part/ Full occupational qualification and Trade qualification learners:

The employer shall make no provision for an additional payment item for the payment of the supervisor and/ or mentors for the provision of training as provided for in the Preliminary & General section of the Bill of quantities/ Pricing schedules/ Activity schedule for the training of part time/ full time occupational learners and/ or trade qualification learners.

Payment to the contractor for supervision and mentoring Work Integrated Learners and Candidates for professional registration:

The contractor shall apportion the cost of mentoring work integrated learners (P1 and P2 learners) and candidates for professional registration by using Table 3 in the Standard and will form part of the cost as provided for in the Preliminary & General section in the Bill of Quantities/ Pricing schedules/ Activity schedules for training.

2.2.13 Indirect Targeting – Enterprise Development

The Employer shall determine the percentage to be paid for the Contract Participation Goal (CPG) on the contract and this amount shall be stated under the section Enterprise Development as a Provisional Sum in the Preliminaries and Generals (P&Gs).

The rates illustrated in table 3 are the recommended rates to guide the Employer to determine the amount for Enterprise Development per targeted enterprise. The Employer may adjust these rates which may be affected by factors such as location of the project. The Employer must include this amount as a Provisional Sum in the Preliminary and General (P&G) section as illustrated.

2.3 Departures from the *method of measurement*

N/A

2.4 Amplification of or assumptions about measurement items

For the avoidance of doubt the following is provided to assist in the interpretation of descriptions given in the *method of measurement*. In the event of any ambiguity or inconsistency between the statements in the *method of measurement* and this section, the interpretation given in this section shall be used.

SCHEDULE A : ROAD CONSTRUCTION P&G				SECTION 1200	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	GENERAL REQUIREMENTS AND PROVISIONS				
B12.01	Compliance with the Occupational Health and Safety Act (OHS) and Regulations (including the Construction Regulations, 2014)	Lump Sum	1		
B12.02	Compliance with Environmental Specification (ES):				
	(a) Environmental training	Lump Sum	1		
	(b) General compliance with ES	Lump Sum	1		
	(i) Fixed penalty per occurrence	number	1		
	(ii) Time-related penalty	hour	1		
	(d) Testing of contaminated material	Prov Sum	1	R100 000,00	
	(e) Handling costs, profit and all other charges in respect of subitem B12.02(c) and (d)	%	R100 000,00		
	Enterprise Development (CIDB B.U.I.L.D PROGRAM)				
	Indirect Targeting for Enterprise Development through Construction Works Contracts, Gazette Notice No.36190 of 25 February 2013				
	(a) Enterprise Development of Targeted Enterprise or JV partners				
	(a.1) Needs Analysis and Enterprise Development Plan per Targeted Enterprise	Item	1	R50 000,00	
	(a.2) Monitoring and Interim Reporting per Targeted Enterprise	Per Quarter	4	R160 000,00	
	(a.3) Project Completion Report per Targeted Enterprise	Item	1	R50 000,00	
	Total (a.1 + a.2 + a.3)	Prov Sum			R260 000,00
1200	CARRIED FORWARD				

SCHEDULE A : ROAD CONSTRUCTION P&G				SECTION 1200	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	Contract Participation Goal (CPG) in relation to Subcontracting / Supplier Development of Targeted Enterprises as a Condition of Tender to be In Accordance With Indirect Targeting for Enterprise Development through Construction Works Contracts, Gazette Notice No.36190 of 25 February 2013				
	It is required that the contractor shall achieve a CPG of 30% (by value) via sub-contracting. The value is determined as the contract value (Excluding VAT, Escalation, Contingencies) of the contract including labour and material to EME's and QSE's. This amount is to include all costs associated with the management of all subcontractors associated with the Contract Participation Goal (CPG)	Item	1		
1200	TOTAL CARRIED TO SUMMARY PAGE				

[illegible]

SCHEDULE A : ROAD CONSTRUCTION P&G			SECTION 1400		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL				
B14.01	Office and laboratory accommodation:				
	(a) Offices (interior floor space only)	m ²	150		
	(b) Laboratories (interior floor space only)	m ²	250		
	(c) Open concrete working floors, 150 mm thick	m ²	100		
	(d) Roofs over open concrete working floors	m ²	100		
	(e) Ablution units:				
	(i) Site unit	m ²	20		
	(ii) Laboratory unit	m ²	20		
	(f) Stores	m ²	50		
14.02	Office and laboratory furniture:				
	(a) Chairs	number	12		
	(b) Draughtsman's stools	number	2		
	(c) High chairs for laboratory	number	3		
	(d) Desks, complete with drawers and locks	number	4		
	(e) Drawing tables	number	2		
	(f) Conference tables	number	1		
B14.03	Office and laboratory fittings, installations and equipment:				
	(a) Items measured by number:				
	(i) 220/250 volt power points	number	12		
	(ii) 400/231 volt 3-phase power points	number	2		
	(iii) Double 80 watt fluorescent-light fittings complete with ballast and tubes	number	2		
	(iv) Double 55 watt fluorescent-light fittings complete with ballast and tubes	number	4		
1400	CARRIED FORWARD				

SCHEDULE A : ROAD CONSTRUCTION P&G				SECTION 1400	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(v) Single incandescent-light fittings complete with 100 watt globes	number	5		
	(vi) Wash-hand basins complete with taps and drains	number	3		
	(vii) Laboratory basins complete with swan-neck taps and drains	number	3		
	(viii) Extractor fans installed complete with own power connection	number	2		
	(ix) Fume cupboards complete according to the drawings	number	1		
	(x) Fire extinguishers, 9,0 kg all purpose dry powder type, complete, mounted on wall with brackets	number	11		
	(xi) Air-conditioning units with 2,2 kW minimum capacity, mounted and with own power connection	number	6		
	(xiii) Curing chamber for UCS specimens, complete with water connection, including provision of brick partitions, plaster, paint and shelving, all complete according to the drawings	number	1		
	(xiv) General-purpose steel cupboards with shelves	number	4		
	(xv) Steel filing cabinets with drawers	number	1		
	(xvi) Refrigerators	number	2		
	(xvii) Bookcases	number	2		
	(xviii) Voltage stabilizers	number	2		
	(xix) Plan holders	number	1		
	(xx) Floodlights complete with poles and minimum 500 watt globes	number	6		
1400	CARRIED FORWARD				

SCHEDULE A : ROAD CONSTRUCTION P&G				SECTION 1400	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(b) Prime-cost items and items paid for in a lump sum:				
	(i) The provision of telephone service, including the cost of calls in connection with contract administration and telephone rental	PC Sum	1	R25 000,00	
	(ii) Handling costs and profit in respect of subitem B14.03(b)(i) above	%	R25 000,00		
	(iii) The provision of a direct independent telephone line for the Engineer, including the cost of calls in connection with contract administration and telephone rental	PC Sum	1	R5 000,00	
	(v) The provision of a fax apparatus as specified	PC Sum	1	R10 000,00	
	(ix) Cellphone costs, including pro rata rentals, for calls in connection with contract administration	PC Sum	1	R15 000,00	
	(c) Items measured by area:				
	(i) Shelving as specified, complete with brackets	m ²	20		
	(ii) Work-benches complete with concrete slab top, minimum thickness 75 mm	m ²	75		
	(iii) Work-benches complete with wooden top, minimum thickness 25 mm	m ²	30		
	(iv) Constant-temperature baths of concrete and/or plastered brick	m ²	30		
	(v) Foundations for laboratory equipment	m ²	5		
	(vii) Venetian blinds	m ²	60		
	(viii) Notice boards as specified	m ²	10		
14,04	Car ports:				
	Car ports, as specified, at offices and laboratory buildings	number	6		
1400	CARRIED FORWARD				

[illegible]

SCHEDULE A : ROAD CONSTRUCTION P&G					SECTION 1500
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ACCOMMODATION OF TRAFFIC				
B15.01	Accommodating traffic and maintaining temporary deviations	km	9		
15.02	Earthworks for temporary deviations:				
	(a) Shaping of temporary deviations	km	1,5		
	(b) Cut and borrow to fill	m³	750		
	(c) Cut to spoil	m³	150		
B15.03	Temporary traffic-control facilities:				
	(a) Flagmen	man-day	300		
	(b) Portable STOP and GO-RY signs	number	10		
	(c) Temporary traffic-control signals as specified or as shown on the drawings	number	2		
	(e) Road signs, R- and TR-series, 1200 mm in diameter	number	60		
	(f) Road signs, TW-series, 1500 mm sides	number	55		
	(g) Rectangular road signs, TGS-, TGD2-, TIN- and TW-series (excluding TW-series delineators and barricades)	m²	120		
	(h) Delineators TW401/TW402 (200 mm x 800 mm sides):				
	(i) Single-sided	number	650		
	(ii) Double-sided	number	1 300		
	(i) Movable barricade/road sign combination (2400 mm x 400 mm and 1200 mm diameter)	number	10		
	(j) Traffic cones (750 mm high)	number	150		
	(m) Two-way communication devices	number	2		
	(n) Other traffic-control measures ordered by the Engineer:				
	(i) Provision of other traffic-control measures	Prov Sum	1	R30 000,00	
	(ii) Handling costs and profit in respect of subitem B15.03(n)(i) above	%	R30 000,00		
B15.05	Gravelling and repair of temporary deviations and existing gravel shoulders used as temporary deviations:				
	(a) Temporary deviations	m³	10 500		
1500	CARRIED FORWARD				

SCHEDULE A : ROAD CONSTRUCTION P&G				SECTION 1500	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
15,06	Watering of temporary deviations	kilolitre	350		
15,07	Blading by road grader of:				
	(a) Temporary deviations	km-pass	43		
B15.10	Accommodation of traffic where the road is constructed in half-widths	km	15		
B15.14	Provision of traffic safety equipment for use by the Engineer:				
	(a) Safety jackets	number	8		
	(b) Hard hats	number	8		
	(c) Emergency rotating mini lightbar for mobile use	number	5		
	(d) "Construction" sticker for vehicles with 100 mm high lettering	number	5		
B15.15	Provision of traffic safety:				
	(a) Traffic safety officer	month	15		
	(b) Traffic safety vehicle(s)	month	15		
B15.16	Flashing illuminated arrow board	number	10		
B15.17	Temporary lighting:				
	(a) Supply of temporary lighting masts and luminaires	number	2		
	(b) Erection and maintenance of temporary lighting masts	number	2		
B15.18	Refurbishment of weighbridge scales				
	(a) Refurbishment of weighbridge scales	PC Sum	1	R2 500 000,00	
	(b) Handling costs, profit and all other chargers in respect of subitem B15.18 (a)	%	R2 500 000,00		
	PAVEMENT LAYERS OF GRAVEL MATERIAL (Section 3400)				
1500	CARRIED FORWARD				

SCHEDULE A : ROAD CONSTRUCTION P&G				SECTION 1500	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
15/B34.03	Pavement layers constructed from gravel obtained from existing pavement layers:				
	(o) Gravel wearing course compacted to 95% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150mm	m³	30 000		
	(ii) Cemented material for a compacted layer thickness of 150mm	m³	30 000		
	STABILIZATION (Section 3500)				
15/B39.01	Sawing asphalt or cemented pavement layers for patching:				
	(a) Sawing asphalt to an average depth:				
	(i) Not exceeding 50 mm	m	50		
	(ii) Exceeding 50 mm but not exceeding 100 mm	m	50		
	(iii) Exceeding 100 mm	m	5		
	(b) Sawing cemented pavement layers to an average depth:				
	(i) Not exceeding 50 mm	m	50		
	(ii) Exceeding 50 mm but not exceeding 100 mm	m	50		
	(iii) Exceeding 100 mm	m	5		
15/B39.02	Excavation in existing pavements for patching in:				
	(a) Asphalt layers	m³	50		
	(b) Cemented layers	m³	50		
	(c) Other layers	m³	50		
	PRIME COAT (Section 4100)				
15/B42.20	Backfilling of excavation for patching with:				
	(a) Asphalt base	t	100		
	(b) Asphalt surfacing	t	100		
1500	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE A : ROAD CONSTRUCTION P&G			SECTION 1800		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	DAYWORKS				
B18.01	Personnel:				
	(a) Unskilled labour	hour	3 600		
	(b) Semi-skilled labour	hour	3 600		
	(c) Skilled labour	hour	1 800		
	(d) Ganger	hour	400		
	(e) Foreman	hour	60		
	(f) Flagmen	hour	60		
B18.02	Equipment:				
	(a) Motor grader (128 kW)	hour	180		
	(b) Excavator (96 kW)	hour	180		
	(d) Rubber-tyred loader (60 kW)	hour	120		
	(f) Pedestrian vibrating roller (0,5 ton)	hour	200		
	(g) Pedestrian vibrating roller (1,4 ton)	hour	200		
	(h) Self-propelled vibrating roller (80 kW)	hour	50		
	(i) Pneumatic-tyred roller (60 kW, 20 ton)	hour	20		
	(j) 6,0 m³ tip truck	hour	500		
	(k) Water spray truck (7 000 litre)	hour	500		
B18.03	Materials:				
	(a) Procurement of materials	Prov Sum	1	R100 000,00	
	(b) Contractor's handling costs, profit and all other charges in respect of subitem B18.03(a)	%	R100 000,00		
B18.04	Transport:				
	(a) LDV	km	200		
	(b) Flatbed truck	km	100		
	(c) Lowbed truck	km	100		
1800	TOTAL CARRIED TO SUMMARY PAGE				

[illegible]

[illegible]

[illegible]

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE A : PRELIMINARY AND GENERAL		
1200	GENERAL REQUIREMENTS AND PROVISIONS	
1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	
1400	HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL	
1500	ACCOMMODATION OF TRAFFIC	
1800	DAYWORKS	
5600	ROAD SIGNS	
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	
8100	TESTING MATERIALS AND WORKMANSHIP	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 2100	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	DRAINS				
21,01	Excavation for open drains:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m ³	2 150		
21,03	Excavation for subsoil drainage systems:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m ³	200		
B21.04	Impermeable backfilling to subsoil drainage systems:				
	(b) Using imported selected material	m ³	80		
B21.06	Natural permeable material in subsoil drainage systems (washed crushed stone):				
	(b) Crushed stone obtained from commercial sources:				
	(ii) Coarse grade	m ³	150		
21.08	Pipes in subsoil drainage systems:				
	(b) Unplasticized PVC pipes and fittings, normal duty, complete with couplings:				
	(i) 100 mm internal dia, perforated	m	850		
21.10	Synthetic-fibre filter fabric Bidim A4	m ²	1 650		
21,12	Concrete outlet structures, manhole boxes, junction boxes and cleaning eyes for subsoil drainage systems:				
	(a) Outlet structures	number	5		
	(d) Cleaning eyes	number	15		
21,17	Test flushing of pipe subsoil drains	number	5		
B21.20	Break into existing drainage structures and install subsoil drainage pipes	number	5		
B21.21	Type A concrete outlet structures for subsoil drainage systems (including formwork)	number	5		
2100	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 2200	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PREFABRICATED CULVERTS				
B22.01	Excavation:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m³	110		
	(ii) Exceeding 1,5 m and up to 3,0 m	m³	15		
	(b) Extra over subitem B22.01(a) for excavation in hard material, irrespective of depth	m³	15		
	(c) Extra over subitem B22.01(a) for excavation by hand	m³	110		
22,02	Backfilling:				
	(b) Using imported selected material	m³	80		
B22.03	Concrete pipe culverts:				
	(b) On Class B bedding:				
	(i) Type SC 100 D-load pipes with ogee joints:				
	(1) 375 mm dia	m	100		
	(2) 450 mm dia	m	50		
	(3) 525 mm dia	m	30		
	(4) 600 mm dia	m	30		
22,17	Manholes, catchpits, precast inlet and outlet structures complete:				
	(a) Manholes:				
	(i) TYPE C	number	5		
	(ii) TYPE D	number	40		
	(iii) TYPE D1	number	10		
2200	CARRIED FORWARD				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 2200	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(d) Extra over or less than subitem 22.17(a) for variations in the depths of manholes from the standard depth of 1.5m designated for tendering purposes:				
	(i) Type C	m	5		
	(ii) Type D	m	20		
	(iii) Type D1	m	5		
	(e) Extra over or less than subitem 22.17(b) for variations in the depths of catchpits from the standard depth of 1.0m designated for tendering purposes:				
	(i) Double Splay, Single Inlet type "D"	m	5		
22,21	Accessories:				
	(b) Inlet grids including frames:				
	(i) 816 mm x 620 mm as shown on the drawings	number	40		
	(e) Prefabricated reinforced class 25/19 concrete cover slabs, 1600 mm x 450 mm x 150 mm, complete as shown on the drawings resting on top of the channel	number	80		
B22.29	Breaking into existing stormwater pipes of the following sizes to construct new drainage structures:				
	(a) 300 mm dia	number	16		
	(b) 375 mm dia	number	5		
	(c) 400 mm dia	number	5		
	(d) 600 mm dia	number	5		
2200	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 2300	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS				
B23.01	Concrete kerbing, including joints:				
	(b) 400 mm x 200 mm cast in situ class 20/19 concrete edge beam, as shown on drawing 1006614-DRG-08-NW-CC-D006	m	1 140		
	(c) 300 mm x 220 mm cast in situ class 35/19 concrete kerb, as shown on drawing 1006614-DRG-08-NW-CC-D004	m	9 500		
23.03	Concrete chutes (typical designs):				
	(a) Prefabricated class 20/19 concrete chutes down side slopes, complete as shown on the drawings under section Stormwater Details	m	50		
23.05	Inlet, outlet, transition and similar structures (typical designs):				
	(a) Inlet structures, for chutes down side slopes, class 20/19 concrete, complete as shown on the drawings under section Stormwater Details	number	5		
	(b) Outlet structures for chutes down side slopes, complete with prefabricated reinforced-concrete blocks, class 20/19 concrete, complete as shown on the drawings under section Stormwater Details	number	5		
B23.07	Trimming of excavations for concrete-lined open drains:				
	(a) In soft material	m ²	7 450		
23.08	Concrete lining for open drains:				
	(a) Cast in situ class 25 / 19 concrete lining in Trapezoidal / Rectangular drains	m ³	1 020		
	(b) Class U2 surface finish to cast in situ concrete in Trapezoidal / Rectangular drains	m ²	7 450		
23.09	Formwork to cast in situ concrete lining for open drains (Class F2 surface finish):				
2300	CARRIED FORWARD				

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 3300	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	MASS EARTHWORKS				
B33.01	Cut and borrow to fill, including free-haul up to 1.0 km:				
	(a) Material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	2 350		
33.03	Extra over payment item B33.01 for excavation of material in:				
	(b) Hard excavation	m ³	50		
B33.04	Cut to spoil, including free-haul up to 1,0 km. Material obtained from:				
	(a) Soft excavation	m ³	7 800		
	(c) Hard excavation	m ³	50		
33.06	Variations in the number of roller passes (applicable to subitems B33.01(a)(iii) and B33.01(b)(iii) and payment item 33.11):				
	(a) Vibratory rollers	m ² -pass	750		
	(c) Grid rollers	m ² -pass	750		
	(f) Pneumatic-tyred rollers	m ² -pass	750		
B33.07	Removal of unsuitable material (including free-haul of 1.0 km):				
	(a) In layer thicknesses of 200 mm and less:				
	(i) Stable material	m ³	2 600		
	(ii) Unstable material	m ³	260		
	(iii) Contaminated (hazardous) material	m ³	1 200		
B33.09	Material temporarily removed and placed in a windrow	m ³	1 200		
33.10	Roadbed preparation and the compaction of material:				
3300	CARRIED FORWARD				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 3300	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(b) Compacted to 93% of modified AASHTO density	m ³	9 800		
33,13	Finishing-off cut and fill slopes, medians and interchange areas:				
	(a) Cut slopes	m ²	5 300		
	(b) Fill slopes	m ²	11 000		
B33.16	Widening of fills as specified in subclause B3307(i) extra over:				
	(a) Subitem B33.01(a)	m ³	200		
B33.20	Fill constructed with material obtained from commercial sources or sources provided by the Contractor, including all haul:				
	(a) Gravel material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	3 050		
	(c) Rock fill (as specified in subclause 3209(c))	m ³	50		
	(e) Pioneer layer (as specified in subclause B3307(c))	m ³	150		
B33.21	Fill constructed with material from designated stockpiles or directly from existing pavement layers and existing road prisms, irrespective of material type, including all haul:				
	(a) Gravel material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	2 350		
B33.22	Geotextile:				
	(a) Composite reinforced separation layer	m ²	200		
3300	CARRIED FORWARD				

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 3400	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PAVEMENT LAYERS OF GRAVEL MATERIAL				
B34.03	Pavement layers constructed from gravel obtained from existing pavement layers:				
	(b) Gravel selected layer compacted to 95% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm	m ³	3 050		
	(l) Gravel shoulder wearing course compacted to 93% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm (Type 1 quality)	m ³	500		
B34.04	In situ reconstruction of existing pavement layers as:				
	(a) Gravel selected layer compacted to 93% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm (G7 quality)	m ³	4 800		
B34.05	Extra over subitems B34.03(g), B34.04(b) and B34.04(f), for the construction of gravel pavement layers from recovered pavement material mixed with existing bituminous surfacing material	m ³	8 350		
B34.06	Extra over payment item B34.04 for adding extra material as specified in subclause 3207(b)(iii):				
	(a) Gravel selected layer	m ³	500		
34.07	Extra over payment item B34.04 for temporarily blading the material to windrow	m ³	2 400		
34.10	Compacting the floors of pavement excavations (5 roller passes) with:				
	(a) Vibratory rollers	m ²	5 800		
	(c) Grid rollers	m ²	5 800		
3400	CARRIED FORWARD				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD			SECTION 3400		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(d) Flat-wheeled rollers	m ²	5 800		
	(e) Pneumatic-tyred rollers	m ²	5 800		
34,11	Watering the pavement excavation floor	kilolitre	100		
34.12	Variations in the number of roller passes applicable to payment item 34.10:				
	(a) Vibratory rollers	m ² -pass	580		
	(c) Grid rollers	m ² -pass	580		
	(d) Flat-wheeled rollers	m ² -pass	580		
	(e) Pneumatic-tyred rollers	m ² -pass	580		
B34.15	Pavement layers constructed from gravel obtained from commercial sources or approved sources provided by the Contractor, including all haul:				
	(a) Gravel selected layer compacted to:				
	(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm (G7 quality)	m ³	500		
	(d) Gravel shoulders compacted to:				
	(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm (Type 1 quality)	m ³	500		
B34.15	Removal of excess pavement material resulting from the in situ reconstruction of existing pavement layers	m ³	500		
	OVERHAUL (Section 1600)				
34/16.02	Overhaul on material hauled in excess of 1,0 km	m ³ -km	600 300		
3400	CARRIED FORWARD				

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 3800	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BREAKING UP EXISTING PAVEMENT LAYERS				
B38.04	Milling or excavating and moving to stockpile or spoiling material from an existing pavement and/or the underlying fill:				
	(a) Non-cemented material	m ³	12 700		
	(b) Cemented material	m ³	7 650		
	(d) Asphalt	m ³	5 100		
38,07	Extra over payment items B38.04 for tapering the milled excavation edges or ends	m ³	100		
38,08	Sawing or cutting asphalt or cemented pavement layers:				
	(a) Sawing asphalt	m ²	100		
	(c) Sawing cemented layers:				
	(i) Cemented material	m ²	100		
38.10	Preparing stockpile sites	m ²	9 300		
38,11	Extra over payment item 38.10 for watering and compacting stockpile sites	m ³	1 400		
	</				

[illegible]

[illegible]

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 5600	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ROAD SIGNS				
B56.01	Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class I retro-reflective material, where the sign board is constructed from:				
	(d) Prepainted galvanized steel profiles (200 mm high chromadek or approved equivalent):				
	(i) Area not exceeding 2,0 m ²	m ²	50		
56,02	Extra over payment item B56.01 for using:				
	(a) Background of retro-reflective material:				
	(iii) Class III	m ²	50		
56,03	Road sign supports (overhead road sign structures excluded):				
	(a) Steel tubing complete with base plate (Circular:75mm, square:50mmx50mm, wall thickness: 2mm, glavanised steel base plate: 250mm x 250 mm x 3 mm)	t	1		
	(b) Steel tubing planted (Circular:75mm, square:50mmx50mm, wall thickness: 2mm)	t	1		
56,05	Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m ³	60		
56,06	Extra over payment item 56.05 for cement-treated soil backfill	m ³	40		
B56.10	Gravel drainage layer below road sign footings	m ³	20		
B56.11	Hazard plates:				
	(b) 600 mm x 150 mm	number	30		
	(e) 300 mm x 600 mm	number	25		
	(f) 3 600 mm x 600 mm	number	10		
B56.12	Dismantling and disposal of road signs:				
	(a) Hazard marker signs	number	10		
5600	CARRIED FORWARD				

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD			SECTION 5700		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ROAD MARKINGS				
B57.01	Road-marking paint:				
	(g) Kerb markings (any colour)	m ²	700		
57.02	Retro-reflective road-marking paint:				
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km	6		
	(ii) 150 mm wide	km	3		
	(iii) 200 mm wide	km	1		
	(b) Yellow lines (broken or unbroken):				
	(i) 150 mm wide	km	0,5		
	(d) White lettering and symbols	m ²	300		
	(e) Yellow lettering and symbols	m ²	50		
	(f) Transverse lines, painted island and arrestor bed markings (any colour)	m ²	2 000		
B57.03	Thermoplastic road-marking paint	km			
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km	6		
	(ii) 150 mm wide	km	3		
	(iii) 200 mm wide	km	1		
	(b) Yellow lines (broken or unbroken):				
	(i) 150 mm wide	km	0,5		
	(c) Kerb markings (any colour)	m ²	910		
B57.03	Plastic road-marking material				
	(e) Yellow lettering and symbols	m ²			rate only
	(f) Transverse lines, painted island and arrestor bed markings (any colour)	m ²			rate only
5700	CARRIED FORWARD				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 5700	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
57,04	Variations in rate of application:				
	(a) White paint	litre	350		
	(b) Yellow paint	litre	15		
B57.05	Roadstuds:				
	(a) PFG Armourlight, Stimsonite, Lynkor or approved equivalent:				
	(ii) Bi-directional, amber/red	number	120		
	(v) Bi-directional, red/red	number	1 270		
B57.06	Setting out and premarking the lines (excluding traffic-island markings, lettering and symbols)	km	11		
B57.07	Re-establishing the painting unit within 30 days before the Defects Date	number	1		
57,09	Removal of existing roadstuds	number	20		
B57.10	Cold plastic road-marking material:				
	(a) White lettering and symbols	m ²	300		
	(b) Yellow lettering and symbols	m ²	50		
	(c) Transverse lines, painted island and arrestor bed markings (any colour)	m ²	2 000		
5700	TOTAL CARRIED TO SUMMARY PAGE				

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD					SECTION 7100
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CONCRETE PAVEMENTS				
B71.01	Concrete trial pavement:				
	(a) Mechanical construction				
	(i) Jointed unreinforced concrete pavement (PJCP) - 300 mm thick (minimum flexural strength of 5.2 MPa)	m ²	200		
	(ii) Lean mix concrete pavement (LMC) - 100 mm thick (minimum compressive strength of 15 MPa):	m ²	200		
	(iii) Jointed unreinforced concrete pavement (PJCP) - 100 mm thick (minimum compressive strength of 30 MPa):	m ²	20		
	(b) Manual construction				
	(i) Jointed unreinforced concrete pavement (PJCP) - 300 mm thick (minimum flexural strength of 5.2 MPa)	m ²	200		
	(ii) Lean mix concrete pavement (LMC) - 100 mm thick (minimum compressive strength of 15 MPa):	m ²	200		
	(iii) Jointed unreinforced concrete pavement (PJCP) - 100 mm thick (minimum compressive strength of 30 MPa):	m ²	20		
B71.02	Concrete pavement excluding texturing and curing:				
	(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa):				
	(i) 300 mm thick	m ²	65 250		
	(b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa):				
	(i) 100 mm thick	m ²	65 250		
	(c) Jointed unreinforced concrete pavement (PJCP) (minmum compressive strength of 30 MPa):				
	(i) 100 mm thick	m ²	7 850		
7100	CARRIED FORWARD				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 7100	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
71.03	Extra over payment item 71.02 for concrete pavement requiring hand placing				
	(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa), 300mm thick in road pavements	m ²	65 250		
	(b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa), 100mm thick as suubase in road pavements	m ²	65 250		
	(c) Jointed unreinforced concrete pavement (PJCP) (minmum compressive strength of 30 MPa), 100mm thick in sidewalks	m ²	7 850		
B71.04	Texturing and curing the concrete pavement:				
	(a) Broom texture (PJCP road pavements)	m ²	65 250		
	(b) Bull float finish (LMC subbase)	m ²	65 250		
	(c) Wood float (PJCP sidewalks)	m ²	7 850		
	(d) Curing with white-pigmented solvent resin-based curing compound and movable frame cover	m ²	73 100		
	(e) Curing with emulsion wax curing compound and movable frame cover	m ²	65 250		
B71.05	Variation in the rate of application of the curing compounds				
	(a) White pigmented solvent resin based curing compound	litre	5 150		
	(b) Wax based emulsion compound	litre	3 263		
B71.06	Joints:				
	(b) Longitudinal hinge joints:				
	(i) Sealed hinge joints, Joint B1 and Joint C, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	7 100		
7100	CARRIED FORWARD				

SCHEDULE B : ROAD CONSTRUCTION - NEWARK ROAD				SECTION 7100	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(ii) Unsealed hinge joints, Joint B2, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	4 200		
	(c) Sealed transverse contraction joints sawn in two separate operations, Joint A1, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	9 900		
	(d) Unsealed transverse contraction joints, Joint A3, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	17 050		
	(d) Diamond dowels with pocket formers (mild steel), 20 mm x 114 mm x 114 mm:				
	(i) Installed in new concrete	number	3 350		
	(e) Tie-bars:				
	(i) 20 mm diameter, 900 mm long installed in new PJCP	number	17 000		
	(g) Forming and sealing the joints between asphalt and concrete pavements, Joint F, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	150		
	(i) Plain isolation joint, Joint D, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	7 450		
	(j) Armoured Isolation joint, Joint E, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	350		
	(k) Forming and sealing diamond dowel joints, Joint A2, as shown on the drawing (1006614-DRG-12-NW-CC-D002)	m	1 500		
71,07	Drilling and testing of cores:				
	(a) 100 mm cores drilled from the pavement	number	300		
	(b) 150 mm cores drilled from the pavement and tested for compressive strength	number	300		
71,08	Steel reinforcement in concrete pavement:				
7100	CARRIED FORWARD				

[illegible]

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE B : NEWARK ROAD CONSTRUCTION		
1700	CLEARING AND GRUBBING	
2100	DRAINS	
2200	PREFABRICATED CULVERTS	
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS	
3300	MASS EARTHWORKS	
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL	
3800	BREAKING UP EXISTING PAVEMENT LAYERS	
4200	ASPHALT BASE AND SURFACING	
5100	PITCHING, STONWORK AND PROTECTION AGAINST EROSION	
5400	GUARDRAILS	
5600	ROAD SIGNS	
5700	ROAD MARKINGS	
5800	LANDSCAPING AND PLANTING PLANTS	
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	
6100	FOUNDATIONS FOR STRUCTURES	
6200	FALSEWORK, FORMWORK AND CONCRETE FINISH	
6300	STEEL REINFORCEMENT FOR STRUCTURES	
6400	CONCRETE FOR STRUCTURE	
7100	CONCRETE PAVEMENTS	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 1700	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CLEARING AND GRUBBING				
B17.01	Clearing and grubbing	ha	2		
17,02	Removal and grubbing of large trees and tree stumps:				
	(a) Girth exceeding 1,0 m up to and including 2,0 m	number	2		
17,04	Clearing and grubbing at inlets and outlets of hydraulic structures	m²	100		
B17.05	Cleaning out of hydraulic structures:				
	(a) Pipes with an internal diameter up to and including 750 mm	m³	60		
B17.07	Removal of topsoil and unsuitable material and temporary stockpiling or spoiling thereof:				
	(b) Topsoil in temporary stockpiles after loading material into trucks including 1,0 km free-haul	m³	10		
	(c) Unsuitable material to be spoiled including 1,0 km free-haul	m³	20		
17/16.02	Overhaul on material hauled in excess of 1,0 km	m³-km	15 000		

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD			SECTION 2100		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	DRAINS				
21,01	Excavation for open drains:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m³	150		
21,03	Excavation for subsoil drainage systems:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m³	80		
B21.04	Impermeable backfilling to subsoil drainage systems:				
	(b) Using imported selected material	m³	10		
B21.06	Natural permeable material in subsoil drainage systems (washed crushed stone):				
	(b) Crushed stone obtained from commercial sources:				
	(ii) Coarse grade	m³	70		
21.08	Pipes in subsoil drainage systems:				
	(b) Unplasticized PVC pipes and fittings, normal duty, complete with couplings:				
	(i) 100 mm internal dia, perforated	m	450		
21.10	Synthetic-fibre filter fabric Bidim A4	m²	850		
21,12	Concrete outlet structures, manhole boxes, junction boxes and cleaning eyes for subsoil drainage systems:				
	(a) Outlet structures	number	5		
	(d) Cleaning eyes	number	10		
21,17	Test flushing of pipe subsoil drains	number	5		
B21.21	Type A concrete outlet structures for subsoil drainage systems (including formwork)	number	5		
2100	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 2200	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PREFABRICATED CULVERTS				
B22.01	Excavation:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m³	150		
	(ii) Exceeding 1,5 m and up to 3,0 m	m³	15		
	(b) Extra over subitem B22.01(a) for excavation in hard material, irrespective of depth	m³	20		
	(c) Extra over subitem B22.01(a) for excavation by hand	m³	150		
22,02	Backfilling:				
	(b) Using imported selected material	m³	150		
B22.03	Concrete pipe culverts:				
	(b) On Class B bedding:				
	(i) Type SC 100 D-load pipes with ogee joints:				
	(1) 375 mm dia	m	250		
	(2) 450 mm dia	m	25		
	(3) 525 mm dia	m	100		
	(4) 900 mm dia	m	405		
22,17	Manholes, catchpits, precast inlet and outlet structures complete:				
	(a) Manholes:				
	(i) TYPE C	number	10		
	(ii) TYPE D	number	10		
	(iii) TYPE D1	number	1		
2200	CARRIED FORWARD				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROADS				SECTION 2200	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(d) Extra over or less than subitem 22.17(a) for variations in the depths of manholes from the standard depth of 1.5m designated for tendering purposes:				
	(i) Type C	m	5		
	(ii) Type D	m	5		
	(iii) Type D1	m	1		
22,21	Accessories:				
	(b) Inlet grids including frames:				
	(i) 816 mm x 620 mm as shown on the drawings	number	10		
	(e) Prefabricated reinforced class 25/19 concrete cover slabs, 1600 mm x 450 mm x 150 mm, complete as shown on the drawings resting on top of the channel	number	10		
B22.29	Breaking into existing stormwater pipes of the following sizes to construct new drainage structures:				
	(c) 400 mm dia	number	10		
	(d) 600 mm dia	number	5		
2200	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 2300	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS				
B23.01	Concrete kerbing, including joints:				
	(b) 400 mm x 200 mm cast in situ class 20/19 concrete edge beam, as shown on drawing 1006614-DRG-08-VT-CC-D006	m	70		
	(c) 300 mm x 220 mm cast in situ class 35/19 concrete kerb, as shown on drawing 1006614-DRG-08-VT-CC-D004	m	1 400		
B23.07	Trimming of excavations for concrete-lined open drains:				
	(a) In soft material	m ²	550		
23,08	Concrete lining for open drains:				
	(a) Cast in situ class 25 / 19 concrete lining in Trapezoidal / Rectangular drains	m ³	75		
	(b) Class U2 surface finish to cast in situ concrete in Trapezoidal / Rectangular drains	m ²	550		
23,09	Formwork to cast in situ concrete lining for open drains (Class F2 surface finish):				
	(b) To sides with formwork on both internal and external faces (each face measured)	m ²	70		
	(c) To ends of slabs	m ²	150		
23,1	Sealed joints in concrete linings of open drains with bitumen impregnated softboard and polysulphide seal, complete as shown on the drawings	m	175		
23,12	Steel reinforcement:				
	(b) High-tensile steel bars	t	5		
	(c) Welded steel fabric	kg	2 060		
2300	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 3300	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	MASS EARTHWORKS				
B33.01	Cut and borrow to fill, including free-haul up to 1.0 km:				
	(a) Material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	450		
33.03	Extra over payment item B33.01 for excavation of material in:				
	(b) Hard excavation	m ³	50		
B33.04	Cut to spoil, including free-haul up to 1,0 km. Material obtained from:				
	(a) Soft excavation	m ³	7 800		
	(c) Hard excavation	m ³	50		
33.06	Variations in the number of roller passes (applicable to subitems B33.01(a)(iii) and B33.01(b)(iii) and payment item 33.11):				
	(a) Vibratory rollers	m ² -pass	250		
	(c) Grid rollers	m ² -pass	250		
	(f) Pneumatic-tyred rollers	m ² -pass	250		
B33.07	Removal of unsuitable material (including free-haul of 1.0 km):				
	(a) In layer thicknesses of 200 mm and less:				
	(i) Stable material	m ³	500		
	(ii) Unstable material	m ³	50		
	(iii) Contaminated (hazardous) material	m ³	300		
B33.09	Material temporarily removed and placed in a windrow	m ³	250		
33.10	Roadbed preparation and the compaction of material:				
3300	CARRIED FORWARD				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 3300	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(b) Compacted to 93% of modified AASHTO density	m ³	1 900		
33,13	Finishing-off cut and fill slopes, medians and interchange areas:				
	(a) Cut slopes	m ²	5 300		
	(b) Fill slopes	m ²	11 000		
B33.16	Widening of fills as specified in subclause B3307(i) extra over:				
	(a) Subitem B33.01(a)	m ³	50		
B33.20	Fill constructed with material obtained from commercial sources or sources provided by the Contractor, including all haul:				
	(a) Gravel material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	550		
	(c) Rock fill (as specified in subclause 3209(c))	m ³	50		
	(e) Pioneer layer (as specified in subclause B3307(c))	m ³	150		
B33.21	Fill constructed with material from designated stockpiles or directly from existing pavement layers and existing road prisms, irrespective of material type, including all haul:				
	(a) Gravel material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	450		
B33.22	Geotextile:				
	(a) Composite reinforced separation layer	m ²	200		
3300	CARRIED FORWARD				

[illegible]

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 3400	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PAVEMENT LAYERS OF GRAVEL MATERIAL				
B34.03	Pavement layers constructed from gravel obtained from existing pavement layers:				
	(b) Gravel selected layer compacted to 95% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm	m ³	1 100		
	(l) Gravel shoulder wearing course compacted to 93% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm (Type 1 quality)	m ³	100		
B34.04	In situ reconstruction of existing pavement layers as:				
	(a) Gravel selected layer compacted to 93% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm (G7 quality)	m ³	550		
B34.05	Extra over subitems B34.03(g), B34.04(b) and B34.04(f), for the construction of gravel pavement layers from recovered pavement material mixed with existing bituminous surfacing material	m ³	1 750		
B34.06	Extra over payment item B34.04 for adding extra material as specified in subclause 3207(b)(iii):				
	(a) Gravel selected layer	m ³	100		
34.07	Extra over payment item B34.04 for temporarily blading the material to windrow	m ³	275		
34.10	Compacting the floors of pavement excavations (5 roller passes) with:				
	(a) Vibratory rollers	m ²	1 860		
	(c) Grid rollers	m ²	1 860		
3400	CARRIED FORWARD				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 3400	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(d) Flat-wheeled rollers	m ²	1 860		
	(e) Pneumatic-tyred rollers	m ²	1 860		
34,11	Watering the pavement excavation floor	kilolitre	30		
34.12	Variations in the number of roller passes applicable to payment item 34.10:				
	(a) Vibratory rollers	m ² -pass	186		
	(c) Grid rollers	m ² -pass	186		
	(d) Flat-wheeled rollers	m ² -pass	186		
	(e) Pneumatic-tyred rollers	m ² -pass	186		
B34.15	Pavement layers constructed from gravel obtained from commercial sources or approved sources provided by the Contractor, including all haul:				
	(a) Gravel selected layer compacted to:				
	(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm (G7 quality)	m ³	500		
	(d) Gravel shoulders compacted to:				
	(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm (Type 1 quality)	m ³	100		
B34.15	Removal of excess pavement material resulting from the in situ reconstruction of existing pavement layers	m ³	100		
	OVERHAUL (Section 1600)				
34/16.02	Overhaul on material hauled in excess of 1,0 km	m ³ -km	91 400		
3400	CARRIED FORWARD				

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 5600	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ROAD SIGNS				
B56.01	Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class I retro-reflective material, where the sign board is constructed from:				
	(d) Prepainted galvanized steel profiles (200 mm high chromadek or approved equivalent):				
	(i) Area not exceeding 2,0 m ²	m ²	25		
56,02	Extra over payment item B56.01 for using:				
	(a) Background of retro-reflective material:				
	(iii) Class III	m ²	25		
56,03	Road sign supports (overhead road sign structures excluded):				
	(a) Steel tubing complete with base plate (Circular:75mm, square:50mmx50mm, wall thickness: 2mm, galvanised steel base plate: 250mm x 250 mm x 3 mm)	t	0,5		
	(b) Steel tubing planted (Circular:75mm, square:50mmx50mm, wall thickness: 2mm)	t	0,5		
56,05	Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m ³	10		
56,06	Extra over payment item 56.05 for cement-treated soil backfill	m ³	10		
B56.10	Gravel drainage layer below road sign footings	m ³	5		
B56.11	Hazard plates:				
	(b) 600 mm x 150 mm	number	5		
	(e) 300 mm x 600 mm	number	10		
	(f) 3 600 mm x 600 mm	number	5		
B56.12	Dismantling and disposal of road signs:				
	(a) Hazard marker signs	number	5		
5600	CARRIED FORWARD				

[illegible]

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 5700	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ROAD MARKINGS				
B57.01	Road-marking paint:				
	(g) Kerb markings (any colour)	m ²	450		
57.02	Retro-reflective road-marking paint:				
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km	2		
	(ii) 150 mm wide	km	1		
	(iii) 200 mm wide	km	1		
	(b) Yellow lines (broken or unbroken):				
	(i) 150 mm wide	km	0,1		
	(d) White lettering and symbols	m ²	100		
	(e) Yellow lettering and symbols	m ²	20		
	(f) Transverse lines, painted island and arrestor bed markings (any colour)	m ²	400		
B57.03	Thermoplastic road-marking paint	km			
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km	2		
	(ii) 150 mm wide	km	1		
	(iii) 200 mm wide	km	1		
	(b) Yellow lines (broken or unbroken):				
	(i) 150 mm wide	km	0,1		
	(c) Kerb markings (any colour)	m ²	440		
57.04	Variations in rate of application:				
	(a) White paint	litre	130		
	(b) Yellow paint	litre	3		
B57.05	Roadstuds:				
5700	CARRIED FORWARD				

[illegible]

[illegible]

[illegible]

[illegible]

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 7100	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CONCRETE PAVEMENTS				
B71.02	Concrete pavement excluding texturing and curing:				
	(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa):				
	(i) 300 mm thick	m ²	12 550		
	(b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa):				
	(i) 100 mm thick	m ²	12 550		
	(c) Jointed unreinforced concrete pavement (PJCP) (minmum compressive strength of 30 MPa):				
	(i) 100 mm thick	m ²	1 450		
71.03	Extra over payment item 71.02 for concrete pavement requiring hand placing				
	(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa), 300mm thick in road pavements	m ²	12 550		
	(b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa), 100mm thick as suubase in road pavements	m ²	12 550		
	(c) Jointed unreinforced concrete pavement (PJCP) (minmum compressive strength of 30 MPa), 100mm thick in sidewalks	m ²	1 450		
B71.04	Texturing and curing the concrete pavement:				
	(a) Broom texture (PJCP road pavements)	m ²	12 550		
	(b) Bull float finish (LMC subbase)	m ²	12 550		
	(c) Wood float (PJCP sidewalks)	m ²	1 450		
	(d) Curing with white-pigmented solvent resin-based curing compound and movable frame cover	m ²	14 000		
7100	CARRIED FORWARD				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 7100	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(e) Curing with emulsion wax curing compound and movable frame cover	m ²	12 550		
B71.05	Variation in the rate of application of the curing compounds				
	(a) White pigmented solvent resin based curing compound	litre	1 000		
	(b) Wax based emulsion compound	litre	628		
B71.06	Joints:				
	(b) Longitudinal hinge joints:				
	(i) Sealed hinge joints, Joint B1 and Joint C, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	1 300		
	(ii) Unsealed hinge joints, Joint B2, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	600		
	(c) Sealed transverse contraction joints sawn in two separate operations, Joint A1, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	1 900		
	(d) Unsealed transverse contraction joints, Joint A3, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	3 150		
	(d) Diamond dowels with pocket formers (mild steel), 20 mm x 114 mm x 114 mm:				
	(i) Installed in new concrete	number	500		
	(e) Tie-bars:				
	(i) 20 mm diameter, 900 mm long installed in new PJCP	number	2 250		
	(g) Forming and sealing the joints between asphalt and concrete pavements, Joint F, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	50		
7100	CARRIED FORWARD				

SCHEDULE C : ROAD CONSTRUCTION - VENTURA ROAD				SECTION 7100	
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(i) Plain isolation joint, Joint D, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	1 350		
	(j) Armoured Isolation joint, Joint E, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	50		
	(k) Forming and sealing diamond dowel joints, Joint A2, as shown on the drawing (1006614-DRG-12-VT-CC-D002)	m	250		
71,07	Drilling and testing of cores:				
	(a) 100 mm cores drilled from the pavement	number	100		
	(b) 150 mm cores drilled from the pavement and tested for compressive strength	number	100		
71,08	Steel reinforcement in concrete pavement:				
	(c) Welded steel fabric:				
	(i) Mesh ref 617	kg	10 950		
	(ii) Mesh ref 500	kg	8 850		
	(iii) Mesh ref 193	kg	600		
71,09	Removing existing concrete in rehabilitation work:				
	(a) Concrete without reinforcement	m³	1		
	(b) Reinforced concrete	m³	1		
71.10	Sawing existing concrete in rehabilitation work	m²	150		
B71.22	Rail level crossing				
	(a) Precast concrete level crossing blocks as per drawing (1006614-DRG-00-VT-CC-D001)	m	150		
	(b) Level crossing across a concrete road surface	m	1		
7100	TOTAL CARRIED TO SUMMARY PAGE				

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE C : VENTURA ROAD CONSTRUCTION		
1700	CLEARING AND GRUBBING	
2100	DRAINS	
2200	PREFABRICATED CULVERTS	
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS	
3300	MASS EARTHWORKS	
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL	
3800	BREAKING UP EXISTING PAVEMENT LAYERS	
4200	ASPHALT BASE AND SURFACING	
5100	PITCHING, STONework AND PROTECTION AGAINST EROSION	
5200	GABIONS	
5400	GUARDRAILS	
5600	ROAD SIGNS	
5700	ROAD MARKINGS	
5800	LANDSCAPING AND PLANTING PLANTS	
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	
6100	FOUNDATIONS FOR STRUCTURES	
7100	CONCRETE PAVEMENTS	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

[illegible]

[illegible]

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 2200		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PREFABRICATED CULVERTS				
B22.01	Excavation:				
	(a) Excavating soft material situated within the following depth ranges below the surface level:				
	(i) 0 m up to 1,5 m	m³	500		
	(ii) Exceeding 1,5 m and up to 3,0 m	m³	40		
	(b) Extra over subitem B22.01(a) for excavation in hard material, irrespective of depth	m³	55		
	(c) Extra over subitem B22.01(a) for excavation by hand	m³	486		
B22.02	Backfilling:				
	(b) Using imported selected material	m³	410		
B22.03	Concrete pipe culverts:				
	(b) On Class B bedding:				
	(i) Type SC 100 D-load pipes with ogee joints:				
	(4) 600 mm dia	m	160		
	(4) 900 mm dia	m	50		
B22.07	Cast in situ concrete and formwork:				
	(c) In inlet and outlet structures, skewed ends, catchpits, manholes, thrust and anchor blocks, excluding formwork but including Class U2 surface finish:				
	(i) Class 30/20 concrete	m³	10		
22.10	Steel reinforcement:				
	(c) Welded steel fabric	kg	60		
22,17	Manholes, catchpits, precast inlet and outlet structures complete:				
2200	CARRIED FORWARD				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 2200		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(a) Manholes:				
	(ii) TYPE D	number	3		
	(d) Extra over or less than subitem 22.17(a) for variations in the depths of manholes from the standard depth of 1.5m designated for tendering purposes:				
	(ii) Type D	m	2		
	(e) Extra over or less than subitem 22.17(b) for variations in the depths of catchpits from the standard depth of 1.0m designated for tendering purposes:				
	(i) Double Splay, Single Inlet type "D"	m	3		
22.20	Benching	m ²	15		
22.21	Accessories:				
	(a) Manhole covers including frames, SANS 558 Type 2	number	3		
	(b) Inlet grids including frames:				
	(i) 816 mm x 620 mm as shown on the drawings	number	3		
	(d) Prefabricated reinforced class 20/19 concrete blocks in outlet structures, 150 mm x 150 mm x 300 mm, complete as shown on the drawings	number	15		
B22.31	Breaking into existing stormwater pipes of the following sizes to construct new drainage structures:				
	(b) 375 mm dia	number	1		
2200	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 2300		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS				
B23.01	Concrete kerbing, including joints:				
	(c) 300 mm x 220 mm cast in situ class 35/19 concrete kerb, as shown on drawing 1006614-DRG-08-UR-CC-D004	m	3 000		
23.03	Concrete chutes (typical designs):				
	(a) Prefabricated class 20/19 concrete chutes down side slopes, complete as shown on the drawings	m	50		
23.05	Inlet, outlet, transition and similar structures (typical designs):				
	(a) Inlet structures, for chutes down side slopes, class 20/19 concrete, complete as shown on the drawings	number	5		
	(b) Outlet structures for chutes down side slopes, complete with prefabricated reinforced-concrete blocks, class 20/19 concrete, complete as shown on the drawings	number	5		
B23.07	Trimming of excavations for concrete-lined open drains:				
	(a) In soft material	m ²	350		
23.08	Concrete lining for open drains:				
	(a) Cast in situ class 25 / 19 concrete lining in Trapezoidal / Rectangular drains	m ³	50		
	(b) Class U2 surface finish to cast in situ concrete in Trapezoidal / Rectangular drains	m ²	350		
23.09	Formwork to cast in situ concrete lining for open drains (Class F2 surface finish):				
	(b) To sides with formwork on both internal and external faces (each face measured)	m ²	60		
	(c) To ends of slabs	m ²	120		
2300	CARRIED FORWARD				

[illegible]

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 3300		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	MASS EARTHWORKS				
B33.01	Cut and borrow to fill, including free-haul up to 1.0 km:				
	(a) Material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	1 300		
33.03	Extra over payment item B33.01 for excavation of material in:				
	(b) Hard excavation	m ³	50		
B33.04	Cut to spoil, including free-haul up to 1,0 km. Material obtained from:				
	(a) Soft excavation	m ³	7 800		
	(c) Hard excavation	m ³	50		
33.06	Variations in the number of roller passes (applicable to subitems B33.01(a)(iii) and B33.01(b)(iii) and payment item 33.11):				
	(a) Vibratory rollers	m ² -pass	450		
	(c) Grid rollers	m ² -pass	450		
	(f) Pneumatic-tyred rollers	m ² -pass	450		
B33.07	Removal of unsuitable material (including free-haul of 1.0 km):				
	(a) In layer thicknesses of 200 mm and less:				
	(i) Stable material	m ³	700		
	(ii) Unstable material	m ³	70		
	(iii) Contaminated (hazardous) material	m ³	700		
B33.09	Material temporarily removed and placed in a windrow	m ³	650		
33.10	Roadbed preparation and the compaction of material:				
3300	CARRIED FORWARD				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 3300		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(b) Compacted to 93% of modified AASHTO density	m ³	2 400		
33,13	Finishing-off cut and fill slopes, medians and interchange areas:				
	(a) Cut slopes	m ²	5 300		
	(b) Fill slopes	m ²	11 000		
B33.16	Widening of fills as specified in subclause B3307(i) extra over:				
	(a) Subitem B33.01(a)	m ³	150		
B33.20	Fill constructed with material obtained from commercial sources or sources provided by the Contractor, including all haul:				
	(a) Gravel material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	1 600		
	(c) Rock fill (as specified in subclause 3209(c))	m ³	50		
	(e) Pioneer layer (as specified in subclause B3307(c))	m ³	150		
B33.21	Fill constructed with material from designated stockpiles or directly from existing pavement layers and existing road prisms, irrespective of material type, including all haul:				
	(a) Gravel material in compacted layer thicknesses of 200 mm and less:				
	(ii) Compacted to 93% of modified AASHTO density	m ³	1 300		
B33.22	Geotextile:				
	(a) Composite reinforced separation layer	m ²	200		
3300	CARRIED FORWARD				

[illegible]

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 3400		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	PAVEMENT LAYERS OF GRAVEL MATERIAL				
B34.03	Pavement layers constructed from gravel obtained from existing pavement layers:				
	(b) Gravel selected layer compacted to 95% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm	m ³	2 000		
	(l) Gravel shoulder wearing course compacted to 93% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm (Type 1 quality)	m ³	150		
B34.04	In situ reconstruction of existing pavement layers as:				
	(a) Gravel selected layer compacted to 93% of modified AASHTO density, using:				
	(i) Non-cemented material for a compacted layer thickness of 150 mm (G7 quality)	m ³	150		
B34.05	Extra over subitems B34.03(g), B34.04(b) and B34.04(f), for the construction of gravel pavement layers from recovered pavement material mixed with existing bituminous surfacing material	m ³	2 300		
B34.06	Extra over payment item B34.04 for adding extra material as specified in subclause 3207(b)(iii):				
	(a) Gravel selected layer	m ³	150		
34.07	Extra over payment item B34.04 for temporarily blading the material to windrow	m ³	75		
34.10	Compacting the floors of pavement excavations (5 roller passes) with:				
	(a) Vibratory rollers	m ²	3 550		
	(c) Grid rollers	m ²	3 550		
3400	CARRIED FORWARD				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 3400		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(d) Flat-wheeled rollers	m ²	3 550		
	(e) Pneumatic-tyred rollers	m ²	3 550		
34,11	Watering the pavement excavation floor	kilolitre	40		
34.12	Variations in the number of roller passes applicable to payment item 34.10:				
	(a) Vibratory rollers	m ² -pass	400		
	(c) Grid rollers	m ² -pass	400		
	(d) Flat-wheeled rollers	m ² -pass	400		
	(e) Pneumatic-tyred rollers	m ² -pass	400		
B34.15	Pavement layers constructed from gravel obtained from commercial sources or approved sources provided by the Contractor, including all haul:				
	(a) Gravel selected layer compacted to:				
	(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm (G7 quality)	m ³	500		
	(d) Gravel shoulders compacted to:				
	(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm (Type 1 quality)	m ³	150		
B34.15	Removal of excess pavement material resulting from the in situ reconstruction of existing pavement layers	m ³	150		
	OVERHAUL (Section 1600)				
34/16.02	Overhaul on material hauled in excess of 1,0 km	m ³ -km	63 100		
3400	CARRIED FORWARD				

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 5400		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	GUARDRAILS				
B54.01	Guardrails on 3,0 m spaced posts:				
	(a) Complete galvanized system on:				
	(i) Timber posts	m	1 000		
	(b) Extra over subitem B54.01(a) for the following:				
	(ii) End treatments where single guardrail sections are used (including additional posts)	number	10		
	(iv) Bridge adaptors (including extra rail and posts)	number	4		
54,03	Extra over payment items B54.01, B54.02 and 54.11 for horizontally curved guardrails factory bent to a radius of less than 45 m	m	200		
54,04	End treatments:				
	(a) End wings	number	60		
	(d) End treatments in accordance with the drawings where single guardrail sections are used	number	10		
54,06	Reflective plates	number	380		
B54.07	Removing existing guardrails	m	270		
54,13	Steel base plates for timber guardrail posts on structures	number	5		
B54.14	Nailing of gang nail plates on top of timber guardrail posts	number	200		
5400	TOTAL CARRIED TO SUMMARY PAGE				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 5600		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ROAD SIGNS				
B56.01	Road sign boards with painted or coloured semi-matt background. Symbols, lettering and borders in semi-matt black or in Class I retro-reflective material, where the sign board is constructed from:				
	(d) Prepainted galvanized steel profiles (200 mm high chromadek or approved equivalent):				
	(i) Area not exceeding 2,0 m ²	m ²	25		
56,02	Extra over payment item B56.01 for using:				
	(a) Background of retro-reflective material:				
	(iii) Class III	m ²	25		
56,03	Road sign supports (overhead road sign structures excluded):				
	(a) Steel tubing complete with base plate (Circular:75mm, square:50mmx50mm, wall thickness: 2mm, galvanised steel base plate: 250mm x 250 mm x 3 mm)	t	0,5		
	(b) Steel tubing planted (Circular:75mm, square:50mmx50mm, wall thickness: 2mm)	t	0,5		
56,05	Excavation and backfilling for road sign supports (not applicable to kilometre posts)	m ³	15		
56,06	Extra over payment item 56.05 for cement-treated soil backfill	m ³	10		
B56.10	Gravel drainage layer below road sign footings	m ³	5		
B56.11	Hazard plates:				
	(b) 600 mm x 150 mm	number	20		
	(e) 300 mm x 600 mm	number	10		
	(f) 3 600 mm x 600 mm	number	5		
B56.12	Dismantling and disposal of road signs:				
	(a) Hazard marker signs	number	5		
5600	CARRIED FORWARD				

[illegible]

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 5700		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	ROAD MARKINGS				
B57.01	Road-marking paint:				
	(g) Kerb markings (any colour)	m ²	200		
57,02	Retro-reflective road-marking paint:				
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km	1		
	(ii) 150 mm wide	km	1		
	(iii) 200 mm wide	km	1		
	(b) Yellow lines (broken or unbroken):				
	(ii) 150 mm wide	km	0,2		
	(d) White lettering and symbols	m ²	50		
	(e) Yellow lettering and symbols	m ²	20		
	(f) Transverse lines, painted island and arrestor bed markings (any colour)	m ²	700		
B57.03	Thermoplastic road-marking paint	km			
	(a) White lines (broken or unbroken):				
	(i) 100 mm wide	km	1		
	(ii) 150 mm wide	km	1		
	(iii) 200 mm wide	km	1		
	(b) Yellow lines (broken or unbroken):				
	(i) 150 mm wide	km	0,2		
	(c) Kerb markings (any colour)	m ²	280		
57,04	Variations in rate of application:				
	(a) White paint	litre	90		
	(b) Yellow paint	litre	6		
B57.05	Roadstuds:				
5700	CARRIED FORWARD				

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 7100		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	CONCRETE PAVEMENTS				
B71.02	Concrete pavement excluding texturing and curing:				
	(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa):				
	(i) 300 mm thick	m ²	15 800		
	(b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa):				
	(i) 100 mm thick	m ²	15 800		
	(c) Jointed unreinforced concrete pavement (PJCP) (minmum compressive strength of 30 MPa):				
	(i) 100 mm thick	m ²	2 600		
71.03	Extra over payment item 71.02 for concrete pavement requiring hand placing				
	(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa), 300mm thick in road pavements	m ²	15 800		
	(b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa), 100mm thick as suubase in road pavements	m ²	15 800		
	(c) Jointed unreinforced concrete pavement (PJCP) (minmum compressive strength of 30 MPa), 100mm thick in sidewalks	m ²	2 600		
B71.04	Texturing and curing the concrete pavement:				
	(a) Broom texture (PJCP road pavements)	m ²	15 800		
	(b) Bull float finish (LMC subbase)	m ²	15 800		
	(c) Wood float (PJCP sidewalks)	m ²	2 600		
	(d) Curing with white-pigmented solvent resin-based curing compound and movable frame cover	m ²	18 400		
7100	CARRIED FORWARD				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 7100		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(e) Curing with emulsion wax curing compound and movable frame cover	m ²	15 800		
B71.05	Variation in the rate of application of the curing compounds				
	(a) White pigmented solvent resin based curing compound	litre	1 300		
	(b) Wax based emulsion compound	litre	790		
B71.06	Joints:				
	(b) Longitudinal hinge joints:				
	(i) Sealed hinge joints, Joint B1 and Joint C, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	3 600		
	(ii) Unsealed hinge joints, Joint B2, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	350		
	(c) Sealed transverse contraction joints sawn in two separate operations, Joint A1, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	2 850		
	(d) Unsealed transverse contraction joints, Joint A3, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	3 250		
	(d) Diamond dowels with pocket formers (mild steel), 20 mm x 114 mm x 114 mm:				
	(i) Installed in new concrete	number	750		
	(e) Tie-bars:				
	(i) 20 mm diameter, 900 mm long installed in new PJCP	number	7 300		
	(g) Forming and sealing the joints between asphalt and concrete pavements, Joint F, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	100		
7100	CARRIED FORWARD				

SCHEDULE D : ROAD CONSTRUCTION - URANIA ROAD			SECTION 7100		
ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	BROUGHT FORWARD				
	(i) Plain isolation joint, Joint D, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	1 300		
	(j) Armoured Isolation joint, Joint E, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	200		
	(k) Forming and sealing diamond dowel joints, Joint A2, as shown on the drawing (1006614-DRG-12-UR-CC-D002)	m	350		
71,07	Drilling and testing of cores:				
	(a) 100 mm cores drilled from the pavement	number	100		
	(b) 150 mm cores drilled from the pavement and tested for compressive strength	number	100		
71,08	Steel reinforcement in concrete pavement:				
	(c) Welded steel fabric:				
	(i) Mesh ref 617	kg	11 450		
	(ii) Mesh ref 500	kg	9 300		
	(iii) Mesh ref 193	kg	1 100		
71,09	Removing existing concrete in rehabilitation work:				
	(a) Concrete without reinforcement	m³	2		
	(b) Reinforced concrete	m³	2		
71.10	Sawing existing concrete in rehabilitation work	m²	2		
B71.22	Rail level crossing				
	(a) Precast concrete level crossing blocks as per drawing (1006614-DRG-00-UR-CC-D001)	m	70		
	(b) Level crossing across a concrete road surface	m	1		
7100	TOTAL CARRIED TO SUMMARY PAGE				

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE D : ROAD CONSTRUCTION : URANIA ROAD		
1700	CLEARING AND GRUBBING	
2100	DRAINS	
2200	PREFABRICATED CULVERTS	
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS	
3300	MASS EARTHWORKS	
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL	
3800	BREAKING UP EXISTING PAVEMENT LAYERS	
4200	ASPHALT BASE AND SURFACING	
5100	PITCHING, STONWORK AND PROTECTION AGAINST EROSION	
5200	GABIONS	
5400	GUARDRAILS	
5600	ROAD SIGNS	
5700	ROAD MARKINGS	
5800	LANDSCAPING AND PLANTING PLANTS	
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	
6100	FOUNDATIONS FOR STRUCTURES	
6200	FALSEWORK, FORMWORK AND CONCRETE FINISH	
6300	STEEL REINFORCEMENT FOR STRUCTURES	
6400	CONCRETE FOR STRUCTURE	
7100	CONCRETE PAVEMENTS	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

[illegible]

[illegible]

SCHEDULE E					SANS 1200 DB	
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	3	SANS 1200 DB				
SANS 1200DB	3.1	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR WATER PIPES				
PSDB 8.3.2	3.1.1	Excavate in all materials for trenches, backfill, compact and dispose of surplus material:				
	3.1.1.1	uPVC Pipes up to 125 mm dia for depths:				
	3.1.1.1.1	Over 1,0 m up to 2,0 m	m	10		
	3.1.1.2	uPVC Pipes over 125 mm dia up to 400 mm dia for depths:				
	3.1.1.2.1	Over 1,0 m up to 2,0 m	m	1 250		
PSDB 8.3.2	3.1.2	Extra over item 3.1.1 above for:				
	3.1.2.1	Hand excavation where ordered by the Engineer:				
	3.1.2.1.1	Soft material	m ³	1 650		
	3.1.2.1.2	Intermediate material	m ³	850		
	3.1.2.1.3	Hard material	m ³	500		
	3.1.2.2	Backfill stabilized with 5% cement where directed by the Engineer	m ³	350		
	3.1.2.3	Soilcrete backfill where directed by the Engineer	m ³	350		
8.3.4	3.1.3	Particular items:				
	3.1.3.1	Shore trench over 1,5 m	m	1 500		
	3.1.3.2	Temporary Works: Control water inflow				
	3.1.3.2.1	Provide equipment	sum	1		
	3.1.3.2.2	Operate and maintain	days	10		
	3.1.3.2.3	Remove equipment	sum	1		
SANS 1200DB	3.2	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR SEWER PIPES				
BILL 3	CARRIED FORWARD					

SCHEDULE E					SANS 1200 DB	
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		BROUGHT FORWARD				
PSDB 8.3.2	3.2.1	Excavate in all materials for trenches, backfill, compact and dispose of surplus material:				
	3.2.1.1	Pipes up to 125 mm dia for depths:				
	3.2.1.1.1	Up to 1,0 m	m	250		
	3.2.1.1.2	Over 1,0 m up to 2,0 m	m	200		
	3.2.1.1.3	Over 2,0 m up to 3,0 m	m	15		
	3.2.1.2	Pipes over 125 mm dia up to 400 mm dia for depths:				
	3.2.1.2.1	Over 2,0 m up to 3,0 m	m	10		
PSDB 8.3.2	3.2.2	Extra over item 3.2.1 above for:				
	3.2.2.1	Hand excavation where ordered by the Engineer:				
	3.2.2.1.1	Soft material	m ³	450		
	3.2.2.1.2	Intermediate material	m ³	250		
	3.2.2.1.3	Hard material	m ³	150		
	3.2.2.2	Backfill stabilized with 5% cement where directed by the Engineer	m ³	150		
	3.2.2.3	Soilcrete backfill where directed by the Engineer	m ³	150		
8.3.4	3.2.3	Particular items:				
	3.2.3.1	Shore trench over 1,5 m	m	250		
SANS 1200DB	3.3	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR DUCTS				
PSDB 8.3.2	3.3.1	Extra over item 3.3.1 above for:				
	3.3.1.1	Hand excavation where ordered by the Engineer:				
	3.3.1.1.1	Soft material	m ³	1 500		
BILL 3		CARRIED FORWARD				

[illegible]

SCHEDULE E						SANS 1200 L
PAYMENT						
REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	4	SANS 1200 L				
SANS 1200L	4.1	MEDIUM-PRESSURE PIPELINES				
8.2.1	4.1.1	Supply, lay and bed pipes on class B bedding, complete with couplings:				
	4.1.1.1	uPVC class 16 pipes:				
	4.1.1.1.1	160 mm dia	m	100		
	4.1.1.1.2	200 mm dia	m	60		
	4.1.1.1.3	300 mm dia	m	350		
	4.1.1.2	Grade B steel, t = 6 mm. Coated with heavy duty fusion bonded epoxy.				
	4.1.1.2.1	300 mm dia	m	400		
8.2.2	4.1.2	Extra over items 4.1.1 to 4.1.2 for the supplying, laying, and bedding of uPVC specials complete with couplings:				
	4.1.2.1	45° bends:				
	4.1.2.1.1	200 mm dia	number	5		
	4.1.2.2	90° bends:				
	4.1.2.2.1	200 mm dia	number	5		
	4.1.2.2.2	300 mm dia	number	5		
	4.1.2.3	22.5° bends:				
	4.1.2.3.1	200 mm dia	number	5		
	4.1.2.4	Tees:				
	4.1.2.4.1	160 mm dia x 160 mm dia	number	5		
	4.1.2.4.2	300 mm dia x 300 mm dia	number	5		
	4.1.2.5	Reducers:				
	4.1.2.5.1	200 mm dia x 160 mm dia	number	5		
	4.1.2.5.2	300 mm dia x 160 mm dia	number	5		
BILL 4	CARRIED FORWARD					

SCHEDULE E						SANS 1200 L
PAYMENT						
REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		BROUGHT FORWARD				
	4.1.2.6	Flanged adaptors:				
	4.1.2.6.1	160 mm dia x 160 mm dia	number	10		
	4.1.2.6.2	200 mm dia x 200 mm dia	number	15		
	4.1.2.6.3	300 mm dia x 300 mm dia	number	15		
8.2.2	4.1.3	Extra over items 4.1.1 to 4.1.2 for supplying, laying and bedding steel tees complete with couplings:				
	4.1.3.1	Plain ended tees, grade B steel:				
	4.1.3.1.1	300 mm dia x 300 mm dia	number	5		
8.2.2	4.1.4	Extra over items 4.1.1 to 4.1.2 for supplying, laying and bedding steel flange adaptors complete with couplings:				
	4.1.4.1	Grade B steel:				
	4.1.4.1.1	300 mm dia x 300 mm dia	number	15		
8.2.3	4.1.5	Extra over items 4.1.1 to 4.1.2 for supplying, fixing and bedding of flanged gate valves:				
	4.1.5.1	160 mm dia x 160 mm dia	number	5		
8.2.3	4.1.6	Extra over items 4.1.1 to 4.1.2 for fixing an bedding of fire hydrants including double flanged distance piece between hydrant and tee:				
	4.1.6.1	300 mm dia x 300 mm dia	number	5		
PSL 8.2.11	4.1.7	Anchor/thrust blocks and pedestals:				
	4.1.7.1	Concrete:				
	4.1.7.1.1	Class 10 MPa/19 mm	m³	15		
8.2.13	4.1.8	Valve and hydrant chambers, etc.:				
	4.1.8.1	Valve chamber as per drawing 1006614-DRG-20-NW-CC-D002	number	2		
BILL 4		CARRIED FORWARD				

[illegible]

SCHEDULE E					SANS 1200 LB	
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	5	SANS 1200 LB				
SANS 1200LB	5.1	BEDDING (PIPES) BEDDING FOR WATER PIPES				
PSLB 8.2.2	5.1.1	Supply only of bedding by importation:				
	5.1.1.1	From commercial sources:				
	5.1.1.1.1	Selected granular material	m³	300		
	5.1.1.1.2	Selected fill material	m³	150		
8.2.4	5.1.2	Encasing of pipes in concrete:				
	5.1.2.1	Class 25 MPa/19 mm	m³	300		
PSLB 8.2.6	5.1.3	Provision of stone/geofabric to deal with water	m³	70		
		BEDDING FOR SEWER PIPES				
PSLB 8.2.2	5.1.4	Supply only of bedding by importation:				
	5.1.4.1	From commercial sources:				
	5.1.4.1.1	Selected granular material	m³	15		
	5.1.4.1.2	Selected fill material	m³	10		
PSLB 8.2.6	5.1.5	Provision of stone/geofabric to deal with water	m³	5		
		BEDDING FOR STORMWATER PIPES				
SANS 1200LB	5.2	BEDDING (PIPES) BEDDING FOR DUCTS				
8.2.4	5.2.1	Encasing of pipes in concrete:				
	5.2.1.1	Class 25 MPa/19 mm	m³	300		
BILL 5	TOTAL CARRIED TO SUMMARY PAGE					

[illegible]

SCHEDULE E						SANS 1200 LD
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	7	SANS 1200 LD				
SANS 1200LD	7.1	SEWERS				
8.2.1	7.1.1	Supply, lay, joint, bed on class B bedding and test pipeline:				
	7.1.1.1	uPVC pipes:				
	7.1.1.1.1	110 mm dia	m	70		
8.2.7	7.1.2	Encasing of pipes in concrete:				
	7.1.2.1	Concrete:				
	7.1.2.1.1	110 mm dia	m³	200		
	7.1.2.1.2	200 mm dia	m³	5		
BILL 7	TOTAL CARRIED TO SUMMARY PAGE					

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE E: RELOCATION OF SERVICES - NEWARK ROAD		
BILL 1	SANS 1200 C	R0,00
BILL 2	SANS 1200 D	R0,00
BILL 3	SANS 1200 DB	R0,00
BILL 4	SANS 1200 L	R0,00
BILL 5	SANS 1200 LB	R0,00
BILL 6	SANS 1200 LC	R0,00
BILL 7	SANS 1200 LD	R0,00
TOTAL CARRIED FORWARD TO SUMMARY PAGE		R0,00

[illegible]

[illegible]

SCHEDULE F					SANS 1200 DB	
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	3	SANS 1200 DB				
SANS 1200DB	3.1	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR WATER PIPES				
PSDB 8.3.2	3.1.1	Excavate in all materials for trenches, backfill, compact and dispose of surplus material:				
	3.1.1.1	uPVC Pipes over 125 mm dia up to 400 mm dia for depths:				
	3.1.1.1.1	Over 1,0 m up to 2,0 m	m	250		
PSDB 8.3.2	3.1.2	Extra over item 3.1.1 above for:				
	3.1.2.1	Hand excavation where ordered by the Engineer:				
	3.1.2.1.1	Soft material	m³	350		
	3.1.2.1.2	Intermediate material	m³	200		
	3.1.2.1.3	Hard material	m³	100		
	3.1.2.2	Backfill stabilized with 5% cement where directed by the Engineer	m³	100		
	3.1.2.3	Soilcrete backfill where directed by the Engineer	m³	100		
8.3.4	3.1.3	Particular items:				
	3.1.3.1	Shore trench over 1,5 m	m	300		
	3.1.3.2	Temporary Works: Control water inflow				
	3.1.3.2.1	Provide equipment	sum	1		
	3.1.3.2.2	Operate and maintain	days	10		
	3.1.3.2.3	Remove equipment	sum	1		
SANS 1200DB	3.2	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR SEWER PIPES				
PSDB 8.3.2	3.2.1	Excavate in all materials for trenches, backfill, compact and dispose of surplus material:				
BILL 3	CARRIED FORWARD					

SCHEDULE F					SANS 1200 DB	
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
		BROUGHT FORWARD				
	3.2.1.1	Pipes up to 125 mm dia for depths:				
	3.2.1.1.1	Up to 1,0 m	m	100		
	3.2.1.2	Pipes over 125 mm dia up to 400 mm dia for depths:				
	3.2.1.2.1	Over 1,0 m up to 2,0 m	m	100		
PSDB 8.3.2	3.2.2	Extra over item 3.2.1 above for:				
	3.2.2.1	Hand excavation where ordered by the Engineer:				
	3.2.2.1.1	Soft material	m ³	200		
	3.2.2.1.2	Intermediate material	m ³	100		
	3.2.2.1.3	Hard material	m ³	50		
	3.2.2.2	Backfill stabilized with 5% cement where directed by the Engineer	m ³	50		
	3.2.2.3	Soilcrete backfill where directed by the Engineer	m ³	50		
8.3.4	3.2.3	Particular items:				
	3.2.3.1	Shore trench over 1,5 m	m	150		
SANS 1200DB	3.3	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR DUCTS				
PSDB 8.3.2	3.3.1	Extra over item 3.3.1 above for:				
	3.3.1.1	Hand excavation where ordered by the Engineer:				
	3.3.1.1.1	Soft material	m ³	600		
	3.3.1.1.2	Intermediate material	m ³	300		
	3.3.1.1.3	Hard material	m ³	200		
	3.3.1.2	Backfill stabilized with 5% cement where directed by the Engineer	m ³	100		
BILL 3		CARRIED FORWARD				

[illegible]

SCHEDULE F						SANS 1200 L
PAYMENT						
REFERS	ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
TO	NO					
	4	SANS 1200 L				
SANS 1200L	4.1	MEDIUM-PRESSURE PIPELINES				
8.2.1	4.1.1	Supply, lay and bed pipes on class B bedding, complete with couplings:				
	4.1.1.1	uPVC class 16 pipes:				
	4.1.1.1.1	250 mm dia	m	100		
8.2.2	4.1.2	Extra over items 4.1.1 to 4.1.2 for the supplying, laying, and bedding of uPVC specials complete with couplings:				
	4.1.2.1	90° bends:				
	4.1.2.1.1	250 mm dia	number	5		
	4.1.2.2	Tees:				
	4.1.2.2.1	250 mm dia x 250 mm dia	number	5		
	4.1.2.3	Flanged adaptors:				
	4.1.2.3.1	250 mm dia x 250 mm dia	number	10		
8.2.3	4.1.3	Extra over items 4.1.1 to 4.1.2 for supplying, fixing and bedding of flanged gate valves:				
	4.1.3.1	250 mm dia x 250 mm dia	number	5		
PSL 8.2.11	4.1.4	Anchor/thrust blocks and pedestals:				
	4.1.4.1	Concrete:				
	4.1.4.1.1	Class 10 MPa/19 mm	m³	4		
8.2.13	4.1.5	Valve and hydrant chambers, etc.:				
	4.1.5.1	Valve chamber as per drawing 1006614-DRG-20-NW-CC-D002	number	1		
PSL 8.2.17	4.1.6	Marker blocks:				
	4.1.6.1	Marker Block as per drawing 1006614-DRG-20-VT-CC-D002	number	2		
BILL 4	CARRIED FORWARD					

[illegible]

[illegible]

[illegible]

[illegible]

SCHEDULE F		PARTICULAR SPECIFICATION PART PZ				
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	8	PARTICULAR SPECIFICATION PART PZ				
	8.1	PALISADE FENCING				
CD.03	8.1.1	SUPPLY AND ERECTION OF NEW STEEL PALISADE FENCING:				
	8.1.1.1	Galvanized Palisade fencing complete, including intermesiat, end, and corner posts with height of 2400 mm, and base footings of 300 x 300 x 600 mm, and a 200 x 125 concrete beam	m	150		
	8.1.1.2	Galvanized Double swing gates complete of 12 m wide, with height of 2400mm, and base footings of 500 x 500 x 800 mm, and a 200 x 125 concrete beam	number	1		
BILL 8	TOTAL CARRIED TO SUMMARY PAGE					

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE F : RELOCATION OF SERVICES - VENTURA ROAD		
BILL 1	SANS 1200 C	
BILL 2	SANS 1200 D	
BILL 3	SANS 1200 DB	
BILL 4	SANS 1200 L	
BILL 5	SANS 1200 LB	
BILL 6	SANS 1200 LC	
BILL 7	SANS 1200 LD	
BILL 8	PARTICULAR SPECIFICATION PART PZ	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

SCHEDULE G						SANS 1200 C
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	1	SANS 1200 C				
SANS 1200C	1.1	SITE CLEARANCE				
8.2.4	1.1.1	Reclear surfaces (only on instructions from the Engineer):				
	1.1.1.1	Areas	ha	5		

[illegible]

SCHEDULE G					SANS 1200 DB	
PAYMENT REFERS TO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	3	SANS 1200 DB				
SANS 1200DB	3.1	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR WATER PIPES				
PSDB 8.3.2	3.1.1	Excavate in all materials for trenches, backfill, compact and dispose of surplus material:				
	3.1.1.1	uPVC Pipes over 125 mm dia up to 400 mm dia for depths:				
	3.1.1.1.1	Up to 1,0 m	m	50		
PSDB 8.3.2	3.1.2	Extra over item 3.1.1 above for:				
	3.1.2.1	Hand excavation where ordered by the Engineer:				
	3.1.2.1.1	Soft material	m ³	50		
	3.1.2.1.2	Intermediate material	m ³	50		
	3.1.2.1.3	Hard material	m ³	20		
	3.1.2.2	Backfill stabilized with 5% cement where directed by the Engineer	m ³	10		
	3.1.2.3	Soilcrete backfill where directed by the Engineer	m ³	10		
SANS 1200DB	3.2	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR SEWER PIPES				
8.3.4	3.2.1	Particular items:				
	3.2.1.1	Temporary Works: Control water inflow				
	3.2.1.1.1	Provide equipment	sum	1		
	3.2.1.1.2	Operate and maintain	days	10		
	3.2.1.1.3	Remove equipment	sum	1		
SANS 1200DB	3.3	EARTHWORKS (PIPE TRENCHES) TRENCHES FOR DUCTS				
PSDB 8.3.2	3.3.1	Extra over item 3.3.1 above for:				
BILL 3	CARRIED FORWARD					

[illegible]

[illegible]

[illegible]

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE G : RELOCATION OF SERVICES - URANIA ROAD		
BILL 1	SANS 1200 C	
BILL 2	SANS 1200 D	
BILL 3	SANS 1200 DB	
BILL 4	SANS 1200 LB	
BILL 5	SANS 1200 LC	
TOTAL CARRIED FORWARD TO SUMMARY PAGE		

GUARDHOUSE				PARTICULAR SPECIFICATION PD			
PAYMENT REFERS TO	ITEM NO	DESCRIPTION		UNIT	QUAN- TITY	RATE	AMOUNT
PD 10		BUILDING WORK					
	PD.01	Brickwork:					
		.01	230 mm thick, outside face: face brick standard/extra/aesthetic, inside face: non-facing plastered/extra, engineering bricks	m²	50	-	
		0	115 mm thick, non-facing plastered/ extra, engineering bricks	m²	20		
	PD.02	Plaster work:					
		0	20 mm thick, steel-float finish	m²	45		
	PD.03	Floor screeds:					
		.01	125mm Thick, Class 25/19 concrete comp	m²	25		
	PD.04	Doors and windows:					
		.02	Steel door with frame:				
		.01	Left Hand 813 mm x 2023 mm x 115 mm	number	1		
		.02	Right Hand 813 mm x 2023 mm x 115 mm	number	1		
		.03	Steel window with frame, including glazing and sills:				
		.01	ND 11F	number	3		
		.02	NE1 F7	number	2		
	PD.05	Structural timber:					
		.01	Plates 38mm x 114mm	m	60		
		.02	Beams 152mm x 38mm	m	40		
		.03	Joists 38mm x 38mm	m	80		
		.04	Rafters 152mm x 38mm	m	50		
		.05	Purlins 38mm x 38mm	m	80		
1200 PD	Carried forward						

[illegible]

[illegible]

ELECTRICAL (STREET LIGHTING)		PARTICULAR SPECIFICATION ELECTRICAL (PE)			
ITEM	DESCRIPTION	UNIT	QTY	RATE (R)	AMOUNT (R)
1	a) This section of the bill shall be read in conjunction with the drawings in the tender documents and C3 Works Information				
	b) This section of the bill shall be read in conjunction with the following technical specifications; i) TPD-001-EL&PSPEC ii) TPD-002-DBSPEC iii) TPD-003-CABLESPEC				
	c) This section of the bill shall be read in conjunction with any other associated contract documentation to price for the provision of a complete installation, i.e. the design (where applicable), supply, installation, testing and commissioning, handing over of the fully functional equipment / installation, provision of all as-built documentation and the like, associated operational and maintenance training for Employer staff where specified etc.				
2	Removal & Storage of Existing Light Poles				
	a) Removal & Storage All existing light poles identified on the Civil Drawings as obstructing or interfering with the proposed road upgrade shall be removed. This includes the complete dismantling and removal of the luminaires, poles (either GRP or steel), associated electrical connections, foundations, and bases. The removed components shall be transported to the designated Electrical Depot located within a 5 km radius.				
	i) Removal	No	49		
TOTAL CARRIED FORWARD					

3	Installation of New Light Poles				
	a) 10.4m Glass Fibre Polyester (GRP) Pole - Directly buried in the ground fixed GRP pole, minimum height of 9m from finished surface level to luminaire installation level. The pole shall be black in colour (RAL 9017) with a two(2) arm Hot Deep Galvavised curved decorative outreach bracket for luminaires installation overhanging directly opposite each other at a distance of 500mm from the centre of the pole. The pole shall be supplied complete with a glandplate assembly with 2 x 20mm diameter holes, terminal block, 4 way, 30A and Din Rail to accomodate 5 x MCBs				
	i) Supply	No	49		
	ii) Install	No	49		
	c) 142W LED Flood Light - The flood light shall contain a marine grade aluminium housing with an IP rating of not less than IP66 . The floodlight shall be painted in black colour (RAL 9017). The floodlight shall have a luminaire efficacy of minimum 164 lm/W with a life expactance of 100 000h at L70BB10. The floodlight shall comply as a minimum SABS, SANS 475, SAS 60598 and SANS 62262				
	i) Supply	No	49		
	ii) Install	No	49		
	TOTAL CARRIED FORWARD				

4	Installation of Cabling and Associated				
	a) Excavation for LV Cable Installation - Excavation shall be carried out in accordance with the trench dimensions specified in the approved drawings. The rate shall include all associated activities, including trench consolidation, backfilling with suitable material, compaction, shoring, dewatering (if required), and implementation of necessary measures to ensure public safety and prevent unauthorized access to the excavation area.				
	i) Excavation	Sum	1		
	b) 4 core, Cu, Steel Wired Armoured, 600/1000V PVC insulated cable with Earth Continuity Conductor (ECC)				
	i) Supply	m	500		
	ii) Install	m	500		
	c) 4 core, Cu, Steel Wired Armoured, 600/1000V PVC insulated cable with Earth Continuity Conductor (ECC) Termination Kit				
	i) Supply	No	98		
	ii) Install	No	98		
	d) Utility Junction Box - IP68 20mm Utility Junction box with terminal block for cable connection				
	i) Supply	No	49		
	ii) Install	No	49		
	TOTAL CARRIED FORWARD				

5	Re-Lamping of Existing Luminaires				
	a) 142W LED Flood Light - The flood light shall contain a marine grade aluminium housing with an IP rating of not less than IP66 . The floodlight shall be painted in black colour(RAL 9017). The floodlight shall have a luminaire efficacy of minimum 164 lm/W with a life expectance of 100 000h at L70BB10. The floodlight shall comply as a minimum SABS, SANS 475, SAS 60598 and SANS 62262				
	i) Supply	No	80		
	ii) Install	No	80		
6	Testing and Commissioning				
	a) Testing of the Entire Electrical System and handover of CoC				
	i) Testing and handover of CoC	Prov Sum	1		
	b) Testing of the Entire Lighting System and handover all illuminance test results				
	i) Testing and handover of test results	Prov Sum	1		
	TOTAL CARRIED FORWARD				

7	ANY OTHER ITEM(S) THE <i>CONTRACTOR</i> DEEMS NECESSARY TO COMPLETE THE INSTALLATION FULLY AND TO SPECIFICATIONS (SPECIFY DETAILS) NOTE: IF NOTHING SPECIFIED AND PRICED, PLACE AT EACH ITEM 'N/A' IN 'DESCRIPTION', 'UNIT', 'QTY' AND 'AMOUNT COLUMNS				
	a)				
	b)				
	c)				
TOTAL CARRIED TO SUMMARY					

SUMMARY OF SCHEDULE OF QUANTITIES		
SCHEDULE A	PRELIMINARY AND GENERAL	
SCHEDULE B	NEWARK ROAD	
SCHEDULE C	VENTURA ROAD	
SCHEDULE D	URANIA ROAD	
SCHEDULE E	RELOCATION OF SERVICES - NEWARK	
SCHEDULE F	RELOCATION OF SERVICES - VENTURA	
SCHEDULE G	RELOCATION OF SERVICES - URANIA	
SCHEDULE H	GUARDHOUSE PART PD	
SCHEDULE I	ELECTRICAL PART PE	
SUBTOTAL [1]		
CIDB Contract Skills Development Goals (CSDG) (0.25%) Factor x Subtotal (1)		
SUBTOTAL [2] . . .(Subtotal (1) + CSDG)		
Allow the Sum of 0.2% of Subtotal (1) for the CIDB BUILD Fee:		
SUBTOTAL [3] (Subtotal (2) + CIDB BUILD Fee)		
TOTAL TENDER SUM CARRIED TO FORM OF OFFER		

Part C3: Scope of Works

**PART C3: SCOPE OF WORK**

Document reference	Title: Port Road Upgrade and Rehabilitation Phase 1: Upgrade and Rehabilitation of Urania, Newark, and Ventura Concrete Roads within the Port of Richards Bay, for a period of 18 months.	No of page
C3.1	This cover page	1
	<i>Employer's</i> Works Information	130
	Specifications	218
	Total number of pages	349

C3.1 EMPLOYER'S WORKS INFORMATION

Contents

PART C3: SCOPE OF WORK.....	1
SECTION 1.....	7
1. Description of the <i>works</i>	7
1.1 Purpose	7
1.2 Executive overview	7
1.3 Employer's objectives.....	9
1.4 The Employer's project-specific objectives are to:.....	9
1.5 Interpretation and terminology	10
2. Engineering and the <i>Contractor's</i> design	12
2.1 <i>Employer's</i> design.....	12
2.2 The Employer's design for the <i>works</i> is:.....	12
2.3 Part 1: Preliminary and General	12
2.4 Engineering scope of works.	12
2.4.1 Part 1: Establishment of general site office	12
2.4.2 Part 2: Civil and Pavement Layerworks.....	13
2.5 Parts of the works which the <i>Contractor</i> is to design.....	19
2.6 Review and Acceptance of <i>Contractor</i> Documentation.....	21
2.7 Other requirements of the <i>Contractor's</i> design	21
2.8 Use of <i>Contractor's</i> design.....	21
2.9 Design of Equipment.....	21
2.10 Equipment required to be included in the <i>works</i>	21
2.11 As-built drawings, operating manuals and maintenance schedules	22
2.12 As-Built/Final Documentation.....	23
2.13 Installation, Maintenance and Operating Manuals and Data Books	23
3. Construction	24
3.1 Temporary <i>works</i> , Site services & construction constraints	24
3.1.1 <i>Employer's</i> Site entry and security control, permits, and Site regulations.....	24
3.1.2 The <i>Contractor</i> complies with the following hours of work for his people (including Subcontractors) employed on the Site	25
3.2 Working at night.....	26
3.3 Damage to Port existing services.	28



3.4	Site constraints.....	28
3.5	Traffic management plan.	29
3.6	Restrictions to access on Site, roads, walkways, and barricades:.....	29
3.7	Health and safety facilities on Site.....	30
3.8	The <i>Contractor</i> complies with the requirements stated under paragraph 2.3 of C3.1 <i>Employer's Works Information</i>	32
3.9	Environmental controls, fauna & flora, dealing with objects of historical interest.....	32
3.10	Title to Materials from demolition and excavation	32
3.11	The <i>Contractor</i> has title to all materials arising from excavations and demolition in the performance of the <i>works</i> with the exception of: ...	33
3.12	Cooperating with and obtaining acceptance of others	33
3.13	The <i>Contractor</i> performs the <i>works</i> and co-operates with others:	34
3.14	Publicity and progress photographs.....	34
3.15	<i>Contractor's</i> Equipment	35
3.16	Equipment provided by the <i>Employer</i>	36
3.17	The <i>Employer</i> provides the following Equipment on the Site for the <i>Contractor's</i> use:	36
3.18	Site services and facilities:.....	36
3.19	The <i>Employer</i> provides the following facilities for the <i>Contractor</i> :	37
3.20	Facilities provided by the <i>Contractor</i> :.....	37
3.21	The <i>Contractor</i> provides the following facilities for the <i>Employers Project Manager</i> and <i>Supervisor</i> :	39
3.22	Excavations and associated water control.	40
3.23	The <i>Contractor</i> complies with the following requirements:.....	40
3.24	Underground services, other existing services, cable and pipe trenches and covers	41
3.25	Control of noise, dust, water and waste.....	42
3.26	The <i>Contractor</i> complies with the following:.....	42
3.27	The following specific measures for Dust Management shall apply: ...	43
3.28	The following specific measures for Vibration shall apply:.....	44
3.29	The following specific measures for Stormwater and Dewatering Management shall apply:.....	44
3.30	The following specific measures for Waste Management shall apply: .	45
3.31	Sequences of construction or installation	46
3.32	Giving notice of work to be covered up.....	46

3.33	The <i>Contractor</i> notifies the <i>Supervisor</i> of the following elements of the works which are to be covered up:.....	46
3.34	The <i>Contractor</i> complies with the following constraints in the execution of the works:.....	46
3.35	Completion, testing, commissioning and correction of Defects	47
3.36	Commissioning and handover	47
3.37	The <i>Contractor</i> is permitted to carry out the following works after Completion:	48
3.38	Use of the works before Completion has been certified.	48
3.39	Materials facilities and samples for tests and inspections.....	48
3.40	Commissioning	50
3.41	Start-up procedures required to put the works into operation.....	50
3.42	The <i>Contractor</i> performs the following duties and actions on behalf of the Employer to put the works into operation:	50
3.43	Take over procedures	50
3.44	The <i>Contractor</i> provides the following assistance to the Employer: ...	50
3.45	Access given by the Employer for correction of Defects.....	51
3.46	Performance tests after Completion.....	51
3.47	Training and technology transfer.....	51
3.48	Operational maintenance after Completion.....	52
4.	Plant and Materials Standards and Workmanship	53
4.1	Investigation, Survey and Site Clearance	53
4.2	Civil Engineering and Structural Works	53
5.	List Of Drawings	56
5.1	Drawings issued by the Employer.....	56
SECTION 2.....		75
6.	Management and start up.....	75
6.1	Management meetings.....	75
6.2	Documentation Control	77
6.3	Safety risk management.....	80
6.3.1	<i>Contractor's</i> General Requirements for Health and Safety.....	80
6.4	<i>Contractor's</i> Health and Safety Management Plan.....	82
6.5	<i>Contractor's</i> Health and Safety Manager Responsibilities.	85
6.6	<i>Contractor's</i> Safety Officer	86

6.7	<i>Contractor's Safety Manual</i>	89
6.8	Performance Measurement and Reporting	90
6.8.1	Health and Safety Statistics	90
6.8.2	Safety Management Records	90
6.8.3	Field Technical/Safety Audit by the <i>Project Manager</i>	90
6.8.4	Unsafe Act/Condition Auditing.....	91
6.8.5	Involvement, Communication and Motivation	91
6.9	Safety Meetings.....	91
6.10	Pre-Start Safety Briefings	92
6.11	Safety Review Meetings	92
6.12	Site Safety Review Committee	92
6.13	Job Safety Analysis	93
6.14	Lines of Communication	93
6.15	Roles and responsibilities	93
6.16	Construction Manager	93
6.17	Project Site Safety Manager.....	94
6.18	Commissioning Safety Study.....	95
6.19	Environmental constraints and management.	96
6.20	Quality assurance requirements	98
6.20.1	Project Quality Plan	99
6.20.2	Quality Manual	99
6.20.3	Quality Data Book Index	99
6.20.4	Quality Officer	99
6.20.5	Quality Control Plan	100
6.20.6	Subcontractor quality assurance.....	100
6.20.7	Further high-level Quality assurance requirements the <i>Contractor</i> to consider.....	101
6.21	Programming constraints.....	102
7.	Procurement.....	107
7.1	Code of Conduct.....	107
7.2	Prohibition of Bribes, Kickbacks, Unlawful Payments, and Other Corrupt Practices.	107
7.3	Conflicts of Interest.	108
8.	Contract Management	110
8.1	Site diary	110

8.2	Penalties.....	110
8.3	Work guarantee.....	110
8.4	Retention	111
8.5	Performance measurement and reporting	111
8.6	Insurance provided by the Employer	112
8.7	Contract change management	112
8.8	Provision of bonds and guarantees.....	113
8.9	Records of Defined Cost, payments & assessments of compensation events kept by <i>Contractor</i>	113
8.10	The <i>Contractor's</i> Invoices	113
9.	People Management.....	115
9.1	Minimum requirements of people employed on the Site:	115
9.2	PROJECT KEY RESOURCES.....	115
9.3	Other project resources required on the project.	117
9.4	<i>Contractor's</i> management, supervision and key people outline.	118
9.4.1	<i>Project Manager</i>	118
9.4.2	Site Engineer: Site Agent.....	119
9.4.3	Construction management.....	119
9.4.4	Land Surveyor.	119
9.4.5	<i>Contractor's</i> Project Planner.....	119
9.4.6	<i>Contractor's</i> Industrial Relation Personnel	120
9.4.7	<i>Contractor</i> Environmental Officer.	120
9.4.8	Quantity surveying.....	123
9.5	Industrial Action by <i>Contractor</i> Employees.	123
9.6	The <i>Contractor</i> complies with the following PIRPMP.....	125
9.6.1	<i>Contractor</i> Liability.....	125
9.6.2	Industrial action by <i>Contractor</i> employees	125
10.	Sub-Contracting.....	127
10.1	Preferred Subcontractor	127
10.2	Subcontract documentation and assessment of subcontract tenders.....	127
10.3	Limitations on subcontracting	127
10.4	Attendance on Subcontractor.....	128
SECTION 3.....		129
C3.2 <i>Contractor's</i> Works Information: Works specifications.		129

SECTION 1

1. Description of the works

1.1 PURPOSE

The purpose of this document is to outline the scope of services and deliverables that TNPA will require of a *Contractor* with the necessary experience and expertise to Provide the Works within the specified duration, cost and quality requirements and minimal disruption to Port operations.

1.2 EXECUTIVE OVERVIEW

The Richards Bay port consists of several access roads that are utilised by Road Motor Transport (RMT) to service port terminals. Several of the roads under consideration for rehabilitation/upgrading have completely failed, with the surfacing and base either completely worn away down to the subgrade or the surfacing and base have failed extensively.

The purpose of this project is to rehabilitate/upgrade deteriorated roads inside the port property boundary identified for repair by TNPA to ensure that the road network remains functional into the future by providing suitable and robust infrastructure suitable for the local conditions, future loading demand and traffic flows.

Several roads within and adjacent to the port facilities have been identified for rehabilitation works. These roads are shown in Figure 1 and listed in order of precedence as proposed by TNPA.

Table - 1 PROJECT SCOPE SUMMARY

Work Package	Road Name	Road Length (km)	Surface Area (m2)
1	Newark	4.30	65 231
	Ventura	0.60	19 199
	Urania	1.10	15 762



Figure 1: Roads Layout

The *works* that the *Contractor* is to perform involves the following and all works shall be done according to all applicable standards and regulations.

- Traffic accommodation
- Cleaning of existing stormwater pipes and structures.
- Clearing and grubbing for road widenings.
- Relocation of services.
- Milling and removing existing material to the required depth.
- Reshaping and compaction of existing pavement layers.
- Construction of pavement layerworks for road widenings and bus bays.
- Construction of road concrete pavement and layerworks.
- Construction of concrete sidewalks and layerworks.
- Milling off and resurfacing of bridge decks.
- Supply, place and construct bus shelters.
- Spoiling of excess and contaminated material.

- Installation of traffic calming facilities.
- Demolition of exiting guard house at Ventura Road.
- Construction of new guard house at Ventura Road.
- Construction of drainage channels.
- Erection of guardrails.
- Application of road markings.
- Erection of road signage and traffic signalling.

1.3 EMPLOYER'S OBJECTIVES

The *Employer's* objectives are to achieve completion of the Works by the Completion Date within the allocated budget whilst maintaining the safety, environmental and quality objectives contained in the contract documents. This must be achieved with minimal disruption to ongoing Port operations. In line with the National Ports Act, No. 12 of 2005 Section 11(1), the *Employer* has a responsibility to:

- Plan, provide, maintain, and improve infrastructure.
- Maintain the sustainability of ports and their surroundings.
- Regulate and control the enhancement of safety and security within the port limits.
- Ensure that adequate, affordable, and efficient port services and facilities are provided.
- Promote the use, improvement, and development of ports.

a. The Employer's project-specific objectives are to:

- Provide quality road infrastructure ahead of demand to satisfy projected capacities, customer satisfaction and safety requirements.
- Increase reliability and longevity of port road infrastructure.
- Improve performance and efficiency of port operations by improving port road infrastructure.
- Emphasis is placed on the *Employer's* commitment to environmental management and safety and their objectives of "Zero Harm", of achieving a zero LTI and a zero environmental legal contravention construction contract.

1.4 INTERPRETATION AND TERMINOLOGY

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
AIA	Authorised Inspection Authority
BBBEE	Broad Based Black Economic Empowerment
CESSG	<i>Contractor</i> Environmental and Sustainability Specification Guidelines
CD	Compact Disc
CDR	<i>Contractor</i> Documentation Register
CDS	<i>Contractor</i> Documentation Schedule
CRL	<i>Contractor</i> Review Label
CSHEO	<i>Contractor's</i> Safety, Health and Environmental Officer
COLTO	Standard Specifications for Road and Bridge Works for State Road Authorities (1998 Edition),
CM	Construction Manager
DTI	Department of Trade and Industry
DGN	File Format: MicroStation Drawing
DWG	File Format AutoCAD Drawing
EDMS	Electronic Document Management System (iPas DM)
EO	Environmental Officer
ER	Environmental Resource
INC	Independent Nominated Consultant
IP	Industrial Participation
IR	Industrial Relations
IPP	Industrial Participation Policy
IPO	Industrial Participation Obligation
IPS	Industrial Participation Secretariat
IRCC	Industrial Relations Co-ordinating Committee
JSA	Job Safety Analysis
CIRP	<i>Contractor's</i> Industrial Relations Practitioner
Native	Original electronic file format of documentation
PES	Project Environmental Specifications
PHA	Preliminary Hazard Assessment
PIRM	Project Industrial Relations Manager
PIRPMP	Project Industrial Relations Policy and Management Plan
PLA	Project Labour Agreements
PSIRM	Project Site Industrial Relations Manager

PSPM	Project Safety Program Manager
PSSM	Project Site Safety Manager
ProgEM	Programme Environmental Manager
ProjEM	Project Environmental Manager
QA	Quality Assurance
R&D	Research and Development
SANS	South African National Standards
SASRIA	South African Special Risks Insurance Association
SHE	Safety, Health and Environment
SHEC	Safety, Health and Environment Co-ordinator
SIP	Site Induction Programme
SMP	Safety Management Plan
SOP CEM	Standard Operating Procedure for Construction Environmental Management
SSRC	Site Safety Review Committee

2. Engineering and the *Contractor's* design

2.1 *Employer's design*

The *Employer*, through the services of the designers, has finalised the detail design of the permanent works of this Contract. The design is as stipulated below, attached on section 3 of the works information as annexure and attached detailed design drawings.

2.2 The Employer's design for the *works* is:

The works is for the construction of Pavement Rehabilitation & upgrade and Associated Infrastructure for the Port of Richards Bay Phase 1 Project. This includes road earthworks and pavement layerworks as detailed in this Works Information document and Engineering Design Drawings.

The following parts form the works in the contract:

- **Part 1: Preliminary and General**
- **Part 2: Civil works and pavement layerworks**

The Employer's design for the Works is contained in the tender drawings included in Annexure.

2.3 Part 1: Preliminary and General

The works that the *Contractor* is to perform involves the following:

- Establishment of general site office
- Establish housing off-site
- Establishment of on-site laboratory

2.4 Engineering scope of works.

2.4.1 Part 1: Establishment of general site office

The works involves the establishment of temporary construction management offices for the *Contractor* and the Supervision Consultant at a location to be advised by the *Project Manager*. The works includes the establishment of a suitable number of offices, ablutions, furnishings to the offices and transportation for the duration of the contract. The works include the provision of all services (water, sewer, electricity and communications). Water will be from the location specified by the *Project Manager's* representative. The *Contractor* is responsible for organising their own power supply, communications and sewer system. The works includes all earthworks,

fencing, main service connections to the offices. It includes the construction and rehabilitation of the site office areas. The works will include the maintenance and 24-hour security for the general site office.

The works will also require the de-establishment of the complete site office and laydown areas and returning the area to close to its original conditions. All environmental conditions / stipulations and compliance to the environmental authorisation issued are to be met when maintaining the site office area.

- **Establishing housing off-site**

The *Contractor's* work involves the planning and establishment of all housing requirements for the *Contractors'* personnel outside the geographical boundaries of this project. No accommodation will be allowed within the boundaries of the port site. The *Contractor* shall provide transport to and from site for his personnel.

- **On-site laboratory**

The *Contractor* shall make provision for buildings for the on-site laboratory including all services, offices, ablutions and furnishings for the laboratory.

Testing shall be undertaken by a combined laboratory facility for process control (where the process control testing can be utilised as acceptance control), acceptance control and correlation testing as per clause B8103(a) of the specifications.

The contract for the laboratory services shall be separately tendered for by the relevant service providers.

- **Mobilisation and construction work start.**

Mobilisation period (3 months) wherein the *Contractor* will get the construction work permit and all regulatory/statutory requirements. Only once all of the relevant documents are approved or accepted by the *Project Manager* can the *Contractor* establish on site.

2.4.2 Part 2: Civil and Pavement Layerworks

- **Project location and limits**

The project is located at the Richards Bay port and falls within the boundaries of the uMhlathuzi Municipality in KwaZulu-Natal province.

The construction limits are outlined in the drawings listed below.

- Newark construction limits; drawing number 1006614-DRG-12-NW-CC-U001 to 1006614-DRG-12-NW-CC-U009.

- Urania Construction limits; drawing number 1006614-DRG-12-UR-CC-U001 to 1006614-DRG-12-UR-CC-U002.
- Ventura construction limits: drawing number 1006614-DRG-12-VT-CC-U001 to 1006614-DRG-12-VT-CC-U002.
- **Road Upgrade and rehabilitation scope.**

The works involves the setting out, removal of existing pavement layers to a depth of 400 mm below existing surface level, construction of road widenings, construction of pavement layerworks and concrete pavements as indicated on the drawings.

- **The pavement layerworks is summarised below:**

Where the in-situ material at 400 mm below the existing surface meets at least G7 quality, the following pavement shall be constructed: **(Refer to tender drawings as well as the SANS 1200 and COLTO Specifications)**

Table 2: Concrete Roadway Pavement Layers where in-situ selected layer meets G7 quality.

Plain jointed concrete pavement	300 mm	Plain jointed concrete pavement with 5.2 MPa flexural strength, 37.5 mm nominal coarse aggregate size, mesh ref 500 where applicable, 20 mm x 114 mm x 114 mm diamond dowels @ 450 mm spacing where required, Y20 tie bars with 900 mm length @ 500 mm spacing with broom texture finish
Curing compound		Wax emulsion complying with the requirements of ASTM C309, class A with a minimum 30% non-volatile content
Lean-mix concrete	100 mm	Lean mix concrete subbase with 15 MPa compressive strength, 19.0 mm coarse aggregate size with bull float texture finish
Subgrade	150 mm	In-situ material rip and recompacted to 93% modified AASHTO density.

*Where the in-situ material does not meet G7 quality at selected layer, a further 150mm shall be milled out and the following pavement shall be constructed:

Table 3: Concrete Roadway Pavement Layers

Plain jointed concrete pavement	300 mm	Plain jointed concrete pavement with 5.2 MPa flexural strength, 37.5 mm nominal coarse aggregate size, mesh ref 500 where applicable, 20 mm x 114 mm x 114 mm diamond dowels @ 450 mm spacing where required, Y20 tie bars with 900 mm length @ 500 mm spacing with broom texture finish
Curing compound		Wax emulsion complying with the requirements of ASTM C309, class A with a minimum 30% non-volatile content.
Lean-mix concrete	100 mm	Lean mix concrete subbase with 15 MPa compressive strength, 19.0 mm coarse aggregate size with bull float texture finish
G7	150 mm	Gravel compacted to 95% of modified AASHTO density, CBR to be a minimum of 15% at 95% modified AASHTO density
Subgrade	150 mm	In-situ material rip and recompact to 93% modified AASHTO density.

Table 4: Sidewalk Plain Jointed Concrete Pavement Layers

Plain jointed concrete pavement	100 mm	Plain jointed concrete pavement with 30 MPa compressive strength, 19,0 mm nominal coarse aggregate size, mesh ref 193 where required with wood float texture finish
G7	150 mm	Gravel compacted to 95% of modified AASHTO density, CBR to be a minimum of 15% at 95% modified AASHTO density
Subgrade	150 mm	In-situ material rip and recompact to 93% modified AASHTO density.

Table 5: Asphalt overlay on bridge

Semi-rigid Asphalt	40 mm	Proprietary semi-rigid asphalt surfacing comprising specifically graded conventional open-graded asphalt surfacing (20% to 25%) voids, the voids of which are filled with a resin modified cementitious grout.
Tack coat	N.A.	30% stable-grade emulsion (applied at 0.55l/m ²)

The lean mix subbase concrete works shall be cured using Wax emulsion complying with the requirements of ASTM C309, class A with a minimum 30% non-volatile content.

Curing of the plain jointed concrete base shall be done with white pigmented resin based solvent curing compound (Chryso Cure WP or similar) and a movable frame cover shall be used for at least 4 hours after placement of the curing compound.

- **Road widenings**

Works involves the setting out, removal of topsoil and the cutting to windrow thereof for later use on fill slopes and elsewhere. This temporary stockpiling means subsequent use and forms part of the entire process of clearing and grubbing, which includes the clearing 1 m either side of new fence line. It also includes in situ formation bed preparation and the undercutting to spoil of any unsuitable material to agreed stockpile areas or used in fill areas. Clearing and grubbing will be done along the side of the road where the construction is taking place, this will include the clearing of all trees, bushes, spoil material, scrap sleepers and scrap rail lying next to the road and old disused concrete foundations. And shall be stockpiled at an area agreed with the *Supervisor*.

Any existing road signage that is in the way of the construction works shall be removed and relocated to an agreed location by the *Contractor* in consultation with the *Supervisor*. The *Contractor* shall not remove or relocate any road signage unless agreed with the *Supervisor*.

The bulk fill formation works are then built up in specified layer thicknesses, after the bulk fill the layer-works are then built up to the selected layer below the lean mix concrete subbase. These layers are constructed to the required specifications.

The work includes the movement of material between supply sources to the formation, as well as from the formation to spoil Sites (where unsuitable).

- **Rail crossings**

The existing asphalt between the rails shall be removed and the rail crossings shall be constructed as per the drawings Number 1006614-DRG-00-NW-CC-D001, 1006614-DRG-00-UR-CC-D001, and 1006614-DRG-00-VT-CC-D001 .

- **Stormwater structures / Culverts**

The works will involve the clearing of grass, bush and other vegetation at all culvert inlets and outlets along the works area.

All culverts are also to be inspected, at the inlet and outlet, for blockages and sedimentation and all undesirable material and debris shall be removed which includes (but is not restricted to):

- Removal of any debris from culvert structures (including sleepers that are impeding flow at the inlet and outlet areas and within the watercourse)
- Removal of material spillage within and around the culvert structures
- Removal of blockages due to sedimentation, vegetation and debris within and around the culvert structure, on the inlet and outlet side
- Ensuring free flowing drainage through culvert structure
- Work outside the project boundaries may be required, but the *Contractor* must get approval from the *Project Manager* before undertaking any work.

The afore-mentioned items will be disposed of in accordance with the project environmental specification.

The works include that during the clearing of the culverts the *Contractor* shall inspect the culverts for structural damages and inform the *Project Manager* or *Supervisor* accordingly.

- **Culvert extensions**

The works include the demolition of existing wing-walls, headwalls and apron slabs to facilitate the extension of existing culverts, as per the drawings. It also includes the installation of extension to culverts with headwalls, wing walls, apron slabs and miscellaneous items, as per the drawings number 1006614-DRG-00-NW-CC-D001. All works is to be cast in-situ, unless indicated otherwise on the drawings. The works include the undercut and layerworks to founding of culvert as per the drawings.

- **New culverts**

The works also include the construction of new culverts at locations as shown on the drawings number 1006614-DRG-00-NW-CC-D001.

The minor culverts design data (i.e. location, position, levels and sizes) are indicated in a drainage schedule drawing. This drawing refers to a set of standard drawings for the culvert structure, inlets, outlets and erosion protection.

- **Spoil of excess or contaminated material**

A dedicated spoil site shall be identified by the *Contractor* and shall be approved by the *Project Manager*.

"The *Contractor* must classify and manage all soil materials to be removed on site in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);

Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and

The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials."

- **Temporary stockpile area**

A dedicated temporary stockpile area shall be identified by the *Contractor* and shall be approved by the *Project Manager*.

- **Relocation of existing services**

A comprehensive list of all services that must be relocated are shown in Tables B1202/1 – 3 in section B1200 of the specifications.

- **Street lighting**

The street lighting shall be constructed as indicated on the drawings. These streetlights shall be commissioned by the *Contractor* after approval by the *Project Manager*.

- **Road markings and signage**

Road markings shall be applied to the road surfacing as per the drawings and specifications. The surface of the pavement shall be cleaned and inspected prior to the application of the road marking paint.

Road signs shall be manufactured and erected as per the drawings and specifications.

Detailed information of the works to be constructed is contained in the tender drawings, the Project Specifications and measured in the Pricing Schedule. The Project Specifications must be read in conjunction with the COLTO and SANS 1200 standard specifications, and any information not specified in the Project Specifications must be obtained from the COLTO and SANS 1200 standard specification series.

The *Employer* grants the *Contractor* a licence to use the copyright in design data presented to the *Contractor* for the purpose of the *works* (and the *Contractor's* obligation under paragraph 2.2 of the *Employer's Works Information*) ONLY.

- **Construction water**

The *Employer* will not make construction water available on the Site and the *Contractor* shall be responsible for making throughout the Site his own arrangements for the collection, storage, treatment (if required) of water for construction

All environmental conditions/stipulations and compliance to the environmental authorisation issued are to be met.

- **Traffic accommodation and maintenance of existing roads**

The *Contractor* to make provision for traffic accommodation as required by the *Employer*.

2.5 Parts of the works which the *Contractor* is to design

The *Contractor* is to design the following parts of the *works*:

- The *Contractor* is to design any temporary works as part of the *works*
- Traffic accommodation where required
- All material mix designs for the materials (pavement concrete, lean mix base concrete, sidewalk, asphalt, etc.) to be used, including all necessary testing as per

the specifications. The *Contractor* shall also allowed sufficient time for the review and approval of such mix designs before trials or construction may commence.

The *Contractor* is responsible in his design for the overall integration of the design of the *works* with the design of the *Employer* as stated under 2.1 *Employer's* design above for the following parts of the *works*:

- All Site Camp Structures.
- Hoarding and Barricading.
- Demolition works (including breaking up and spoiling of any concrete, metal, timber, masonry or plastic structural elements).
- Locating, working and rehabilitating stockpiles and spoil areas.
- Securing excavations from the risk of collapse (Shoring and other measures).
- Formwork, falsework and scaffolding.
- Rigging and all associated temporary supports.
- Motorised and Non-Motorised Traffic Accommodation.
- Permanent and Temporary Services Relocations and Bypasses.
- Search for, expose, protect and backfill existing services.
- Dealing with ground water and standing water in work areas.

Unless expressly stated to form part of the design responsibility of the *Employer* as stated under 2.1 *Employer's* design above and whether or not specifically stated to form part of the design responsibility of the *Contractor* under this paragraph 2.2, all residual design responsibility and overall responsibility for the total design solution for the *works* rests with the *Contractor*.

The *Contractor* shall provide the following to the NEC3 *Supervisor* for retention by the *Employer* in respect of all temporary works designed by the *Contractor*:

Certificate of Stability of the temporary works signed by a registered Professional Engineer/Technologist/Technician confirming that all such works have been designed in accordance with the appropriate codes of practice, and erected / installed / used in accordance with the temporary works designs.

Design calculations should be provided to the NEC 3 *Supervisor* when requested. Engineering drawings and workshop details (both signed by the relevant professional); in order to allow the NEC 3 *Supervisor* to compare the design with the specified requirements and to record any comments he may have with respect thereto. "As-Built" drawings in AutoCAD electronic format after completion of the Subcontract Works should be provided.

2.6 Review and Acceptance of *Contractor* Documentation

The *Contractor* submits documentation as the '*Works* Information' required by the *Project Manager* for review and acceptance.

In undertaking the '*Works*' (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the '*Contractor* Document Submittal Requirements' Standard. .

2.7 Other requirements of the *Contractor's* design

The *Contractor's* design complies with the following:

The *Contractor's* accommodation of traffic must allow the continual operations of the Port, and the flow of traffic should at all times be ensured.

2.8 Use of *Contractor's* design

The *Contractor* grants the *Employer* a licence to use the copyright in all design data presented to the *Employer* in relation to the *works* for any purpose in connection with the construction, re-construction, refurbishment, repair, maintenance and extension of the *works* with such licence being capable of transfer to any third party without the consent of the *Contractor*.

The *Contractor* vests in the *Employer* full title guarantee in the intellectual property and copyright in the design data created in relation to the *works*.

2.9 Design of Equipment

The *Contractor* submits his design details for the following categories of his proposed principal Equipment to the *Project Manager* for his information only:

- No Equipment design is required for this project, unless deemed necessary later on the project.

The following principal Equipment categories deployed for the *Contractor* to provide the *Works* require its design to be accepted by the *Project Manager* under ECC Clause 23.1:

- Not applicable.

2.10 Equipment required to be included in the *works*

The *Contractor* shall draw reference to NEC3 ECC black book regarding the plant and equipment used for construction; furthermore, the following shall be applicable.

The *Contractor* shall supply all applicable equipment to successfully undertake the works, the prices for all the equipment such as Construction machinery, human resources etc. for

construction, testing and commissioning of the Project shall be inclusive on the quoted amount on the BoQ. The required equipment for the execution of the works includes the following but not limited to:

- Road construction equipment for general earthworks, layerworks, concrete works and ancillary works.
- Concrete paving and joint sealing equipment.
- Any other equipment deemed necessary to Provide the Works.

All equipment/materials to be supplied by the *Contractor* and shall comply with the relevant standard specifications. Any material, tools, test equipment, cables, and devices needed for installation, testing and commissioning shall be provided by the *Contractor*.

The *Contractor* keeps daily records of his Equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

All vehicles entering the operational site must be roadworthy, maintained in good order and be equipped with the necessary licences and safety requirements. All vehicles shall have operational reversing alarms. Operators must be trained and competent and authorised to operate the vehicle.

The *Contractor* provides Plant and Materials for inclusion in the works in accordance with the COLTO and SANS 1200 specifications, unless otherwise stated elsewhere in the Works Information provided by the *Employer*. All Plant and Materials are new, unless the use of old or refurbished goods and/or Materials are expressly permitted as stated elsewhere in this Works Information or as may be subsequently instructed by the *Project Manager*.

Where Plant and Materials for inclusion in the works originate from outside the Republic of South Africa, all such Plant and Materials are new and of merchantable quality, to a recognised national standard, with all proprietary products installed to manufacturers' instructions.

The *Contractor* replaces any Plant and Materials subject to breakages (whether in the Working Areas or not) or any Plant and Materials not conforming to standards or specifications stated and notifies the *Project Manager* and the *Supervisor* on each occasion where replacement is required.

2.11 As-built drawings, operating manuals and maintenance schedules

The *Contractor* provides the following:

- The *Contractor* shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the Contract. The position of pipe bends, junction boxes,

duct ends, and all other underground infrastructure shall be given by either co-ordinates, or stake value and offset. Where necessary, levels shall also be given. A marked-up set of drawings shall also be kept and updated by the *Contractor*. This information shall be supplied to the *Project Manager* on a regular basis.

- All information in possession of the *Contractor*, required by the *Project Manager* and/or the *Supervisor* to complete the as built/record drawings, must be submitted to the *Project Manager* before Take over of the *works* will be certified.

2.12 As-Built/Final Documentation

In undertaking the 'Works' (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the '*Contractor* Document Submittal Requirements' Standard. .

2.13 Installation, Maintenance and Operating Manuals and Data Books

In undertaking the 'Works' (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the 'Data Books and Manuals' Standard included in Annexure 10 (Refer DOC-STD-0001) and the '*Contractor* Documentation Submittal Requirements' Standard included in Annexure 1 (Refer to DOC-STD-0001).

3. Construction

3.1 Temporary works, Site services & construction constraints

3.1.1 Employer's Site entry and security control, permits, and Site regulations

The *Contractor* and his employees must enter and leave the premises only through the main gate(s) and/or checkpoint(s) designated by the *Employer*. The *Contractor* must ensure that employees always observe the security rules of the *Employer* and must not permit any person who is not directly associated with the work from entering the premises.

The *Contractor* and his employees must not enter any area of the premises that is not directly associated with their work.

The *Contractor* must comply with the *Employer's* Site entry and Port security control, permits and Site regulations. The *Employer* provides coded ID cards to all *Contractors'* employees for access/egress of personnel, plant, material, and equipment within the Site boundaries.

The *Contractor* must comply with the *Employer's* Site entry and Port security control, permits and Site regulations. The *Employer* provides coded ID cards to all *Contractors'* employees for access/egress of personnel, plant, material, and equipment within the Site boundaries.

Access must be subject to the Transnet National Ports Authority security requirements and regulations, which states that "access should be obtained for all the *Contractor* personnel at Permit Office located at Sizakala Truck Staging Facility". The *Contractor* must make a cost and time allowance for obtaining the necessary permits, including labour and transportation within his rates. All *Contractor* personnel must at all times wear their security identity (ID) card so as to be easily identifiable as being employed by the particular company concerned.

The *Contractor* must ensure that all materials, machinery, or equipment brought by him onto the premises are recorded at the main gate(s) and/or checkpoint(s). Failure to do this may result in a refusal by the *Employer* to allow the materials, machinery, or equipment to be removed from the premises.

The *Contractor* must ensure that all materials, machinery, or equipment brought by him onto the premises are recorded at the main gate(s) and/or checkpoint(s). Failure to do

this may result in a refusal by the *Employer* to allow the materials, machinery, or equipment to be removed from the premises.

The *Contractor* must inform the *Employer* 24 hours prior to the equipment, plant or machinery entering or exiting the Port to obtain permission from security department.

The *Employer* uses the E-Permit system to issue access to anyone accessing Transnet facilities, the *Contractor* will be required to comply with the E-Permit procedures to obtain access to the Port.

The *Contractor* shall make provision for adequate detours, traffic division plans to ensure that traffic disruption is minimal during construction, however disruption should be experienced often due to the traffic volumes within the Port. To ensure effective management of traffic, a Traffic management plan shall be formulated in consultation with TNPA.

3.1.2 **The *Contractor* complies with the following hours of work for his people (including Subcontractor) employed on the Site**

- The *Contractor* keeps daily records of his people engaged on the Site and Working Areas (including Sub-Contractors) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.
- Normal working hours are between 06:00 and 18:00 Monday to Friday. It is required that the *Contractor* will work outside the stated normal working hours; the *Contractor* must obtain written permission at least 24 hours before the execution of the traffic counting exercise. TRANSNET NATIONAL PORTS AUTHORITY will not unreasonably withhold permission.
- TNPA will not be liable for any overtime incurred by the *Contractors'* employees, including sub-Contractors, during the course of the Project. *Contractor* shall plan project execution in such a way that it complies with the terms of their employees' contracts, Furthermore, the *Contractor* might be required to work overnight due to the criticality or execution requirements of the works being undertaken at that particular time.

3.2 Working at night.

The following are recommended components of a *Contractor's* nighttime works.

- The *Contractor* shall apply in writing for permission to work at night and should be obtained from the relevant authority in this case TNPA *Project Manager*, before construction works at night is carried out. The *Contractor* should submit their application for work at night permit to TNPA Client representative and it is advisable to follow all requirements enforced by the authority to executing nighttime construction works. It is recommended that TNPA representative should also notified TNPA responsible personnel about intended night shift work.
- It should be determined and stated clearly in the site-specific health and safety management plan the responsibility of each individual at construction site for nighttime works. *Project Manager*, Engineers, Designers, Safety Officer and Site *Supervisors* as well as workers each have their specific responsibility to make sure the highest level of priority are given towards safety and health issues.
- The *Contractor* must ensure adequate provision of safety officer personnel are present whenever working at night activities are taking place.
- Accidents can occur as a result of poor housekeeping. Hazards at construction site are the same for both day and night shift while the risks of injury are much higher during night works because of the inherent poor illumination. It is essential that the workplace is kept clean and tidy to ensure safety and prevent accidents.
- The *Contractor* should develop and implement the Emergency Preparedness and Response (EPR) that is specifically nighttime environment and submit for approval before work at night is carried out. A well-established EPR can help both *Contractors* and employees to prepare; response and recover should a disaster occurs.
- When construction works involves public area, it is important to make sure the safety of the public. The *Contractor* must consider the following when planning for nighttime work; identify the hazards for example construction vehicle movement or too much glare from lighting equipment and plan for vehicular movement to not interrupt peak hours and make sure adequate supervision is provided for such movement.
- The *Contractor* must provide sufficient signage to warn the public and put barriers at a safe distance to keep the public away.
- Set up a safe walkway where it is unavoidable to work near or in public vicinity.

- Arrange noisy equipment or machinery at farthest point from the public or adopt an engineering control to reduce the noise.
- When overhead crane is operating near the public, clear off the area and make sure adequate supervision is in place.
- Schedule for daily cleaning of the adjacent public road and filling up holes as well as uneven surfaces.
- In order to decide when to conduct night-time work, factors (parameters) affecting nighttime work must be identified. The *Contractor* must ensure the following factors are identified:
 - Risk
 - Illumination
 - Nuisances
 - Productivity
 - Cost
 - Safety
- The *Contractor* must ensure that they implement the following step in an effective risk management program as to identify possible risks. Specific concerns related to nighttime work zones include poor visibility and work quality, staffing issues, unwanted noise and glare, decreased worker and driver alertness, impaired drivers, higher vehicle speeds, increased labour costs, materials and traffic control, and problems in logistics and supervision. These risks are categorized broadly as safety, cost/production and schedule, quality, organizational relationships, technical, construction, economic, and environmental.
- Nighttime construction introduces numerous risks to a construction project. One clear set of examples is driver and worker fatigue and reduced visibility, which are factors that could increase safety risks. Other major factors contributing to the risks of nighttime work are human factors such as sleep, stress, work, social or domestic issues, and psychological characteristics, such as appetite and safety. Additional factors associated with the risks of nighttime construction work zones are reduced work space for machinery and equipment movement, inadequate lighting, high speed of traffic during the night, and long working hours. Working at night does not

supersede the requirements of TNPA Project Health and Safety Specification (HAS-SP-01) that enforces compliance during day shift.

3.3 Damage to Port existing services.

Where the *Contractor* encounters existing underground services / existing service cables/pipe, the *Contractor* should notify the *Project Manager*.

The *Contractor* shall take precaution while working on site due to several services that existing within the Port Road reserves and servitudes such acid lines, electrical lines, network fire lines, sea-water intake lines, stormwater pipes, water pipes, sewer line, rail lines etc, damages to Port existing services remains the responsibility of the *Contractor*. All the damages shall be repaired within 24 hours, however the damages to network Fibre shall be repaired within 2 hours of the damage occurrence.

The *Contractor* shall be held responsible for any damage to services (i.e. services that are within the site of the works) and he shall take all necessary measures to protect them. In the event of a service being damaged, the *Contractor* shall immediately notify the *Supervisor*. The *Contractor* shall not repair any such service unless he is instructed to do so.

All services required for the successful completion of the work shall be provided for by the *Contractor*.

3.4 Site constraints.

The Port of Richards Bay is located on the estuary with a high-water table. Hence, the *Contractor* shall comply with all environmental regulatory requirements regarding the groundwater.

The *Contractor* shall make provision for an industrial water pump, to utilise it as and when required by construction for dewatering activities.

The *Contractor's* accommodation of traffic must allow the continual operations of the Port, and the flow of traffic should at all times be ensured.

Richards Bay is a high rainfall zone hence, rainfall-related delays shall be accounted for in the project risk register and risk allowance shall be made by the *Contractor* when planning works and ensure no damages are sustained by the completed works. The rainfall weather forecast shall be sourced from South African Weather Services.

3.5 Traffic management plan.

The *Contractor* shall make provision for adequate detours, traffic division plans to ensure that traffic disruption is minimal during construction, however disruption should be experienced often due to the traffic volumes within the Port. To ensure effective management of traffic, a Traffic management plan shall be formulated in consultation with TNPA.

Movement of construction vehicles must be managed to ensure that other users are not delayed through the operational area. Construction activities must be barricaded to always allow safe use of the road areas. No additional payment must be made for these traffic management plans, and it must be deemed to be included in the rates of the relevant items.

The speed limit in most internal roads within the Port of Richards Bay is 40km/hr on the main roads and 20 km/hr inside the terminal unless otherwise indicated, compliance with these regulations is enforced and must be complied with, access cards/permit will be revoked if found to be non-compliant.

The speed limit at quayside areas within the Port of Richards Bay operational areas is 20km/h unless otherwise indicated, compliance with these regulations is enforced and must be complied with, access cards/permit will be revoked if found to be non-compliant.

3.6 Restrictions to access on Site, roads, walkways, and barricades:

The *Contractor* is specifically excluded from entering the *Employer's* Operational Areas which are adjacent to the Site and Working Areas. The *Contractor* plans and organises his work in such a manner so as to cause the least possible disruption to the *Employer's* operations.

The *Contractor* ensures the safe passage of *Contractor* traffic to and around the Site and Working Areas at all times that includes providing flagmen, protective barriers, signage for protection as well as route and control of traffic.

The *Contractor* ensures that any of his personnel, labour and Equipment moving outside of his allocated Site and Working Areas does not obstruct the operations of the Port. To this end, access routes are allocated and coordinated by the *Project Manager*.

The *Contractor* ensures that all his construction personnel, labour and Equipment remains within his allocated and fenced off construction area.

All *Contractor* personnel working within Port must comply with Transnet National Ports Authority's operational safety requirements and be equipped with all necessary PPE, high visibility apparel. A floating apparel must be provided when work is conducted within two meters (behind the yellow line) of the quay wall.

The *Contractor* shall make adequate provision for Port traffic accommodation and traffic management plan shall be evaluated continuously during the Project execution period.

The *Contractor* keeps daily records of his people engaged on the Site and Working Areas (including Subcontractor) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

3.7 Health and safety facilities on Site

All health and safety matters associated with the *works* shall be dealt with in accordance with Occupational Health and Safety Act (Act No. 85 of 1993) and the Transnet National Ports Authority Health and Safety Specifications contained in Annexure B: Health and Safety Specifications. The *Contractor* performs the *works* and all construction activities within the Site and Working Areas in accordance with the CHSMP.

The *Contractor* complies with the requirements stated under section 6.3.

The *Contractor* complies with the SOP CEM P, CESSG and PES in the construction of the *works*, all as described under paragraph 6.19 of C3.1 *Employer's Works Information* and contained in Annexure C: Environmental Management Specifications.

- At all times during construction the *Contractor* is responsible for the safety of all persons on the Site and on the equipment and shall have the necessary systems and procedures in place to effectively manage this in relation to H & S requirements in addition to those of the OHSA Act and Regulation (85 of 1993, CR 2014).
- The *Contractor* complies with the requirements stated under paragraph 3.11 of C3.1 *Employer's Works Information*.
- The *Contractor* complies with the SOP CEM and CESSG in the construction of the *works*, all as described in *Employer's Works Information*.
- The *Contractor* shall provide a First Aid Box and appoint a competent person.
- All vehicles entering the operational site must be roadworthy, maintained in good order and be equipped with the necessary licences and safety requirements. All vehicles shall have operational reversing alarms. Operators must be trained and competent and authorised to operate the vehicle.

- The *Contractor* shall display a sign prominently at his Site, all emergency contact numbers pertaining to procedures in the event of fire and emergencies.
- The *Contractor* shall barricade all open pit or working sites according's required.
- The *Contractor* personnel must be subject to all safety procedures and regulations as laid down by TNPA Health and Safety Specification.
- In the event of fire on work site, the *Contractor* must provide the first response to minor fires and inform TNPA personnel of the fire, then vacate the site immediately in compliance to the *Contractor* evacuation procedure. Any major fires must be immediately reported to the TNPA Fire Department for intervention.
- The *Contractor* must note that smoking must not be allowed on the site within 30m of Building(s), it must only be allowed in designated and clearly marked smoking areas. No open fires must be lit anywhere on site or within Transnet premises.
- The *Contractor* must be responsible for ensuring the satisfactory and safe condition of all power tools and equipment. All electrically powered equipment must be compliant to OHS Act Standards. The use of electrically powered equipment must be subject to the prior approval of TNPA.
- All Occupational Health and Safety Act and Construction Regulations pertaining to the work being carried out must be adhered to. The *Contractor* employees must always be supervised by a Competent *Supervisor* appointed in writing in terms of the regulations of the Occupational Health and Safety Act and made aware of his responsibilities. The *Project Manager* reserves the right to judge the competence of the appointed *Supervisor* for the task being performed before and during the progress of the work.
- The *Contractor* must enter into and execute an Agreement with the *Employer* as provided for under Section 37(2) of the Occupational Health and Safety Act (1993). The Agreement must be in the form of the pro-forma included elsewhere in this document.
- All *Contractor* staff and labour working within Port shall comply with the *Employer's* operational Health and Safety requirements and shall be equipped with all necessary PPE, high visibility apparel and, when working within two meters of the quay wall, floating apparel.

3.8 The *Contractor* complies with the requirements stated under paragraph 3.11 of C3.1 *Employer's Works Information*.

- Access to the works for *Contractor* personnel must be through the Port entrances.
- Movement of construction vehicles must be managed to ensure that other users are not delayed through the operational area. Construction activities must be barricaded to always allow safe use of the road areas. No additional payment must be made for these traffic management plans, and it must be deemed to be included in the rates of the relevant items.
- The speed limit in most internal roads within the Port of Richards Bay is 40km/h unless otherwise indicated. Compliance with these regulations is enforced and must be complied with, access cards/permits will be revoked if found to be non-compliant.

3.9 Environmental controls, fauna & flora, dealing with objects of historical interest

The *Contractor* must take particular note of the environmental requirements contained in the *Employer's Construction Environmental Management Plan*.

The *Contractor* must take every precaution to avoid damage to vegetation adjacent to the works. Any damage caused is to be repaired at the *Contractor's* expense.

The *Contractor* complies with the SOP CEM , CESSG and PES in the construction of the *works*, all as described under paragraph 6.19 of C3.1 *Employer's Works Information*.

3.10 Title to Materials from demolition and excavation

The *Contractor* has no title to all materials arising from excavation and demolition in the performance of the works with title to such materials (as referenced above) remaining with the *Employer*. The *Project Manager* shall instruct the *Contractor* how to label, mark, set aside and/or dispose of such materials for the benefit of the *Employer* in accordance with ECC Clause 73.1.

The excess material originating from the milling and excavation of the existing pavements shall remain the property of the *Employer*.

The removal and disposal of any material identified as unsuitable spoil remains the responsibility of the *Contractor* and must be disposed at a licensed landfill site. Proof of safe disposal must be provided.

3.11 The *Contractor* has title to all materials arising from excavations and demolition in the performance of the *works* with the exception of:

Any material that the *Employer* might be deemed useful during construction.

with title to such materials (as referenced above) remaining with the *Employer*. The *Project Manager* shall instruct the *Contractor* how to label, mark, set aside and/or dispose of such Materials for the benefit of the *Employer* in accordance with ECC Clause 73.1.

3.12 Cooperating with and obtaining acceptance of others

The *Contractor* might be required to liaise with other *Contractors* working on adjacent work packages to ensure cooperation of the projects and ensure the flow of traffic (both construction and normal traffic) within the port area.

- The *Employer* (including the agents of the *Employer*) operates on Site during the entire duration of the Contract period.
- The *Employer* shall from time to time appoint an *Agent(s)* or other *Contractor(s)* to act on his behalf during the entire contract duration and the *Contractor* must cooperate in accepting instructions when required.
- The *Contractor* shall make provision for continuous traffic movement during site work.
- The *Employer's* normal operations, maintenance and other construction contracts must continue during the currency of this contract. It is possible, therefore that the site may become congested at times and careful co-ordination is thus essential in order to minimise disruptions to all parties.
- Alternative site routes for emergency vehicles must be discussed with the *Project Manager* during the compulsory meeting.
- The *Contractor* provides name-boards. The sites will be identified and instructed by the *Project Manager*.
- Trenching and excavation work to obtain strict supervision of local signals department and in certain instance may require preparation work of the signal's *Contractor*. Reroute cables or boxes or decommission certain elements
- At least some of the Site work may take place while the adjacent areas will be in operation. The *Contractor* shall take all necessary steps for his Works not to interfere with operations and to ensure that normal traffic flow of the operational terminal is not obstructed.

- The success of the project depends on the effective co-operation of all *Contractors* on site, and the *Contractor*, if necessary, must discuss his programme on a day-to-day basis with the *Project Manager* to ensure effective co-ordination.

3.13 The *Contractor* performs the *works* and co-operates with others:

The Works will be performed in a Port operational environment. The port must remain operational for the duration of the Contract.

The *Contractor* performs the *works* and co-operates with the *Employer* (including the agents of the *Employer*) who operates on Site during the duration of the Contract.

The *Contractor* notes that there may be other projects in progress within the Port which are expected at some point to run in parallel to this project. Hence the *Contractor* co-operates with others by allowing access through parts of the Working Areas as and when required during the Contract period.

Once the site is handed over, the *Contractor* will be responsible for maintaining the road and road reserve for the duration of the contract. Maintenance to the defects date will be limited to the repair of any defects of the *Contractor's* works that may occur within the works area and the re-painting of road markings at the end of defects date.

3.14 Publicity and progress photographs

- The *Contractor* treats all information gained through his appointment on this project as strictly confidential. The *Contractor* is not allowed to prepare or present any paper, publish any article in a technical journal, or derive publicity for his business which makes any reference to any aspect of the work on this project unless the *Employer* grants special permission, in writing, for the purpose.
- No photographs are to be taken unless the photographer is in possession of a camera permit issued by the TNPA Chief Security Officer, Port of Richards Bay. Photographs are to be taken for record purposes only.
- The *Contractor* does not advertise the *Contract* or the project to any third party, nor communicate directly with the media (in any jurisdiction) whatsoever without the express written notification and consent of the *Project Manager*.
- The *Contractor* obtains the permission and approval of the *Project Manager* before erecting any notice boards or using the details of the contract in any advertising media.

- The *Contractor* provides a complete digital photographic record (Photos and Videos) of the progress on site and in the testing laboratory to the *Project Manager*, weekly or as and when required as part of the *Contractor's* programme narrative report.
- Photographs are to be submitted in JPEG format, with a minimum resolution of 1200 x 800. Each set of photographs must be accompanied by an index showing:
 - Contract reference
 - Photograph file reference
 - Date of Photograph
 - Subject matter.

The *Contractor* obtains the permission and approval of the *Project Manager* before erecting any notice boards.

The *Contractor* provides progress photographs at bi-weekly progress meetings in an electronic format or uploaded to a virtual drive.

Progress photographs are to be taken with a high-resolution drone camera, preferably 1440p or 2160p resolution and operated by a licensed pilot. The *Contractor* obtains permission and approval from the *Project Manager* before each drone voyage.

The *Contractor* provides a complete digital photographic record of the progress of the construction of the works to the *Project Manager*, monthly as part of the *Contractor's* monthly programme narrative report.

The digital photographic Equipment used shall be intrinsically safe.

The *Contractor* does not advertise the contract or the project to any third party, nor communicate directly with the media (in any jurisdiction) whatsoever without the express written notification and consent of the *Project Manager*.

The *Contractor* provides a notice board with *Contractor's* details, with details of all sites key personnel such as *Project Manager*, Construction manager, Environmental manager, health and safety manager, project title and other relevant information at site office and at the beginning of each road section the *Contractor* is working on. The sign board should be at least 2m*1.5m in size, shall have the client and employers name including logo.

3.15 Contractor's Equipment

All plant, machinery, and facilities provided for the purpose of construction work.

- All equipment/materials to be supplied by the *Contractor* will comply with the relevant standard specifications. Any tools, test equipment, and devices needed for investigations, Construction, testing, and commissioning shall be provided by the *Contractor*. The rate shall be inclusive on the quoted amount.
- The *Contractor* keeps daily records of his Equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.
- The *Contractor* shall be responsible for the safe keeping of his or her equipment, material, tools etc for the duration of the contract, TNPA will not be responsible for keeping records and safeguarding of equipment on site for the duration of the contract.
- The *Contractor* keeps daily records of his Equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.

3.16 Equipment provided by the *Employer*

The *Employer* does not provide any Equipment for the *Contractor*.

3.17 The *Employer* provides the following Equipment on the Site for the *Contractor's* use:

The *Employer* does not provide any equipment for the purposes of construction.

3.18 Site services and facilities:

For the duration of the Contract, the *Project Manager* provides an area, free of charge, for the *Contractor* to establish his offices, etc. The *Contractor's* site establishment area(s) is to be within the *Contractor's* boundary of the area that will be confirmed with the successful *Contractor* after award and shall be clearly sign posted and be compliant with the relevant safety regulations and restrictions that might be in place until the *Contractor* has de-established from site. The site establishment layout must be approved by the *Project Manager*.

The *Contractor* ensures that the area used has a suitable continuous security fence and the necessary access gates. All preparation and fencing, etc. shall be done by the

Contractor and shall be for his account, this includes clearing away and leaving clean and clear at completion.

The *Contractor* provides the following connections to services within the Site for the *Contractor's* use:

- 50 mm diameter isolation valve for construction Potable Water, the nearest water connection point will be identified during construction, if not possible the water will be sourced from the nearest water point, the *Contractor* will be required to include meters on site to measure usage and submit weekly to the *Project Manager*.
- Circuit breaker for construction power at 380 Volts, 3-Phase and Neutral, 50 Hz, the nearest electrical connection point will be identified during construction, if not possible the use of generator will be applicable for a duration of construction, the *Contractor* will be required to include meters on site to measure usage and submit weekly to the *Project Manager*,

3.19 The *Employer* provides the following facilities for the *Contractor*:

Wherever the *Employer* provides facilities (including, inter alia, temporary power, water, waste disposal, telecommunications etc.) for the *Contractor's* use within the Working Areas and the *Contractor* adapts such facilities for use, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and Others in, on or under the land) and surrounding areas to its original standard upon dismantling of such facilities and hand-back to the *Employer*.

3.20 Facilities provided by the *Contractor*:

All costs for preparation of the Site establishment area shall be for the *Contractor's* account.

The *Contractor* shall be responsible for his own connection to the *Employer's* services and for the reticulation of his services from the connection point. The cost of meters, connections, reticulation and all other usage costs associated with the provision of services shall be for the *Contractor's* account.

The *Contractor* shall provide the *Project Manager* with a "Certificate of Compliance" ("COC"), by an "accredited" person as defined by the OHS Act, in respect of his

Construction Power electrical installation. The *Project Manager* shall only make construction power available upon receipt of the COC.

The NEC 3 *Supervisor* (or his nominated representative) shall conduct routine inspections of the *Contractor's* construction power reticulation and power tools. If found to be unsafe and/or non-compliant with statutory requirements, the electrical power supply shall be disconnected until the *Contractor* rectifies all defects.

Wherever the *Contractor* provides facilities and all items of Equipment, involving, inter alia, offices, accommodation, laboratories, Plant and Material storage, etc., within the Working Areas, the *Contractor* shall make good and provide full reinstatement to the land (including all apparatus of the *Employer* in, on or under the land) and surrounding areas to its original standard, upon dismantling of such facilities and items of Equipment.

Upon completion, and within 2 weeks of the date of acceptance of the works, the *Contractor* shall completely remove from the Site and Working Areas all his Equipment, including the foundations of any structures, stores, office accommodation or any other asset belonging to him, and shall leave the Site and Working Areas in a tidy condition to the satisfaction of the *Project Manager*.

No excess or discarded materials or Equipment shall be buried or dumped within the port boundary.

Demolition of all temporary structures surfaces etc. shall be first approved by the *Project Manager* prior to the work being carried out.

The *Employer* shall not provide any security for the Site and working areas. The *Contractor* shall provide same and indemnifies and holds indemnified the *Project Manager* and *Employer* against any claims and actions that may arise out of Site and Working Area security.

The *Contractor* shall sign the in-survey and out-survey and furnishes copies in accordance with the CDS to the *Project Manager* for record purposes.

Unless expressly stated as a responsibility of the *Employer* as stated in this document, all residual requirements for the provision of facilities and all items of Equipment necessary for the *Contractor* to Provide the Works remains the responsibility of the *Contractor*.

3.21 **The *Contractor* provides the following facilities for the *Employers Project Manager and Supervisor*:**

Project Manager's and construction manager office space with all necessary amenities such as desk, chairs etc.

Wherever the *Contractor* provides facilities (either his own or for the *Project Manager* and/or *Supervisor*) and all items of Equipment, involving, *inter alia*, offices, accommodation, laboratories, Materials storage, compound areas etc, within the Working Areas, then the *Contractor* makes good and provides full reinstatement to the land (including all apparatus of the *Employer* and Others in, on or under the land) and surrounding areas to its original standard, upon dismantling of such facilities and items of Equipment.

Unless expressly stated as a responsibility of the *Employer* as stated under 3.19 Site services and facilities, all residual requirements for the provision of facilities and all items of Equipment necessary for the *Contractor* to Provide the *Works* remains the responsibility of the *Contractor*.

Existing premises, inspection of adjoining properties and checking work of Others

The *Contractor* inspects and surveys the following services adjacent to the Site in accordance with drawings and maintenance department instruction and in conjunction with the *Project Manager*:

- Bulk services lines and connection.

The *Contractor* inspects the work of sub-contractor or third-party with which the *works* interfaces in conjunction with the *Project Manager*:

The *Contractor* is required to conduct detailed physical inspections and photographic surveys to record the condition of the surrounding area, including the condition of existing facilities, premises and machinery/equipment. The *Contractor* shall submit to the *Project Manager* a detailed condition and photographic survey report. On completion of the project the *Contractor* and the *Project Manager* will do a physical inspection of the surrounding area to ascertain the condition after construction, the inspection and photographic report will be used as the reference document.

The *Contractor* will be held responsible for any damage to existing structures and surfacing caused by the *Contractor* during the execution of the contract; fair wear and tear excluded and shall repair it to the satisfaction of the NEC 3 *Supervisor* on conclusion of the works. For this purpose, a joint inspection with the NEC 3 *Supervisor* will be carried out prior to occupation of the site(s) and any existing damage noted.

3.22 Excavations and associated water control.

The *Contractor* shall comply with any Department of Water Affairs regulations with regards to water control which includes compliance with WULA.

3.23 The *Contractor* complies with the following requirements:

The *Contractor* shall make provision for an industrial water pump, to utilise it as and when required by construction for dewatering activities.

Construction works and design fill slopes shall be based on Geotechnical Engineers' recommendations to ensure stability and prevent slope failures.

The *Contractor* shall appoint a competent person to supervise excavation and earthworks, in accordance with the Occupational Health and Safety Act.

The *Contractor* shall adopt best practices to minimise dust generation (e.g., watering, covering stockpiles) and noise levels, ensuring compliance with regulations and minimising disturbance to normal operations of the Port.

The *Contractor* shall implement measures to control erosion and sediment and surface runoff, such as silt fences, geo-textiles, diversion berms, swales, and sedimentation basins, to prevent soil erosion and water pollution.

The *Contractor* shall prevent water pollution by proper handling, storage, and disposal of chemicals, oils, lubricants, fuels, and other hazardous materials.

Restrict site disturbance and excavation activities strictly to areas designated for construction. Clearly demarcate site boundaries and restrict access to "No-go" area.

The *Contractor* shall ensure proper disposal of excavated material.

The *Contractor* shall manage uncontaminated soil and non-hazardous rubble in accordance with waste handling regulations, ensuring proper disposal or reuse where feasible.

Ensure all site activities comply with relevant health, safety, and environmental regulations.

Minimise excavation and removal of overburden and topsoil to reduce environmental impact.

The *Contractor* shall cover the cost of standby dewatering pumps and necessary equipment (lighting, generators, spares, tools) to manage emergencies and maintain site safety.

The *Contractor* shall follow contractual obligations and industry best practices, including ground stability measures, shoring, bracing, and water ingress management.

The *Contractor* shall maintain clear communication with the *Project Manager* and all stakeholders regarding hazards and site conditions.

The *Contractor* shall compact loose soil promptly after excavation, grading, or filling to prevent erosion.

The *Contractor* shall use appropriate soil stabilisation methods such as gravel stabilisation, rip-rap, or soil binders.

The *Contractor* shall implement precautionary measures to prevent groundwater seepage into excavations.

The *Contractor* shall ensure no pollution of groundwater or surface water occurs, including proper storage and handling of hazardous materials.

The *Contractor* shall minimise dust generation from excavation activities through watering, covering, and other dust suppression techniques.

The *Contractor* shall minimise excavation and removal of overburden and topsoil where possible and restore disturbed areas promptly.

3.24 Underground services, other existing services, cable and pipe trenches and covers

The *Project Manager* shall provide the *Contractor*, as a guide only, with drawing(s) showing various known existing underground services for his information. It is however possible that there are existing unknown services, which are not reflected, and which may affect the works.

The *Contractor* shall conduct proving trenches before excavation work using machinery to ensure underground services are identified and protected before any excavations.

The *Contractor* shall establish the location of the various existing services situated within the Site and Working Areas and records all such information on "marked-up" drawing(s) which remain available for reference at all times.

The *Contractor* shall exercise due care and attention in carrying out any excavation work to avoid damage or disruption to existing services. The *Contractor* shall consult the *Project Manager* prior to undertaking any excavation work.

Should the *Contractor* fail to exercise the requisite care and attention in carrying out the excavation work, then the *Contractor* shall be held liable for any claims arising out of damage caused by such excavation.

Where the *Contractor* encounters existing underground services / existing services cables / pipe trenches, the *Contractor* shall expose, protect and relocate the services as stated in Section B1200 of the specifications.

3.25 Control of noise, dust, water and waste

Before moving Equipment onto the Site and Working Areas and commencing operations, the *Contractor* submits his proposed methods of construction which demonstrate the measures taken to avoid and or reduce any nuisance arising from dust, noise and vibration for acceptance by the *Project Manager*.

3.26 The *Contractor* complies with the following:

Environmental measures for the control of noise, dust, water, and waste shall be implemented in accordance with Transnet's Standard Operating Procedure for Construction Environmental Management (dated 01 October 2023), the *Contractor* Environmental and Sustainability Specification Guidelines (dated 01 October 2023), the approved Maintenance Management Plan (dated 07 June 2017), and the Construction Environmental Management Plan for the proposed project, as appended to this specification.

In cases where the *Contractor* establishes his own reference lines from which the work can be set out, such reference lines shall be checked and approved by the *Project Manager* before the commencement of construction to ensure compliance with Transnet's policies and procedures.

The following specific measures for Noise Control shall apply:

- Avoiding unnecessary revving of engines and switching off equipment when not required;
- Minimising the drop height of materials;
- Keep all equipment in good working order;
- Operate equipment within its specification and capacity and don't overload machines;
- Apply regular maintenance, particularly with regards to lubrication;

- Operate equipment with appropriate noise abatement accessories, such as sound hoods;
- Relevant stakeholders shall be notified of any excessive noise-generating activities that could affect them;
- Maintenance of equipment. For example, rattling noises can be controlled by tightening loose parts and by fixing resilient material (such as rubber) between the surfaces in contact;
- Ensure that the potential noise source will conform to the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, so that it will not produce excessive or undesirable noise when released;
- All the *Contractor's* equipment shall be fitted with effective exhaust silencers and shall comply with the South African Bureau of Standards recommended code of practice, SANS 10103:2004 or the latest at the time, for construction plant noise generation;
- The *Contractor's* vehicles shall comply with the Road Traffic Act, (Act 29 of 1989) when any such vehicle is operated on a public road.
- If on-site noise control is not effective, protect the victims of noise by ensuring that all noise-related occupational health provisions are met. (Occupational Health and Safety Act, (Act 85 of 1993).

3.27 The following specific measures for Dust Management shall apply:

The *Contractor* shall maintain all access roads and the working area to the satisfaction of the *Project Manager*. It shall be kept damp to limit dust and inconvenience or disturbance to the normal operation of the Port.

The usage of water for dust management will be minimized as far as practically possible. Discretion must be applied in this regard especially relating to drought conditions. Only water from approved sources may be used. Dust control measures must be approved by the Transnet PER prior to commencement of the Works.

The following minimum dust management practices must be implemented on site:

Vehicles must be operated within speed limits, where no speed limit has been specified, the limit shall be 40km/h;

Haulage distances must be minimized as far as reasonably practicable;

Where water suppression is insufficient or impractical, environmentally friendly soil stabilizers must be used;

Stockpiles and open areas that may cause dust must be stabilized and vegetated where required;

Dust suppression measures must be implemented on inactive construction areas. (An inactive construction site is one on which construction will not occur for a month or more);

Disturbance of natural vegetation must be minimized to reduce potential erosion, runoff, and air-borne dust;

Material in transit must be loaded and contained within the load bin of the vehicle in such a way as to prevent any spillage or creation of dust clouds. If necessary, the load bin of the vehicle shall be covered with a tarpaulin;

3.28 The following specific measures for Vibration shall apply:

Roads are constructed on a stable platform, which should not pose a vibration problem. This should be taken into account in design.

TNPA shall be consulted and approve all scope of works prior to commencement of the works that require blasting or vibration related works.

3.29 The following specific measures for Stormwater and Dewatering Management shall apply:

The removal from groundwater is defined as a water-use under the National Water Act 36 of 1998. Therefore, it must be ensured that the project has been authorised by the Responsible Authority to remove and discharge groundwater prior to dewatering taking place. If applicable, the *Contractor* shall be responsible for collection, management, and containment within the site boundaries of all dewatering from all general site preparation activities.

No water shall be allowed to accumulate in any portion of the excavations. The excavations shall be protected against any water entering them whether by seepage, leaking services, rain, storm, flood or any other means. Any water found in excavations shall immediately be removed by pumping or bailing.

The *Contractor* shall ensure that all machinery servicing areas must be bunded. Stationary plant that leaks harmful substances shall not be permitted on site.

The *Contractor* shall ensure that washing of equipment is restricted to urgent maintenance requirements only.

The *Contractor* must employ good housekeeping in their areas to prevent contamination of drainage water.

Stagnant water shall be cleared at a frequency approved by the Transnet PER.

The *Contractor* shall provide adequate wastewater collection facilities, and the wastewater should be disposed of appropriately in accordance with its waste classification.

The *Contractor* shall prevent storm water runoff from contamination by leaking or spilled drums of oil or chemicals;

The *Contractor* shall not discharge oil or contaminants into storm water or sewer systems.

The *Contractor* shall implement the Spillage Management Plan.

The *Contractor* shall be prepared to deal with unforeseen ground conditions, including water-related issues, and should have procedures in place for addressing these.

3.30 The following specific measures for Waste Management shall apply:

The *Contractor* shall classify all waste expected to be generated during the construction period. Waste shall be grouped into "general" or "hazardous", depending on its characteristics. The classification shall determine handling methods and the ultimate disposal of material.

No dumping of solid waste or refuse shall be allowed within or adjacent to areas of natural vegetation.

Under no circumstances is waste to be burnt or buried on site. The excavation and use of rubbish pits on site is forbidden.

The *Contractor* is responsible for the removal of all waste generated from site. The *Contractor* shall ensure that all waste is removed to appropriate licensed waste management facilities. (For the identification of an appropriate facility, the following source may be utilised: <http://sawic.environment.gov.za/>).

The *Contractor* shall manage waste that is anticipated to be generated by the project in accordance with the minimum requirements for the handling, classification and disposal of waste.

No littering is allowed on site. In the event where staff mobility is high, refuse bags will be made available by the *Contractor*;

The *Contractor* shall provide separate waste in accordance with source and recycle wherever possible

The *Contractor* shall recycle waste (as far as practically possible)

The *Contractor* shall make waste bins available for different waste types general, recyclable and hazardous waste). Waste bins should be weatherproof and emptied regularly.

The *Contractor* shall maintain the following waste records for submission to the Transnet *Project Manager* on request.

3.31 Sequences of construction or installation

Maintenance of existing roads, traffic accommodation and relocation of services before construction of layerworks can commence.

3.32 Giving notice of work to be covered up

The *Contractor* notifies the *Supervisor* in writing of any elements of the works which are to be covered up. This notification is given not less than 24 (twenty-four) hours prior to the proposed covering up.

3.33 The *Contractor* notifies the *Supervisor* of the following elements of the works which are to be covered up:

- Excavated services
- After ripping of layerworks.
- After delivery of material
- Before compaction of material
- Before any required quality test can be conducted.

3.34 The *Contractor* complies with the following constraints in the execution of the works:

- Traffic accommodation is necessary to minimise impact on construction works.

- Richards Bay is considered to be a wet region; hence, delays due to rain shall be accounted in the *Contractor's* risk allowance. At least for every week of work, a 4-day rain risk allowance shall be considered.

3.35 Completion, testing, commissioning and correction of Defects

On or before the Completion Date the *Contractor* shall have done everything required to Provide the *works* including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The *Project Manager* cannot certify Completion until all the work listed below has been done and is also free of Defects, which would have, in his opinion, prevented the *Employer* from using the works and Others from doing their work.

Item of work	To be completed by
Newark road: Layer works, expansion and associated services	36 Weeks from start Contract
Uraina road: Layer works, expansion and associated services	56 Weeks from start Contract
Ventura road: Layer works, expansion and associated services	56 Weeks from start Contract

3.36 Commissioning and handover

- The *Contractor* compiles and delivers the Maintenance and Data Packs as prescribed in the *Contractor* Documentation Schedule (CDS).
- These shall be supplied by the *Contractor* in a loose-leaf A4 hard covered, red, grease- and waterproof 4D-ring binder.
- Drawings and charts larger than A4 shall be folded and those greater than A3 shall be enclosed in an A4 plastic pocket of adequate strength.
- Documents shall be well indexed and user friendly. Documents shall include a summarised Table of Contents and in Document comprising a number of files/volumes there should be one summarised Table of Contents in each of the files/volumes. The draft Table of Contents shall be submitted for review to the *Project Manager* prior to the compilation and official submittal of the manuals. The technical content of manuals shall be specified by the *Project Manager*.
- The *Contractor* shall sign all site diaries, health and safety documents, and all required contractual documents to close the contract.

3.37 The *Contractor* is permitted to carry out the following works after Completion:

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works except for the work listed below which may be done after the Completion Date but in any case, before the dates stated. The *Project Manager* cannot certify Completion until all the work has been done which would have, in his opinion, prevented the *Employer* from proceeding forward with the project.

- Correction of defects,
- Cleaning of site for handover.
- One of the project deliverables are not completed.

3.38 Use of the works before Completion has been certified.

- In terms of Clause 35.2 in ECC the *Employer* may use any part of the works before Completion has been certified. For the section where roads will be constructed in sections, the *Employer* will allow traffic as deemed fit by the project engineer and works have been sectionally completed as per the design drawings and As-Built drawings issued for that particular road section.
- The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of As-built documents that represent the status of the completed works (to include Plant within the works) to present to the *Employer*.
- The *Employer* uses the following part / parts of the *works* before Completion is certified by the *Project Manager* which do not constitute take over by the *Employer* for the reason(s) stated:
 - Completed road sections that is fit for use for traffic as validated by the *Project Manager*.

3.39 Materials facilities and samples for tests and inspections

The *Contractor* will be required to take samples as required by the *Employer* or *Project Manager* for the purpose of quality assurance.

- The *Contractor* shall conduct road material testing in a SANAS approved laboratory and as outlined by COLTO, SAPEM, TRH, TMH and all scope applicable standards and regulations,

- All works outlined in the scope of work shall be conducted as required by the applicable engineering designs, standards and regulations.
- The *Contractor* shall provide the *Project Manager* with the site test report for each road layer placed, including the material data sheet including laboratory material classification report for the layers on site or imported layers for the purpose of construction,
- Concrete data sheets and applicable test data shall be provided on delivery and after site testing is completed.
- Concrete testing reports including mix design, Slump test, cube test and all other applicable test as required by the *Project Manager*.
- The information highlighted shall be provided to the *Project Manager* as and when required by the *Project Manager*, however, whenever each layer is completed on the road section under consideration is completed the testing report shall be provided before the *Contractor* can cover the layer. The material data sheet shall be to the *Project Manager* prior the material can be delivered on site.
- The *Contractor* and *Project Manager* shall arrange to review and signoff the site diary weekly, however preferable site diary will be signed daily.
- The *Project Manager* together with other Transnet representatives will inspect work undertaken by the *Contractor*, the *Contractor* shall not cover any work prior TNPA have inspected and signoff on the activity being completed.
- The *Contractor* shall maintain the following daily records for every part of the pavement structure and shall make these available at all times during the progress of the work for inspection by the *Supervisor* or *Project Manager*.
 - The date and time during which material was placed
 - Site compaction test shall be conducted on each layer placed or as governed by the relevant standard,
 - Material classification report shall be provided on site, indicating the quarry where the material was sourced from and also material must be sampled on site to confirm material placed on site. Both quarry and site classification report shall be provided.

- The laboratory material testing report shall be produced for any material placed on site.
- Concrete strength shall be as specified in the drawings and specifications.

3.40 Commissioning

All works shall be commissioned which includes all electrical, instrumentation and control scope of the project, such as the following.

- Street Lighting
- Rehabilitated weigh bridges etc.

The *Contractor* provides the following commissioning activities to bring the *works* in use in liaison with the *Employer*:

- Earthworks and layerworks testing.
- Sewer and water pipeline testing.
- Street Lighting.

3.41 Start-up procedures required to put the works into operation

None

3.42 The *Contractor* performs the following duties and actions on behalf of the Employer to put the works into operation:

All required works to ensure that the works is fit for use and operate at its intended technical specification.

3.43 Take over procedures

Upon correction of all defects the *Employer* will take over the works and the *Contractor* shall hold the defect liability as stated in the contract data.

3.44 The *Contractor* provides the following assistance to the Employer:

The *Contractor* shall train *Employer's* team where possible to ensure proper handover after construction.

The *Contractor* ensures that the documentation as described under paragraph 3.8 of the *Works* Information is presented to the *Project Manager* before Completion.

- Maintenance plans, as-built drawings, testing and quality documentation, health and safety management.

The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of As-built documents that represent the complete status of the completed *works* to present to the *Employer*.

The *Contractor* ensures that the *Project Manager* has a full and accurate dossier of Maintenance and Operating Manuals as appropriate at the earlier of take-over or Completion.

Where the *Contractor* has presented Maintenance and Operating Manuals as appropriate to the *Project Manager* at take-over, the *Contractor* modifies and updates As-built documents as necessary prior to Completion.

3.45 Access given by the Employer for correction of Defects

Clause 43.4 requires that the *Project Manager* arrange for the *Employer* to allow the *Contractor* access to and use of a part of the works, which has been taken over if needed to correct a Defect. After the works have been put into operation, the *Employer* may require the *Contractor* to undertake certain procedures before such access can be granted. The *Contractor* will need to undergo induction and comply with any health and safety requirements to enable site access for defects correction.

The *Contractor* complies with the following constraints and procedures of the *Employer* where the *Project Manager* arranges access for the *Contractor* after Completion:

- Medical records of the *Contractor's* employees will be required, and competency of such resources will be required prior the works being undertaken to correct defects.

3.46 Performance tests after Completion

The *Contractor* shall conduct regular quality tests as requested by the *Employer* or as stated in his construction quality management plan. The performance test will also be conducted on road lighting, signals and other works required to complete the works without defects.

3.47 Training and technology transfer

The *Employer* will request the *Contractor* to train and transfer skill to his employees as and new technology or method of construction is introduced to site which might affect the future maintenance due to lack of skill inhouse.

The *Contractor* arranges for the following technology transfer to the *Employer* after Completion for the *works* in use:

- Any new works that the Employer deems new and its employees require knowledge transfer on.

3.48 Operational maintenance after Completion

The *Employer* will take over maintenance after construction, however the *Contractor* hold defect liability until the end of the defect period as stated in the contract data.

4. Plant and Materials Standards and Workmanship

4.1 Investigation, Survey and Site Clearance

The *Contractor* is required to prove and protect existing services prior to construction for the full extent of the site. Please note any new services encountered during investigative work is to be brought to the attention of the *Supervisor* on site and marked up on the relevant drawing for as-built purposes. Any alternative provided by the *Contractor* to the *Employer's* design which significantly affects the services in the area must be taken into account by the *Contractor* and a method statement provided for the temporary and permanent protection subject to approval by the *Project Manager*. Please note that any alternate designs would require a guarantee of the proposed design for the full intended design life.

The *Contractor* shall carry out his own pre- and post-construction survey of the site and obtain the *Supervisor's* agreement to the accuracy of data obtained.

The *Contractor* shall be responsible for ensuring that works are carried out to the setting out as shown on contract drawings and shall afford the *Supervisor* all facilities for checking as and when required. Such checking, however, shall not relieve the *Contractor* of his responsibilities for the accuracy of his setting out. All levels shown on contract drawings are in metres relative to Mean Sea Level (MSL) unless otherwise stated on the drawings.

The *Employer* will provide surveys which the *Contractor* must use with due diligence as the *Employer* will not take any accountability of any damages that occurs to services due to the use of the surveys provided by the *Employer*, the *Contractor* shall hand excavate and conduct further surveys to ensure accurate identification of existing services.

4.2 Civil Engineering and Structural Works

The following COLTO and SANS 1200 series of Specifications are used for this project:

COLTO AND SANS 1200 Standard specifications Applicable

1200	GENERAL REQUIREMENTS AND PROVISIONS
1300	CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS
1400	HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL
1500	ACCOMMODATION OF TRAFFIC
1700	CLEARING AND GRUBBING
1800	DAYWORKS



1700	CLEARING AND GRUBBING
2100	DRAINS
2200	PREFABRICATED CULVERTS
2300	CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS
3300	MASS EARTHWORKS
3400	PAVEMENT LAYERS OF GRAVEL MATERIAL
3800	BREAKING UP EXISTING PAVEMENT LAYERS
4200	ASPHALT BASE AND SURFACING
5100	PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION
5400	GUARDRAILS
5600	ROAD SIGNS
5700	ROAD MARKINGS
5900	FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS
6100	FOUNDATIONS FOR STRUCTURES
6200	FALSEWORK, FORMWORK AND CONCRETE FINISH
6300	STEEL REINFORCEMENT FOR STRUCTURES
6400	CONCRETE FOR STRUCTURES
6600	NO FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, AND PARAPETS
7100	CONCRETE PAVEMENTS
8100	TESTING MATERIALS AND WORKMANSHIP
	SANS 1200 LC CABLE DUCTS
	PARTICULAR SPECIFICATION PD FOR BUILDING WORKS
	PARTICULAR SPECIFICATION PART PZ FOR PALISADE FENCING
	SANS 1200 DB Earthworks (pipe trenches)
	SANS 1200 L MEDIUM-PRESSURE PIPELINES
	SANS 1200 LB BEDDING (PIPES)
	SANS 1200 D Earthworks

- In case of any conflict in interpretation, ambiguity or discrepancy between any COLTO or SANS 1200 Specification (whether standard or written as a particular project specification)

contained in the *Works* Information and the conditions of contract, the conditions of contract take precedence within the ECC contract.

- In case of any conflict in interpretation, ambiguity or discrepancy between any COLTO or SANS 1200 Specification (whether standard or written as a particular project specification) contained in this paragraph 4.3 of the *Employer's Works* Information and specific statements contained elsewhere in C3.1 *Employer's Works* Information, the specific statements contained elsewhere shall prevail, without prejudice to the *Project Manager's* express duty to resolve any ambiguity or inconsistency in the *Works* Information under ECC Clause 17.1.

- Within COLTO and SANS 1200, the following amendments and interpretations shall apply:

Where the word or expression "Employer" is used, read "*Employer*";

Where the word or expression "*Contractor*" is used, read "*Contractor*";

Where the word or expression "Engineer" is used, read "*Project Manager*" or "*Supervisor*" as the context requires.

Where the word or expression "schedule of quantities" is used, this is deleted in entirety. Assessment and payment are in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein);

- Within COLTO, 1998 1100: DEFINITIONS AND TERMS , the following apply:

"Acceptable. Approved (Approval)" is interpreted as either a *Project Manager* or a *Supervisor* communication or instruction in relation to Works Information compliance, consistent with the *conditions of contract* as the context requires;

"Adequate" is deleted. The *Project Manager* notifies the *Contractor* where the *Contractor* has not complied with the *Works* Information.

"Measurement and payment" and the further definitions contained within 6.3 c) are deleted. Assessment and payment are in accordance with the conditions of contract (and the ECC main and secondary options stated therein);

5. LIST OF DRAWINGS

5.1 Drawings issued by the Employer

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

The drawings contain the scope of works and further details are outlined in the works specification and works information.

Note: Some drawings may contain both Works Information and Site Information.

Drawing number	Rev	Title
GENERAL		
1006614-DRG-000-ZZ-CC-U004-A	A	WORK PACKAGE 1: LAYOUT PLAN
1006614-DRG-000-ZZ-CC-U006-A	A	SITE OFFICE AND LABORATORY
URANIA ROAD		
GENERAL		
1006614-DRG-00-UR-CC-D001	E1	COVER PAGE
1006614-DRG-00-UR-CC-D002	E1	DRAWING INDEX
1006614-DRG-00-UR-CC-D003	E1	GENERAL NOTES 1
1006614-DRG-00-UR-CC-U001	E1	URANIA ROAD LAYOUT KEY PLAN
1006614-DRG-00-UR-CC-U002	E1	URANIA ROAD LONG SECTION KEY PLAN
1006614-DRG-00-UR-CC-U003	E1	URANIA ROAD INTERSECTION KEY PLAN
1006614-DRG-01-UR-CC-U001	E1	SURVEY AND BENCHMARKS
ROAD PLANS		

Drawing number	Rev	Title
1006614-DRG-09-UR-CC-U001	E1	URANIA ROAD SETTING OUT LAYOUT
1006614-DRG-09-UR-CC-U002	E1	URANIA ROAD SETTING OUT LAYOUT
1006614-DRG-12-UR-CC-U001	E1	JOINT LAYOUT PLAN 1
1006614-DRG-12-UR-CC-U002	E1	JOINT LAYOUT PLAN 2
1006614-DRG-12-UR-CC-U003	E1	PAVEMENT LAYOUT PLAN 1
1006614-DRG-12-UR-CC-U004	E1	PAVEMENT LAYOUT PLAN 2
1006614-DRG-13-UR-CC-U001	E1	URANIA ROAD SIGNAGE LAYOUT PLAN
1006614-DRG-13-UR-CC-U002	E1	URANIA ROAD SIGNAGE LAYOUT PLAN
SECTIONS		
1006614-DRG-09-UR-CC-L001	E1	URANIA ROAD LONG SECTION: CH 0 - CH 400
1006614-DRG-09-UR-CC-L002	E1	URANIA ROAD LONG SECTION: CH 400 - CH 800
1006614-DRG-09-UR-CC-L003	E1	URANIA ROAD LONG SECTION: CH 800 - CH 1071.265
1006614-DRG-09-UR-CC-X001	E1	CROSS SECTIONS: CH0.000 - CH180
1006614-DRG-09-UR-CC-X002	E1	CROSS SECTIONS: CH200 - CH380
1006614-DRG-09-UR-CC-X003	E1	CROSS SECTIONS: CH400 - CH780

Drawing number	Rev	Title
1006614-DRG-09-UR-CC-X004	E1	CROSS SECTIONS: CH800 - CH1071
ROAD DETAILS		
1006614-DRG-00-UR-CC-D001	E1	RAIL CROSSING DETAIL
1006614-DRG-09-UR-CC-D001	E1	TYPICAL ROAD SECTIONS 1
1006614-DRG-09-UR-CC-D002	E1	TYPICAL ROAD SECTIONS 2
1006614-DRG-09-UR-CC-D003	E1	KERBING DETAILS 1
1006614-DRG-09-UR-CC-D005	E1	SIDEWALK DETAILS
1006614-DRG-09-UR-CC-D006	E1	GUARDRAIL DETAILS: ARMCO
1006614-DRG-10-UR-CC-D001	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-UR-CC-D002	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-UR-CC-D003	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-12-UR-CC-D001	E1	PAVEMENT LAYERWORKS DETAILS
1006614-DRG-12-UR-CC-D002	E1	PAVEMENT JOINT DETAILS
1006614-DRG-13-VT-CC-D001	E1	ROAD MARKINGS SPECIFICATIONS
1006614-DRG-13-VT-CC-D002	E1	ROAD SIGNAGE SPECIFICATIONS

Drawing number	Rev	Title
1006614-DRG-13-UR-CC-D004	E1	TRAFFIC LIGHTS DETAILS 1
1006614-DRG-13-UR-CC-D005	E1	TRAFFIC LIGHTS DETAILS 1
INTERSECTIONS		
1006614-DRG-09-UR-CC-I001	E1	SETTING OUT PLAN: URANIA/ NORTH HARBOUR ARTERIAL
1006614-DRG-09-UR-CC-I002	E1	SETTING OUT PLAN: URANIA/ NEWARK
1006614-DRG-09-UR-CC-I003	E1	SETTING OUT PLAN: URANIA/ PIONEER ACCESS
1006614-DRG-09-UR-CC-I004	E1	SETTING OUT PLAN: URANIA/ TRUCK STOP ACCESS
1006614-DRG-09-UR-CC-I005	E1	SETTING OUT PLAN: URANIA/ CLINKER
STORMWATER DETAILS		
1006614-DRG-14-UR-CC-D001	E1	ROAD DRAINAGE: CHANNEL DETAILS
1006614-DRG-14-UR-CC-D002	E1	ROAD DRAINAGE: PIPE CULVERT INLET / OUTLET DETAILS 1
1006614-DRG-14-UR-CC-D004	E1	ROAD DRAINAGE: SILT TRAP DETAILS - TYPE 1
1006614-DRG-14-UR-CC-D005	E1	ROAD DRAINAGE: DRAINAGE CHUTE DETAILS
AFFECTED SERVICES		
1006614-DRG-20-UR-CC-U001	E1	SERVICES RELOCATION AND PROTECTION PLAN - WATER
1006614-DRG-20-UR-CC-U002	E1	SERVICES RELOCATION AND PROTECTION PLAN - ELECTRICAL AND DATA

Drawing number	Rev	Title
1006614-DRG-20-UR-CC-U003	E1	SERVICES RELOCATION AND PROTECTION PLAN - ELECTRICAL AND DATA
AFFECTED SERVICES DETAILS		
1006614-DRG-20-UR-CC-D001	E1	WATER BEDDING DETAILS
1006614-DRG-20-UR-CC-D002	E1	WATER VALVE BOX AND MARKER BLOCK DETAILS
1006614-DRG-20-UR-CC-D003	E1	WATER FITTING SCVHUDULE
1006614-DRG-20-UR-CC-D004	E1	WATER THRUST BLOCK DETAILS
1006614-DRG-20-UR-CC-D005	E1	SERVICE DUCT TYPICAL DETAILS
VENTURA ROAD		
GENERAL		
1006614-DRG-00-VT-CC-D001	E1	COVER PAGE
1006614-DRG-00-VT-CC-D002	E1	DRAWING INDEX
1006614-DRG-00-VT-CC-D003	E1	GENERAL NOTES 1
1006614-DRG-00-VT-CC-U001	E1	VENTURA ROAD LAYOUT KEY PLAN
1006614-DRG-00-VT-CC-U002	E1	VENTURA ROAD LONG SECTION KEY PLAN
1006614-DRG-00-VT-CC-U003	E1	VENTURA ROAD INTERSECTION KEY PLAN
1006614-DRG-01-VT-CC-U001	E1	SURVEY AND BENCHMARKS



Drawing number	Rev	Title
ROAD PLANS		
1006614-DRG-08-VT-CC-U001	E1	VENTURA ROAD SETTING OUT LAYOUT
1006614-DRG-08-VT-CC-U002	E1	VENTURA ROAD SETTING OUT LAYOUT
1006614-DRG-10-VT-CC-U001	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-VT-CC-U002	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-VT-CC-U003	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-VT-CC-U004	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-VT-CC-U005	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-VT-CC-U006	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-12-VT-CC-U001	E1	JOINT LAYOUT PLAN 1
1006614-DRG-12-VT-CC-U002	E1	JOINT LAYOUT PLAN 2
1006614-DRG-12-VT-CC-U001	E1	PAVEMENT LAYOUT PLAN 1
1006614-DRG-12-VT-CC-U002	E1	PAVEMENT LAYOUT PLAN 2
1006614-DRG-13-VT-CC-U001	E1	VENTURA ROAD SIGNAGE LAYOUT PLAN
SECTIONS		
1006614-DRG-09-VT-CC-L001	E1	VENTURA ROAD LONG SECTION: CH 0 - CH 400

Drawing number	Rev	Title
1006614-DRG-09-VT-CC-L002	E1	VENTURA ROAD LONG SECTION: CH 400 - CH 601.066
1006614-DRG-09-VT-CC-X001	E1	CROSS SECTIONS: CH0.000 - CH460
1006614-DRG-09-VT-CC-X002	E1	CROSS SECTIONS: CH480 - CH601
ROAD DETAILS		
1006614-DRG-00-VT-CC-D001	E1	RAIL CROSSING DETAIL
1006614-DRG-02-VT-CC-D001	E1	TYPICAL FENCING & GATE DETAILS 1
1006614-DRG-08-VT-CC-D001	E1	TYPICAL ROAD SECTIONS 1
1006614-DRG-08-VT-CC-D002	E1	TYPICAL ROAD SECTIONS 2
1006614-DRG-08-VT-CC-D003	E1	KERBING DETAILS 1
1006614-DRG-08-VT-CC-D004	E1	KERBING DETAILS 2
1006614-DRG-08-VT-CC-D005	E1	SIDEWALK DETAILS
1006614-DRG-08-VT-CC-D006	E1	GUARDRAIL DETAILS: ARMCO
1006614-DRG-08-VT-CC-D007	E1	BALUSTRADE DETAILS
1006614-DRG-10-VT-CC-D001	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-VT-CC-D002	E1	ACCOMMODATION OF TRAFFIC DETAILS

Drawing number	Rev	Title
1006614-DRG-12-VT-CC-D001	E1	PAVEMENT LAYERWORKS DETAILS
1006614-DRG-12-VT-CC-D002	E1	PAVEMENT JOINT DETAILS
1006614-DRG-13-VT-CC-D001	E1	ROAD MARKINGS SPECIFICATIONS
1006614-DRG-13-VT-CC-D002	E1	ROAD SIGNAGE SPECIFICATIONS
1006614-DRG-13-VT-CC-D003	E1	TRAFFIC LIGHTS DETAILS 1
1006614-DRG-13-VT-CC-D004	E1	TRAFFIC LIGHTS DETAILS 2
INTERSECTIONS		
1006614-DRG-09-VT-CC-I001	E1	SETTING OUT PLAN: VENTURA/ NEWARK ROAD
1006614-DRG-09-VT-CC-I002	E1	SETTING OUT PLAN: VENTURA / BAYVUE TO VENTURA CLINIC INTERSECTIONS
1006614-DRG-09-VT-CC-I003	E1	SETTING OUT PLAN: VENTURA/ CLINIC TO CLINKER INTERSECTIONS
1006614-DRG-09-VT-CC-I004	E1	SETTING OUT PLAN: VENTURA/ NORTHMOOR SOUTH
STORMWATER DETAILS		
1006614-DRG-14-VT-CC-D001	E1	ROAD DRAINAGE: GRID INLET DETAILS
1006614-DRG-14-VT-CC-D002	E1	ROAD DRAINAGE: JUNCTION BOX DETAILS 1
1006614-DRG-14-VT-CC-D003	E1	ROAD DRAINAGE: JUNCTION BOX DETAILS 2

Drawing number	Rev	Title
1006614-DRG-14-VT-CC-D004	E1	ROAD DRAINAGE: PIPE TRENCHING DETAILS
1006614-DRG-14-VT-CC-D005	E1	ROAD DRAINAGE: CHANNEL DETAILS
1006614-DRG-14-VT-CC-D006	E1	ROAD DRAINAGE: SILT TRAP DETAILS - TYPE 1
1006614-DRG-14-VT-CC-D007	E1	ROAD DRAINAGE: SUBSOIL DRAINAGE DETAILS
AFFECTED SERVICES		
1006614-DRG-20-VT-CC-U001	E1	SERVICES RELOCATION AND PROTECTION PLAN - WATER
1006614-DRG-20-VT-CC-U002	E1	SERVICES RELOCATION AND PROTECTION PLAN - WATER
1006614-DRG-20-VT-CC-U003	E1	SERVICES RELOCATION AND PROTECTION PLAN - SEWER
1006614-DRG-20-VT-CC-U004	E1	SERVICES RELOCATION AND PROTECTION PLAN - FENCE
1006614-DRG-20-VT-CC-U005	E1	SERVICES RELOCATION AND PROTECTION PLAN - ELECTRICAL AND DATA
1006614-DRG-20-VT-CC-U006	E1	SERVICES RELOCATION AND PROTECTION PLAN - ELECTRICAL AND DATA
AFFECTED SERVICES DETAILS		
1006614-DRG-20-VT-CC-D001	E1	WATER BEDDING DETAILS
1006614-DRG-20-VT-CC-D002	E1	WATER VALVE BOX AND MARKER BLOCK DETAILS
1006614-DRG-20-VT-CC-D003	E1	WATER FITTING SCHEDULE

Drawing number	Rev	Title
1006614-DRG-20-VT-CC-D004	E1	WATER THRUST BLOCK DETAILS
1006614-DRG-20-VT-CC-D005	E1	SEWER BEDDING DETAILS
1006614-DRG-20-VT-CC-D006	E1	SERVICE DUCT TYPICAL DETAILS
NEWARK ROAD		
GENERAL		
1006614-DRG-00-NW-CC-D001	E1	COVER PAGE
1006614-DRG-00-NW-CC-D002	E1	DRAWING INDEX
1006614-DRG-00-NW-CC-D003	E1	GENERAL NOTES 1
1006614-DRG-00-NW-CC-U001	E1	NEWARK ROAD LAYOUT KEY PLAN
1006614-DRG-00-NW-CC-U002	E1	NEWARK ROAD LONGSECTION KEY PLAN
1006614-DRG-00-NW-CC-U003	E1	NEWARK ROAD INTERSECTION KEY PLAN
1006614-DRG-01-NW-CC-U001	E1	SURVEY AND BENCHMARKS
ROAD DRAWINGS		
1006614-DRG-08-NW-CC-U001	E1	COORDINATES AND SETTING OUT PLAN 1
1006614-DRG-08-NW-CC-U002	E1	COORDINATES AND SETTING OUT PLAN 2
1006614-DRG-08-NW-CC-U003	E1	COORDINATES AND SETTING OUT PLAN 3



Drawing number	Rev	Title
1006614-DRG-08-NW-CC-U004	E1	COORDINATES AND SETTING OUT PLAN 4
1006614-DRG-08-NW-CC-U005	E1	COORDINATES AND SETTING OUT PLAN 5
1006614-DRG-08-NW-CC-U006	E1	COORDINATES AND SETTING OUT PLAN 6
1006614-DRG-08-NW-CC-U007	E1	COORDINATES AND SETTING OUT PLAN 7
1006614-DRG-08-NW-CC-U008	E1	COORDINATES AND SETTING OUT PLAN 8
1006614-DRG-08-NW-CC-U009	E1	COORDINATES AND SETTING OUT PLAN 9
1006614-DRG-10-NW-CC-U001	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-NW-CC-U002	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-NW-CC-U003	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-NW-CC-U004	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-NW-CC-U005	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-10-NW-CC-U006	E1	ACCOMMODATION OF TRAFFIC PLAN
1006614-DRG-12-NW-CC-U001	E1	JOINT LAYOUT PLAN 1
1006614-DRG-12-NW-CC-U002	E1	JOINT LAYOUT PLAN 2
1006614-DRG-12-NW-CC-U003	E1	JOINT LAYOUT PLAN 3



Drawing number	Rev	Title
1006614-DRG-12-NW-CC-U004	E1	JOINT LAYOUT PLAN 4
1006614-DRG-12-NW-CC-U005	E1	JOINT LAYOUT PLAN 5
1006614-DRG-12-NW-CC-U006	E1	JOINT LAYOUT PLAN 6
1006614-DRG-12-NW-CC-U007	E1	JOINT LAYOUT PLAN 7
1006614-DRG-12-NW-CC-U008	E1	JOINT LAYOUT PLAN 8
1006614-DRG-12-NW-CC-U009	E1	JOINT LAYOUT PLAN 9
1006614-DRG-12-NW-CC-U010	E1	PAVEMENT LAYERWORKS LAYOUT 1
1006614-DRG-12-NW-CC-U011	E1	PAVEMENT LAYERWORKS LAYOUT 2
1006614-DRG-12-NW-CC-U012	E1	PAVEMENT LAYERWORKS LAYOUT 3
1006614-DRG-12-NW-CC-U013	E1	PAVEMENT LAYERWORKS LAYOUT 4
1006614-DRG-12-NW-CC-U014	E1	PAVEMENT LAYERWORKS LAYOUT 5
1006614-DRG-12-NW-CC-U015	E1	PAVEMENT LAYERWORKS LAYOUT 6
1006614-DRG-12-NW-CC-U016	E1	PAVEMENT LAYERWORKS LAYOUT 7
1006614-DRG-12-NW-CC-U017	E1	PAVEMENT LAYERWORKS LAYOUT 8
1006614-DRG-12-NW-CC-U018	E1	PAVEMENT LAYERWORKS LAYOUT 9

Drawing number	Rev	Title
1006614-DRG-13-NW-CC-U001	E1	SIGNAGE LAYOUT PLAN 1
1006614-DRG-13-NW-CC-U002	E1	SIGNAGE LAYOUT PLAN 2
1006614-DRG-13-NW-CC-U003	E1	SIGNAGE LAYOUT PLAN 3
1006614-DRG-13-NW-CC-U004	E1	SIGNAGE LAYOUT PLAN 4
1006614-DRG-13-NW-CC-U005	E1	SIGNAGE LAYOUT PLAN 5
1006614-DRG-13-NW-CC-U006	E1	SIGNAGE LAYOUT PLAN 6
1006614-DRG-13-NW-CC-U007	E1	SIGNAGE LAYOUT PLAN 7
1006614-DRG-13-NW-CC-U008	E1	SIGNAGE LAYOUT PLAN 8
1006614-DRG-13-NW-CC-U009	E1	SIGNAGE LAYOUT PLAN 9
SECTIONS		
1006614-DRG-09-NW-CC-L001	E1	NEWARK ROAD LONGSECTION: CH0 - CH400
1006614-DRG-09-NW-CC-L002	E1	NEWARK ROAD LONGSECTION: CH400 - CH800
1006614-DRG-09-NW-CC-L003	E1	NEWARK ROAD LONGSECTION: CH800 - CH1200
1006614-DRG-09-NW-CC-L004	E1	NEWARK ROAD LONGSECTION: CH1200 - CH1600
1006614-DRG-09-NW-CC-L005	E1	NEWARK ROAD LONGSECTION: CH1600 - CH2000



Drawing number	Rev	Title
1006614-DRG-09-NW-CC-L006	E1	NEWARK ROAD LONGSECTION: CH2000 - CH2400
1006614-DRG-09-NW-CC-L007	E1	NEWARK ROAD LONGSECTION: CH2400 - CH2800
1006614-DRG-09-NW-CC-L008	E1	NEWARK ROAD LONGSECTION: CH2800 - CH3200
1006614-DRG-09-NW-CC-L009	E1	NEWARK ROAD LONGSECTION: CH3200 - CH3600
1006614-DRG-09-NW-CC-L010	E1	NEWARK ROAD LONGSECTION: CH3600 - CH4000
1006614-DRG-09-NW-CC-L011	E1	NEWARK ROAD LONGSECTION: CH4000 - CH4237.527
1006614-DRG-09-NW-CC-X001	E1	NEWARK ROAD CROSS SECTIONS: CH0.000 - CH380
1006614-DRG-09-NW-CC-X002	E1	NEWARK ROAD CROSS SECTIONS: CH400 - CH780
1006614-DRG-09-NW-CC-X003	E1	NEWARK ROAD CROSS SECTIONS: CH800 - CH1260
1006614-DRG-09-NW-CC-X004	E1	NEWARK ROAD CROSS SECTIONS: CH1280 - CH1740
1006614-DRG-09-NW-CC-X005	E1	NEWARK ROAD CROSS SECTIONS: CH1760 - CH2220
1006614-DRG-09-NW-CC-X006	E1	NEWARK ROAD CROSS SECTIONS: CH2240 - CH2680
1006614-DRG-09-NW-CC-X007	E1	NEWARK ROAD CROSS SECTIONS: CH2700 - CH3080
1006614-DRG-09-NW-CC-X008	E1	NEWARK ROAD CROSS SECTIONS: CH3100 - CH3480
1006614-DRG-09-NW-CC-X009	E1	NEWARK ROAD CROSS SECTIONS: CH3500 - CH3960

Drawing number	Rev	Title
1006614-DRG-09-NW-CC-X010	E1	NEWARK ROAD CROSS SECTIONS: CH3980 - CH4238
ROAD DETAILS		
1006614-DRG-00-NW-CC-D001	E1	RAIL CROSSING DETAIL
1006614-DRG-02-NW-CC-D001	E1	TYPICAL FENCING & GATE DETAILS 1
1006614-DRG-05-NW-CC-D001	E1	BUS BAY & SHELTER DETAILS
1006614-DRG-08-NW-CC-D001	E1	TYPICAL ROAD SECTIONS 1
1006614-DRG-08-NW-CC-D002	E1	TYPICAL ROAD SECTIONS 2
1006614-DRG-08-NW-CC-D003	E1	KERBING DETAILS 1
1006614-DRG-08-NW-CC-D004	E1	KERBING DETAILS 2
1006614-DRG-08-NW-CC-D005	E1	SIDEWALK DETAILS
1006614-DRG-08-NW-CC-D006	E1	GUARDRAIL DETAILS: ARMCO
1006614-DRG-08-NW-CC-D007	E1	BALUSTRADE DETAILS
1006614-DRG-10-NW-CC-D001	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-NW-CC-D002	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-NW-CC-D003	E1	ACCOMMODATION OF TRAFFIC DETAILS

Drawing number	Rev	Title
1006614-DRG-10-NW-CC-D004	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-NW-CC-D005	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-NW-CC-D006	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-10-NW-CC-D007	E1	ACCOMMODATION OF TRAFFIC DETAILS
1006614-DRG-12-NW-CC-D001	E1	PAVEMENT LAYERWORKS DETAILS
1006614-DRG-12-NW-CC-D002	E1	PAVEMENT JOINT DETAILS
1006614-DRG-13-NW-CC-D001	E1	ROAD MARKINGS SPECIFICATIONS
1006614-DRG-13-NW-CC-D002	E1	ROAD SIGNAGE SPECIFICATIONS
1006614-DRG-13-NW-CC-D003	E1	TRAFFIC SIGNAL DETAILS 1
1006614-DRG-13-NW-CC-D004	E1	TRAFFIC SIGNAL DETAILS 2
INTERSECTIONS		
1006614-DRG-09-NW-CC-I001	E1	SETTING OUT PLAN: NEWARK/ URANIA ROAD INTERSECTION
1006614-DRG-09-NW-CC-I002	E1	SETTING OUT PLAN: NEWARK / SUB-STATION, SANTHOM AND PARKING INTERSECTIONS
1006614-DRG-09-NW-CC-I003	E1	SETTING OUT PLAN: NEWARK / VENTURA AND NORTHERN ROAD INTERSECTIONS
1006614-DRG-09-NW-CC-I004	E1	SETTING OUT PLAN: NEWARK / WORKSHOP 5, OCTOPUS INTERSECTIONS

Drawing number	Rev	Title
1006614-DRG-09-NW-CC-I005	E1	SETTING OUT PLAN: NEWARK /PORT RAIL ACCESS INTERSECTIONS
1006614-DRG-09-NW-CC-I006	E1	SETTING OUT PLAN: NEWARK / SAXON INTERSECTION
1006614-DRG-09-NW-CC-I007	E1	SETTING OUT PLAN: NEWARK / WAYFARER INTERSECTION
1006614-DRG-09-NW-CC-I008	E1	SETTING OUT PLAN: NEWARK / S32 STOCKYARD INTERSECTION
1006614-DRG-09-NW-CC-I009	E1	SETTING OUT PLAN: NEWARK / PETINGO ROAD INTERSECTION
1006614-DRG-09-NW-CC-I010	E1	SETTING OUT PLAN: NEWARK / PORT RAIL OPERATIONS ACCESSES 2
1006614-DRG-09-NW-CC-I011	E1	SETTING OUT PLAN: NEWARK / ELEC DEPOT AND CONTROL CABIN INTERSECTIONS
1006614-DRG-09-NW-CC-I012	E1	SETTING OUT PLAN: NEWARK / TRUCK STAGING EAST INTERSECTION
1006614-DRG-09-NW-CC-I013	E1	SETTING OUT PLAN: NEWARK ACCESS ROUND ABOUT INTERSECTION
1006614-DRG-09-NW-CC-I014	E1	SETTING OUT PLAN: NEWARK / OLD NEWARK INTERSECTION
STORMWATER DETAILS		
1006614-DRG-14-NW-CC-D001	E1	ROAD DRAINAGE: KERB INLET DETAILS
1006614-DRG-14-NW-CC-D002	E1	ROAD DRAINAGE: GRID INLET DETAILS
1006614-DRG-14-NW-CC-D003	E1	ROAD DRAINAGE: JUNCTION BOX DETAILS 1
1006614-DRG-14-NW-CC-D004	E1	ROAD DRAINAGE: JUNCTION BOX DETAILS 2



Drawing number	Rev	Title
1006614-DRG-14-NW-CC-D005	E1	ROAD DRAINAGE: PIPE TRENCHING DETAILS
1006614-DRG-14-NW-CC-D006	E1	ROAD DRAINAGE: CHANNEL DETAILS
1006614-DRG-14-NW-CC-D007	E1	ROAD DRAINAGE: PIPE CULVERT INLET / OUTLET DETAILS
1006614-DRG-14-NW-CC-D008	E1	ROAD DRAINAGE: SILT TRAP DETAILS - TYPE 1
1006614-DRG-14-NW-CC-D009	E1	ROAD DRAINAGE: SILT TRAP DETAILS - TYPE 2
1006614-DRG-14-NW-CC-D010	E1	ROAD DRAINAGE: DRAINAGE CHUTE DETAILS
1006614-DRG-14-NW-CC-D011	E1	ROAD DRAINAGE: SUBSOIL DRAINAGE DETAILS
AFFECTED SERVICES LAYOUTS		
1006614-DRG-20-NW-CC-U001	E1	SERVICES RELOCATION AND PROTECTION PLAN - WATER
1006614-DRG-20-NW-CC-U002	E1	SERVICES RELOCATION AND PROTECTION PLAN - WATER
1006614-DRG-20-NW-CC-U003	E1	SERVICES RELOCATION AND PROTECTION PLAN - SEWER
1006614-DRG-20-NW-CC-U004	E1	SERVICES RELOCATION AND PROTECTION PLAN - FENCE
1006614-DRG-20-NW-CC-U005	E1	SERVICES RELOCATION AND PROTECTION PLAN - ELECTRICAL AND DATA
1006614-DRG-20-NW-CC-U006	E1	SERVICES RELOCATION AND PROTECTION PLAN - ELECTRICAL AND DATA
AFFECTED SERVICES DETAILS		

Drawing number	Rev	Title
1006614-DRG-20-NW-CC-D001	E1	WATER BEDDING DETAILS
1006614-DRG-20-NW-CC-D002	E1	WATER VALVE BOX AND MARKER BLOCK DETAILS
1006614-DRG-20-NW-CC-D003	E1	WATER FITTING SCHEDULE
1006614-DRG-20-NW-CC-D004	E1	WATER THRUST BLOCK DETAILS
1006614-DRG-20-NW-CC-D005	E1	SEWER BEDDING DETAILS
1006614-DRG-20-NW-CC-D006	E1	SERVICE DUCT TYPICAL DETAILS

SECTION 2

6. MANAGEMENT AND START UP

6.1 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Contract kick-off meeting	Once off at the start of the contract	Pioneer Centre or as mutually agreed from time to time	<i>Project Manager</i> (and appropriate delegates), <i>Supervisor, Contractor</i>
SHE pre-mobilisation meeting	Once off at the start of the contract	Pioneer Centre or as mutually agreed from time to time	<i>Project Manager</i> (and appropriate delegates), <i>Supervisor, Contractor, CSHEO</i>
Risk register and compensation events	Weekly	Construction office, as agreed by the <i>Project Manager</i> or as may be mutually agreed from time to time	<i>Project Manager, Supervisor, Contractor</i> and appropriate key persons
Overall contract progress and feedback	Monthly	Pioneer Centre, Construction office, as agreed by the <i>Project Manager</i> or as may be mutually agreed from time to time	<i>Employer, Contractor's representative, Supervisor, Project Manager</i> and appropriate personnel
Safety, health, environmental and IR	Weekly	Construction office, or as may be mutually agreed from time to time	CSHEO, CM, <i>Project Manager</i> , SHEC, ProjEM, <i>Contractor's representative</i> , etc. as appropriate
Safety action meetings	Weekly	Construction office, or as may be	CSHEO, CM, <i>Project Manager, Contractor's representative</i> , etc. as appropriate

		mutually agreed from time to time	
Safety pre-mobilisation meeting	TBA	Construction office, or as may be mutually agreed from time to time	CSHEO, CM, <i>Project Manager</i> , <i>Contractor's</i> representative, etc. as appropriate
Planning and progress meeting	Weekly	Construction office, or as may be mutually agreed from time to time	<i>Project Manager</i> , <i>Supervisor</i> , <i>Contractor</i> and appropriate key persons
Technical Meetings	Monthly	Pioneer Centre or as mutually agreed from time to time	<i>Employer</i> , <i>Contractor's</i> representative, <i>Supervisor</i> , <i>Project Manager</i> and appropriate personnel
Contract Meetings	Monthly	Pioneer Centre or as mutually agreed from time to time	<i>Employer</i> , <i>Contractor's</i> representative, <i>Supervisor</i> , <i>Project Manager</i> and appropriate personnel

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *works*. Records of these meetings are to be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

All meetings are to be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register are not to be used for the purpose of confirming actions or instructions under the contract as these are to be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

6.2 Documentation Control

- In undertaking the 'Works' (including all incidental services required), the *Contractor* shall conform and adhere to the requirements of the '*Contractor* Documentation Submittal Requirements' Standard (DOC-STD-001). The *Contractor* is to ensure that the latest versions of the required application software and a suitable 'IT' Infrastructure are in place to support the electronic transmission of documentation.
- The project number shall be indicated on the subject line for all correspondence with TNPA. All correspondence between the *Contractor* and TNPA shall be directed to the *Project Manager*. The *Employer* shall distribute documentation via Document control with transmittal slip/note; the *Contractor* should always acknowledge receipt of documentation by signing the transmittal and return to *Employer's* Document control.
- The *Contractor* shall communicate via E-mail and all other hard copy document can be handed over to the *Project Manager* or posted via the following physical address.

The formal **Physical Address** for the Contract will be:

Pioneer Centre
San Thom Road
Port of Richards Bay
RICHARDS BAY

- This address will only be used in instances where documentation is couriered or hand delivery at the Site address is not possible.
- The *Contractor* should submit the organisational structure for purpose of the lines of communication once the contract is awarded on the kick-off meeting.
- All project documents shall be sent to the following personnel electronically and the *Contractor* shall submit hardcopies for all documents sent via email. All drawings shall be printed in an A1 colour (2 paper copy and 2 Sepia copy).

TO: Nhlanhla Dlamini: Nhlanhla.Dlamini@transnet.net.

CC: Zinhle Gumede: Zinhle.gumede2@transnet.net

- All detailed calculations, native software's format drawings, simulations shall be provided to TNPA, all drawings shall be compatible with AutoCAD software and other formatting tools specification highlighted in this works information somewhere. All outputs for the purposes of this project shall be handed over to TNPA as and when required during the

duration of the contract and all other documents shall be submitted to TNPA during the contract closeout.

- The control, maintenance and handling of these documents will be the *Contractor's* sole responsibility and at its expense and managed with a suitable document control system. The *Contractor* Documentation Register should be submitted; Document Control will allocate the *Employer's* documentation numbers on the *Contractor* Documentation Register and return it to the *Contractor*.
- A unique sequence number will be allocated to each document and remains the same for each submittal of that specific document. The *Contractor* shall use the *Employer's* document numbers and titles exactly as per the *Contractor* Documentation Register on all documentation submitted. Electronic file names for all documentation shall be exactly as per the *Employer's* documentation numbers, including the revision numbers. The format of these documents shall be in native format and/or PDF format and will be discussed at the kick-off meeting.
- Each Supplier of documentation and data to the Project is responsible for ensuring that all documentation and data submitted conforms to the Project Standards and Data Quality requirements in terms of numbering, uniqueness, quality, accuracy, format, completeness and currency of information. Data not meeting the Project Standards and Data Quality requirements will be cause for rejection and returned to the *Contractor* for corrective action and re-submission. Should any change be made to documentation already submitted, then a revised document shall be issued to replace the outdated information.
- The *Contractor* shall be responsible for the supply of all *Sub-Supplier / Contractor Manufacturer*, etc. documentation and data related to their package of work and shall ensure that these Sub-Suppliers have the capability to supply the necessary documentation and data in the required time frame and quality as outlined in the specified standards prior to awarding sub-orders.
- Ownership of data, designs, and documents – The parties agree that copyright in the data, design and documents shall, after payments by the *Employer* of the services to the *Contractor*, lie with the *Employer* subject to the *Employer's* indemnification against any claim from any party that may arise as a result of the *Employer's* use of such a document due to the *Contractor's* infringement of copyright.
- All documents issued to 3rd party *Contractor* and the *Employer* should be submitted through the EPCM *Contractor's* document control department. Any contractual communication between TNPA and the *Contractors* shall be issued by the *Contractor* on

behalf of TNPA. These communications shall be similarly recorded through the *Contractor's* document control department.

- The documentation to be submitted for review shall be submitted on or before the dates specified on the Documentation Register under cover of the *Contractor's* Transmittal Note, and the Transmittal Note must state the purpose of the submission. Documentation for different purposes must be sent on separate transmittals. The *Contractor* shall note that documentation will be rejected if this requirement is not met.
- Acceptance of documentation by the *Project Manager* will in no way relieve the *Contractor* of his responsibility for the correctness of information, or conformance with his obligation to provide the Works. This obligation rest solely with the *Contractor*.
- After review, a copy of the original reviewed/marked-up drawing/document, with the *Project Manager's* consolidated comments and document status marked on the *Contractor* Review Label, is scanned and the hard copy shall be returned to the *Contractor* under cover of the *Project Manager's* Transmittal Note for revision or re-submittal as instructed.
- The code resulting from the review is as follows, i.e.: -
 - Code C1 - "Proceed, No Exception Taken"
 - Code C2 – "Proceed, with Exceptions as Noted, Revise and Resubmit"
 - Code C3 – "Do Not Proceed, Revise as Noted and Resubmit"
 - Code C4 – "Information Only – Accepted as Submitted"
 - Code C5 (FN) – "Certified Final – No Further Submittal Required"
 - Code C6 (AB) – "Certified As-Built - No Further Submittal Required"
- The *Contractor* shall allow the *Project Manager* 2 weeks to review and respond to the *Contractor's* submission of the documentation, i.e., from time of receipt to the time of dispatch. However, work shall proceed without delay in the event of the late return of the documentation by the *Project Manager* with prior notification in writing by the *Contractor*.
- On receipt of the reviewed documentation the *Contractor* shall make any modifications requested/marked up and resubmit the revised documentation to the *Project Manager* within 2 weeks. Queries regarding comments/changes should be addressed with the *Project Manager* prior to resubmittal.
- All revised data shall be submitted by the *Contractor* in its entirety and shall reflect the revision control numbers and shall also indicate with documentation the revised documentation supersedes, if applicable. In the case of drawings every sheet has its own revision number and is revised as an individual document. In the case of the

documents all sheets under cover of one document number shall be under the same revision number and be resubmitted, even if the revision is a minor one.

- Changes of any form to the scope shall follow the Change Management Process and be correctly communicated (through the project communication plan/process) to all disciplines and documented. All changes to the project shall be reviewed and evaluated for their impact to the project.

6.3 Safety risk management

6.3.1 Contractor's General Requirements for Health and Safety

- The *Contractor* shall comply with the requirements of the Project Site Specific Health and Safety Specification.
- The *Contractor* is solely responsible for carrying out the work under the Contract having the highest regard for the health and safety of its employees, Transnet's employees and persons at or in the vicinity of the Site, the Works, temporary work, materials, the property of third parties and any purpose relating to the *Contractor* carrying out its obligations under this Contract.
- The *Contractor* shall conduct a baseline risk assessment for the designs and construction of the project to formulate a risk management plan for the Project. The baseline risk assessment shall comply with requirements of ISO 31000(Risk management — Guidelines). The methodology used to conduct risk assessments shall be clearly defined in the risk management plan report.
 - The baseline risk assessment shall reflect all the risk associated with activities including the evaluation of those risks. The following information shall be reflected on the Baseline risk assessment register.
 - Activity
 - Risk Description
 - Risk Sources
 - Risk analysis (Quantitative or/and qualitative)
 - Risk Treatment plan
 - Risk owner/ responsible person.
 - Risk treatment effectiveness analysis

- Risk monitoring and report including reviews.
- The *Contractor* must initiate and maintain safety precautions and programs to conform to all applicable Health and Safety laws or other requirements, including requirements of any applicable government instrumentality and client corporate, business unit and site requirements. The *Contractor* must, at its own cost, erect and maintain safeguards for the protection of workers and the public. The *Contractor* must manage all reasonably foreseeable hazards created by performance of the work.

The *Contractor* must:

- Provide all things and take all measures necessary for maintaining proper personal hygiene, ensuring safety of persons and property and protecting the environment at or near the Site.
- Avoid unnecessary interference with the passage of people and property at or near the Site.
- Prevent nuisance and excessive noises and unreasonable disturbances in performing the Services.
- Be responsible for the adequacy, stability and safety of all of its site operations, of all its methods of design, construction and work and be responsible for all of the work, irrespective of any acceptance, recommendation or consent by TNPA, its *Contractors*, employees, agents and invitees, or any Government Body.
- Costs for the above are borne by the *Contractor*.
- The *Contractor* must comply and is responsible for ensuring that all of its Sub-*Contractors* comply with the relevant legislation(s) and statutory regulations for health and safety, the Transnet Health and Safety requirements included in the Contract and other document pertaining to health & safety contained in the Programme Health & Safety Management System and include standards, policies, procedures, guidelines and safe work instructions.
- The *Contractor* and his employees shall have valid safety training and medical certificates from a registered Occupational Health Medical Practitioner when accessing or working on site. Copies of which shall be submitted to the *Project Manager and Project Risk officer* at the commencement of the contract.

The following personal protective equipment shall be worn at the Works when applicable.

- Full overalls
 - Hard hats with chin straps.
 - Acceptable Hearing Protection.
 - Provision of Safety Glasses/Goggles.
 - Full Safety harnesses attached to the structure when working at heights.
 - All persons shall wear either yellow or orange reflective vests. This is a prerequisite of Transnet.
- No alcohol is permitted on Site and within TNPA property. The *Employer* has a zero-tolerance policy in this regard and all personnel entering the Site will be required to undergo breathalyser tests.

6.4 Contractor's Health and Safety Management Plan

- The *Contractor* must prepare, implement and maintain a project-specific Health and Safety Management Plan. The plan must be based on the requirements set out in this specification as well as all applicable legislation. It must cover all activities that will be carried out on the project site(s), from mobilisation and set-up through to rehabilitation and decommissioning.
- The plan must demonstrate the *Contractor's* commitment to health and safety and must, as a minimum, include the following:
 - A copy of the *Contractor's* Health and Safety Policy; in terms of the OHS Act section 7.
 - Procedures concerning Hazard Identification and Risk Assessment, including both Baseline and Task-Based Risk Assessments.
 - Arrangements concerning the identification of applicable Legal and Other Requirements, measures to ensure compliance with these requirements, and measures to ensure that this information is accessible to relevant personnel.
 - Details concerning Health and Safety Objectives – a process must be in place for setting objectives (and developing associated action plans) to drive continual improvement.
 - Details concerning Resources, Accountabilities and Responsibilities – this includes the assignment of specific health and safety responsibilities to

individuals in accordance with legal or project requirements, including the appointment of a *Project Manager*, Health and Safety Officers, *Supervisors*, Health and Safety Representatives, and First Aiders.

- Details concerning Competence, Training and Awareness – a system must be in place to ensure that each employee is suitably trained and competent, and procedures must be in place for identifying training needs and providing the necessary training.
- Communication, Participation and Consultation arrangements concerning health and safety, including Safety Observations and Coaching, Toolbox Talks, Daily Safe Task Instructions, project health and safety meetings, and notice boards.
- Documentation and Document Control – project-specific documentation required for the effective management of health and safety on the project must be developed and maintained, and processes must be in place for the control of these documents.
- Processes and procedures for maintaining Operational Control, including rules and requirements (typically contained in Safe Work Procedures) for effectively managing health and safety risks, particularly critical risks associated with working at heights, confined spaces, mobile equipment and light vehicles, lifting operations, hazardous chemical substances, etc.
- Emergency Preparedness and Response procedures.
- Management of Change – a process must be in place to ensure that health and safety risks are considered before changes are implemented.
- Sub-*Contractor* Alignment procedures – a process must be in place for the assessment of sub-*Contractors* and suppliers with regard to health and safety requirements and performance (before any contract or purchase order is awarded);
- Measuring and Monitoring plans, including a plan for the measuring and monitoring of employee exposure to hazardous substances or agents (e.g. noise, dust, etc.) in order to determine the effectiveness of control measures;

- Incident Reporting and Investigation procedures describing the protocols to be followed with regard to incident reporting, recording, investigation and analysis.
- Non-conformance and Action Management procedures concerning the management of corrective actions.
- Performance Assessment and Auditing procedures concerning health and safety performance reporting, monthly internal audits to assess compliance with the project health and safety requirements, and daily site health and safety inspections; and
- Details concerning the Management Review process followed to assess the effectiveness of health and safety management efforts.
- Health and Safety Manager must register with SACPCMP to be allowed to practise construction safety in Transnet National Port Authority managed projects.
- Before placing a Health and Safety Manager on the project site(s), the *Contractor* must forward a copy of the person's CV to the nominated project management representative or to the TNPA Stream Health and Safety Manager for review and acceptance. A proposed candidate may be rejected should he/she not meet the experience and / or qualification requirements, or due to poor work performance on previous projects.
- The *Contractor* must appoint a full-time Health and Safety Officer for the duration of the contract that is registered with the SACPCMP (The South African Council for Project Construction Management Professions). If more than 100 employees are deployed on the project site(s) (directly or through sub-*Contractors*), at least two full-time Health and Safety Officers must be appointed, with an additional Health and Safety Officer appointed for every 100 additional employees thereafter.
- The Health and Safety Officer must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of sub-*Contractors*) have been completed. A Health and Safety Officer must be present during all shifts, so if work is carried out over more than one shift per day, the *Contractor* must make provision for an additional Health and Safety Officer.

- The *Contractor* ensures that its *Subcontractors* comply with the requirements of the SMP.
- The *Contractor* performs the works having due regard to the HSSP.
- The *Contractor* in the performance of the works establishes an incentive programme for its employees with respect to SMP compliance.
- The *Contractor* complies with the requirements of the SSRC with respect to his own activities and others on the Site and Working Areas.
- The *Contractor* makes the SMP available to its employees and *Subcontractors* in the language of this contract and other local languages as required.
- The *Contractor* participates in a HAZOP at intervals upon the instruction and direction of the *Project Manager*.
- The *Contractor* completes a JSA prior to carrying out any operation on the Site and/or Working Area to the approval of *Project Manager*.
- The lines of communication of the various personnel acting on behalf of the *Project Manager* who communicate directly with the *Contractor* and his key persons with respect to the SMP shall be through the *Project Manager*.
- The CM is responsible (in the context of the SMP only) for health and safety on the Site and Working Areas and reports to the *Project Manager*.
- The CM specific tasks (in the context of the SMP) are:
 - Identify any unsafe activities for the health and safety manager attention and stop any works that is unsafe for the employees or environment.

6.5 Contractor's Health and Safety Manager Responsibilities.

The *Contractor's* Health and Safety Manager specific tasks are

- Design the health and safety management systems specific to the need of the project, organisational and specific construction project management system.
- Facilitate and coordinate the preparation of a site-specific construction health and safety plan.
- Manage the process for the assessments and approval of sub-*Contractor's* health and safety plan in line to the Client requirements.
- Facilitate monthly health and safety meetings.

- Ensure identification of the hazards and risks relevant to the construction project through regular coordinated site inspections.
- Attend and participate in all project meetings
- Use of trends analysis to identify systems deficiencies and incident trends, outline relevant improvements
- Manage the necessary changes to the health and safety plans
- Manage the reporting and investigation of project related incidents
- Manage and maintain health and safety and communication structures and systems, distribution of health and safety specific documents to *Contractors*
- Monitor, measure and report on health and safety system performance through facilitating compliance health and safety audits
- Analysing of audit results and trends to ensure continual improvement
- Evaluate the levels of compliance of *Contractors* to the project health and safety plan and Transnet National Port Authority site specific health and safety specifications.
- Manage and evaluate processes for reporting of non-compliance issues and implementation of identified appropriate corrective and preventative action
- Manage site health and safety during defects liability period
- Prepare a health and safety close-out report as per Employer's requirements

Health and Safety Manager must register with SACPCMP to be allowed to practise construction safety in Transnet National Port Authority managed projects.

Before placing a Health and Safety Manager on the project site, the *Contractor* must forward a copy of the person's CV to the nominated project management representative to the TNPA Stream Health and Safety Manager for review and acceptance. A proposed candidate may be rejected should he/she not meet the experience and / or qualification requirements, or due to poor work performance on previous projects.

6.6 Contractor's Safety Officer

The *Contractor* must appoint a full-time Health and Safety Officer for the duration of the contract that is registered with the SACPCMP (The South African Council for Project Construction Management Professions). If more than 100 employees are deployed on the project site(s) (directly or through sub-*Contractors*), at least two full-time Health and Safety Officers must be

appointed, with an additional Health and Safety Officer appointed for every 100 additional employees thereafter.

The Health and Safety Officer must be on site when work commences at the start of the day and must remain on site until all activities for that day (including the activities of sub-*Contractors*) have been completed. A Health and Safety Officer must be present during all shifts, so if work is carried out over more than one shift per day, the *Contractor* must make provision for an additional Health and Safety Officer.

Each *Contractor's* Health and Safety Officer shall be responsible for:

- Reviewing all applicable legal and project health and safety requirements and providing guidance to *Contractor* and sub-*Contractor* personnel (particularly the *Contractor's Project Manager*) to help ensure compliance at all times;
- Assisting with the implementation of effective hazard identification and risk management processes for all work to be carried out by the *Contractor*;
- Participating in the Baseline Risk Assessment for the *Contractor's* scope of work (prior to site establishment) and ensuring that identified control measures are implemented;
- Participating in all Task-Based Risk Assessments conducted for the work to be carried out by the *Contractor* and ensuring that identified control measures are implemented;
- Conducting *Contractor's* health and safety induction training for all *Contractors* and sub-*Contractor's* personnel;
- Compiling and maintaining all health and safety related documents and records required of the *Contractor*;
- Communicating relevant health and safety information to *Contractor* and sub-*Contractor* personnel (e.g. incidents and lessons learnt, leading practices, hazards, risks and control measures, etc.);
- Carrying out Safety Observations and Coaching (one per day);
- Evaluating (on a daily basis) the content of the Daily Safe Task Instructions (DSTI's) conducted by the *Contractor's* appointed *Supervisors*, and attending at least one DSTI each day;
- Attending monthly *Contractor* and Site Health and Safety Meetings;
- Assisting with the implementation of the *Contractor's* Health and Safety Management Plan and associated Safe Work Procedures;

- Carrying out Planned Task Observations on an ad hoc basis;
- Assisting with the implementation, testing and maintenance of an effective Emergency Response Plan for all *Contractor* and sub-*Contractor* activities;
- Responding to workplace incidents (as appropriate);
- Participating in incident investigations;
- Maintaining accurate health and safety statistics (for the *Contractor* and all sub-*Contractors*), and compiling health and safety performance reports as required;
- Auditing the health and safety management system and workplace activities of the *Contractor* and each sub-*Contractor* on a monthly basis to assess compliance with the project health and safety requirements; and
- Tracking and reporting on the implementation of corrective actions (arising from incident investigations, audits, inspections, etc.).
- The *Contractor* must ensure that they have made adequate provision of safety officers as per the works information works packages i.e. (construction of mechanical and electrical works) Health and Safety Officer is adequately equipped to enable him to perform his duties effectively. Each Health and Safety Officer must be provided with the following:
 - A computer with access to all necessary systems, including access to e-mail and the internet;
 - A mobile telephone on contract or with adequate pre-paid airtime; and
 - A vehicle where required or instructed by a nominated project management representative (depending on the size and location of the project site(s)).
 - A Health and Safety Officer must be computer literate, fluent in English, and must have the following minimum qualifications, training and experience:
 - At least 5 years' experience as a Health and Safety Officer on construction projects;
 - SAMTRAC or an equivalent training course as a minimum qualification;
 - Experience and appropriate training with regard to implementing and maintaining a health and safety management system compliant with national legislation or an international standard;

- Experience and appropriate training with regard to construction related hazard identification and risk management processes;
- Competence, experience and relevant training with regard to incident investigation procedures and causation analysis;
- Health and safety auditing experience and training;
- A valid First Aid certificate of competency;
- Fire prevention and protection training; and
- A valid Driving Licence (light motor vehicle).
- Registered as a Health and Safety Officer or Health and Safety Manager with SACPCMP depending on the size of the project and on the risk.

Before placing a Health and Safety Officer on the project site(s), the *Contractor* must forward a copy of the person's CV to the nominated project management representative or to the Programme Health and Safety manager for review and acceptance. A proposed candidate may be rejected should he not meet the experience and/or qualification requirements, or due to poor work performance on previous projects.

6.7 Contractor's Safety Manual

The *Contractor* must provide a hard copy of its safety manual, policies and procedures to the *Project Manager* for acceptance prior to the commencement of any site work. The *Contractor* must ensure that his personnel, at all times, strictly observe and comply with the procedures set out therein. The *Project Manager* or the *Project Manager's* nominated Representative may from time-to-time request safety procedures applicable to the area of operations. The *Contractor* must forward to the *Project Manager* any updates or revisions to its safety manuals, policies or procedures as soon as practicable following revision or update.

The *Project Manager* may require the *Contractor* from time to time to supplement its safety manual, policies and procedures with guidelines and/or operating standards provided to the *Contractor* by the *Project Manager*. The *Contractor* must comply with such requests where the request is consistent with the requirements of the Contract. The *Contractor* must give prompt written notice to the *Project Manager* of any objection to the requested supplement, including the reasons for objection. The *Project Manager's* rights under this Clause are not intended, and

must not be construed, to relieve the *Contractor* from any obligations to ensure compliance with all provisions of this Contract.

6.8 Performance Measurement and Reporting

6.8.1 Health and Safety Statistics

The *Contractor* and each of its Sub-*Contractors* must complete and submit Health and Safety statistics to the *Project Manager* or the *Project Manager's* nominated representative, or as amended by the *Project Manager*, before mid-day on the Friday of each week. The *Contractor* must submit monthly Health & Safety Statistics before mid-day on the last day of each month to the *Project Manager's* nominated representative.

6.8.2 Safety Management Records

The *Contractor* must submit to the *Project Manager* for acceptance a schedule of the specific Health and Safety records it intends to maintain for the Contract. As a minimum, such records are as specified by applicable legislation. Copies are provided to the *Project Manager* or the *Project Manager's* nominated Representative if requested.

6.8.3 Field Technical/Safety Audit by the *Project Manager*

The *Project Manager* or the *Project Manager's* nominated Representative has the right to conduct audits/inspections of the Consultant, Professional Service Provider (PSP) and *Contractor* Safety Management Plan implementation, operations, equipment, emergency procedures, etc., at any time, and the *Contractor* must fully cooperate with the *Project Manager* or the *Project Manager's* nominated Representative during such audits/inspections. The *Project Manager's* rights under this clause does not, must not and will not relieve the Consultant, Professional Service Provider (PSP) and *Contractor* of its own obligations to conduct audits and reviews of its own Health and Safety performance.

Where such audits/inspections reveal deficiencies in the *Contractor* procedures, drills, training or equipment, or non-conformities with the *Contractor* accepted project Safety Management Plan, of a minor nature (Risk Rating of 6 or less), the *Contractor* must investigate the cause of the nonconformity and initiate corrective and preventive action to rectify such deficiencies and non-conformities and prevent recurrence as soon as practicable.

Where such audits/inspections reveal deficiencies of a major nature (Risk rating of 7 or greater), the *Contractor* must stop work on the operation/activity concerned, immediately investigate the cause of the nonconformity, and initiate corrective actions to rectify such deficiencies and non-

conformities and to prevent recurrence. These corrective action plans are submitted to the *Project Manager* for review and comment within 24 hours of the audit finding.

Where such deficiencies include an unsafe practice or a breach of the statutory or the Contract's requirements, the *Project Manager* or the *Project Manager's* nominated Representative may in accordance with the General Conditions of Contract suspend the work associated with the unsafe practice or breach until the deficiency is rectified.

The *Project Manager* or the *Project Manager's* nominated Representative will establish a schedule of regular field safety audits which will be based on an audit tool aligned to the *Contractor* Safety Management Plan and site operations and activities. The *Contractor* audit conformance will be assessed as a percentage and where conformance is better than 90% it will be considered satisfactory and the *Contractor* must develop and implement an action plan within 4 weeks, to be reviewed at the next regular audit. Where the *Contractor* level of conformance is between 75 – 90%, a corrective action plan will be required to be developed and implemented within 2 weeks, and a follow up audit will be carried out. Where the *Contractor* conformance is less than 75% the *Contractor* must stop work until an investigation of the cause/s has been completed and corrective actions have been developed and implemented by the *Contractor*.

The *Contractor* must provide to the *Project Manager* or the *Project Manager's* nominated Representative, at a time to be agreed, but not to exceed monthly intervals, a regular status report on all outstanding corrective actions until they are successfully closed out.

6.8.4 Unsafe Act/Condition Auditing

The *Contractor* must implement a system to recognize, correct, and report unsafe acts/conditions (Unsafe Act/Condition Auditing) associated with all Site activities.

All such observations must be recorded and delivered to the TNPA Health and Safety Manager.

6.8.5 Involvement, Communication and Motivation

The *Contractor* and subcontractor's workforce must, through their supervision, safety notice boards, toolbox meetings and daily pre-start meetings be kept aware of safety related matters.

6.9 Safety Meetings

The *Contractor* must implement and comply with OH&S Act, Section 19

The *Contractor* must conduct weekly safety meetings with his employees to foster safety awareness. Copies of minutes and action items arising from such Toolbox meetings is submitted

or otherwise made available for review by the *Project Manager* or the *Project Manager's* nominated Representative.

Such meetings should at least address:

- Accident / safety incidents
- Hazardous conditions
- Hazardous materials / substances
- Work procedures
- Protective clothing / equipment
- Housekeeping
- General safety topics
- Job or work look-ahead issues
- Safety statistics
- Significant Safety Occurrences (SSO)

The *Contractor* must conduct at least one formal safety meeting per month and must maintain appropriate records of attendance and meeting content. Such records are made available to the *Project Manager's* Representative. In addition to Daily Safe Task Instructions, the *Contractor* must conduct at least weekly "toolbox" meetings to discuss safety issues and procedures.

6.10 Pre-Start Safety Briefings

The *Contractor* must hold documented Daily Safe Task Instructions with each work team before the start of each shift. Attendance records and brief topic notes is kept for auditing and record purposes.

6.11 Safety Review Meetings

The *Contractor* Site Manager and a Site Safety Representative must take part in weekly safety review meetings between the *Contractor* and the *Project Manager* or the *Project Manager's* nominated Representative.

The *Contractor* must attend all project safety meetings as outlined in the Project Safety Management Plan.

6.12 Site Safety Review Committee

The *Contractor* complies with the requirements of the SSRC with respect to his own activities and others on the Site and Working Areas.

6.13 Job Safety Analysis

The *Contractor* completes a JSA prior to carrying out any operation on the Site and/or Working Area to the approval of the *Project Manager*.

6.14 Lines of Communication

The following personnel act on behalf of the *Project Manager* and may communicate directly with the *Contractor* and his key persons with respect to the SMP:

- Construction Manager (CM)
- Project Site Safety Manager (PSSM)

6.15 Roles and responsibilities

The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to the SMP and health and safety issues are as stated in the paragraphs following:

6.16 Construction Manager

The CM is responsible (in the context of the SMP only) for health and safety on the Site and Working Areas and reports to the *Project Manager*.

The CM specific tasks (in the context of the SMP) are:

- Implement the safety management system
- Monitor compliance to the established safety management system
- Ensure risk is at an acceptable level
- Ensure Consultant Construction Management Team are competent
- Provide for:
 - Planning, organisation, leadership and control
 - Particular technical competencies for critical work
 - Supervision and control on each shift
 - Regular monitoring and assessment
 - Workplace inspections

6.17 Project Site Safety Manager

The PSSM is responsible for ensuring that the *Contractor* complies with the SMP. The PSSM acts on behalf of the *Project Manager*.

The PSSM specific tasks (in the context of the SMP) are:

Define, in accordance with the HSSP, the:

- Safety program (instructions, training, meetings, inspections, incentive)
- Health and medical program
- Checks that *Contractors* have issued their Health and Safety plans, PPSPS and procedures before the beginning of work
- Organizes safety awareness campaigns
- Promotes communication on all health and safety matters (awards, incentives, meeting/inspections/audits reports)
- Checks conformance of equipment to technical requirements and regulations.
- Issues and address the site EHS activities reports
- Promotes everybody's best efforts to keep accident frequency and severity ratios at their lowest level
- Promotes a proper and continuous housekeeping of plant and temporary facilities in order to create the most suitable conditions for workers to work and to be encouraged to follow HSE requirements
- Conducts worksite EHS walks with all *Contractors*, and directs appropriate corrective actions
- Monitors that all factors likely to improve health and safety are taken into consideration, particularly those which lead to:
 - Promoting personnel protection as an absolute requisite
 - Investigating, identifying and neutralizing potential hazards
 - Close coordination with all parties involved in construction in order to avoid overcrowded areas and dangerous operations
 - Thorough preparation of work critical phases

- Close contacts to local EHS authorities
- Continuous follow-up in order to correct immediately unsafe acts and situations
- In case of accident, he takes actions necessary to:
 - Initiate quick interventions of the emergency means.
 - Check that first aid and evacuation of injured persons are properly carried out.
 - Obtain a clear accident report from the sub-*Contractor* concerned.
 - Report immediately to the Construction Manager.
 - Investigate to identify the root causes of all incidents and near misses.

6.18 Commissioning Safety Study

The *Project Manager*, through his Construction Management Team, will facilitate and coordinate a formal Commissioning Safety Study and ensure that required procedures are prepared prior to the commencement of the commissioning phase.

The Commissioning Safety Study will provide a final checkpoint for the completed work and is part of the process for ensuring that all necessary actions have been completed. The elements to be considered include:

- Formal hazard analyses for pre-commissioning and commissioning activities have been completed, appropriately documented and communicated, and are available to all personnel.
- Punch-list work has been sufficiently completed so that installations are safe to apply hazardous energy.
- Documentation relevant to any modifications has been created/updated.
- Safe operating, maintenance and emergency procedures are in place.
- Operating and maintenance manuals are available, and training of commissioning employees has been completed.
- Red Line drawings are available.

- A Commissioning Permit (to apply hazardous energy) is developed and implemented.
- The *Project Manager* will ensure that after commissioning there is a formal documented hand over to operations and maintenance personnel and others who will be impacted by hazards that have been identified during project activities. This will involve communication of any changes to the process hazards, procedures and operating philosophy. Safe systems of work will be established and updated throughout the Project. Safe systems of work will be subject to on-going review to ensure their effectiveness. Site-wide Permits to Work will be used as the basis of safe systems of work for specified hazardous activities.

6.19 Environmental constraints and management.

- The *Contractor* shall at all times, comply with all relevant statutes relating to various aspects of Environmental Management as well as associated regulations that will include but not limited to the NEMA (National Environmental Management Act, Act 107 of 1998), Specific Environmental Management Acts such as the National Environmental Management Waste Act 59 of 2008, National Environmental Management Biodiversity Act 10 of 2004, Protected Areas Act 57 of 2003 as well as the Integrated Coastal Management Act 24 of 2008 and Sectoral Specific legislation such as the National Water Act, Act 36 of 1998 and the National Heritage Resources Act, Act 25 of 1999.
- All work shall be undertaken according to the Transnet Governance Framework and the *Contractor* shall conform to the following Transnet standards:
 - Transnet Integrated Management System (TIMS) Policy Commitment Statement
 - Transnet Standard Operating Procedure for Construction Environmental Management (SOP CEM) 009-TCC-CLO-SUS-11386 Rev 1.0
 - Transnet *Contractor* Environmental and Sustainability Specification Guidelines (CESSG) TRN-IMS-GRP-GDL-014.4 Rev 3.0
 - Approved DFFE Environmental Maintenance Management Plan for Port of Richards Bay
- The *Contractor* shall ensure that all authorisations, permits and licence conditions, if applicable, are implemented and complied with in the project.
- The *Contractor* performs the works and all construction activities within the site and working areas having due regard to the environment and to environmental management practices as outlined in the documents listed in bullet number 2 above and the Project Environmental Specification (PES), if applicable.

- The SOP CEM describes the main roles and responsibilities of the project team with respect to environmental management.
- The CESSG describes the minimal acceptable standard for environmental management for a range of environmental aspects commonly encountered on construction projects and sets environmental objectives and targets, which the *Contractor* observes and complies.
- The PES describes the specific environmental standards applicable to the works (the site and the working areas) as required by the relevant project environmental authorisations and is supplementary to the CESSG.
- The above requirements shall be applicable to the *Contractor*, its *Subcontractors*, Service providers and Suppliers.
- The *Contractor* must sign the Declaration of Understanding (DOU) as a commitment to abide with Transnet's Environmental Governance Framework and the Port of Richards Bay's Environmental Maintenance Plan, approved by the relevant authority.
- The *Contractor* must make a sufficient budget provision to meet all the project environmental management requirements for the duration of the contract including the rehabilitation phase.
- The *Contractor* must appoint a fulltime Environmental Resource (ER) to monitor and manage compliance with relevant environmental specifications, guidelines and all applicable environmental legislation. The Environmental Resource must as a minimum have a Diploma in Natural Science or Environmental Studies and have a minimum of >1 year but ≤ 2 years of relevant on the job experience. The roles and responsibilities of the *Contractor's* ER are stated in SOP CEM. Construction work will not commence or continue without an ER. If the *Contractor's* ER resigns, the ER must be replaced by someone with the same level of competency. Construction will commence when the ER has been replaced, and a new ER accepted by the *Employer*.
- The *Contractor* will be required to submit an Environmental File to the *Employer* post tender award. Detailed requirements such as Audits dates, deadlines etc. from the *Employer* will be made known on award of the contract. Environmental Site Access Certificate will not be granted until the Environmental File has been approved by the *Employer's* Environmental Resource.
- The *Contractor* shall identify the kinds of environmental impacts that will occur as a result of their activities and accordingly prepare separate method statements describing how each of these impacts will be prevented or managed so that the standards set out in the SOP CEM document are achieved. The method statements will be prepared in accordance with the requirements set out in the CESS Guidelines. These method

statements shall form part of the Environmental File. The *Contractor* shall ensure that his management, foremen and the general workforce, as well as all suppliers and visitors to site have attended the Environmental Induction Programme prior to commencing any work on Site. If new personnel commence work on the Site during construction, the *Contractor* shall ensure that these personnel undergo the Environmental Induction Programme and are made aware of the environmental specifications on site.

- Method statements need to be compiled by the *Contractor* throughout the Construction and Commissioning phase of the project. These Method Statements must be approved by the Transnet Construction Manager and Transnet Project Environmental Resource. Approval must at least be two weeks prior to the proposed commencement of the activity. Emergency construction activity method statements may also be required. The activities requiring method statements cannot commence if they have not been approved by the Transnet PER.
- Where the *Contractor* was negligent and caused any form of pollution the damages shall be rectified at the *Contractor's* cost.
- The *Contractor* shall be responsible for rehabilitating and cleaning all areas to the satisfaction of the *Employer* as detailed in the SOP CEM and CESSG.
- Road within the Port consist of cargo contaminated road material, where road is gravel, the composite of surface material can be classified as hazardous hence hazardous procedures of removing, transporting and disposal of hazardous material shall be followed. The *Contractor* shall be aware that certain roads consist of cargo spillage hence the milling and recycling of Asphalts will not be feasible due to the magnitude of cargo spillages in those areas. The surface material shall be safely disposed as guided by hazardous waste handling. Provision for removal and disposal remains the responsibility of the *Contractor*, the *Contractor* shall include in his rate, removal and disposal of hazardous waste from site. Sufficient funds to be allocated for handling and disposal of this type of waste.

6.20 Quality assurance requirements

The *Contractor* shall have, maintain and demonstrate its use to the *Project Manager* (and/or the *Supervisor* to satisfy the requirements of 2, 3, 6.2, 6.3 and 6.7) the documented Quality Management System to be used in the performance of the *works*. The *Contractor's* Quality Management System shall conform to International Standard ISO 9001:2015 and TNPA General Quality Requirements for *Contractors* and suppliers TNPA-QUAL-REQ-014.

The *Contractor* submits his Quality Management System documents to the *Project Manager* as part of his programme under ECC Clause 31.2 to include details of:

- Quality Plan for the contract;
- Quality Policy
- Inspection and Test Plans (ITP's) also referred to as Quality Control Plans (QCP's)
- Index of Procedures to be used; and
- A schedule of internal and external audits during the contract

6.20.1 Project Quality Plan

The Project Quality Plan (PQP) shall outline the quality strategy, methodology, quality resource allocation, Quality Assurance and Quality Control co-ordination activities to ensure that the scope meet the standards stated in the Scope Information.

The *Contractor's* PQP shall provide a description of how documents provided by the *Employer* to the *Contractor* are to be managed. The *Contractor* develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.

The *Employer* indicates those documents required to be submitted for information, review or acceptance and the *Contractor* indicates such requirements within his register of documents.

The register shall indicate the dates of issue of the documents with the *Employer* responding to documents submitted by the *Contractor* for review or acceptance within the period for reply prior to such documents being used by the *Contractor*.

6.20.2 Quality Manual

A copy of the *Contractor's* Quality Manual will be requested for review by the *Employer* followed, by a Quality Management Systems (QMS) audit at the *Contractor's* Head Office to obtain evidence that a satisfactory quality management system is being maintained.

6.20.3 Quality Data Book Index

The *Contractor* shall submit a project specific quality data book index that lists all the project deliverables as per the contract requirements.

6.20.4 Quality Officer

The *Contractor* shall nominate a suitably experienced quality representative for all aspects of the Works, including general Site activities, with a staff complement that is adequate to perform the requirements of the PQP. The *Contractor* shall submit the CV and qualifications / certificates of his nominated quality representative for the *Project Manager's* review and acceptance. .

6.20.5 Quality Control Plan

- a) The *Contractor* shall provide a Quality Control Plan (Inspection and Test Plan) specifying his proposed quality control activities for the entire scope of supply and scope of works. The Quality Control Plan shall incorporate, as a minimum, an INSPECTION CHECK LIST. The Quality Control Plan shall reference the procedures, codes and standards which apply to the listed activities, the acceptance criteria, and the records to be produced. Similarly all the activities, whether executed on site or offsite that forms part of the works, shall be subjected to the exact level of quality control and checking by the *Contractor*. The Quality Control Plan shall be prepared using the *Contractor's* standard format.
- b) Deviations from Quality Control Plans may only be permitted following acceptance in writing by the *Project Manager* and/or the appointed Third-Party Inspection Authority.
- c) The *Contractor* shall not undertake any work in advance of the review and acceptance of the Quality Control Plan without the written consent from the *Employer* or *Project Manager*.
- d) During the review of the Quality Control Plan / Inspection and Test Plan, Inspection and Test intervention points will be included by Transnet and, where applicable, the Third-Party Inspection Authority to indicate their intended monitoring during manufacturing, fabrication, and installation.
- e) The *Contractor* shall ensure that any work sub-contracted will be covered by Quality Control Plans / Inspection and Test Plans generated by the relevant Sub-*Contractor* or Supplier.

6.20.6 Subcontractor quality assurance

The *Contractor* shall also ensure that all Sub-*Contractors* are suitably qualified and experienced to carry out the work for which they have been sub-contracted.

The *Employer* may, at own discretion, require a Quality Audit of sub-*Contractor(s)* to ensure that the sub-*Contractor(s)* have the necessary management, facilities, skilled staff, and quality control facilities to carry out the Works to ensure compliance with the Works Information.

The *Contractor* shall accept full responsibility for the quality of his sub-*Contractor(s)* work and of materials used, irrespective of any quality surveillance that may be carried out by the *Employer* or his representative.

6.20.7 Further high-level Quality assurance requirements the *Contractor* to consider.

- The *Contractor* shall use a SANAS accredited laboratory,
- The inspection, sampling and testing shall be conducted by a competent person, shall be registered with ESCA or other relevant bodies.
- The final report shall be signed off by the professional registered person (Pr. Engineer or Pr. Tech).
- The *Contractor* develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan. Quality related reports include material classification reports, laboratory testing, site compaction testing reports, concrete designs, slump tests, signalling commissioning etc.
- The *Contractor* shall comply will all relevant road construction standards, regulations, and principles.

The *Contractor* develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.

The *Project Manager* indicates those documents required to be submitted for either information, review or acceptance and the *Contractor* indicates such requirements within his register of documents. The register shall indicate the dates of issue of the documents with the *Project Manager* responding to documents submitted by the *Contractor* for review or acceptance within the *period for reply* prior to such documents being used by the *Contractor*.

The Quality Management Plan(QMP) means the *Contractor's* statement, which outlines strategy, methodology, resources allocation, QA and Quality Control co-ordination activities to ensure that the works meet the standards stated in the Works Information. The level of detail in the QMP shall be sufficient to describe the project quality management system.

The Quality Policy means the organisations highest level policy relevant to quality assurance. It also contains quality objectives and is to be authorised by the most senior member of the executive management. The objectives are to be evaluated on an annual basis using measurable performance data.

The Index of Procedures means a comprehensive list of policies, procedures and works instructions. These documents to be subject to version control.

Inspection and Test Plans (ITP's) to be compiled for all construction processes and reflect the inspection regime appropriate to the quality risks that needs to be managed and mitigated. These documents shall follow from method statements and be further augmented by the use of inspection sheets which allows day to day records of quality control actions taking place. Space to be allowed for the Client representatives signatures that may indicate acceptance or otherwise.

6.21 Programming constraints

The *Contractor* uses Primavera (Primavera P6 is a minimum requirement) for his programme submissions or a similar programme software package equivalent to Primavera subject to the prior written notification and acceptance by the *Project Manager*.

The *Contractor* shows on his Accepted Programme and all subsequently revised programmes schedules showing the critical path or paths and all necessary logic diagrams demonstrating sequence of operations.

The *Contractor* presents his first programme and all subsequently revised programmes (see ECC Clauses 31.2 and 32.1) in hard copy format and soft copy format, [refer to paragraph 6.2 of C3.1 *Employer's Works Information*]

The *Contractor* shall be aware that the works will be conducted in operational areas hence the programme shall accommodate delays due to operational related challenges such as traffic.

The *Contractor* shows on each programme he submits to the *Project Manager*, the requirements of the [CEMP, SES, PES and SMP state others as required] as described in the Works Information, together with the associated environmental method statements.

The *Contractor* shows on each programme he submits to the *Project Manager*, the requirements of Health and Safety [refer to paragraph 7.2 6.3 H&S issues need to be highlighted on the programme], design requirements [refer to paragraph design issues / activities on the programme], procurement requirements and construction operations on the programme, but the *Project Manager* might require various mandatory statements (e.g.) in relation to Equipment design and/or assembly / dismantling].

The *Contractor* complies with the *Employer's* programme (Key Dates provided) when he submits his first programme.

The *Contractor* complies with the *Employer's* programme {i.e., estimated project duration of seventy-two (72) weeks [eighteen months]} inclusive of mobilisation period, public holidays, builder's break [i.e., 16 December – 10 January] and known special non-working days} when he submits his first programme.

Furthermore, the number of days in excess of the number of working days anticipated to be lost, due to climatic conditions are already included on the estimated project duration. The number of anticipated rain days are shown in section 1200, subclause B1215 in the project specifications.

- It is incumbent upon the *Contractor* to submit a level 4 schedule/programme clearly showing the project duration and critical path for approval within 14 days of the award of this contract. The schedule/programme is to be discussed and agreed between the *Contractor* and Sub-*Contractor's* prior to submission, this must be subject to discussion and review by the *Project Manager*. No claim for an extension of time or acceleration must be entertained by the *Project Manager* due to any failure of the *Contractor* and Sub-*Contractor(s)* to accommodate one another.
- The *Contractor's* proposed construction programme must be in a bar chart form.
- The *Contractor* must submit his programme within the time stated (14 days) above, to the *Project Manager* for acceptance. The programme must be in the form of a bar chart or any other time-activity form acceptable to the *Project Manager* and must clearly show:
 - The proposed rate of progress in order to complete the Works within the required period as tendered, showing the various activities, their durations and proposed resourcing levels (major plant and labour) for each element of the Works. Sufficient detail must be provided to enable the *Project Manager* to be able to gauge construction progress.
 - The sequence of activities and any dependencies (time or resource related) between them.
 - The critical path activities.
 - Key dates/information, etc. in respect of work to be carried out or to be provided by others.
 - The anticipated value of work to be done during each month i.e. monthly cash flows.
 - Other information specifically required by the *Project Manager*.
 - The *Contractor* shows on each revised programme he submits to the *Project Manager* a resource histogram showing planned versus actual progress, deviations from the accepted Programme and any other remedial actions proposed by the *Contractor*.

- The *Contractor* must submit programme report information to the *Project Manager* at mutually agreed intervals in addition to the intervals for submission of revised programmes.
- All activities, including establishment on site, trimming, finishing and the completion of all minor ancillary works are to be included in the programme.

NB: The *Contractor's* performance must be strictly monitored on the provided and mutually agreed and accepted programme.

- The *Contractor's* monthly programme narrative report includes:
 - Level 4 Project Schedule – showing two separate bars for each task i.e. the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted Programme.
 - 2-week Look ahead Schedule - showing two separate bars for each task i.e., the primary bar must reflect the current forecast dates and the secondary bar the latest Accepted Programme.
 - Detailed progress report
 - Details of activities running late, indicating what steps have been or must be taken to ensure that the work is completed within the specified time.
 - A report on all labour, plant and materials on site.
- When drawing up the programme, the *Contractor* must, inter alia, take into consideration and make allowance for:
 - Expected weather conditions and their effects.
 - Known physical conditions or artificial obstructions.
 - The accommodation and safeguarding of public, traffic and *Employer's* assets.
 - Dealing with, altering, and installing services.
 - The reasonable requirements and programmes of the *Employer*.
 - All other actions required in terms of this contract.
- The following details must be submitted together with the programme:
 - The number of working hours per day, working days per week, assumed holiday or shut down periods on which the programme is based.

- The overall labour and major plant resource levels on which the programme is based.
- The detailed Traffic Management Plan during Installation, Testing and Commission.
- The *Contractor* must base his initial programme of work on the scope of work as described in the works information, project specification and the Bill of Quantities. This programme must be reviewed on a regular basis by the *Contractor* in accordance with changing circumstances, delays and amendments to the work ordered by the *Project Manager*.
- Minor revisions to the accepted programme may be introduced from time to time by mutual agreement between the *Contractor* and the *Project Manager*. Should there be any major revision required in the programme, this can only be implemented through a written instruction to the *Contractor* by the *Project Manager* and subsequently a revised programme must be submitted within two weeks of receipt of such an instruction.
- It should be noted that it is in the *Contractor's* interest to provide a comprehensive programme giving as much information as possible about the times allowed for the various activities as well as resources or other limitations affecting the programme, since the accepted programme may be used to evaluate any claims in terms of the general conditions of contract for extensions of time.
- Acceptance of the programme merely constitutes an acknowledgement by the *Project Manager* that the Accepted Programme represents a contractually compliant, realistic and achievable depiction of the *Contractor's* intended sequence and timing of construction of the works.
- Acceptance of the programme does not relieve the *Contractor* of his duties in the terms of the contract obligations.
- Acceptance does not turn the *Contractor's* programme into a contract document or mandate that the works should be constructed exactly as set out in the Accepted Programme.
- Acceptance does not turn the *Contractor's* programme into a contract document or mandate that the works should be constructed exactly as set out in the Accepted Programme.

- The *Contractor* must submit to the *Project Manager*, at least 5 working or as required by *Project Manager* days before each monthly site meeting copies of the following:
 - The contract programme with progress charts and programme graphs updated to reflect the planned versus actual progress to date.
 - The *Contractor* shall update the program and supply the progress reports to show actual and expected progress compared to the latest agreed Accepted Program. Progress information may be verified by the *Project Manager* at any stage.
 - A summary of progress on site over the month preceding the site meeting. The report must be in the form of a detailed narrative to the contract programme.
 - Details of activities running late, indicating what steps have been or must be taken to ensure that the work is completed within the specified time.
 - Critical action items (Top 10)
 - A report on all labour, plant and materials on site.

7. Procurement

7.1 Code of Conduct.

- Transnet aims to achieve the best value for money when buying or selling goods and obtaining services. This however must be done in an open and fair manner that supports and drives a competitive economy. Underpinning our process are several acts and policies that any supplier dealing with Transnet must understand and support. These are:
 - The Transnet Procurement Procedures Manual (PPM);
 - Section 217 of the Constitution - the five pillars of Public PSCM (Procurement and Supply Chain Management): fair, equitable, transparent, competitive and cost effective.
 - The Public Finance Management Act (PFMA);
 - The Broad Based Black Economic Empowerment Act (B-BBEE); and
 - The Anti-Corruption Act.
- This code of conduct has been included in this contract to formally apprise Transnet Suppliers of Transnet's expectations regarding behaviour and conduct of its Suppliers.

7.2 Prohibition of Bribes, Kickbacks, Unlawful Payments, and Other Corrupt Practices.

- Transnet is in the process of transforming itself into a self-sustaining State-Owned Enterprise, actively competing in the logistics industry. Our aim is to become a world class, profitable, logistics organisation. As such, our transformation is focused on adopting a performance culture and to adopt behaviours that will enable this transformation.
- Transnet will not participate in corrupt practices and therefore expects its suppliers to act in a similar manner.
- Transnet and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with and payments to our suppliers.
- Employees must not accept or request money or anything of value, directly or indirectly, to:
 - Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity.

- Win or retain business or to influence any act or decision of any decision stakeholders involved in sourcing decisions; or
- Gain an improper advantage.
- There may be times when a supplier is confronted with fraudulent or corrupt behaviour of Transnet employees. We expect our Suppliers to use our “Tip-offs Anonymous” Hot line to report these acts. (0800 003 056).
- Transnet is firmly committed to the ideas of free and competitive enterprise.
 - *Contractors* are expected to comply with all applicable laws and regulations regarding fair competition and antitrust.
 - Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing B-BBEE spend (fronting).
- Transnet’s relationship with suppliers requires us to clearly define requirements, exchange information and share mutual benefits.
- Generally, Suppliers have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
 - Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc);
 - Collusion.
 - Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, B-BBEE status, etc.);
 - Corrupt activities listed above; and
 - Harassment, intimidation or other aggressive actions towards Transnet employees.
- Suppliers must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted, and the supplier is expected to participate in an honest and straight forward manner.
- Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

7.3 Conflicts of Interest.

A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of Transnet.

- Doing business with family members
- Having a financial interest in another company in our industry.

8. Contract Management

8.1 Site diary

- The *Contractor* shall keep daily log records of site activities: Task name, activity time, task methodology, resources used (Tools, machinery, personnel etc) and task constraints etc.
- The *Contractor* shall record weather information at all times,
- During any layerworks placement temperature, moisture content, humidity, and other relevant weather conditions details shall be recorded accordingly.
- Any material placed on site or installed shall be done in accordance with specified installation methodology or weather conditions, hence the record of current weather conditions and acceptable material placing weather conditions shall be recorded always on the site diary.
- Site Diary shall be inspected and signed by the NEC *Supervisor* as and when required by the *Employer*, hence Site Diary shall be provided to the NEC *Supervisor*, or any person acting on behalf of the *Employer* and authorised to communicate with the *Contractor*.

8.2 Penalties

TNPA Port of Richards Bay may impose penalties for:

- Failure to complete the works by the completion date
- Non-compliance with SHE requirements resulting in incidents.
- Disruption to Port Operations resulting in Port operations delays.

Penalties will be charged at R35000 per calendar day for work remain incomplete after the agreed completion date or as determined by the TNPA Procurement Department. SHE and Port Operations related incidents or delays penalties will be assessed based on the magnitude of the damaged or delays caused by the *Contractor*. Procurement, legal and finance department shall advise accordingly for any incident occurred on site or around the Port either resulting to damage to infrastructure, human, environment, Port operations delays etc.

8.3 Work guarantee

- All works shall be conducted in accordance with applicable standards, and all not done as specified in applicable standards will not be accepted,
- The *Contractor* shall not cover any work prior all quality assurance testing has been concluded and deemed appropriate by the *Employer*.

- The *Contractor* shall afford the TNPA an opportunity to review and comment on the study report prior a final copy shall be submitted for acceptance and payment.
- The *Contractor* shall provide the *Employer* with 12 Months workmanship guarantees, furthermore the *Contractor* shall provide the *Employer* with maintenance plans for the road pavement constructed within the Port.

8.4 Retention

- This contract has 10% retention, i.e. 10% of the contract value if any defects arise within the workmanship guarantee of the *Contractor* and the defects can be justified as the workmanship or quality related defect, the retention amount will be used to rectify the defect. The 10% retention amount shall only be released once the *Contractor* had rectified all shortcoming in the engineering report and deemed complete as per the project requirements.
- 50% of the retention will be released upon completion of the whole works and the remaining 50% after the defect's liability period, which is 52 weeks. Refer to clause X16 on the contract data.

8.5 Performance measurement and reporting

- The *Contractor* and each of its Sub-*Contractors* must complete and submit Health and Safety statistics to the *Project Manager* or the *Project Manager's* nominated representative, or as amended by the *Project Manager*, before mid-day on the Friday of each week. The *Contractor* must submit monthly Health & Safety Statistics before mid-day on the last day of each month to the *Project Manager's* nominated representative.
- The *Contractor* must submit to the *Project Manager* for acceptance a schedule of the specific Health and Safety records it intends to maintain for the Contract. As a minimum, such records are as specified by applicable legislation. Copies are provided to the *Project Manager* or the *Project Manager's* nominated Representative if requested.
- The *Project Manager* or the *Project Manager's* nominated Representative has the right to conduct audits/inspections of the Consultant, Professional Service Provider (PSP) and *Contractor* Safety Management Plan implementation, operations, equipment, emergency procedures, etc., at any time, and the *Contractor* must fully cooperate with the *Project Manager* or the *Project Manager's* nominated Representative during such audits/inspections. The *Project Manager's* rights under this clause does not, must not

and will not relieve the Consultant, Professional Service Provider (PSP) and *Contractor* of its own obligations to conduct audits and reviews of its own Health and Safety performance.

- Where such audits/inspections reveal deficiencies in the *Contractor* procedures, drills, training or equipment, or non-conformities with the *Contractor* accepted project Safety Management Plan, of a minor nature (Risk Rating of 6 or less), the *Contractor* must investigate the cause of the nonconformity and initiate corrective and preventive action to rectify such deficiencies and non-conformities and prevent recurrence as soon as practicable.
- Where such audits/inspections reveal deficiencies of a major nature (Risk rating of 7 or greater), the *Contractor* must stop work on the operation/activity concerned, immediately investigate the cause of the nonconformity, and initiate corrective actions to rectify such deficiencies and non-conformities and to prevent recurrence. These corrective action plans are submitted to the *Project Manager* for review and comment within 24 hours of the audit finding.
- Where such deficiencies include an unsafe practice or a breach of the statutory or the Contract's requirements, the *Project Manager* or the *Project Manager's* nominated Representative may in accordance with the General Conditions of Contract suspend the work associated with the unsafe practice or breach until the deficiency is rectified.
- The *Project Manager* or the *Project Manager's* nominated Representative will establish a schedule of regular field safety audits which will be based on an audit tool aligned to the *Contractor* Safety Management Plan and site operations and activities. The *Contractor* audit conformance will be assessed as a percentage and where conformance is better than 90% it will be considered satisfactory and the *Contractor* must develop and implement an action plan within 4 weeks, to be reviewed at the next regular audit. Where the *Contractor* level of conformance is between 75 – 90%, a corrective action plan will be required to be developed and implemented within 2 weeks, and a follow up audit will be carried out. Where the *Contractor* conformance is less than 75% the *Contractor* must stop work until an investigation of the cause/s has been completed and corrective actions have been developed and implemented by the *Contractor*.

8.6 Insurance provided by the Employer

- Insurance provided by the *Employer* is contained in the Contract Data – Part 1.

8.7 Contract change management

- No additional requirements apply to ECC Clause 60 series.

8.8 Provision of bonds and guarantees

- The form in which a bond or guarantee required by the conditions of contract (if any) is to be provided by the *Contractor* is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.
- The *Contractor* provides a bond or guarantee as required by the conditions of contract concurrently with the execution by the Parties of the form of agreement for the ECC contract.

8.9 Records of Defined Cost, payments & assessments of compensation events kept by Contractor

The *Contractor* keeps the following records available for the *Project Manager* to inspect, for the purpose of assessing the defined cost, payments and compensation event. The records include the following but not limited,

- Signed site diaries,
- Inspection and survey reports
- Photos and videos of the deviations
- Drawings

The *Contractor* shall follow applicable clauses of implementing the compensation as per the following black book NEC3 ECC clauses.

8.10 The Contractor's Invoices

The *Contractor* shall draw reference to clauses 50, 51, and 52 of the NEC ECC.

When the *Project Manager* certifies payment (see ECC Clause 51.1) following an assessment date, the *Contractor* complies with the *Employer's* procedure for invoice submission.

The invoice must correspond to the *Project Manager's* assessment of the amount due to the *Contractor* as stated in the payment certificate.

The invoice states the following:

Invoice addressed to Transnet SOC Ltd;

Transnet SOC Limited's VAT No: 4720103177.

Invoice number;

The *Contractor's* VAT Number; and

The Contract number:

The invoice contains the supporting detail: Progress report, site measurements, site diaries etc.

Project name:

The invoice is presented either by email to the *Employer* via document controller.

Invoices submitted by post are addressed to:

The formal Postal Address for the Contract will be:

P.O. Box 181

RICHARDS BAY

3900

SOUTH AFRICA

This address will only be used in instances where delivery at the Site address is not possible, or documentation is originated from a remote address.

The formal Physical Address for the Contract will be:

Pioneer Centre

San Thom Road

Port of Richards Bay

RICHARDS BAY

3900

This address will only be used in instances where documentation is couriered or hand delivery at the Site address is not possible.

Electronic invoice copy shall be sent to the following email address.

- Zinhle.gumede2@transnet.net
- Nhlanhla.dlamini@transnet.net

9. People Management.

9.1 Minimum requirements of people employed on the Site:

- Direct employment of all labour is preferred.
- Wherever possible, general labour shall be recruited from the communities that are local to the Port of Richards Bay.
- Recruitment of labour in and around the site is not permitted.
- Recruitment of personnel already employed within the Port of Richards Bay is expressly prohibited.
- All personnel shall provide proof of competency appropriate to their appointment.
- All personnel shall undergo medical examination prior to undergoing site induction and be certified fit to work on the site, with particular reference to working at heights.

9.2 PROJECT KEY RESOURCES.

Resource	Qualification and experience Requirements
Pr. <i>Project Manager</i> (NEC) -PMI/SACPCMP REGISTERED	The <i>Project Manager</i> should have a relevant qualification in Civil engineering or Project Management or Construction Management at NQF 7 level. The <i>Project Manager</i> is required to be professionally registered with the SACPCMP or PMI as a professional <i>Project Manager</i> or professionally registered with the Engineering Council of South Africa (ECSA) as a Professional Civil Engineer. The <i>Project Manager</i> must have experience with the NEC 3 Engineering and Construction Contract. The <i>Project Manager</i> must have 15 years' experience in concrete pavement or/and mass concrete works such as dams, runways, bridges, multi-story concrete buildings, etc.
Pr. Site Engineer or site Agent.	Site Engineer should at least have NQF level 7 in Civil engineering and shall be registered with the Engineering

		Council of South Africa (ECSA) as a Professional Civil Engineer. The Site Engineer must have a minimum of 10 years working experience in projects of a similar nature to the works, Post registration with ECSA as Pr. Engineer.
Professional surveyor.	Land	The Land Surveyor (LS) shall indicate clear experience in managing and conducting road surveying works. LS experience shall clearly indicate Civil Engineering with land surveying works experience in roads construction. Land Surveyor shall have more than ten (10) years' work experience and is required to be a professionally registered with South African Geomatics Counsel (SAGC) or relevant body as a Professional Land Surveyor. Land Surveyor shall have a minimum of five (5) years' experience post registration working on roads Projects.
Senior Materials Technician		Senior Material Technician shall indicate clear experience in road construction and concrete works. Senior Material Technician shall hold a minimum of NQF7 qualification in civil engineering and have at least 10 years of experience.
Construction manager		Construction Manager should at least have NQF level 6 in Civil engineering or construction management and shall be registered with the Engineering Council of South Africa (ECSA) as a Professional or Professional Construction Manager with SACPCMP. The construction manager must have a minimum of 10 years working experience in projects of a similar nature to the works, Post Professional registration.



Construction health and safety officer	Health & Safety officer should have valid professional registration with SACPCMP as a Construction health & Safety Officer. The Health and Safety Officer must have a minimum of five years' experience in similar Civil Construction Projects involving roads construction.
Pr. Quantity surveyor	Quantity Surveyor should have valid professional registration with SACQSP as a Quantity surveyor. The QS must have a minimum of ten years' experience in similar Civil Construction Projects involving roads construction, stormwater and/or bulk earthworks scope.
Traffic Control officer	Traffic control officer has valid NQF level 4 traffic safety offer certificate accredited by CETE or relevant SAQA accreditation body. Must have 5 years work experience as a road construction related traffic control officer.
Quality Manager/ Quality Assurance Officer.	The Quality Officer should have a relevant Degree/Diploma in Quality, or technical qualification in Civil and related field supplemented by ISO9001:2015 implementation and auditing certificates (Certified qualification in Quality Management Systems). More than 5 years of experience in a quality systems environment and relevant experience in similar type Civil construction projects is required.
Environmental Officer/Resource	The Environmental Officer must be in possession of a B degree in Environmental Management registered with relevant professional body. The Environmental Officer must have a minimum five (5) years' experience in the construction sector.
Industrial relations manager or Community liaison officer.	The Industrial Relations Person/Officer should at least have a minimum qualification of a National diploma in Labour Law/Relations with a minimum 5 years' experience in Construction Project industrial relations.

9.3 Other project resources required on the project.

- Professional Registered quantity surveyor with **relevant QS professional registration body.**

- Project planner.
- Document controller.

9.4 *Contractor's management, supervision and key people outline.*

- The *Contractor* shall comply with OH&S Act – Section 8, 9, 13 and 16 and the Construction Regulations 2014.
- The *Contractor* must nominate and appoint a responsible person on site to whom the *Project Manager* may refer in connection with the Works. Persons are nominated for all shifts worked or whilst any activity relating to the Contract is being performed on site and must have the authority to bind the *Contractor* with respect to the Contract. (OH&S Act - 16 Sections (2)).
- The *Contractor* must ensure that the performance of all specified Works is supervised throughout by a sufficient number of qualified and competent appointed representatives of the *Contractor*, who have experience in the type of work specified. (OH&S Act – Construction Reg. 8 (1) and 8 (2).)
- Note: No work may commence and or continue without *Supervisory* Appointees present on site. The *Contractor's Site Supervisor* must be equipped with a mobile telephone with message bank and/or pager or an equivalent communication device so that communication throughout the Contract can be maintained at all times.
- The *Contractor's Site Supervisor* must provide a list of names and contact telephone numbers of all *Contractors* and Sub-*Contractor's* contact persons on Site. This list is updated as a new *Contractor* or Sub-*Contractor* employee commences on Site.
- The *Contractor's Site Supervisor* must keep a record of all employees, including date of induction, relevant skills and licences, and be able to produce this list at the request of the *Supervisor*.
- The *Contractor's Site Supervisor* must complete manning sheets describing the day's activities, labour numbers and classifications and issue these to the *Supervisor* prior to 9.00 am on a daily basis.
- The *Project Manager's Site Safety Representative* is notified of any new starter with evidence of induction and site-specific induction prior to commencement of work.
- ***Project Manager***

The *Project Manager* should have a relevant qualification in engineering or Project Management or Construction Management at NQF 7 level.

The *Project Manager* is required to be professionally registered with the SACPCMP or PMI as a professional *Project Manager* or professionally registered with the Engineering Council of South Africa (ECSA) as a Professional Civil Engineer.

The *Project Manager* must have experience with the NEC 3 Engineering and Construction Contract.

The *Project Manager* must have 15 years' post experience in concrete pavement or/and mass concrete works such as dams, runways, bridges, multi-story concrete buildings etc.

- **Site Engineer: Site Agent.**

Site Engineer should at least have NQF level 7 in Civil engineering and shall be registered with the Engineering Council of South Africa (ECSA) as a Professional Civil Engineer.

The Site Engineer must have a minimum of 10 years working experience in projects of a similar nature to the works, Post registration with ECSA as Pr. Engineer.

- **Construction management.**

Construction Manager should at least have NQF level 6 in Civil engineering or construction management and shall be registered with the Engineering Council of South Africa (ECSA) as a Professional or Professional Construction Manager with SACPCMP.

The construction manager must have a minimum of 10 years working experience in projects of a similar nature to the works, Post Professional registration.

- **Land Surveyor.**

The Land Surveyor (LS) shall indicate clear experience in managing and conducting road surveying works. LS experience shall clearly indicate Civil Engineering with land surveying works experience in roads construction.

Land Surveyor shall have more than ten (10) years' work experience and is required to be a professionally registered with South African Geomatics Counsel (SAGC) or relevant body as a Professional Land Surveyor. Land Surveyor shall have a minimum of five (5) years' experience post registration working on roads Projects.

- **Contractor's Project Planner**

The *Contractor* employs a Planner as a key person under ECC3 Clause 24.1. A planner must have NQF level 4 built environment qualification and at least 5 years of experience as a project planner in road construction related projects.

The Planner is employed and shall be on-site for progress measurements and in attendance at progress meetings to present programme and tracking sheet updates to the *Project Manager* for the duration of the contract.

The Planner must be familiar with, and have a solid understanding of, the operation of the NEC3 ECC and Primavera Software Suite with at least five years' experience gained in a similar position on projects operating the NEC3 suite of contracts. Where the Planner cannot demonstrate the required level of experience in the NEC3 suite of contracts or the Primavera Software Suite, the *Contractor* arranges for training to be given by an experienced independent trainer in the understanding and application of those management procedures contained in the NEC Contracts & Primavera Software Suite.

- ***Contractor's Industrial Relation Personnel***

The *Contractor* employs a CIRP as a key person under ECC Clause 24.1. The Industrial Relations Person/Officer should at least have a minimum qualification of a National diploma in Labour Law/Relations with a minimum of 5 years' experience in Construction Project industrial relations.

The CIRP is based on the Site and ensures that all reports and IR requests are submitted accurately and in a timely manner to *Project Manager*, CM, PIRM, PSIRM or SIRM].

The CIRP tasks are:

- Dedicated to human resources, industrial relations, and any other *Contractor's* employee related function.
- Resolve all human resources and industrial relations matters arising from the *Contractor's* employees.
- Represent the *Contractor* on the IRCC

The *Contractor* employs an HSR as a key person under ECC Clause 24.1

The *Contractor* provides an Organogram of all his key people (both as required by the *Employer* and as independently stated by the *Contractor* under Contract Data Part Two) and how such key people communicate with the *Project Manager* and the *Supervisor* and their delegates of C3.1 *Employer's Works Information*.

- ***Contractor Environmental Officer.***

- The *Contractor* employs an Environmental Officer as a key person under ECC Clause 24.1 The *Contractor's* Environmental Officer to have a Diploma/Degree in Natural



Science or Environmental Studies and more than one (1) year experience in the environmental field. The *Contractor's* Environmental Officer (EO) must ensure implementation of the requirements of SOP CEM and CESSG on site. He/she will liaise with Transnet Environmental Resource (ER) on site. It will be his/her responsibility to ensure that all work is conducted according to the approved Method Statements and that the *Contractor* team's roles and responsibilities as set out in the SOP CEM are fulfilled.

- The *Contractor* EO's tasks will include developing an appropriate Environmental File for approval by the Transnet ER prior to site access. This file must always be available and up to date on the construction site.
- The Environmental File to include the following, but not necessarily limited to:
- All environmental documents provided by Transnet in the tender and before construction starts e.g. policies, SOPs, standards, environmental approvals;
- *Contractor's* commitments to comply with SOP CEM and CESSG and associated documents as signed during tender;
 - The *Contractor's* EMP;
 - His/her CV;
- An organogram indicating reporting lines of all *Contractor's* staff (with names included); Contact Information for the overall responsible person acting on behalf of the *Contractor* to execute the construction works; *Contractor's* CM; *Contractor's* EO; all relevant emergency personnel;
- A list of the *Contractor's* plant and equipment indicating a description of the plant/equipment, its fuel capacity, any hazardous components (oils, greases etc.), individual service/maintenance cycles and noise levels;
- A list of hazardous substances to be used during construction indicating: official substance name from Material Safety Data Sheet (MSDS); quantity on site; storage method; transport method to site; period to be used on site (all substances listed must have an MSDS on site in the environmental file);
- Site Layout Plan indicating but not necessarily limited to, access roads, site offices, material laydown areas, stockpile areas and parking areas, waste and effluent storage and handling facilities, entire construction footprint, no-go-areas, sewage and sanitary facilities. The plan must be appropriately drawn on a computer and must be clearly visible and properly scaled;

- A site establishment method statement (for more details on what method statements should entail the *Contractor* must refer to the Minimum Requirements for Construction Environmental Management).
- Conducting an activity-based environmental risk assessment based on the *Contractor's* scope of work;
- Agreeing on an appropriate inspection schedule with the Transnet ER (either daily or weekly);
- Ensuring that all required *Contractor* staff attends the environmental induction to be given by the Transnet ER (any *Contractor's* staff, sub-*Contractors* or visitors to site must subsequently be inducted by the *Contractor's* EO);
- Inspection of the work area(s) as per schedule or authorised through written instruction by Transnet ER;
- Preparing activity-based Method Statements that indicate how environmental risks will be managed on site or ensuring that the necessary environmental information is included in the *Contractor's* method statements (all method statements must be maintained in the *Contractor's* Environmental File);
- Identify local, provincial and national environmental legislation that applies to the *Contractor's* activities;
- Conduct ongoing Environmental Awareness Training of the *Contractor's* site personnel;
- Reporting, investigating and recording of any environmental incidents/occurrences caused by the *Contractor* or due to the *Contractor's* activities, including their sub-*Contractors* and visitors;
- Close out of environmental incidents;
- Attendance at all SHE meetings and induction programmes, and toolbox talks where required
- Monitor waste management; water management and energy management;
- Ensure that environmental signage and barriers are correctly placed;
- Taking required corrective action within specified time frame and close out of non-conformances;
- Maintain site documentation related to environmental management on site; and

- The *Contractor's* EO will also be expected to submit Environmental Stewardship Report to the Transnet ER on a monthly basis.
- The Environmental File templates are included in the Starter Pack issued to the *Contractor* at the Kick-off Meeting. The *Contractor* shall further adhere to the requirements of any Industrial Relations Policy of the Employer applicable to the particular area, detail of which would be made available by the *Project Manager* when requested.

- **Quantity surveying.**

Quantity Surveyor should have valid professional registration with SACQSP as a Quantity surveyor. The QS must have a minimum of ten years' experience in similar Civil Construction Projects involving roads construction, stormwater and/or bulk earthworks scope.

9.5 Industrial Action by *Contractor* Employees.

- In the event of any industrial action by the *Contractor's* employees, the *Contractor* is required to provide competent contingency resources permitted in law to carry out any of the duties that are or could potentially be interrupted by industrial action in delivering the Service.
- The *Contractor* warrants that it will compensate Transnet for any costs Transnet incurs in providing additional security to deal with any industrial action by the *Contractor's* employees.
- In the event of any industrial action by the *Contractor's* employees, the *Contractor* is obliged:
 - To prepare and deliver to Transnet, within two (2) hours of the commencement of industrial action an Industrial Action Report. If the industrial action persists the *Contractor* is required to deliver the report at 8h30 each day.
 - The Industrial Action Report must provide at least the following information:
 - Industrial incident report,
 - Attendance register,
 - Productivity/progress to schedule reports,
 - Operational contingency plan,
 - Site security report,
 - Industrial action intelligence gathered.

- The final Industrial Action Report is to be delivered 24 hours after finalization of the industrial action.
- The management of the *Contractor* is required to hold a daily industrial action teleconference with personnel identified by Transnet to discuss the industrial action, settlement of the industrial action, security issues and the impact on delivery under the contract.
- The resolution of any disputes or industrial action by the *Contractor's* employees is the sole responsibility of the *Contractor*.
- Access to Transnet premises by the *Contractor* and its employees is only provided for purposes of the *Contractor* delivering its services to Transnet. Should the *Contractor* and its employees not, for any reason, be capable of delivering its services Transnet is entitled to restrict or deny access onto its premises and unless otherwise authorized; such person will deem to be trespassing.
- The *Contractor* performs the works having due regard to the PLA that are negotiated between the *Employer* and the appropriate trade unions on this contract.
- The *Contractor* complies with the requirements of the IRCC involving the engineering construction *Contractors* engaged (including all future *Contractors*) by the *Employer*
- The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to IR issues are stated in the paragraphs following:
- The PIRM is responsible for ensuring that the *Contractor* complies with the PIRPMP. The PIRM acts on behalf of the *Project Manager*.
- The PIRM specific tasks are:
 - To complete the PLA prior to the Contract Date; and
 - To assign specific duties to the PSIRM.
- The PIRM specific tasks are:
 - The PSIRM is responsible for IR (to include the PLA) on the Site and Working Areas and reports to the *Project Manager*.
 - The SIRM is responsible, inter alia, for day-to-day IR on the Site and Working Areas through the implementation of the PIRPMP. The SIRM reports directly to the PSIRM and the *Project Manager*.
- The SIRM specific tasks are:
 - To liaise with the *Contractor* prior to the commencement of construction activities (as per the *Contractor's* programme accepted by the *Project Manager*) with respect to IR issues under the SIP

9.6 The *Contractor* complies with the following PIRPMP

• **Contractor Liability**

- The *Contractor* warrants that it will be liable to Transnet for any loss or damage caused by strikes, riots, lockouts or any labour disputes by and/or confined to the *Contractor's* employees, which loss will include any indirect or consequential damages;
- The *Contractor* warrants that no negotiations or feedback meetings by the *Contractor's* employees shall take place on Transnet premises, whether owned or rented by Transnet.
- The *Contractor* shall give notice to Transnet of any industrial action by the *Contractor's* employees immediately upon becoming aware of any actual or contemplated action that is or may be carried out on Transnet's premises, whether owned or rented, and shall notify Transnet of all matters associated with such action that may potentially affect Transnet.
- The *Contractor* is responsible for educating its employees on relevant provisions of the Labour Relations Act which deal with industrial action processes, and the risks of non-compliance.
- The *Contractor* is required to develop a Contingency Strike Handling Plan, which plan the *Contractor* is obliged to update on a three-monthly basis. The *Contractor* must provide Transnet with this plan and all updates to the Plan. The *Contractor* is responsible to communicate with its employees on site details of the plan.

• **Industrial action by Contractor employees**

- In the event of any industrial action by the *Contractor's* employees, the *Contractor* is required to provide competent contingency resources permitted in law to carry out any of the duties that are or could potentially be interrupted by industrial action in delivering the Service.
- The *Contractor* warrants that it will compensate Transnet for any costs Transnet incurs in providing additional security to deal with any industrial action by the *Contractor's* employees.
- In the event of any industrial action by the *Contractor's* employees, the *Contractor* is obliged:
- To prepare and deliver to Transnet, within two (2) hours of the commencement of industrial action an Industrial Action Report. If the industrial action persists the *Contractor* is required to deliver the report at 8h30 each day.
- The Industrial Action Report must provide at least the following information:

- ✓ Industrial incident report,

- ✓ Attendance register,
 - ✓ Productivity / progress to schedule reports,
 - ✓ Operational contingency plan,
 - ✓ Site security report,
 - ✓ Industrial action intelligence gathered.
- The final Industrial Action Report is to be delivered 24 hours after finalisation of the industrial action.
 - The management of the *Contractor* is required to hold a daily industrial action teleconference with personnel identified by Transnet to discuss the industrial action, settlement of the industrial action, security issues and the impact on delivery under the contract.
 - The resolution of any disputes or industrial action by the *Contractor's* employees is the sole responsibility of the *Contractor*.
 - Access to Transnet premises by the *Contractor* and its employees is only provided for purposes of the *Contractor* delivering its services to Transnet. Should the *Contractor* and its employees not, for any reason, be capable of delivering its services Transnet is entitled to restrict or deny access onto its premises and unless otherwise authorized; such person will deem to be trespassing.
 - The *Contractor* complies with the requirements of the IRCC involving the engineering construction *Contractors* engaged (including all future *Contractors*) by the *Employer*.
 - The roles and responsibilities of the various personnel acting on behalf of the *Project Manager* with respect to IR issues are stated in the paragraphs following:
 - ✓ The PIRM is responsible for ensuring that the *Contractor* complies with the PIRPMP. The PIRM acts on behalf of the *Project Manager*.
 - The PIRM specific tasks are:
 - ✓ To complete the PLA prior to the Contract Date; and
 - ✓ To assign specific duties to the PSIRM.
 - The SIRM is responsible, inter alia, for day-to-day IR on the Site and Working Areas through the implementation of the PIRPMP. The SIRM reports directly to the PSIRM and the *Project Manager*.
 - The SIRM specific tasks are:
 - To liaise with the *Contractor* prior to the commencement of construction activities (as per the *Contractor's* programme accepted by the *Project Manager*) with respect to IR issues under the SIP.

10 Subcontracting.

10.1 Preferred Subcontractors

For the purpose of this tender there is no preferred sub-*Contractors*; however, the Main *Contractor* shall follow all relevant standards and guidelines of subcontracting as outlined by National Treasury, including local business chamber requirements for the appointment of Subcontractors.

First preference shall be given to local Subcontractors through engagements with business foundations. The Employer's Industrial Relations Manager and *Contractor's* Industrial Relations Manager shall collaborate to ensure all required resources are sourced locally unless deemed specialised and cannot be sourced from the local skill force under king Cetshwayo district and the Umhlathuze municipality.

The *Contractor* shall comply will all relevant Supplier Development (SD) guidelines and procedures as outlined by National Treasury.

10.2 Subcontract documentation and assessment of subcontract tenders

The use of subcontracts from the NEC suite of contracts (i.e. Engineering and Construction Subcontract (ECS) or Engineering and Construction Short Subcontract (ECSS)) is strongly recommended. It is not necessary for subcontracts to be awarded on the basis of competitive tendering. The *Contractor* submits the proposed conditions of contract for each subcontract to the *Project Manager* for acceptance.

Where the *Contractor* employs a Subcontractor who constructs or installs part of the works or who supplies Plant and Materials for incorporation into the works which involves a Subcontractor operating on the Site and/or Working Areas, then the *Contractor* ensures that any such Subcontractor complies with the CESSG, SOP CEM and PES (described under paragraph 6.19 of the Works Information) as appropriate and that the subcontract documentation places back-to-back obligations on the Subcontractor which reflect the *Contractor's* obligations under the SOP CEM , CESSG and PES, all within the *Contractor's* Quality Management System as per paragraph 6.20 of the Works Information.

The *Contractor* requires a Subcontract, where an NEC3 contract is used, to state the same main option A as this contract between the *Contractor* and the *Employer*. For all elements of the works.

10.3 Limitations on subcontracting

The *Contractor* may not subcontract more than 30% [thirty per cent] of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the *Contractor*, unless the contract is subcontracted to an EME that has the capability and ability to execute the subcontract.

10.4 Attendance on Subcontractors

- The *Contractor* shall ensure that the quality assurance requirements placed on him under this Contract are transferred into any subcontracts.
- Quality system requirements shall be applied on all subcontracts to the point where the acceptability of supplies can be demonstrated solely by the conduct of inspection and/or examination of goods upon receipt at the designated point of delivery.
- The *Contractor* must notify the *Project Manager* of all inspections at his sub-*Contractors* at least 3 working days in advance of such inspections. The *Contractor* must ensure that his Subcontractor has the relevant quality management plans available at such inspections. The *Supervisor* will give the *Contractor* 24-hour notice in writing of his intention to be present at the inspections

10.5 Socio-economic objectives

The objective of the project is to provide for a minimum contract participation goal (CPG) of 30% of the total project value and to develop targeted enterprises by the main or lead partner *Contractors*.

a. The successful *Contractor* shall:

1. Subcontract a minimum of 30% of the total project value to targeted enterprises;
2. develop the targeted enterprise/s in two development areas as specified in the Standard, and agreed by both the main *Contractor* and the targeted enterprise/s;
3. perform needs analysis on the targeted enterprise to identify developmental goals;
4. provide internal mentorship support to improve the targeted enterprise/s performance;
5. develop a project specific enterprise development plan to improve the targeted enterprise/s performance in the identified developmental areas;
6. monitor and report the progress of the agreed development areas with the targeted enterprise/s; and
7. submit a project completion report to the Employer's representative for each targeted enterprise.

b. The development of the Targeted Enterprise shall be guided by the CIDB Competence Standard for *Contractors* Gazette No. 41237, 10 November 2017. Table 2. below outlines the minimum recognised qualifications to which development of targeted enterprises must be undertaken by the main *Contractor*.

Table 2. Recognised Qualifications

CIDB Grade	Minimum NQF Level	Recognised Qualifications
Business Management		
5 & 6	5	National Occupational Qualification in Business Management NQF 5
2 to 4	2	National Certificate: Construction Contracting NQF 2
Building and Construction Works Management		
5 & 6	5	National Certificate: Management of Building Construction Processes NQF 5
2 to 4	3	- NCV 4: Civil Engineering and Building Construction, or - National Certificate: Supervision of Construction Processes
Civil Engineering Construction Works		
5 & 6	5	- National Certificate: Management of Civil Engineering Processes NQF 5, or - National Diploma: Civil Engineering and Building Diploma
2 to 4	3	- NCV 4: Civil Engineering and Building Construction or - National Certificate: Supervision of Construction Processes, or - Further Education and Training Certificate: Supervision of Construction Processes

Source; cidb Competence Standard for Contractors; Gazette Notice No. 41237

MANAGEMENT

State the requirements for development:

The *Contractor* shall provide a competent person/s to provide internal mentorship to the Targeted Enterprise/s in the two agreed developmental areas.

The Format of Communications

The *Contractor* shall submit to the Employer's representative:

1. Project interim reports in the specified format (ED105P) detailing interim value of the CPG that was achieved. Such a report shall also contain a monthly progress report, compiled by the employer's representative and the *Contractor*, detailing an assessment of the enterprise development support provided.
2. Project completion report, in the specified format (ED101P), to the Employer's Representative for acceptance within 15 days of achieving practical completion. The report shall include the

value of the CPG that was certified in accordance with the contract, cidb registration numbers of each and every targeted enterprise and the value of the subcontracted works or the participation parameter of the joint venture entered into; and

3. Enterprise development declaration (ED104P).

The Key Personal:

The *Contractor* shall appoint an Enterprise Development Co-ordinator and a competent person/s to provide internal mentorship.

Management Meetings:

The *Contractor* shall report to the Employer's Representative on the implementation and progress of the targeted enterprise development and CPG.

The Forms for contract administration:

The *Contractor* shall submit to the Employer's Representative the following proformas:

- Form ED 105P Project Interim Report
- Form ED 104P Enterprise Development Declaration
- Form ED 101P Project Completion Report

Records:

The *Contractor* shall:

- keep records of the targeted enterprise development,
- keep records of the payments made to the targeted enterprises in relation to the CPG,
- ensure all the documentation required in terms of the Standard is provided in a timely manner and according to a prescribed format where applicable.

Payment Certificates:

The *Contractor* shall:

- achieve the measurable CPG and providing enterprise development support to the targeted enterprise/s as per the Standard,
- submit payment certificates to the Employer Representative at intervals determined in the Contract.

SECTION 3

C3.2 **CONTRACTOR'S WORKS INFORMATION: WORKS SPECIFICATIONS.**

C3.2.1 COLTO SPECIFICATIONS

GENERAL INFORMATION PERTAINING TO COLTO	130
SECTION B1100: DEFINITIONS AND TERMS.....	132
SECTION B1200: GENERAL REQUIREMENTS AND PROVISIONS	140
SECTION B1300: CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS	170
SECTION B1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL.....	171
SECTION B1500: ACCOMMODATION OF TRAFFIC.....	179
SECTION B1600: OVERHAUL.....	205
SECTION B1700: CLEARING AND GRUBBING	205
"SECTION B1800: DAYWORKS	211
SECTION B2100: DRAINS	215
SECTION B2200: PREFABRICATED CULVERTS.....	219
SECTION B2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS.....	225
SECTION B3300: MASS EARTHWORKS.....	229
SECTION B3400: PAVEMENT LAYERS OF GRAVEL MATERIAL	239
SECTION B3800: BREAKING UP EXISTING PAVEMENT LAYERS.....	247
SECTION B4200: ASPHALT BASE AND SURFACING	256
SECTION B5100: PITCHING, STONEMASONRY AND PROTECTION AGAINST EROSION	261
SECTION B5400: GUARDRAILS	263
SECTION B5600: ROAD SIGNS	267
SECTION B5700: ROAD MARKINGS.....	276
SECTION B5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS	290
SECTION B6100: FOUNDATIONS FOR STRUCTURES.....	292
SECTION B6200: FALSEWORK, FORMWORK AND CONCRETE FINISH	295
SECTION B6300: STEEL REINFORCEMENT FOR STRUCTURES.....	296
SECTION B6400: CONCRETE FOR STRUCTURES.....	297
SECTION B7100: CONCRETE PAVEMENTS.....	321
SECTION B8100: TESTING MATERIALS AND WORKMANSHIP	338
SECTION B8200: QUALITY CONTROL (SCHEME 1)	345

GENERAL INFORMATION PERTAINING TO COLTO

1. COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 Edition), hereafter referred to as COLTO, are used and the following interpretations and meanings shall apply.
2. In case of any conflict in interpretation, ambiguity or discrepancy between the COLTO Specification (whether standard or written as a particular project specification) contained in the Works Information and the *conditions of contract*, the *conditions of contract* take precedence within the ECC3 contract.
3. In case of any conflict in interpretation, ambiguity or discrepancy between the COLTO Specification (whether standard or written as a particular project specification) contained in this section and specific statements contained elsewhere in C3.1 *Employer's* Works Information, the specific statements contained elsewhere shall prevail, without prejudice to the *Project Manager's* express duty to resolve any ambiguity or inconsistency in the Works Information under ECC3 Clause 17.1.
4. Within COLTO Standard Specifications, the following amendments and interpretations shall apply:

Where the word or expression "Employer" is used, read "*Employer*";

Where the word or expression "*Contractor*" is used, read "*Contractor*";

Where the word or expression "Engineer" is used, read "*Project Manager*" or "*Supervisor*" as the context requires;

Where the word or expression "schedule of quantities or bill of quantities" is used, this is deleted in entirety. Assessment and payment are in accordance with the *conditions of contract* (and the ECC3 main and secondary options stated therein);

5. Within COLTO specifications, the following apply:

Acceptable. Approved (Approval)" is interpreted as either a *Project Manager* or a *Supervisor* communication or instruction in relation to Works Information compliance, consistent with the *conditions of contract* as the context requires;

"Adequate" is deleted. The *Project Manager* notifies the *Contractor* where the *Contractor* has not complied with the Works Information;

6. Within COLTO Standard Specifications, the following applies:

Where the word or expression "Plant" is used, read "Equipment".

7. COLTO Section 1400, applies but the *Project Manager* resolves any inconsistency with statements included within C3.1 *Employer's Works Information*.
8. COLTO Section 1206, applies only to the extent that it is consistent with C3.1 *Employer's Works Information*.
9. COLTO 1202 SERVICES, applies only to the extent that it is consistent with the specific statements made elsewhere in C3.1 *Employer's Works Information* and in any case and at all times consistent with the *conditions of contract*.
10. Project Specification amendments to the Standard Specifications (COLTO)
 - 10.1. The Standard Specifications for Road and Bridge Works for State Road Authorities 1998, prepared by the Committee of Land Transport Officials, (COLTO), as amended, shall apply to this contract.
 - 10.2. In certain clauses the Standard Specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.
 - 10.3. The number of each clause and each payment item in this part of the project specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or a new payment item which does not form part of a clause or a payment item in the standard specifications and which is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.
 - 10.4. The tenderer shall note that the standard COLTO specification is based on the COLTO General Conditions of Contract. References to specific COLTO General Conditions of Contract clauses will need to be exchanged for the equivalent clause in the NEC3 Conditions of Contract as amended in Part C1 of this document. The *Employer* assumes no responsibility for the *Contractor's* interpretation of which are the correct relevant clauses.

SECTION B1100: DEFINITIONS AND TERMS

B1115 GENERAL CONDITIONS OF CONTRACT

Replace clause 1115 with the following:

"The General Conditions of Contract (GCC) applicable to this Contract are the NEC3 Engineering and Construction Contract (June 2005), amended June 2006 and April 2013, Option B: Priced contract with Bill of Quantities.

All references in the COLTO Standard Specifications for Road and Bridge Works are to the COLTO General Conditions of Contract for Road and Bridge Works for State Road Authorities. Consequently, all references in the COLTO Standard Specifications have to be amended accordingly to reflect the appropriate General Conditions of Contract relevant for the Contract. The COLTO Standard Specifications have been scrutinized and the clauses, which refer to the COLTO General Conditions of Contract, identified. Each COLTO clause reference is tabulated in Table 1115/1 below (context of reference is also given) together with the relevant equivalent clause in the NEC3 Engineering and Construction Contract applicable for this contract.

Whereas every effort has been made to include all of the affected clauses in the table, there may be some omissions. In every case, however, the NEC3 Engineering and Construction Contract, as amended by the Additional Conditions of Contract in the Contract Data, shall apply and the *Contractor* shall be responsible for interpretation of the equivalent clause."

TABLE 1115/1: REFERENCES IN COLTO STANDARD SPECIFICATIONS TO THE COLTO GENERAL CONDITIONS OF CONTRACT AND RELEVANT NEC3 ENGINEERING AND CONSTRUCTION CONTRACT CLAUSES

COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		NEC3 Engineering and Construction Contract June 2005 (Option B)	
Page No	Clause No	Clause No	Heading or Marginal Note	Clause No	Heading or Marginal Note
1100-2	1115		Definition of GCC		Define ECC3
1200-2	1202	15	Entire clause: Programme	31	The programme



COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		NEC3 Engineering and Construction Contract June 2005 (Option B)	
Page No	Clause No	Clause No	Heading or Marginal Note	Clause No	Heading or Marginal Note
1200-2	1204		General reference to GCC		Applicable to ECC3
1200-3	1206	14	Setting out of works	-	Refer Clause 1200 of the project specifications
1200-4	1209(a)		General references to GCC		Refer to ECC3
1200-5	1209(e)	52	Valuation of material brought onto site		
1200-5	1210	54	Certificate of practical completion	35	Take over
1200-7	1212(1)	49	Entire clause	X1 (if applicable)	Price Adjustment Factor
1200-9	1215	45	Time for Completion/Extension of Time for Completion	60	Compensation events
1200-10	1217	35	Entire clause	80, 81, 82	Entire clause
1300-1	1303	49	Entire clause	60	Compensation event
1300-2	1303	49(2)	Application of Contract Price Adjustment	X1 (if applicable)	Price Adjustment Item Factor



COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		NEC3 Engineering and Construction Contract June 2005 (Option B)	
Page No	Clause No	Clause No	Heading or Marginal Note	Clause No	Heading or Marginal Note
1300-1	1303	53	Variations exceeding 20%	60	Compensation events
1300-2	1303	53	Variations exceeding 20%	60	Compensation events
1300-2	1303	12	Commencement of work	30.1	Starting date
1300-2	1303	45	Time for completion	30.2	Date of completion
1300-2	1303	45	Extension of time for completion	60	Compensation events
1400-4	1403(c)(ii)	40(1)	Valuation of variations	60	Compensation events
1500-3	1505	40	Entire clause	-	Compensation events
1500-8	Item 15.08	48	Entire clause (Provisional Sum)	-	Refer to clause B1156 of project specification
1500-8	Item 15.09	48	Entire clause (Provisional Sum)	-	Refer to clause B1156 of project specification
1500-8	Item 15.11	48	Entire clause (Provisional Sum)	-	Refer to clause B1156 of project specification
3100-4	Item 31.03(2)	40	Entire clause	60	Compensation events
3200-2	3204(b)(iii)	40	Entire clause	60	Compensation events



COLTO Standard Specification		COLTO General Conditions of Contract 1998 (GCC)		NEC3 Engineering and Construction Contract June 2005 (Option B)	
Page No	Clause No	Clause No	Heading or Marginal Note	Clause No	Heading or Marginal Note
3300-2	3303(b)	2	Entire clause: Engineer and <i>Supervisor</i>	14	
4400-3	Item 44.06		General reference to GCC		Refer to clause B1157 of project specification
4500-3	Item 45.06		General reference to GCC		Refer to clause B1157 of project specification
5800-3	5803(c)	40	Entire clause	60	Compensation events
5800-4	5805(d)	40	Entire clause	60	Compensation events
5800-10	Item 58.10	48	Entire clause	-	Refer to clause B1156 of project specification
8100-1	8103(c)	40	Entire clause	60	Compensation events
8100-26	Item 81.02		General reference to GCC	-	Refer to clause B156 of project specification
8100-26	Item 81.03	22	Clearance of site on completion	72	Removal of equipment

B1155 WORK IN RESTRICTED AREAS

Add the following:

"Any omission of payment items from the Pricing Schedules with regard to additional or extra over payment for work in restricted areas should be regarded as deliberate and any additional cost incurred shall be included in the bulk rate. (Refer also to subclause B1209(g) except for work near structures as defined in Section 6100.)"

Add the following clauses:

"B1156 SABS SPECIFICATIONS

Where reference is made in this specification or the standard specifications to SABS specifications, the latest published national standard shall be applicable. Use:

https://www.sabs.co.za/standard-Sales/docs/SABS_Catalogue_of_December_2018_abridged.pdf

for the most up-to-date versions of the various standards.

B1157 AGGREGATE SIZE

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

AGGREGATE SIZE	NEW AGGREGATE SIZE
26,5	28
19	20
13,2	14
9,5	10
6,7	7
4,75	5
2,36	2
1,18	1

B1160 COMPACTION

In December 2017 the THM1 ceased to exist and was replaced by SANS 3001. The *Employer* has adopted the new test methods and all site laboratories are required to perform testing according to the SANS 3001 test methods.

Therefore, the standard for compaction efforts should change from modified AASHTO density as per TMH1 Test Method to Maximum Dry Density (MDD) as per SANS 3001. Where reference is made to compaction or of modified AASHTO density in the tender documentation or the

standard specifications or wherever there is conflict between the tender documentation and the standard specifications, the SANS 3001 specification and terminology shall govern.

B1161 BITUMEN-RUBBER

A hot blend of penetration-grade bitumen and fine rubber crumbs. In asphalt work the blend of penetration-grade bitumen and rubber crumbs shall be made before the mixing of modified binder with the aggregates (wet method).

B1162 PATCHING

Patching shall be any repair work to existing pavement layers with the purpose of repairing local failures with a surface area of more than 1,0 m² but less than 100 m². Repairs in excess of 100 m² shall be considered to be reconstruction.

B1163 POTHOLES

Potholes are local failures covering a surface area of less than 1,0 m².

B1164 REPAIR

Measures aimed at maintaining or improving the condition and/or riding comfort of an existing road.

B1165 STRESS-ABSORBENT MEMBRANE INTERLAYER (SAMI)

A layer of stone chippings and bitumen-rubber constructed between successive pavement layers for the purpose of absorbing stress.

B1166 PROCESS CONTROL

Process control is the responsibility of the *Contractor* and refers to all testing required to ensure that the completed permanent works comply with the specifications and drawings. All such testing will be subject to inspection and approval by the Engineer.

Process control testing shall be carried out at the cost of the *Contractor*.

B1167 ACCEPTANCE CONTROL

Acceptance control means whatever testing the Engineer carries out over and above the process control testing already constructed in order to decide on the acceptability of any work submitted by the *Contractor*. Such testing will be carried out at the cost of the *Employer*.

Both the process and acceptance control testing will be carried out by an on-site laboratory for the Engineer.

B1168 PRETREATMENT

Treatment of the existing surfacing and base prior to a bituminous overlay or reseal. Pretreatment can include but is not limited to the following actions:

- patching, inclusive of saw cutting, excavation, priming and/or tacking, and backfilling with asphalt
- milling out existing asphalt surfacing and/or base layer, priming and/or tacking, and backfilling with paver-laid asphalt
- repairing edge breaks, inclusive of saw cutting, excavation, priming and/or tacking, and repairing with asphalt
- crack sealing, inclusive of cleaning, and applying herbicide, primer and sealant
- slurry seal surface treatment.

B1169 PROVISIONAL SUM

Shall mean any amount stated as a provisional sum and shall only be used, in whole or in part, in accordance with the Engineer's instructions, and the contract price shall be adjusted accordingly. The total sum paid to the *Contractor* shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer shall have instructed. For each Provisional Sum, the Engineer may instruct:

- (a) Work to be executed by the *Contractor*, including Plant, Materials or services, and valued under Clause 60 and/or
- (b) Plant, Materials or services to be purchased by the *Contractor*, from a Subcontractor or otherwise; and for which there shall be included in the Contract Price:
 - (i) the actual amounts paid (or due to be paid) by the *Contractor*, and
 - (ii) a sum for overhead charges and profit, calculated as a percentage of these actual

amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule.

The *Contractor* shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

B1170 PRIME COST SUM

Means a sum provided in the Bill of Quantities to cover the cost price of certain goods, services or materials to be supplied under the Contract, the amount to be paid therefor to the *Contractor* shall be the actual price payable by him, in substitution for the Prime Cost Sum, together with any charge included by the *Contractor* in his Tender to allow for labour, profit, carriage, establishment and for other charges related to such goods, services or materials. Expenditure shall be solely at the discretion and on the instruction of the Engineer.

The *Contractor* shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

B1171 SCHEDULE OF QUANTITIES

The phrase 'Schedule of Quantities' shall also mean 'Bill of Quantities'.

SECTION B1200: GENERAL REQUIREMENTS AND PROVISIONS

B1202 SERVICES

Add the following as the first paragraph:

" All reference to services in this clause shall also mean utility services."

In the final paragraph, replace "clause 15" in the second line with "clause 31"

Add the following to the sixth paragraph:

"The *Contractor* shall also be liable for any loss or consequential loss suffered by the owner of an identified or known service or a service that should have reasonably been foreseen to have been present, which is damaged by the *Contractor's* operations."

In the final paragraph, delete the second and third sentences starting with "Should" and replace with the following:

"Table B1202/1 to Table B1202/3 lists all known services on the Site. Those requiring removal, realignment or temporary replacement are indicated in the tables with an identity number or shown on the drawings. However, before any work can commence, the *Contractor* shall verify the actual position of each station and bring to the attention of the Engineer any service that is not recorded. As the *Contractor* is not authorised to remove or replace these facilities he shall:

- (a) Give preliminary notice, in writing to the relevant service provider, that the services on the Site will require removal or protection prior to works being carried out in the vicinity of each station. The *Contractor* shall advise the service provider of:
 - (i) The number of services, their locations and station ID numbers.
 - (ii) The proposed dates when work will commence in the vicinity of each service.
- (b) In addition to the above preliminary notice, give the service provider fourteen (14) days written notice of the intention to commence work in the vicinity of each facility.
- (c) Upon completion of the work in the vicinity of each facility, the *Contractor* shall notify the service provider, in writing, that work is complete and the service may be reinstated.

Any delay resulting from the removal and/or replacement of a service shall not be the subject of a potential claim, unless the *Contractor* can demonstrate that every effort has been made to timeously request and/or apply for the removal and/or replacement of the said service. In

addition, the *Contractor* shall be deemed to have employed the services of the service provider as a Subcontractor for purposes of removing and/or replacing the relevant deemed service.

TABLE B1202/1: LIST OF KNOWN SERVICES FOR NEWARK ROAD

CHAIN AGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
150	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
572	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
572	Right	Water	W	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
577-584	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
638-690	Right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
638-690	Right	Water	W	Hand excavate; lay new relocated pipe; encase pipe in concrete; backfill and compact
777-790	Left	Water	W	Hand excavate; lay new relocated pipe; encase new line in concrete; backfill and compact
846-858	Right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
877-886	Right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
910-942	Right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1005- 1014	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1052- 1058	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1072- 1078	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact



CHAIN AGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
1095-1103	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1143-1150	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1188	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1290-1320	Right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1712-1725	Right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1984	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
2310	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
2523	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
3504	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact

CHAIN AGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
186	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
203-215	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
224	Left	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact



CHAIN AGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
242	Left	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
578	Left + right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
578-683	Left + right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
850-858	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
878-885	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
915	Left + right	Acid	EXCD	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
918	Left + right	Acid	EXCD	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
915-940	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1032	Left + right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1283-1296	Right	Sewer	S	Hand excavate; lay new relocated pipe; encase new line in concrete; backfill and compact
1296-1326	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
1704-1738	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
2078-297	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
2318-2350	Right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
920-962	Left	Fence	WALL	Remove/demolish wall and fence
1160-1180	Left	Fence	CANOPY	Relocate canopy to new position
1280-1400	Right	Fence	CANOPY	Relocate canopies to new position

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
158	Right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
920-938	Right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
1290-1320	Right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
1717-1727	Right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2504	Left + right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
3410	Left + right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
4108	Right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
4125	Left + right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
4135	Left + right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
130	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
150-160	Left	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
158	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
212	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
272	Left	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
470	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
473	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
754	Right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
754	Left	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
772-790	Left	Electricity	EL	Hand excavate; lay new line; encase new line in concrete; backfill and compact
850-860	Right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
870-888	Right	Electricity	EL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
910-940	Right	Electricity	EL	Hand excavate; lay new line; encase new line in concrete; backfill and compact
1350	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
1290-1320	Right	Electricity	EL	Hand excavate; lay new line; encase new line in concrete; backfill and compact



CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
1710-1740	Right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
1970	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2068-2100	Right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2144-2157	Left	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2180-2205	Left	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2310-2375	Right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
2350-2370	Left	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2410	Left + right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
2476	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2517	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2642	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
2678	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
3445	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
3448	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
3964	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
4018	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
4070-4110	Right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
4090	Right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
4144	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
4168	Left + right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact

TABLE B1202/2: LIST OF KNOWN SERVICES FOR VENTURA ROAD

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
58-64	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
115-122	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
130-190	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
208-223	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
237-245	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
280-285	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
298-304	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
320-312	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
378-390	Left	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
500-557	Left	Water	W	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
158-168	Left	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
178-190	Left	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
190-202	Left + right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
210-217	Left + right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact
218-278	Left + right	Sewer	EXS	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
523-560	Left	Fence	FENCE	Relocate fence to new position
538	Left	Fence	GATE	Extend gate

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
123-170	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
178-190	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
280-290	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
298-303	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
320-310	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
376-390	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
514-524	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
548-587	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
116-123	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
130-163	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
179-192	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
210-126	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
232-150	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
232-150	LEFT	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
282-286	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
298-303	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
320-332	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
376-395	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
510-526	LEFT	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
510-526	LEFT	Electricity	EL	Hand excavate; lay new line; encase new line in concrete; backfill and compact
530	Left + right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
542	Left + right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
558-580	LEFT	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact

TABLE B1202/3: LIST OF KNOWN SERVICES FOR URANIA ROAD

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
590	Left + right	Water	EXW	Hand excavate to expose pipe; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
15-30	Left	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
500-546	Left	Data	DA	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
598	Left + right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
860	Left + right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact
877- 917	Right	Data	EXDA	Hand excavate to expose line; encase pipe in concrete; backfill and compact

CHAINAGE (m)	POSITION	SERVICE TYPE	IDENTITY NUMBER	ACTION
0-5	Left + right	Electricity	EL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
15-40	Left	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
15-40	Right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact
15-41	Right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
40-60	Right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
40	Left + right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
500-546	Left	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
804	Left + right	Electricity	EL	Hand excavate; re-route existing line; encase new line in concrete; backfill and compact
877- 917	Right	Electricity	EXEL	Hand excavate to expose line; encase pipe in concrete; backfill and compact

The *Contractor* must contact the Employer before the *Contractor* commences with any work on existing services.

The contact person for the Employer is:

Ms. Zinhle Gumede

Civil Engineer

Transnet National Ports Authority (TNPA)

Pioneer Centre

San-Thom Road

RICHARDS BAY

3900

Tel: (072) 558 7177

Cell: 035 905 3791

Email: Zinhle.gumede2@transnet.net

Any cost of repairs, replacement and/or installation of the stations and equipment resulting from the *Contractor's* negligence or unauthorised action shall be to the *Contractor's* account."

B1204 PROGRAMME OF WORK

Insert the following before the first paragraph:

"A network-based programme in accordance with the precedence method shall be provided, showing the various activities in such detail as the Engineer may require. The programme shall be updated monthly in accordance with the requirements of the Conditions of Contract to accurately reflect the progress made by the *Contractor*."

(a) General requirements

Add the following as a continuation of the first paragraph:

"In drawing up the programme the *Contractor* shall make allowance for the following:

- (i) The proposed rate of progress in order to complete the Works within the required period as tendered, showing the various activities, their durations and proposed resourcing levels (major plant and labour) for each element of the Works. Sufficient detail shall be provided to enable the Engineer to be able to gauge construction progress. All activities, including establishment on site, trimming and finishing and the completion of all minor ancillary works are to be included in the programme

- (ii) The sequence of activities and any dependencies (time or resource related) between them .
- (iii) The critical path activities
- (iv) Working times and all other constraints stated in this clause
- (v) Expected weather conditions and their effects (clause B1215)
- (vi) Known physical conditions or artificial obstructions
- (vii) The accommodation and safeguarding of traffic
- (viii) Dealing with, altering and installing services
- (ix) Meeting the requirements of the environmental management plan (EMP).
- (x) The time required for the preparation and approval of the various mix designs specified in the relevant sections of the Scope of Works

During the *Contractors'* annual shutdown period during December and January, the *Contractor* shall maintain two-way traffic within the limits of the Contract.

(1) Sequence of Works:

The maintenance of the existing roads and clearing of stormwater structures/systems must be programmed to be done first.

If an alternative contract period is offered, the *Contractor* shall submit a separate programme with the alternative tender."

Add the following subclauses:

"(c) Additional programme requirements

In addition to the requirements of subclauses B1204(a) and B1204(b) and Clause 31, the programme shall include the following details as well as the programming constraints describe in Section 6.7 of the Works Information.

- (i) A work breakdown structure that identifies all major activities.
- (ii) Scheduled start and end dates for each activity.
- (iii) Linkages between activities that clearly identify sequence, floats and critical path.

- (iv) Intended working hours and resource allocations (plant and labour).
- (v) Monthly cashflow projections.
- (vi) Key dates in respect of information required or due delivery.
- (vii) The *Contractor's* payment weekends.
- (viii) A risk assessment schedule with mitigating plans of issues that could prevent the due completion date being met.

Should the Engineer require an electronic version of the programme for review purposes, the *Contractor* shall supply the programme in a format compatible with the Engineer's software.

(d) Programme revisions

The programme will be reviewed at the monthly site meetings at which the *Contractor* shall provide sufficient detail that will allow the comparison of completed work per activity against the current approved programme. The *Contractor* shall indicate the resources and programme changes he intends to implement in order to remedy any activity that has fallen behind. The Engineer may demand a major revision of the programme from the *Contractor*. Such a revision shall be submitted for comment within fourteen (14) days of the demand, or as specified in the Conditions of Contract.

Failure to comply with these requirements entitles the Engineer to use a programme based on his own assumptions to evaluate claims for extension of time for completion of the Works, or for additional compensation."

B1205 WORKMANSHIP AND QUALITY CONTROL

Delete the second to fifth paragraph and replace with the following:

"The *Contractor* shall submit a proposed Quality Management Plan for this Contract in a format approved by the Engineer. Confirmation of the Quality Management Plan shall be submitted to the Engineer, for his approval, within fourteen (14) days of award of the contract and prior to the commencement of construction activities. Once accepted by the Engineer the *Contractor* shall not deviate from it unless written notification of proposed changes has similarly been submitted and approved. The system shall record the lines and levels of responsibility and indicate the method and frequency by which testing procedures will be conducted.

Payment for work done will not be made until the results of the *Contractor's* process control testing have been submitted and the Engineer has approved the work. The Engineer shall

conduct such tests as he may deem necessary to verify the process control test results and shall retain all rights as determined in the General Conditions of Contract related to bad workmanship or unacceptable materials. This shall also be applicable to accepted alternative (mix) designs and related specifications."

B1206 THE SETTING-OUT OF WORK AND PROTECTION OF BEACONS

Replace "clause 14" in the first paragraph with "Clause 20.1".

Replace the first paragraph with the following:

"The horizontal alignments shown on the drawings reflect the centre line of the new roads. The *Contractor* shall appoint an experienced and reputable surveyor to stake the road at 20 m intervals using these alignments, and shall take cross-sections of the road formation and adjacent area at 10 m intervals in mountainous areas, and 20 m intervals in other areas, to a distance of at least 10 m wider than the new road toe-lines. The cross-sections shall clearly define shoulder break lines, drains and batter slopes of existing cuts and fills. The cross-sections of a particular section of the road to be constructed shall be submitted to the Engineer for his approval at least seven (7) days before the time envisaged by the *Contractor* when such a section of road will be constructed. These cross-sections shall then be used for the calculation of quantities.

The reference beacons shown on the drawings shall be used for the purpose of staking and taking cross-sections. The appointed surveyor shall, in addition, also construct sufficient reference markers corresponding to the staked line to ensure that accurate measurements can be made.

No additional or extra over payment will be made for staking the road centre line or for taking cross-sections. Full compensation therefore shall be deemed to be included in the rates tendered and paid for the various items of work included in this Contract."

B1209 PAYMENT

(b) Rates to be inclusive

Add the following to the first paragraph:

"VAT shall be excluded from the rates."

Add the following subclauses:

"(g) Work in confined areas

Except where provided for in the specification and the Pricing Schedules, no extra payment shall be made nor shall any claim for additional payment be considered for construction in confined areas. The omission of payment items from the Pricing Schedules shall be taken to be deliberate and any additional costs incurred shall be included in the bulk rate.

B1210 CERTIFICATE OF PRACTICAL COMPLETION OF THE WORKS

Add the following before the first paragraph:

"Practical completion shall be deemed to have the same meaning and interpreted as 'take-over' in respect of NEC3."

Add the following paragraphs after subclause B1210(h):

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

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

- (i) The estimated cost to complete the outstanding work is less than 2% of the tendered value of work plus the cost of any variation or extra work orders, but excluding CPA and VAT.
- (ii) The written list of outstanding items of work can be completed within twenty-eight (28) days of the list having been accepted in writing by the *Contractor*.
- (iii) Any information in the *Contractor's* possession, which is required by the Engineer and has been requested in writing, has been supplied.
- (iv) The work should be completed in terms of the OHS construction regulations 2014, the *Contractor's* OHS plan, ACSA regulations and should be fit for purpose..

The contents of this Clause 1210 of the COLTO Standard Specifications, together with the above amendment, shall apply equally to the requirements for taking over any of the Works in terms of clause 35."

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

Delete the entire clause and replace with the following:

"Any extension of time shall be determined in accordance with Clause 60.1 of the Conditions of Contract.

Change the existing heading of clause 1215 to read as above and wherever the expression 'abnormal rainfall' is encountered replace it with '*inclement weather*' and make the following changes to *Method (ii) (Critical-path method)* which will apply to this Contract:"

Add the following as a new paragraph:

"(a) Extension of time resulting from inclement weather, other forms of inclement weather or shift delays shall be calculated according to the requirements of Method (ii) (Critical-path method). The n-values of working days per calendar month, as specified in this clause as being expected delays for which the *Contractor* must make allowance in his programme, have been calculated from the figures given in Table B1215/1 below.

TABLE B1215/1: AVERAGE ('N') DELAYS DUE TO INCLEMENT WEATHER

Month	Jan *	Fe b	Mar	Apr	Ma y	Jun	Jul	Aug	Se p	Oct	No v	Dec *	Total
Average rain days	10	9	10	8	6	5	5	5	6	9	10	10	93

The value 'n' is the average number of days on which 10 mm of rain has been recorded.

The *Supervisor* will certify a shift loss due to abnormal rain or adverse weather conditions based on the following criteria:

- (i) No work was possible during the relevant shift on any item which is on the critical path according to the latest approved construction programme, given that sufficient temporary drainage of work areas was provided, or if
- (ii) Less than 50% of the work force and plant planned for that specific shift could work.

Actual extensions of time due to inclement weather and time lost during shifts due unforeseen delays attributable to the Employer's actions shall be agreed between the Engineer's and *Contractor's* Representatives on the site immediately or as soon as possible afterwards.

Adjustment to the contract period shall only be made at the end of the contract when the *Contractor* may submit its claim for the agreed extension due, as well as any additional payment resulting from the delay. Extension caused by inclement weather or unforeseen delays attributable to the Employer's actions will only accrue once the agreed cumulative delays exceed the cumulative total for the contract period months as indicated above. Should the contract period cover parts of a month then these months will be calculated pro rata for parts of a month.

If approved extensions of time extend the completion date beyond the start of the *Contractor's* holiday in December, the holiday period shall not be considered as working days. Any remaining extension of time at this date shall be calculated from the first statutory working day in January the following year, provided that the *Contractor* has shown in his programme that he intends to close during the traditional Christmas/New Year break.

Time lost during shifts shall be agreed between the Engineer's and *Contractor's* Representative on site. The agreed shifts or parts thereof shall be recorded at the site meetings and adjustment made to the contract period by extending the contract period according to the number of shifts lost less the allowance."



B1219 WATER

Add the following:

1. "WATER, OTHER THAN MUNICIPAL, FOR USE ON THE SITE SHALL BE SUBJECT TO THE REQUIRED PERMIT FROM THE DEPARTMENT OF WATER AND SANITATION (DWS). THIS SHALL INCLUDE SUCH EXTRACTION POINTS AS RIVERS, DAMS, STREAMS AND BOREHOLES.

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

TABLE B1219: WATER CLASSIFICATION FOR CONSTRUCTION TESTING

		WATER QUALITY CLASSIFICATION CODE						Method
		H0	H1	H2	H3	H4	H5	
Property	Unit	Pure water (AR)	Clean water (Rain)	Treated water (Municipal)	Silty (muddy) water with low salt content	Highly mineralised chloride sulphate water (brackish)	Waste brack, sewage, marsh, sea, water, etc.	
pH*	-	7,0	5,7 – 7,9	4,5 – 6,5	4,5 – 8,5	9,0	-	SANS 10523 : 2012
Dissolved solids*	ppm	0	1 000	1 500	3 000	-	-	SANS 5213
Total hardness*	-	None	None	Temporary	Temporary	Permanent	-	SANS 450 SANS 453 : 2005
Suspended matter	ppm	0	2 000	2 000	5 000	-	-	SANS 6049 : 2010
Electrical conductivity	mS/m	0	200	200	500	-	-	SANS 7888 : 2005
Sulphates (SO ₄)	ppm	0	200	300	500	1 000	-	SANS 6310 : 2005
Chlorides (Cl)	ppm	0	500	1 000	3 000	5 000	-	SANS 374 : 2005



Alkali carbonates (CO ₃) and bicarbonates (HCO ₃)	ppm	0	500	1 000	1 000	2 000	-	SANS 241 : 2011
Sugar	-	Negative	Negative	Negative	Negative	Negative	-	SANS 5833 : 2006
Quality of water required		Untreated layer works	a	a	a	a	Investigate the effect on the quality of the material	
		Chemically treated layer works	a	a	a	Investigate the effect on the quality of the material		
		Concrete mass	a	a	a	Investigate the effect on the quality of the material		
		Concrete prestressed	a	a	References: 1. Concrete Technology – Dr S Fulton (1989)			

	Slurry and emulsion	a	a	2. Materials Manual (PAWC)
	Soil/gravel tests	a	a	
	Chemical or control tests	a	a	

- * A primary property. The quality of the water is such that all three of the primary properties are within the limits.
- * The tabulated single values are maximum values, except in the case of the pH value for pure water, which must be 7,0."

B1223 WORK ON, OVER, UNDER OR ADJACENT TO RAILWAY LINES

Add the following:

"The official specifications referred to shall be the latest edition of Specification E7, Part 2, of Transnet Limited.

The *Contractor* shall prepare detailed drawings to indicate exactly which methods (including any phased work required) will be used for construction works over and near the railway crossing.

Site work in connection with structures over railway lines shall not commence before said drawings have been approved by Transnet Limited. No additional payment will be made, nor will any claims be considered due to delays or inconvenience that may arise if the provisions of the Transnet Specification E7 (Specification of Transnet Limited) have not been complied with.

The *Contractor* shall make provision in his tendered rates and sums for arrangements to accommodate the rail traffic and occupy the railway reserve, and to prepare and submit the drawings as specified."

B1225 HAUL ROADS

Add the following:

"Where public roads are used for haulage of the material, the Contractor shall be responsible for all maintenance of the roads and also for reinstating the roads after use to a condition at

least comparable with the condition before work commenced. The Contractor shall establish and agree in writing the requirements of the relevant local authorities for both maintenance and reinstatement of the roads. He shall not use such roads until the Engineer is satisfied that these agreements are in place.

Particular care shall be taken where haul roads traverse private land and pass close to houses. Haul roads in general, but particularly in the areas mentioned above, shall be kept continuously damp in order to limit the generation of dust.

The construction (where required), upgrading, maintenance, watering and rehabilitation of haul roads will not be measured separately and shall be deemed to be included in the various rates tendered for obtaining material from the borrow pits and/or from commercial sources. At the end of the Contract, all existing private roads shall be left in at least the same condition as they were at the beginning of the Contract."

B1228 LEGAL PROVISIONS

Add the following:

"The *Contractor* shall be required to comply with the Occupational Health and Safety Act, No. 85 of 1993: Construction Regulations, 2014 (the Construction Regulations, 2014) as promulgated in Government Gazette No 25207 and Regulation Gazette No 37305 of 7 February 2014. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this Contract are detailed in the project specifications, Pricing Schedules and drawings, as well as in the Employer's health and safety specifications (Regulation 5(1)) of the Construction Regulations, 2014, which are bound in the Contract Document.

The *Contractor* shall in terms of Regulation 7(1) provide a comprehensive health and safety plan detailing his proposed compliance with the Construction Regulations, 2014, for approval by the Employer.

The *Contractor* shall at all times be responsible for full compliance with the approved plan, as well as the Construction Regulations, 2014, and no extension of time will be considered for delays due to non-compliance with the aforementioned plan or the Construction Regulations, 2014.

A payment item is included in the Pricing Schedules to cover the *Contractor's* cost for compliance with the OHS Act and the aforementioned regulations."

B1229 SABS CEMENT SPECIFICATION

Delete this clause.

Add the following clauses:

"B1230 MATERIALS

(a) General

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

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

Where materials are specified under trade names, tenders must be based on these materials. Alternative materials may be submitted as alternative tenders and the Engineer may, after receipt of tenders, approve the use of equivalent materials. The Tender must be clearly marked as an alternative tender, failing which the tender may be rejected.

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

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

Any materials excavated or present on the Site, or within the road reserve, or in borrow areas shall not become the property of the *Contractor*, but will be at his disposal only in so far as they are approved for use on the Contract, unless indicated otherwise in the specifications.

The *Contractor* must classify and manage all soil materials to be removed from site (spoiled) in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- i. Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);
- ii. Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- iii. The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials.

Existing structures on the Site shall remain the property of the Employer and except as and to the extent required elsewhere in the Contract, shall not be interfered with by the *Contractor* in any way.

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

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

The *Contractor* shall satisfy himself that any quarry selected for use provides the necessary mined material in accordance with the specification.

(b) Banned materials

No tar fluid products shall be used in the Works.

B1231 MIX DESIGNS

Before commencing with certain construction activities, the *Contractor* shall timeously except where specified otherwise in the relevant construction sections in the Scope of Works, apply the following procedures with regards to mix designs:

- Taking and submitting samples of the relevant materials
- Undertake the required mix design(s) or allow the Engineer to undertake them
- Produce, where required, laboratory, production/plant and/or trial mix(es)
- Undertake the required adjustments to the mix design(s) and reproduce required laboratory, production/plant and/or trial mix(es)
- Complete trial section(s) where required
- Await the Engineer's approval of the mix design(s) and trial section(s).

B1232 REPORTING OF ACCIDENTS

The *Contractor* shall report every accident which occurs on the road, within the extent of the Works, to the Engineer within 24 hours of such accident occurring, irrespective of whether such accident has a bearing on damage to the Works or to persons, property or things. The report must be in writing and must contain full particulars of the accident. Photographs of each accident shall also be included in the report. The Engineer has the right to conduct any or all enquiries, either on the Site or elsewhere, as to the causes and consequences of any such accident. The *Contractor* shall also keep a comprehensive record of all accidents which occur on the road and shall make such records available to the Engineer on demand.

B1233 LIGHTING REQUIREMENTS DURING NIGHT WORK

The *Contractor* shall provide sufficient lighting for night work to ensure that all inspection and work areas are illuminated to a minimum average of 100 lux at an overall uniformity of 0,33. The illuminance for active work areas shall comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the related Environmental Regulations for Workplaces, 1987. All lighting shall be subject to a minimum glare control of 5. Luminaires mounted on masts shall have a minimum mounting height of 4,0 m. The *Contractor* shall ensure sufficient back-up lighting to replace faulty lighting. The full specified lighting must be provided at all activities undertaken at night.

The lighting must be positioned so as not to cause a hazard to the travelling public using the road. Should the Engineer be of the opinion that the lighting is insufficient or that it is a hazard to the road users, the *Contractor* must rectify it immediately. Non-compliance will be subject to penalties as detailed in subclause B1502(l).

Two mobile lighting units, including a towing vehicle and operators, must on request be made available to the Engineer for night-time inspections.

The *Contractor* shall submit his lighting operational plan to the Engineer for approval and demonstrate the effectiveness of the lights before the commencement of any night work. The Engineer shall also inspect and approve all lighting equipment prior to the commencement of the night work. A trial set-up of the lighting equipment shall be made at an appropriate site. The *Contractor* shall arrange for the measurement and certification of the lighting adequacy by a reputable service provider. Once the lighting plan and equipment have been approved, the *Contractor* may not deviate from it unless agreed by the Engineer. If lighting requirements are

not met for any particular activity, the Engineer will order the activity to be stopped until the required lighting has been reinstated.

B1234 OWNERSHIP OF REDUNDANT ROADSIDE FURNITURE AND OTHER MATERIALS

Ownership of all redundant roadside furniture and other materials will remain vested with the Employer. The Contract shall therefore first obtain the approval of the Engineer before the disposal of any of these items. Items such as guardrails and posts, road sign gantries, bridge railings, etc., if not to be re-used in the Works, shall be taken to a designated Employer depot on instruction of the Engineer. The *Contractor* shall be compensated under dayworks for any costs incurred resulting from this requirement, which is not provided for in the relevant payment items.

B1235 MEASUREMENT AND PAYMENT

Item	Unit

B12.01 Compliance with the Occupational Health and Safety Act (OHS) and Regulations

(including the Construction Regulations, 2014).....lump sum

The tendered sum shall include full compensation to the *Contractor* for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations, 2014) at all times for the full duration of the Contract, as described in clause B1228 of the project specifications. The successful Tenderer shall provide the Engineer with a complete breakdown of this tendered sum.

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

Item	Unit

B12.02 Compliance with Environmental Specification (ES):

(a) Environmental training lump sum

(b) General compliance with ES..... lump sum

(c) Penalty for non-compliance with ES

(i) Fixed penalty per occurrence..... number

- (ii) Time-related penalty Prov sum
- (d) Testing of contaminated material Prov sum

The tendered lump sum under item B 12.02 (a) shall include full compensation for all activities and costs associated with environmental training as described in the Environmental Specification. Payment shall be made on completion of the training.

The *Contractor* shall include a lump sum for general compliance with the Environmental Specification under item B12.02 (b). Failure comply with any instruction of the Responsible Person will be cause for non-payment of the whole lump sum and for ordering the cessation of works.

In subitem B12.02(c) (i) a fixed penalty of R5 000,00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of the Environmental Specification. In addition, in subitem B12.02(c) (ii), a time-related penalty of R5 000,00 per hour over and above the fixed penalty in subitem B12.02(c) (i) shall be deducted for non-compliance to the ES within a reasonable time after an instruction of this effect has been given by the Engineer. The Engineer's instruction shall state the time in hours for rectifying the non-compliance. Should the *Contractor* fail to adhere to the instruction, the time-related penalty will be applied from the time the instruction was given.

The provisional sum amount for testing of waste or spoil material shall cover full compensation to the *Contractor* for fulfilling all testing requirements necessary to classify the material prior to disposal, in accordance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- i. Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);
- ii. Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- iii. The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).



If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials and shall be paid for under Section 3300."

SECTION B1300: **CONTRACTOR'S ESTABLISHMENT ON SITE AND GENERAL OBLIGATIONS**

B1302 GENERAL REQUIREMENTS

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

Add the following paragraph:

"The *Contractor* shall comply with all statutory and contractual requirements of the environmental management plan as included in the project specifications."

Add the following new subclauses:

"(d) **Contractor's ablution facilities**

The *Contractor* shall, at each construction section, provide sufficient portable chemical latrine units. Furthermore, the *Contractor* shall also provide a portable chemical latrine unit at each temporary traffic control facility. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the Engineer. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the *Contractor's* time-related obligations."

(e) **Mobilisation Period**

"Mobilisation Period" means the period as stated in the Bill of Quantities, or the period between the *starting date* and the date that the *Contractor* starts with the execution of the *works*, whichever is the shortest

B1303 PAYMENT

Item	Unit

B13.01 The *Contractor's* general obligations

Delete subitem (c) and replace with the following:

"(c) Time related obligations:

(i) Mobilisation period month

(ii) Execution of the works month"

Add the following at the start of the description of this item:

"Should the combined total tendered for subitems B13.01(a), B13.01(b), B13.01(c)(i) and B13.01(c)(ii) exceed 20% of the tender sum, the tenderer shall state his reasons in writing for tendering in this manner.

If the tenderer should require additional compensation for his obligations under Section B1300 (over and above the total tendered for item B13.01 by including such additional compensation in the tendered rates and/or lump sum of items in the schedule of quantities, these items and the value of such additional compensation shall also be indicated in writing in a letter."

Delete the seventeenth paragraph commencing with "The tendered rate per month for subitem B13.01(c) ..." and replace with:

"The tendered rate per month for subitem B13.01(c) represents full compensation for that part of the *Contractor's* general obligations which is mainly a function of construction time. The tendered sum will be paid monthly, pro rata for parts of a month, from the starting date until the end of the Mobilisation Period for subitem B13.01(c)(i) and from the end of the Mobilisation Period for subitem B13.01(c)(ii) until the end of the period for completion of the works, plus any extension thereof as provided in the General Conditions of Contract, provided that -."

Add the following at the end of this item:

"The amount payable to the *Contractor* for time-related costs arising from extensions of time granted by the *Employer*, where the *Contractor* is fairly entitled to such compensation in terms of the General Conditions of Contract, shall be calculated as follows:

- (i) Account shall be taken of all time-related items scheduled in Sections B1300, B1400 and B1500.
- (ii) All items for which the unit of measurement is 'month' shall be deemed to be based upon the number of working days as included in the programme taking into account non-working days and rain day allowances.

Payment will be made only for items for which the unit of measurement is 'month'."

SECTION B1400: HOUSING, OFFICES AND LABORATORIES FOR THE ENGINEER'S SITE PERSONNEL

B1402 OFFICES AND LABORATORIES

(a) General

Add the following at the end of the first paragraph:

"It is a requirement of the Contract that the offices for the Engineer's *Supervisory* staff shall be supplied with approved burglar proofing, the cost of which shall be taken as included in the relevant tendered rates for the provision of the specified building. All offices and laboratories shall be supplied with approved burglar proofing. The burglar proofing shall comply with CKS 338. The offices and any living accommodation are to be separated by at least 200 m. The Engineer's offices shall, amongst other things, have one room at least 6,0 m x 3,5 m to serve as a conference room. "

(b) Offices

Replace the first paragraph of subclause B1402(b)(xii) with the following:

"(xii) A complete telephone service capable of receiving and delivering electronic and data, together with an exchange line and the number of extensions specified shall be provided. The prime cost sum shall also include the cost of all telephone calls in connection with contract administration. As an alternative the *Contractor* can supply two cell phones with air time and data. "

Replace subclause B1402(b)(xvii) with the following:

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

Add the following subclauses:

- "(xviii) Whiteboards of 1,5 m and 1,0 m, with tray, four different colour pens and whiteboard eraser, fixed to wall.
- (xix) Each bookcase shall be at least 0,9 m long, 0,9 m high with three shelves.
- (xviii) Steel plan cabinets/plan holders shall be able to accommodate one hundred and fifty A0-sized drawings hanging vertically from approved holders, and shall be of a robust construction to withstand continuous use over the duration of the Contract.
- (xix) An electric refrigerator shall have a capacity of at least 200 litres.
- (xx) Floodlights at the offices and laboratory of the *Supervisory* staff shall be controlled by a photocell for security purposes.
- (xxi) The cellphones supplied to the Engineer's site staff shall be for the duration of the Contract. The prime cost sum shall also include the cost of all telephone calls in connection with contract administration."

(c) Laboratories

Add the following paragraph at the top:

"The laboratory shall become the property of the Employer and must remain operational on the premises for the duration of all the work packages. De-establishment of the laboratory is not allowed. Approval from the Employer shall be obtained before any equipment, fittings or furniture can be removed."

In the second line of the second paragraph, replace "drawings" with "figure included in the project document or on the drawings".

Add the following to subclause B1402(c)(xiv):

"The lengths of the baths are governed by the heating and water-circulation apparatus and the number of cubes to be stored, and must be approved by the Engineer before the baths are constructed."

Add the following to subclause B1402(c)(xv):

"The freezer compartment of the refrigerator shall have a capacity of approximately 30% of the volume of the refrigerator."

Add the following subclause:

"(i) Computers and printers

When instructed by the Engineer, the *Contractor* shall provide approved new computer equipment, including software and printers for use by the Engineer's site personnel. The type of equipment and software shall be as instructed by the Engineer. Payment for equipment and maintenance shall be made through payment item B14.12.

The *Contractor* shall be responsible to ensure that all equipment provided in terms of the Contract shall be fully serviceable at all times. The *Contractor* shall repair or replace any defective equipment within 48 hours of notification by the Engineer's staff. The *Contractor* shall also provide all paper and ink cartridges required by the Engineer."

B1403 HOUSING

(c) Rented accommodation

Replace the full stop at the end of the first sentence of subclause B1403(c)(ii) with a comma and add "and for all services connected with such accommodation."

(d) Accommodation for labourers

Add "Each housing unit shall accommodate three (3) labourers." to the first paragraph.

Replace "one well-ventilated section" in the first line of the third paragraph with "two (2) well ventilated sections each".

Replace "and another section containing a shower and a washbasin" in the third and fourth lines of the third paragraph with "and another two (2) sections, each containing a shower and one section containing two washbasins".

Replace the second last sentence of the third paragraph with "It shall have a roof and one outside door only, provided with a lock and two (2) keys. Each section with a latrine shall also be provided with a lockable door with two (2) keys."

Add "The cooking unit shall also be provided with a dining table, ten (10) chairs, a steel refuse bin, a 210 litre refrigerator and a kitchen cupboard." to the fourth paragraph.

Insert "and plug points as shown on the drawings" after "lights" in the second line of the seventh paragraph.

Replace the last paragraph with the following:

"All prefabricated houses, servants' quarters and accommodation for labourers shall be supplied with approved burglar proofing."

Add the following at the end of the third paragraph:

"The size, layout and number of fixtures and items of furniture for each unit shall be in accordance with the details on the drawings."

B1404 SERVICES

(b) Water, electricity and gas

Add the following to the end of the third paragraph:

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

A diesel-driven generator plant must be provided to the Site. It must automatically engage in the event of a power failure, ensuring uninterrupted electric supply to the offices and the laboratory. The cost of this plant shall be included in rates tendered for supply of services to the offices and laboratory."

Add the following after the seventh paragraph:

"The supply of electricity and water to the offices and laboratories of the Engineer's *Supervisory* staff shall be maintained 24 hours per day."

(c) Maintenance

Replace the contents of this subclause with the following:

"The *Contractor* shall supply all labour, equipment and materials required for keeping the offices, laboratories, ablution units, carports at the offices and laboratories, and the housing for labourers in a neat and clean condition. At the request of the Engineer, the *Contractor* shall immediately undertake repairs to the offices, laboratories, ablution units, carports, rented houses and the housing for labourers. The *Contractor* is not responsible for keeping rented houses in a clean and neat condition, nor for tending to the gardens."

B1405 GENERAL

Add the following to subclause B1405(e):

"In addition, the offices and laboratories shall be supplied with approved burglar proofing and the whole Site shall be guarded full time during the day and night, as well as over weekends and holidays. The Site shall also be fenced with a 2,4 m high security fence. The cost of this protection shall be included in payment item B13.01."

Add the following subclause:

"(g) The *Contractor* shall, when required to supply any testing, measuring and/or survey equipment for the Engineer's use, provide calibration certificates or verification certificates (as appropriate) for all equipment. This shall apply for both shared equipment as well as for equipment specified to be provided for the Engineer's use on site.

Calibration or verification shall be done by suitably certified calibration or verification authorities, approved by the Engineer, prior to the delivery of any equipment to the Engineer. Thereafter calibration or verification shall be done at intervals prescribed for the relevant equipment. These intervals shall be no less than every twelve (12) months.

Unless otherwise provided for in the Pricing Schedules, the cost of providing the above specified equipment, shall be deemed to have been included in the *Contractor's* other rates and prices..

Payment for equipment will be withheld if the aforementioned certificates are not submitted."

B1406 MEASUREMENT AND PAYMENT

Replace payment item 14.01 with the following:

Item	Unit

B14.01 Office and laboratory accommodation:

Replace subitem B14.01(e) with the following:

- "(e) Ablution units:
- (i) Site unit..... square metre (m²)
- (ii) Laboratory unit..... square metre (m²)"

Item	Unit

B14.03 Office and laboratory fittings, installations and equipment:

- (a) Items measured by number:

Add the following subitems:

"(xix) Plan holders number

(xx) Floodlights complete with poles and minimum 500 watt globes..... number

The tendered rate for subitem B14.03(a)(xx) shall include for the operation of the lights from sunset to dawn for the full duration of the Contract."

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

Add the following subitems:

"(ix) Cellphone costs, including pro rata rentals, for calls in connection with contract administration prime cost (PC) sum

(x) Handling costs and profit in respect of subitem B14.03(b)(ix) above percentage (%)

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

The tendered percentage is a percentage of the amount actually spent under subitem B14.03(b)(ix) which shall include full compensation for the handling costs of the cellphone."

Item	Unit

B14.10 Provision of copying facilities.....	month

Replace the payment item description with the following:

The tendered rate per month shall include full provision for providing and maintaining an approved combination colour printer/copier/scanner machine (capable of making A3 copies) and its use, including all accessories such as paper, toner, etc., for a maximum number of 1 000 A4 or A3 copies per month."

Add the following payment items:

"Item	Unit

B14.11 Provision of mobile outdoor weather station	number

The unit of measurement shall be the number of units supplied and operated.

The tendered rate shall include full compensation to procure, erect, operate and maintain, for the duration of the Contract, a number of weather stations capable of measuring temperature,

wind, chill, barometric pressure, UV levels, rainfall, wind direction and speed. The device should also have on-board storage capabilities for at least seven (7) days and it should include a USB PC connection with software, allowing data to be downloaded to a PC."

Item	Unit
B14.12 Supply of computer hardware and software:	
(a) Supply of computer equipment and software	prime cost (PC) sum
(b) Handling costs and profit in respect of subitem B14.11(a)	percentage (%)

Expenditure under this item shall be made in accordance with the Conditions of Contract.

The tendered percentage is a percentage of the amount actually spent under subitem B14.11(a), which shall include full compensation for the handling costs of the *Contractor*, and the profit in connection with providing the specified equipment.

Item	Unit
B14.13 Testing of materials at a commercial testing laboratory:	
(a) Testing	provisional (Prov) sum
(b) Handling costs and profit in respect of subitem B14.13(a) above	percentage (%)

Expenditure under this item shall be made in accordance with the Conditions of Contract.

The tendered percentage is a percentage of the amount actually spent under subitem B14.13(a), which shall include full compensation for the handling costs of the *Contractor*, and the profit in connection with the testing of materials at a commercial testing laboratory."

SECTION B1500: ACCOMMODATION OF TRAFFIC

B1501 SCOPE

Add the following:

"It is a condition of this Contract that traffic is accommodated taking into account the provisions of the latest edition of the *South African Road Traffic Signs Manual* (SARTSM). The latest version for use in the accommodation of traffic is Volume 2, Chapter 13 of the May 2012 Edition.

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

B1502 GENERAL REQUIREMENTS

Insert the following after the heading:

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

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

(a) Safety

Replace the full stop at the end of the first paragraph and continue with the following:

"... flow of traffic, including the prohibition of his, and his Subcontractors, construction plant from disregarding the STOP/GO accommodation of traffic-control facilities. Failure to comply with this requirement shall be taken as a penalty event in terms of subclause B1502(l)."

Add the following:

"The *Contractor* shall be responsible for maintaining the existing road surface, both within the Site and the advance warning and termination areas, in a safe and trafficable condition for the duration of the Contract.

The *Contractor* shall within seven (7) working days after receipt of a third party claim acknowledge receipt to the claimant. The Engineer shall be copied on all correspondence regarding third party claims. The *Contractor* shall at the monthly site meeting report on the status and outcome of the third party claims.

The *Contractor* shall be fully responsible for all the traffic accommodation on site, including for work undertaken by Subcontractors, e.g. at bridges, electric work, etc.

Traffic shall be accommodated as indicated on the drawings unless an alternative tender incorporating an amended method of traffic accommodation has been accepted.

The *Contractor* may amend the agreed traffic accommodation scheme but only with the approval of the Engineer in consultation with the provincial and municipal traffic authorities.

During the non-working hours, or when construction is not taking place on a certain section of road all obstructions to the traffic shall be removed and all signs no longer applicable to the situation shall be removed to an approved safe location or effectively covered.

No equipment, traffic signs or vehicles shall be stored or parked in the median or on the roadside during non-working hours except if protected or demarcated and only if approved by the Engineer.

When requested by the Engineer, the *Contractor* shall provide lane closures for the purpose of road inspection. This must be done in advance of the actual programmed time for the work."

(b) Providing temporary deviations

Add the following paragraph:

"The *Contractor* shall obtain the approval of the provincial traffic police, the municipal traffic department and the Engineer for changes in the normal traffic flow and shall keep them informed of these changes."

(f) Approval of temporary deviations

Add the following:

"If, after any temporary deviation has been constructed, any changes are considered necessary or desirable, the proposal shall be submitted to the Engineer for his approval."

(i) Traffic safety officer

Add the following after the second paragraph:

"The *Contractor* shall submit a curriculum vitae (CV) of the candidate to the Engineer for approval before the traffic safety officer is appointed."

Add the following as the opening phrase of subclause B1502(i):

"The traffic safety officer shall make himself available to discuss road safety and traffic accommodation matters whenever required by the Engineer and shall be responsible"

Replace subclauses B1502(ii) and B1502(iii) with the following:

"(ii) Record on neat and dimensioned sketches and submit to the Engineer the position and sign reference number, where applicable, of each sign, barricade, delineator, cone, amber flicker light, guardrail and permanent or temporary painted road-marking feature. The position of each shall be adequately referenced to identifiable permanent features located along the Site of the Works.

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

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

(iii) Personally inspect the position and condition of each traffic accommodation feature on the whole of the Site twice per workshift, whether daytime or nightwork, and at least twice a day/night during non-working hours, to record all irregularities discovered and the remedial action taken, and to sign off as correct and submit to the Engineer such record sheets by the middle of the next working shift. The above inspections must at least take place before the commencement of peak traffic periods. The traffic safety officer shall keep a duplicate book for this specific purpose.

The traffic safety officer shall also submit with this report the daily labour returns of flagmen, STOP/GO, traffic signal control personnel employed and the traffic data recorded at each traffic-control point."

Add the following subclauses:

- "(ix) The traffic safety officer shall be equipped with a cellular telephone and shall have a traffic safety vehicle and sufficient labour at his disposal 24 hours a day, including all prescribed non-working days, and shall not be utilised for other duties. He shall be directly answerable to the *Contractor's* site agent. The traffic safety officer shall have his own vehicle to carry out inspections and at least one assistant to accompany him full time. Furthermore the traffic safety vehicle shall be a truck with a capacity of at least 3 tons and shall be equipped with a high visibility rear panel in accordance with the requirements of the SARTSM. The words TRAFFIC CONTROL shall be written on a warning sign in highly legible letters, not less than 150 mm high, and the sign shall be mounted on both the traffic safety officer's vehicle. The proposed sign and letter dimensions shall be submitted to the Engineer for his approval.

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

The traffic safety officer shall have a direct line of communication at all times with the police and traffic officers responsible for the area within limits of the Contract.

- (x) Ensure that all obstructions related to the *Contractor's* activities be removed at the end of each work shift where applicable as instructed by the Engineer and that the roads are safe for the traveling public.
- (xi) The traffic safety officer shall, in addition to the duties listed in subclause 1502(i), also be responsible to arrange for the removal of stationary or broken-down vehicles off the roadway in conjunction with the traffic authorities and implementing actions requested by the traffic authorities with regard to the work to be carried out and be responsible for the erection and maintenance of all traffic signs necessary for the accommodation of traffic.
- (xii) In the event of an accident the traffic safety officer shall record in a written report the details of the accident, record the position of all temporary road signs, barricades,

delineators, flagmen and any other devices used for traffic accommodation. In addition the report shall include a neat dimensional sketch, photographs, identifiable permanent features, and any other relevant information.

- (xiii) At least one (1) separate traffic safety officer and team shall be employed when construction is carried out simultaneously during the day and night."

Add the following subclauses:

"(j) Crossing the median or carriageway centre line

No vehicle or item of equipment shall be allowed to cross the median of a dual carriageway road or centre line of a single carriageway.

(k) Site personnel

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

Reflective safety jackets shall comply with SANS 50471 as follows:

Class jacket:	Class 2
Background material:	Fluorescent orange-red or fluorescent yellow
Retro-reflective performance:	Level 1
Water vapour resistance:	Class 2
Garment type:	Waistcoat or jacket, provided that no waistcoats shall be allowed during night work

(l) Penalty events

Whenever the following events occur, the *Contractor* shall be subjected to penalty conditions expressed in the Appendix to Tender.

(i) Non-compliance with accommodation of traffic specifications

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

A fixed penalty of R10 000,00 per occurrence shall be deducted for each and every occurrence of non-compliance with any of the requirements of Section 1500 of the standard specifications and Section B1500 of the project specifications.

In addition a time-related penalty of R1 000,00 per hour over and above the fixed penalty shall be deducted for non-compliance to rectify any defects in the accommodation of traffic within the allowable time after the Engineer has given an instruction to this effect. The Engineer's instruction shall state the allowable time, which shall be the time in hours for reinstatement of the defects. Should the *Contractor* fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.

(m) Liaison with relevant Authorities

Where required the *Contractor* shall be responsible for acquiring the services of a municipal traffic officer and traffic vehicle (equipped with a blue light) to assist in the accommodation of traffic. The traffic officer and vehicle will be required when lanes are to be closed and/or where directed by the Engineer.

(n) Public traffic

The travelling public shall have right of way on public roads. The *Contractor* shall arrange his activities to bring about as little disruption as possible to the traffic on the roads on which he works.

The closure of one (1) lane of the road shall only be done:

- on written instruction of the Engineer
- after approval of a specific accommodation of traffic detail
- subject to all the road signs and markings being implemented
- subject to such other conditions as the Engineer would reasonably require to ensure the safety of the travelling public.

Failure or refusal on the part of the *Contractor* to take the necessary steps to ensure the safety and convenience of the public in accordance with these specifications or as required by the Engineer or the traffic authorities shall be sufficient cause for the closing down of all work under this Contract until all provisions prescribed have been complied with to the satisfaction of the Engineer.

(o) Traffic lights

Although traffic will be regulated by means of STOP/GO signs and two-way radios, the Engineer may authorise the *Contractor* to control traffic with traffic lights. The following shall be provided as instructed by the Engineer:

- (i) Three (3) 1,5 kW generators, of which one (1) will be used for emergencies.
- (ii) Additional fuel tanks for the generators to permit 12 hours of uninterrupted service.
- (iii) A shelter for the generators.
- (iv) Four (4) traffic light fittings (traffic light holders) with three-phase lights (red, amber and green).
- (v) One (1) B-type automotor traffic controller and a switch for an alternative connection to the generators.
- (vi) 3,3 m standard traffic light poles and 600 m of 3-core x 2,5 mm cable for connection and power supply to traffic light fittings.
- (vii) Four (4) amber flashing lights (two (2) lights per pole) and four (4) terminal interfaces with two (2) flashing units for the four (4) flashing lights.

The *Contractor* shall open the entire working area for two-way traffic after 18:00. Manually controlled traffic lights may be used only if the above is impossible in practice, and if the Engineer has given his approval in writing. However, provision may be made for traffic light control by means of electromechanical control panels if the cycle is short enough and safety can be guaranteed.

- (viii) Traffic light control between 18:00 and 06:00, divided into three (3) shifts of 4 hours each.

(p) Other requirements

The following other requirements must be adhered to for the duration of the Contract:

- (i) The travelling public shall have 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.
- (ii) Failure to maintain road signs, warning signs or flicker lights, etc. in a good condition shall constitute ample reason for the Engineer to bring works to a stop until the road signs, etc., have been repaired to his satisfaction.
- (iii) When required, the *Contractor* shall make use of local traffic authorities to assist in directing traffic.
- (iv) Failure to comply with any of the requirements for the accommodation of traffic will result in penalties being imposed as specified in subclause B1502(l).
- (v) The *Contractor's* tendered rates for the relevant items in the Pricing Schedules shall include full compensation for all possible additional costs which may arise from the above. No claims for extra payment due to inconvenience as a result of the *modus operandi* will be considered.
- (vi) The *Contractor* may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the *South African Road Traffic Signs Manual (SARTSM), May 2012*.

(q) Short-term lane closure

Short-term lane closures shall typically be required during the milling and maintenance operation of the existing internal access roads, application of lane markings, parking of concrete trucks during the pour of the road concrete pavement, etc. The following conditions must be adhered to:

- (i) The approximate time periods for short-term lane closures and construction of the Works shall be as follows:
 - (1) Day shifts: 08:30 to 15:30
 - (2) Night shifts: 19:00 to 05:30

The aforementioned time periods, especially the start of the lane closure, shall be determined at the start of each shift by the Engineer and may vary slightly from the

times indicated. Different time periods shall be applicable for each individual internal access road.

- (ii) On the day prior to a long weekend the full road width shall be reopened no later than 14:00.
- (iii) For night shifts, the maximum reflection shall be used on road signs and LED lights shall be used with reflective lighting.
- (iv) A minimum of one (1) lane with 3,1 m lane widths shall be provided at all times.
- (v) Flashing illuminated arrow boards must be placed at the start of the closure.
- (vi) Delineators shall be used to demarcate the construction area.
- (vii) Lane closure may only be done between the hours specified in this clause and the full road shall be opened at the end of the shift. Consequently, the penalty for late opening of a lane to traffic shall be applicable to this type of closure.
- (viii) The maximum length of lane closure is 1,0 km.
- (ix) The maximum number of closures is one (1) per direction of traffic flow.
- (x) Information signs as detailed with variable dates and times of a lane closure shall be erected at positions as directed by the Engineer. The travelling public shall be informed of the lane closure at least seven (7) days in advance by displaying the information on the sign."

B1503 TEMPORARY TRAFFIC-CONTROL FACILITIES

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

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

The *Contractor* shall also be responsible for the existing permanent road traffic signs and markings from the start of the pre-warning area to the termination area. Existing permanent

road traffic signs and markings to be utilised for the construction period shall comply in all respects with the road traffic act.

The *Contractor* shall indemnify the Employer against all proceedings, claims, actions, damages and costs which may arise from or be related to the absence or improper functioning or placement of the traffic-control facilities.

Should the *Contractor* park any of his vehicles within the road reserve at night, it shall be off the road behind temporary concrete barriers and it shall be properly illuminated and signposted to ensure safe passing by road users."

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

"Traffic-control facilities no longer required at the site of a deviation or a lane closure shall be moved for re-use. Traffic-control devices lost or damaged by the *Contractor* shall be replaced at his own cost. Where it can be proved that any traffic-control performances are beyond the *Contractor's* control and not the result of his actions or omissions, the Engineer may order the devices to be replaced and paid for at scheduled rates."

Replace the third paragraph with the following:

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

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

(a) Traffic-control devices

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

"Two-way communication systems in good working condition shall be available at both ends of those sections of the Works where the road is barricaded and only one-way traffic is accommodated. A standby communication system set in good working order shall also be made available."

Add the following at the end of the last paragraph:

"At each signalised traffic-control point, an all-weather shelter of at least 3,0 m² capable of accommodating two (2) operators, with a clear window, a stable door, two (2) chairs and a portable chemical toilet that shall be regularly maintained, shall be provided. Each control point shall have a two (2) phased signal system mounted on 3,0 m high steel poles complete with all electrical wiring, a floodlight system of at least 2 x 400 W metal halide floodlights mounted onto a 9,0 m high pole to light up the traffic-control point and lighting along the road where the traffic will queue. The provision shall include for a sufficient continuous power supply to operate each traffic-control point. Included in the establishment and operation of the traffic-control devices shall be a communication system that allows the operators to communicate with each other.

At each traffic-control point plastic moveable barriers, fitted with STOP signs to both sides, shall be provided to prevent vehicles from using the closed road lanes. These barriers shall be moved to open and close the relevant lanes for road users.

Records of opening and closing of closures and traffic counts shall be kept and submitted daily to the traffic safety officer."

(b) Road signs and barricades

Add the following to the second paragraph:

"All temporary road signs shall be manufactured using Class III yellow and red retro-reflective sheeting."

Add the following after the last paragraph:

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

All temporary road signs required to remain in position for some time shall be pole mounted as shown on the drawings. All temporary road signs required to be moved more often shall be mounted on portable supports for easy moving to temporary positions. The only permitted method of ballasting the sign supports shall consist of durable sandbags filled with sand of adequate mass to prevent signs from being blown over by wind. The cost of the sandbags shall be included in the tendered rates for the various types of temporary road signs.

The traffic-control devices, temporary signs and devices required in the Contract are those specified in the SARTSM.

No work may proceed on any section where accommodation of traffic is required until such time as the relevant requirements with regard to signposting are met and written approval of the Engineer is obtained. The *Contractor* shall keep sufficient surplus signs, delineators and barricades on the Site to allow for the immediate replacement of damaged or missing items, within 3 hours of instructions having been given by the Engineer. Delineators shall be of the flexible plastic reversible variety and not of the rigid metal variety.

Should the *Contractor* fail to respond to an instruction to re-erect a road sign within 3 hours or fail to comply to the requirements, the work on that section will be suspended without any compensation to the *Contractor*.

The covering of permanent road signs, if applicable, shall be by utilising suitable and durable covering that shall be pulled over the sign in the form of a hood and fastened to the signposts. Plastic bags or other materials fastened by means of adhesive tape, shall not be permitted. The cost of the covering of permanent road signs shall be included in the tendered rates of payment items B15.01 and B15.10."

(c) Channelisation devices and barricades

Add the following paragraphs:

"The use of drums as channelisation devices shall not be permitted.

TW 401 and TW 402 delineators shall comply with the following requirements:

- (i) They shall be manufactured from a flexible material and shall comply with SANS 1555. The blade portion of the delineator shall be positively affixed to a base unit, which shall be stable on its own or be stabilized by means of sandbags when used on the road.
- (ii) The blade shall be retro-reflectorised with Class I yellow sheeting on the side facing oncoming traffic.
- (iii) It shall be nominally 800 mm high x 200 mm wide and the bottom edge of the delineator shall not be more than 200 mm above the road surface.
- (iv) The delineators shall be subject to the approval of the Engineer.
- (v) The maximum spacing between centres of delineators shall be as shown on the drawings or as directed by the Engineer."

Traffic cones manufactured in a fluorescent red-orange or red plastic material may be used only at short-term lane deviations during daylight. Cones shall not be used on their own, but shall

be interspersed with delineators at a ratio not exceeding 3:1. Cones used on all deviations shall be 750 mm high. Lane closures which continue into night-time shall be demarcated by delineators only.

(e) Warning devices

Add the following to the first paragraph:

"The flashing lights shall have a minimum intensity of 55 W."

Add the following after the first sentence of the second paragraph:

"The warning boards shall be at least 1,5 m above ground level."

Add the following after the last paragraph:

"All construction vehicles and plant used on the Works shall be equipped with rotating amber flashing lights and warning boards as specified. Clearance permits for all vehicles and plant shall be obtained from the Engineer before being allowed onto the Site.

(i) Vehicle-mounted flashing lights

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

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

Rotating lights and the 'CONSTRUCTION VEHICLE' signs on the *Contractor's* vehicles and plant shall not be paid for separately, but shall be included in the rates covering the use of the vehicles.

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

The *Contractor* shall provide the Engineer with rotating amber-coloured flashing lights. These lights shall be at least 200 mm high, shall have magnetic bases and must be equipped with fittings to draw power from a cigarette lighter point in a vehicle. No separate payment will be made for the supply and maintenance of these flashing lights and full compensation therefore shall be included in the rates tendered in the relevant payment item.

(ii) Flashing illuminated arrow board

The arrow board shall be made up of light sources mounted on a backing board. A single shaft arrow will be required that can be used for both left and right directions. The light sources must be of LED type to improve visibility if used also during daytime. The arrow board shall be used at lane drops."

Add the following subclauses:

"(g) Other traffic-control measures ordered by the Engineer

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

(h) Flagmen

Flagmen shall be provided where shown on the drawings or required by the specification. At night-time all flagmen shall be equipped with a suitably visible strobe, and a torch is required at each traffic-control point as well as the traffic light operator. No flagmen shall be on duty for a period of more than 10 hours per day.

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

Flagmen shall have in their possession, at all times, certification that they have attended and passed an accredited course in flagging techniques before being allowed onto the construction site.

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

In terms of lateral clearance and safety, flagmen shall stand on the shoulder of the lane of traffic that is being controlled and under no circumstances shall flagmen be permitted to stand within the traffic lane. In order to obtain maximum visual impact for the travelling public, flagmen shall stand alone.

(i) Safety jackets

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

The Engineer, his personnel and visitors shall wear safety jackets at all times when they move about the Site. The *Contractor* shall provide the Engineer with safety jackets. The safety jackets shall be orange in colour and shall be submitted for the Engineer's approval before they are purchased. Separate payment will be made for the safety jackets and full compensation therefore shall be included in the rates tendered in the relevant payment item.

(j) Other signs or facilities

The Engineer may instruct the *Contractor* to provide any other road sign, reflective tape, etc., not measured in standard payment items. The road signs shall conform to the requirements of Part 13 of Volume 2 of the *South African Road Traffic Signs Manual* (SARTSM), May 2012, or the specification provided by the Engineer.

(k) Lane closures

The *Contractor* shall provide a detailed layout and methodology plans of the closures, for the total length of the road works for approval by the Engineer before any implementation thereof. The partial closure of a lane width will not be permitted, but temporary lanes, if clearly marked and approved by the Engineer, may be used.

Traffic will not be permitted to deviate around both sides of a repair area which is situated in the middle of a carriageway, unless instructed or approved by the Engineer.

(l) Temporary lighting requirements

The *Contractor* shall provide temporary lighting installations as part of accommodation of traffic layouts at those locations identified as being potentially hazardous, and where active transitions take place or at locations as instructed by the Engineer. Temporary lighting installations shall be adjusted in such a manner that they cannot cause unnecessary glare to approaching motorists.

Luminaires shall be solar-powered and be able to provide a constant luminance of 1,5 lux on the road and shall be Aurora LED street light BT03 or similar approved. These temporary installations shall comprise the erection of two (2) light masts of 6,5 m height per location. The *Contractor* shall position the light masts so that they will not endanger traffic and be kept in position without damaging the pavement.

The *Contractor* shall demonstrate the effectiveness of the lights by means of a trial set-up of the lighting equipment at an appropriate site.

(m) Temporary covers for road signs

When required, existing road signs shall be fully or partially covered with burlap or other approved material to obscure destinations that are temporarily inapplicable or irrelevant. As reflective material loses its retro-reflective and adhesive qualities in poorly ventilated conditions, 25 mm diameter holes spaced at maximum intervals of 300 mm shall be cut in the plastic to render it permeable.

The covers shall be neatly applied and firmly fixed in position so that they will be able to withstand strong gusts of wind or eddies caused by passing traffic. The cost of the covering of permanent road signs shall be included in the tendered rates of payment items B15.01 and B15.10."

B1504 WIDTH AND LENGTH OF TEMPORARY DIVERSIONS

Replace the contents of this clause with the following:

"The effective carriageway width for any two-way traffic accommodated on an existing bituminous surfaced road shall not be less than 6,8 m. No single lane shall be less than 3,4 m wide.

In the case of a two-way gravel temporary deviation the total width of the carriageway shall not be less than 6.0 m. No single lane shall be less than 3,0 m wide.

Where the traffic is accommodated in half-widths, the effective lane width for one-way traffic shall not be less than 3,4 m."

B1505 TEMPORARY DRAINAGE WORKS

Add the following to the last paragraph:

"The construction of temporary culverts shall be in accordance with Section 2200. Temporary culverts no longer required shall be removed as directed by the Engineer. Excavations shall be backfilled with suitable granular material and compacted to the densities specified by the Engineer."

B1507 GRAVELLING OF TEMPORARY DEVIATIONS OR OF EXISTING ROADS USED AS TEMPORARY DEVIATIONS

Add the following to the second paragraph:

"The gravel material laid on existing roads used as diversions shall comply with the following:

Maximum size : 37,5 mm

Oversize index (Io) : 0 (% retained on 37,5 mm sieve)

Shrinkage products (Sp) : 100 - 240 (linear shrinkage x % passing 0,425 mm sieve)

Grading coefficient (Gc) : $16 - 34 [(\% \text{ passing } 28 \text{ mm} - \% \text{ passing } 2,0 \text{ mm}) \times \% \text{ passing } 5,0 \text{ mm}/100]$

CBR : ≥ 15 at 93% of modified AASHTO density."

B1510 EXISTING ROADS USED AS TEMPORARY DEVIATIONS

Add the following:

"The *Contractor* shall indemnify the Employer against all proceedings, claims, actions, damages and costs which may arise from or be related to damage to vehicles or property or injury to persons as a result of loose stones or aggregates on the road surface or as a result of bituminous applications during the construction of the Works.

The *Contractor* shall arrange his activities so that construction traffic and equipment do not unnecessarily obstruct public/ site traffic or force it to a complete standstill. The flow of public/ site traffic shall always take precedence and the *Contractor* shall not stop or delay public/ site traffic to make way for construction traffic."

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

Delete paragraphs five and seven and add the following at the end of paragraph six:

"During the night, the traffic shall be controlled utilising traffic signals as specified in clause B1502 and B1503."

Add the following as a final paragraph to this clause:

"The *Contractor* shall programme the Works in such a way to maintain two-way traffic within the contract limits during the *Contractors'* annual shutdown period between December and January. The *Contractor* shall further ensure that there is no vertical step between two opposing traffic lanes. Failure to comply with these specifications will entitle the Engineer to apply a lane occupation levy."

Add the following:

"The *Contractor* shall arrange his activities so that construction traffic and equipment do not unnecessarily obstruct public/ site traffic or force it to a complete standstill. The flow of public/ site traffic shall always take precedence and the *Contractor* shall not stop or delay public/ site traffic using the half-widths to make way for construction traffic.

Replace the third paragraph and onwards with the following:

"Work in half-widths shall at all times be restricted to one (1) lane at a time. The *Contractor* shall not be allowed to work on both lanes simultaneously.

Work on the road shall be executed as follows:

- (i) The work may commence at any of the Contract limits or any point in-between. The *Contractor* shall however note that the relocation and/or protection of services intersecting the Site may not yet have been carried out by the service authorities, and this may affect the *Contractor's* programme of work. In this regard the *Contractor's* attention is drawn to clause B1202.
- (ii) The total road length which may be demarcated at any time for construction, upgrading or rehabilitation shall not exceed 2,5 km per work area, excluding transitions and signs.
- (iii) The *Contractor* will not be allowed to occupy a new section of road before a previous section has been substantially completed. For the purpose of this Contract, substantial completion shall mean the completion of the work to the satisfaction of the Engineer in order to open the road for two-way traffic.
- (iii) Manually controlled traffic signals and two-way radios shall be used to control the traffic during daylight hours. During night-time traffic signals shall be controlled electronically or manually with two-way radios, subject to approval by the Engineer."

B1517 MEASUREMENT AND PAYMENT

Add the following note immediately after clause B1517 Measurement and Payment:

"Note:

The *Contractor* shall note that, notwithstanding the fact that various payment items indicate that haul, overhaul and all associated terms will be paid for separately, this shall not apply to this section. Payment for haul, overhaul and associated terms will be made as specified in Section 1600.

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

Add the following clauses:

"B1518 TEMPORARY ROAD SIGNS RISK

The Employer will take the risk of damage to delineators and temporary traffic signs in the event of damage caused by the public. The signs damaged as a result of public accident damage must be recorded and agreed between the *Contractor* and Engineer. The *Contractor* takes the risk of damage to delineators or signs caused by construction activities or the

Contractor's negligence. If the monetary value of the damage caused by public accidents is such that it can be recovered partially under the *Contractor's* insurable obligations, such recovered costs must be paid over to the Employer.

B1519 RETRO-REFLECTIVE MATERIAL

Retro-reflective material for temporary signs shall comply with the requirements of SANS 1519-1. Tests shall be carried out with a field retro-reflectometer. The testing procedure and classification are described in clause B8118."

Item	Unit
B15.01 Accommodating traffic and maintaining temporary deviations (km)	kilometre

Add the following after the second paragraph:

"The accommodation of traffic and the maintenance of deviations shall be measured once only along the centre line of the road, irrespective of the type of work to be executed or the number of times necessary to accommodate traffic over any particular part of the road.

The limits for any particular section of road over which traffic has to be accommodated and deviations have to be maintained, shall be the distance measured between the limits of construction of the particular section of road under consideration. Only the net distance of the road shall be measured. Overlapping distance during staged rehabilitation shall not be measured."

Item	Unit
B15.02 Earthworks for temporary deviations:	

- (b) Cut and borrow to fill cubic metre (m³)

In the last paragraph replace "0.5 km" with "1.0 km".

- (c) Cut to spoil cubic metre (m³)

In the last paragraph replace "0.5 km" with "1.0 km".

Item	Unit
B15.03 Temporary traffic-control facilities:	

(a) Flagmen man-day

Replace the first paragraph with the following:

"The unit of measurement shall be a full day and night worked by flagmen. A man-day shall be deemed to comprise three (3) 8-hour shifts in a 24-hour period. Three (3) shifts of 8 hours per flagman equates to one (1) man-day. Shorter single portion shifts (6 to 10 hours) shall be measured proportionally."

Replace the description of subitems B15.03(g) and B15.03(h) with the following:

"(g) Rectangular road signs, TGS-, TGD2-, TIN-, and TW-series
 (excluding TW-series delineators and barricades)..... square metre (m²)

(h) Delineators TW 401 or TW 402 (200 mm x 800 mm sides):

(i) Single-sided number

(ii) Double-sided..... number"

Add the following to the last paragraph:

"Payment for the provision of temporary traffic-control facilities shall be paid for once only, irrespective of the type of work to be executed or the number of times that the temporary traffic-control facilities have to be moved and re-used."

Add the following subitems:

"(n) Other traffic-control measures ordered by the Engineer:

(i) Provision of other traffic-control measures provisional (Prov) sum

(ii) Handling costs and profit in respect of subitem B15.03(n)(i)percentage (%)

Add the following after the paragraph for subitem B15.03(m):

"(n) Expenditure under this payment item (e.g. media releases or other signs to deliver information to the public) shall be made in accordance with clause B1169, for the supply and installation of any additional signs or other traffic-control measures ordered by the Engineer in accordance with subclause B1503(g).

The tendered percentage is a percentage of the actual amount spent under subitem B15.03(n)(i), which shall include full compensation for the handling costs of

the *Contractor* and the profit in connection with providing other signs and traffic-control measures."

Add the following at the end of the last paragraph of the payment description:

"However, allowance has been made in subitem B15.03(h). Delineators for double the quantity of delineators required to execute the Works. Payment under this item will be made up to the maximum quantity scheduled."

Add the following to the last paragraph:

"Payment for the provision of temporary traffic-control facilities, excluding movable barriers and terminal sections, shall be paid for once only, irrespective of the type of work to be executed or the number of times that the temporary traffic-control facilities have to be moved and re-used."

Add the following to the paragraph "General":

"The tendered rate shall also include full compensation for erecting, inspecting, dismantling, transporting, storing, re-erecting and maintaining all traffic-control facilities and for all labour, equipment, constructional plant and incidentals necessary to execute the work complete as specified or as shown on the drawings."

Item	Unit
B15.05 Gravelling and repair of temporary deviations and existing gravel shoulders used as temporary deviations:	

Add the following:

"Payment under this item will only be applicable to temporary deviations for the accommodation of traffic and will not be used for frontage/service roads used for the accommodation of traffic."

Item	Unit
B15.10 Accommodation of traffic where the road is constructed in half-widths.....	kilometre (km)

In the second paragraph delete from the third line the expression "road signs".

Add the following new paragraphs:

"Half-width construction is defined as construction work on the shoulder and one lane and only where two-way traffic cannot be accommodated. Slurry, seal and asphalt overlay works shall under no circumstances be measured under this item and shall be included in payment item B15.01 for payment thereof. Cognizance should be taken that for the specified construction sections controlled by temporary traffic signals for half-width construction, payment shall be made once only. Payment for the change over of the traffic lanes shall not be made.

Where payment is made for a section of road in payment item B15.10, payment shall not be made under payment item B15.01."

Add the following payment items:

Item	Unit

B15.14 Provision of traffic safety equipment for use by the Engineer:

(a) Safety jackets.....	number
(b) Hard hats.....	number
(c) Emergency rotating mini lightbar for mobile use.....	number
(d) 'Construction' sticker for vehicles with 100 mm high lettering	number

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

The tendered rates for the various safety items shall include full compensation for provision thereof.

Item	Unit

B15.15 Provision of traffic safety:

(a) Traffic safety officer.....	month

The unit of measurement shall be the month (or part thereof) that the specified duties of the traffic safety officer are performed, irrespective of the number of traffic safety officers employed in any 24-hour day.

The tendered rate shall include full compensation for the cost of the traffic safety officer(s) to conduct the duties as specified in subclause B1502(i) and also includes the provision of his own vehicle, fuel, vehicle maintenance and insurance costs and the cost of the cellular telephone and all other incidentals related to the performance of the traffic safety officer’s duties.

(b) Traffic safety vehicle(s) month

The unit of measurement shall be the month (or part thereof) that the safety vehicle is on site and in continuous use in the performance of traffic safety.

The rate tendered shall include the provision of the traffic safety vehicle, fuel, vehicle maintenance and insurance costs, drivers, labourers and all other incidentals related to the performance of traffic safety duties.

Item	Unit
B15.16 Flashing illuminated arrow board	number

The unit of measurement shall be the number of flashing arrow boards provided and completely erected.

The tendered rate shall include full compensation for providing, erecting, maintaining, relocating and re-erecting the flashing illuminated arrow board for temporary signs TR103 and TR104 during night time closures, including the power supply for functioning of the lights. The lights shall be of the new LED type lights and shall be available for the entire period of the Contract.

Item	Unit
B15.17 Temporary lighting:	

(a) Supply of temporary lighting masts and luminaires number

(b) Erection and maintenance of temporary lighting masts number

The unit of measurement for subitem B15.17(a) shall be the number of temporary lighting mast and luminaire combinations provided on instruction of the Engineer.

The tendered rate shall include full compensation for the provision of the mast and luminaire in full working order.

The unit of measurement for subitem B15.17(b) shall be the number of installations of the temporary lighting mast and luminaire combinations.

The tendered rate shall include full compensation for the erection or re-erection of the temporary lighting mast and luminaire, the operation thereof and the removal thereof for relocation and/or demobilisation. The tendered rate shall also include for the proper safeguarding of the mast and luminaire against potential vandalism, theft or any occurrence that would render the unit non-operational. It shall also include full compensation for the cost of operating, maintaining and replacing lighting units and any other aspect to maintain the unit in an operational state for the full duration of the Contract.

Item	Unit
B15.18 Refurbishment of weighbridge scales:	
(a) Refurbishment of weighbridge scales.....	provisional (Prov) sum
(b) Handling costs, profit and all other chargers in respect of subitem B15.18 (a).....	percentage (%)

This item provides for the refurbishment of existing weighbridge scales. The refurbishment shall be executed as a specialist subcontract under a nominated Subcontractor or supplier approved by the Engineer. The work shall include, but not be limited to:

- Removal and disposal of all existing and redundant weighing equipment;
- Structural inspection and repair of the weighbridge platform, pit, steel frames, access covers, and foundation elements;
- Supply, installation, and alignment of a new weighbridge scale system (including load cells, junction boxes, wiring, display units, and control panels);
- Integration with any existing infrastructure as necessary;
- Testing, calibration, certification, and full commissioning of the new system in accordance with SANS and manufacturer’s specifications.

No separate payment shall be made for temporary works, transport, disposal of redundant materials, or disruptions to the site unless specifically scheduled elsewhere.

The tendered percentage is a percentage of the amount actually spent under the provisional sum item, which shall include full compensation for the profit in connection with providing the specified service.”

SECTION B1600: OVERHAUL

B1602 DEFINITIONS

(a) Overhaul material

(iv) *Insert "selected layers" before "subbase" in the first line.*

Insert the following as a final paragraph:

"Material procured from commercial sources shall not be regarded as overhaul material."

(b) Overhaul

Delete the subclause and replace with:

"Payment shall only be made for material hauled in excess of 1,0 km. Overhaul shall be measured as the product of the volume of material hauled and the overhaul distance."

(d) Free-haul distance

Replace the last sentence with:

"This distance shall be 1,0 km in the case of all overhaul materials and this specification shall be deemed to have replaced the 'free-haul' distance in all other sections of the standard specifications."

B1603 MEASUREMENT AND PAYMENT

Amend the description of payment item 16.02 as follows:

"Item	Unit

B16.02 Overhaul on material hauled in excess

of 1,0 km..... cubic metre-kilometre (m³-km)"

Delete the first paragraph of the first set of notes and replace it with the following:

"Only ordinary overhaul for haul in excess of 1,0 km will apply to all type of fill and layerwork materials. No restricted overhaul will be applicable on this Contract."

SECTION B1700: CLEARING AND GRUBBING

B1701 SCOPE

Add the following after "grubbing" in the first paragraph:

"including the demolishing and disposal of structures, shelters, dwellings and outbuildings within the new road reserve at a site provided by the *Contractor* and approved by the Engineer."

Add the following as a final paragraph:

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

B1702 DESCRIPTION OF WORK

(a) Clearing

Add "of the roadway and for temporary deviations and/or roads" after "Clearing" in the first paragraph.

(b) Grubbing

Add "and along temporary deviations and/or roads," after "In the roadway" in the first paragraph.

(c) Conservation of topsoil

Add to the end of the first paragraph:

"The depth of topsoil removed shall be reliant on the terrain, suitability of material and topsoil requirements of the work. Generally the *Contractor* will not be required to remove topsoil to more than an average depth of 400 mm unless approved by the Engineer before commencing with topsoil removal from any particular area."

Replace the second paragraph of this clause with the following:

After clearing and grubbing, all topsoil shall be removed to either windrows alongside the construction area or to stockpile. Where ordered by the Engineer, any topsoil that shall be required for the topsoiling of new banks and cuts, but which cannot be accommodated within the construction site, shall be loaded and hauled to the designated stockpile area where it shall be placed in temporary stockpiles for later use in the rehabilitation of the site affected by construction activities. The moving of topsoil from windrow or the loading of topsoil from temporary stockpiles and the placing and spreading thereof on cut or fill slopes or on borrow pit spoil sites, is covered in Section 5800."

(e) Cleaning out of hydraulic structures

Insert the following at the beginning of the paragraph:

"Hydraulic structures include all stormwater structures, pipes and culverts regardless of their terminology."

Insert the following new sub-clauses:

"(f) Cleaning of kerbs, channels, drains, roadway, medium, sidewalks and the like

After the instruction for cleaning kerbs, channels, drains, roadway, medium, sidewalks and the like has been executed the *Contractor* shall be responsible for maintaining these elements in a clean condition for the duration of the contract.

(g) Mechanical cleaning of hydraulic structures, pipes and portal culverts

Mechanical cleaning shall include for jetting, flushing and extraction of materials using mechanical equipment."

B1703 EXECUTION OF WORK

(a) Areas to be cleared and grubbed

Delete "normally" in the second line of the second paragraph.

Add the following:

"A penalty of R20,000.00 shall be imposed for every tree which is unnecessarily removed or damaged."

(c) Disposal of material

Replace the second paragraph with the following:

"The *Contractor* shall dispose of all trees, tree stumps, rubble, undesirable material removed from hydraulic structures, refuse, and all non-combustible rubbish at approved dumping sites provided by the *Contractor*. The material disposed of shall be covered up with soil or gravel. No extra-over or additional payment will be made for disposing of and covering-up material and full compensation for this work will be deemed to be included in the rate tendered for payment item B17.01."

(e) Cleaning out of hydraulic structures

Add the following:

"The cleaning of hydraulic structures shall involve the removal of all undesirable materials such as earth, sand, gravel, stones and mud until the structures are completely clean, and the debris is disposed of at approved dumping sites provided by the *Contractor*."

Add the following clause:

B1704 MEASUREMENT AND PAYMENT

Item	Unit
B17.01 Clearing and grubbing	hectare (ha)

Replace the last paragraph with the following:

"The tendered rates shall include full compensation for all work necessary for the clearing and grubbing of the surface, the demolishing and disposal of structures, shelters, dwellings and out-buildings, the removal of all vegetation, shrubs, trees and tree stumps (except large trees and stumps as defined in payment item 17.02), cutting of branches, backfilling of cavities, the removal, transporting (including all haul) and disposal of material at approved dumping sites provided by the *Contractor*, and all additional costs incurred to clear and grub the surfaces to the Engineer's satisfaction."

Add the following to the measurement and payment paragraphs:

"Clearing and grubbing for the construction of camp sites shall not be measured separately. Payment shall be regarded as included in the rates tendered for the applicable items under payment item B13.01."

Amend the following payment items:

"Item	Unit
B17.05 Cleaning out of hydraulic structures:	

- (a) Pipes with an internal diameter up to and including 750 mm.....cubic metre (m³)
- (b) Pipes with an internal diameter exceeding 750 mm cubic metre (m³)

The unit of measurement shall be the cubic metre of material removed from pipes / culverts from structure to structure along the length of the pipe/culvert. The tendered rate shall include full compensation for all work necessary, including mechanical/jetting equipment for removing all undesirable materials from structures, transporting and disposing of these materials, as well

as additional costs necessary for gaining access to such structures, all as specified in this project specification. Payment under this item will only be made once. It is the *Contractor's* responsibility to ensure that all structures cleaned under this item remain clear for the duration of the contract.

Structures, pipes and culverts cleaned by hand or any other means shall be paid for under 21.18 (a) or (b) or 17.05 (a) to (d) as relevant. No duplication of quantities or cost shall be entertained."

Add the following payment items:

"Item Unit

B17.07 Removal of topsoil and unsuitable material and temporary stockpiling or spoiling thereof:

- (a) Topsoil in windrows alongside the work area.....cubic metre (m³)
- (b) Topsoil in temporary stockpiles after loading material into trucks including 1,0 km free-haul.....cubic metre (m³)
- (c) Unsuitable material to be spoiled including 1,0 km free-haul.....cubic metre (m³)

The unit of measurement for subitems B17.07(a) and B17.07(b) shall be the cubic metre of topsoil removed to windrow or temporary stockpile. The volume of topsoil removed shall be measured in cut, calculated from the difference in cross-sections of the natural ground level before the commencement of clearing to cross-sections taken after the removal of the topsoil.

The unit of measurement for subitem B17.07(c) shall be the cubic metre of unsuitable (not contaminated or hazardous) material spoiled at the designated spoiling site including 1,0 km free-haul.

The *Contractor* must classify and manage all soil materials to be removed on site in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);

- Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials.

Payment for the spoiling of all contaminated or hazardous material as per National Environmental Management: Waste Act 59 of 2008 (NEM:WA) shall be paid under 33.07.

The *Contractor* shall constantly liaise and agree with the Engineer as to the depth of topsoil to be removed. Where, in the opinion of the Engineer, material that would normally be classed as topsoil has also been excavated, the excavation shall be backfilled and compacted with selected material at the *Contractor's* expense. Should material that is deemed by the Engineer not to be topsoil, be removed and stockpiled together with material classed as topsoil, the *Contractor* shall be responsible for the removal of this unsuitable soil from the stockpile and the replacement of the quantity of topsoil contaminated by the unsuitable material at his cost. The quantity of topsoil to be replaced shall be determined by the Engineer.

The rates tendered shall include for the excavation of the topsoil and where required, the loading and hauling thereof to temporary stockpile as well as the maintenance of the stockpile until re-use of the material. The rates tendered shall also include for all supervision required to ensure that only topsoil is removed.

Add the following section:

"SECTION B1800: DAYWORKS

B1801 SCOPE

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

B1802 GENERAL REQUIREMENTS

Work will be classified as daywork only if the Engineer considers no other rate in the schedule of quantities appropriate for payment purposes.

An instruction regarding all work to be carried out under daywork in terms of the General Conditions of Contract will be issued at the discretion of the Engineer. Some or all of the items priced under daywork in the schedule of quantities may possibly not be required for this Contract.

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

B1803 MEASUREMENT AND PAYMENT

Item	Unit
B18.01 Personnel:	
(a) Unskilled labour.....	hour (h)
(b) Semi-skilled labour.....	hour (h)
(c) Skilled labour	hour (h)
(d) Ganger	hour (h)
(e) Foreman	hour (h)
(f) Flagman	hour (h)

Measurement shall only be for work instructed and directed by the Engineer, where the Engineer considers no other appropriate rate is applicable in the Pricing Schedules. Prior to the commencement of any work by the personnel described under payment item B18.01, the

Contractor must obtain written consent from the Engineer regarding their classification in terms of 'unskilled', 'semi-skilled' and 'skilled' personnel.

The tendered rates for labour under payment item B18.01 shall include full compensation to cover overhead charges and profit, leave pay, bonuses, subsistence, allowances, *Employer's* contributions, additional payment for overtime where applicable, insurances, housing, site supervision, use of small hand tools and appliances, non-mechanical plant and equipment and consumable stores for all administrative, *Supervisory*, operative and contingent costs relating to the supply of personnel.

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

The daywork rates submitted for labour in the schedule of quantities shall be the cost of labour for each skill level and shall apply only to the number of workers approved in writing by the Engineer.

The rates shall be for normal working hours and shall be increased pro rata for overtime at the standard rate applicable if the work performed outside working hours is approved in writing by the Engineer.

Item	Unit

B18.02 Equipment:

(a) Specify	hour (h)

Measurement shall only be for work instructed and directed by the Engineer, where the Engineer considers no other appropriate rate is applicable in the Pricing Schedules.

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

The unit of measurement for payment items B18.02 shall be the hour for the item of Equipment. Non-working hours for transport breakdown, lack of operator of any other reason shall not be

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

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

The tendered rates for Equipment for payment item B18.02 shall be an all-inclusive hire charge for the use of the vehicle and driver or Equipment and operator, and shall apply only to vehicles and Equipment nominated in writing by the Engineer, for all administrative, *Supervisory*, operative and contingent costs, and profit relating to the running of the Equipment.

Item	Unit
B18.03 Materials:	
(a) Procurement of materials	provisional (Prov) sum
(b) <i>Contractor's</i> handling costs, profit and all other charges in respect of subitem B18.03(a)	percentage (%)

The prices for materials (excluding VAT) shall be based on the documented proof submitted to the Engineer as specified in clause B1802 and expenditure shall be made in accordance with the General Conditions of Contract. The prices shall not be subject to the Contract Price Adjustment Factor.

The unit of measurement for subitem B18.03(a) shall be the amounts actually paid for the procurement of materials to be purchased and shall be made in accordance with the provision of the Conditions of Contract. Only the actual quantities of materials used, as verified by the Engineer, shall be paid for.

The percentage tendered for subitem B18.03(b) shall be the percentage of the amounts actually paid for the procurement of materials as ordered under subitem B18.03(a) and shall be in full and final compensation in respect of the *Contractor's* handling costs, profit, overheads, liabilities, obligations, risks, incidentals, wastage and all other charges in connection with the procurement and supply of the materials to the point of usage.

Item	Unit

B18.04 Transport:

(a) LDV	kilometre (km)
(b) Flatbed truck	kilometre (km)
(c) Lowbed truck	kilometre (km)
(d) Specify	kilometre (km)

The unit of measurement for payment item B18.04 shall be the kilometre distance that the vehicle travelled for transporting personnel and/or Equipment. All travelling shall be approved by the Engineer.

The tendered rate for payment item B18.04 shall include full compensation for the cost of the vehicle including fuel, maintenance depreciation and running costs.

The aforementioned tendered rates shall be in full compensation for the various items as specified and no further profit shall be paid."

SECTION B2100: DRAINS

B2101 SCOPE

Amend the first paragraph to read:

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

B2104 SUBSOIL DRAINAGE

(a) Materials

(i) Pipes

Amend this subclause by adding the following to the end of the third paragraph:

"(category - heavy duty) or SANS 1601 (stiffness Class 400)

The pipes to be used shall be either slotted uPVC pipes or perforated HDP pressure pipes, 100 mm ID.

Pipes must be stored in a shaded area without exposure to direct sunlight."

(ii) Natural permeable material

Add the following to the third paragraph:

"The crushed stone shall be coarse (20 mm nominal) and shall be washed clean of all fines."

(iii) Synthetic-fibre filter fabric

Add the following:

"The synthetic-fibre filter fabric used shall be Kaytech A4 or an approved equivalent material that can follow the shape of the excavation without being damaged in any way."

Add the following item:

"(5) Testing

General:

The tests to be carried out on geotextiles relate to the material and the method of manufacture and are mainly to ascertain that the correct grade of geotextile is supplied, and that the material is equivalent in quality to that selected and specified for use in the Works. The *Contractor* will be required, on the request of the Engineer, to submit a certificate by an approved laboratory to prove compliance without additional cost to the Employer.

(b) Construction of subsoil drainage system

Add the following subclause:

"(v) Proving of pipes in subsoil drainage systems

On completion of the pipe laying and prior to backfilling, all pipe joints shall be surveyed as proof of their installation to line and level.

On completion of the pipe laying and backfilling, the pipes shall be proved by pulling through a cylindrical cleaning brush followed by a wooden mandrel $\pm$ 400 mm long and having a diameter 5,0 mm less than the bore of the pipe. Proving of pipes shall not be paid for separately and the cost thereof shall be deemed to be included in the rate tendered for laying the pipe."

B2107 MEASUREMENT AND PAYMENT

Item	Unit

Replace payment item 21.04 with the following:

"Item	Unit

B21.04 Impermeable backfilling to subsoil drainage systems:

- (a) Using the excavated material cubic metre (m³)
- (b) Using imported selected material cubic metre (m³)

The unit of measurement shall be the cubic metre of completed backfill, measured in place in the subsoil drainage systems and calculated in accordance with the authorised dimensions.

If excavations are carried out in excess of the dimensions authorised by the Engineer, the quantity of backfilling will nevertheless be based on authorised dimensions.

The tendered rates shall include full compensation for procuring, furnishing, transporting, placing and compacting the backfilling to 93% of modified AASHTO density. The tendered rate

for subitem B21.04(b) shall, in addition, include full compensation for supplying selected material from approved sources, including a free haul of 1,0 km.”

Amend payment item B21.06 to read as follows:

"Item	Unit
B21.06 Natural permeable material in subsoil drainage systems (washed crushed stone)	

Add the following payment items:

"Item	Unit
B21.20 Break into existing drainage structures and install subsoil drainage pipes	number

The unit of measurement is the number of subsoil drainage pipes built into existing drainage structures in accordance with the details on the drawings or as instructed by the Engineer.

The tendered rates shall include full compensation for supplying all labour, constructional plant and materials required, for all excavation, breaking into existing drainage structures, building pipes into the newly-formed accesses, sealing around the pipes and making the joints watertight, breaking out existing benching and channelling where required and reconstructing them complete with granolithic rendering to suit the new pipe arrangement, backfilling and compacting to 90% of modified AASHTO density, transporting (including all haul) and disposing of all surplus excavated material and debris to approved dumping sites provided by the *Contractor*, and dealing with the flows in the existing structures.

No distinction will be made between different types of structures, or diameters of subsoil drainage pipes.

"Item	Unit
B21.21 Type A concrete outlet structures for subsoil drainage systems (including formwork)	number

The unit of measurement is the number of outlet structures for subsoil drainage systems constructed complete in accordance with the details on the drawings or as instructed by the Engineer.



The tendered rate shall include full compensation for procuring and furnishing all materials, providing, erecting and removing formwork, mixing, transporting, placing and curing the concrete, and all labour and constructional plant required to construct the outlet structures complete. The tendered rate shall also include full compensation for cutting, inclusive of any waste, and installing the galvanized woven wire mesh at outlets, and for keeping the wire mesh in the pipe openings clean.”

SECTION B2200: PREFABRICATED CULVERTS

B2203 MATERIALS

(a) Prefabricated Portal and rectangular prefabricated concrete culvert units

Replace the following:

"SABS 677" with "SANS 677: 2023"

Add the following:

"Prior to the manufacture of any units the manufacturer shall submit his quality plan to be approved by the Engineer before delivery of any units to site. As part of the quality plan submitted for approval copies of calibration certificates of both gauges used for proof loads and cover meters used at the factory shall be supplied to the Engineer. The originals of these certificates shall at all stages also be available for inspection at the factory premises.

The manufacturer shall check each precast unit for cover compliance. Random checking of units shall not be permitted. The Engineer's Representative may visit the factory at any stage to ascertain adherence to the quality plan, as well as to check covers before delivery to site. Any substandard cover shall result in the batch being rejected. If the manufacturer is not adhering to their quality plan, the Engineer may exercise the right to reject the use of products from the manufacturer concerned. The Employer shall also be informed in all such cases."

B2204 CONSTRUCTION METHODS

Delete the third paragraph and substitute with the following:

"For the purposes of this Contract, new pipes will be laid according to the 'trench method'.

The *Contractor* shall at all times ensure that proper drainage under the road is maintained and any damage caused as a result of blocked pipes during construction shall be repaired at the *Contractor's* expense.

The bottom of the excavation for pipes that are to be replaced or for those that are to be lengthened shall be inspected by the Engineer prior to the placing of the bedding material. If the material is found to be competent, it shall be ripped to a depth of 150 mm below the bottom of bedding level and re-compacted to 93% of modified AASHTO density.

Where the material is found to be unsuitable, it shall be removed to a depth specified by the Engineer and then replaced with selected material compacted to 93% of modified AASHTO density in layers not exceeding 150 mm thickness."

B2205 EXCAVATION FOR CONSTRUCTION BY TRENCH METHOD

(a) Depth of excavation

Add the following after the first sentence of the first paragraph:

"The maximum overall depth of the trench shall, however, not exceed 2,0 m."

Add the following subclause:

B2210 LAYING AND BEDDING OF PREFABRICATED CULVERTS

(a) Concrete pipe culverts

Add the following after the first paragraph:

"When instructed by the Engineer or when measures are required to reduce the effect of unsuitable material below culverts, the pipe joints shall be sealed with a 500 mm wide strip of waterproofing material glued symmetrically around the joint. A 150 mm wide strip of adhesive shall be applied to the edges of the material. An overlap of 150 mm shall be provided and the two (2) layers of the material at the overlap shall be glued together over the full area of 150 mm x 500 mm."

(i) Class A bedding

Add the following:

"10 mm thick Thioflex 600 or an approved equivalent material shall be placed in the concrete bedding below all pipe joints."

(f) General

Add the following:

Where the grade of the culvert is such that it would require a trench deeper than 2,0 m, the culvert shall be constructed in stages as the fill progresses. The construction shall normally begin at the outlet or downstream end of the culvert and backfilling shall be done in horizontal layers starting at the lower end.

No additional payment will be made under Section 3300 or under this section for constructing

the fill or culverts in stages as described above."

B2211 BACKFILLING OF PREFABRICATED CULVERTS

Replace the second sentence in the ninth paragraph with the following:

"The cement/soil mixture shall consist of cement and of an approved soil or gravel of subbase quality mixed in proportion of 1:12."

B2212 INLET AND OUTLET STRUCTURES, CATCHPITS AND MANHOLES

Replace the heading and first paragraph with the following:

(a) Excavation and backfilling

Replace the first paragraph with the following:

"The width of excavation shall be the net external dimensions of structure plus 0,5 m working space along or around the structure. The specifications given elsewhere in this section for backfilling the pipes / culverts shall apply mutatis mutandis to inlet and outlet structures, catchpits and manholes. If wet soilcrete is used with vibrators the extra working space shall be reduced to 150 mm."

(c) Brickwork

Replace the following:

"SABS 227" with SANS 227: 2007

(e) Manhole Covers, grid inlets etc

Replace the following:

"SABS 558" with SANS 558: 2016

(i) Prefabricated energy dissipators in outlet structures

Replace the paragraph with the following:

"When shown on the drawings or instructed by the Engineer, the *Contractor* shall supply and install prefabricated reinforced-concrete blocks in outlet structures. The blocks shall be class 20/20 concrete manufactured to the dimensions shown on the drawings or listed in the Pricing Schedules. All concrete work shall comply with the requirements of Series 6000."

Add the following subclauses:

"(j) Prefabricated concrete cover slabs for kerb inlets

Prefabricated reinforced-concrete cover slabs for kerb inlets, complete with steel supporting structures, shall be manufactured and installed in accordance with the details on the drawings. All concrete work shall comply with the requirements of Series 6000.

(k) Building in pipework

Pipework shall be built into concrete as shown on the drawings. The pipework shall be set into exact position in the shutters before the concrete is placed and the concrete thoroughly compacted and worked around the pipework. Alternatively, at the discretion of the Engineer and at no extra cost, unless specifically provided for in the Pricing Schedules, holes may be left or formed in the concrete into which the pipework shall be set, whereupon the space around the pipework shall be caulked with concrete having just sufficient water to ensure watertightness and thereafter the caulking shall be properly cured.

The joint between the old and fresh concrete shall be made in accordance with clause 6408: Construction joints.

Where pipes enter brickwork, they shall be caulked into the wall and rendered with mortar.

B2214 JOINING NEW WORK TO OLD

Add the following after the last sentence of the first paragraph:

"Where existing pipe culverts are to be extended, the contact surface shall be cut and cleaned, as described in this clause, prior to joining new prefabricated pipe/ culvert units with existing pipe/ culverts. Such cutting is to be undertaken with electrical- or mechanical-driven equipment."

Add the following after the first paragraph:

"New prefabricated pipe / culvert units are to be joined onto existing pipe /culverts by means of a cast in situ concrete encasing (collar)."

B2218 MEASUREMENT AND PAYMENT

Item	Unit

B22.01 Excavation:

Replace the fifth paragraph with the following:

"The tendered rates shall include full compensation for all excavation, temporary timbering, shoring and shuttering for preparing the bottom of the excavation for the culvert beds, including proof rolling, the disposal of excavated material unsuitable for backfilling, keeping excavations safe, dealing with surface or subsurface water, and for any other operations necessary for completing the work as specified."

Add the following subitem:

"(c) Extra over subitem B22.01(a) for excavation by hand.....cubic metre (m³)

The unit of measurement shall be the cubic metre of material excavated by means of labour using hand tools only. This item shall only apply where the dimensions of the area to be excavated are such as to render excavation by machinery impractical and where the Engineer has specifically ordered or authorised excavation by hand. This item shall not apply where machine excavation would have been possible, but the *Contractor* chooses to use hand excavation instead.

The tendered extra over rate shall include full compensation for all additional costs in excavating the material using handheld tools."

Item

B22.03 Concrete pipe culverts

Add the following to the second paragraph:

"The tendered rates shall also include full compensation for supplying and installing Thioflex 600 or an approved equivalent material in the concrete bedding below pipe joints."

Add the following item:

Item

Unit

B22.29 Breaking into existing stormwater pipes

of the following sizes to construct new

drainage structures (*pipe diameter to be stated*)..... number

The unit of measurement is the number of each size of pipe which is broken into to construct a new drainage structure.

The tendered rates shall include full compensation for supplying all labour, constructional plant and materials required, for breaking into the existing pipes, transporting (including all haul) and



disposing of the debris at approved dumping sites provided by the *Contractor*, dealing with the flow in the existing pipes during breaking into the pipes and during construction of the drainage structures, and for all additional costs incurred when building new drainage structures around existing pipes. The drainage structures are measured for payment under other items.

SECTION B2300: CONCRETE KERBING, CONCRETE CHANNELLING, CHUTES AND DOWNPIPES, AND CONCRETE LININGS FOR OPEN DRAINS

B2301 SCOPE

This section covers the construction of concrete kerbing and channelling, kerb inlets, chutes and downpipes, and concrete linings for open drains at the locations and to the details as shown on the drawings or as directed by the engineer.

B2302 MATERIALS

(b) Kerbing and channelling

Add the following after the first sentence:

"Irrespective of the minimum transverse strength specified in SANS 927, all concrete shall be of class 30/19."

(c) Joint sealant

Delete the third paragraph and substitute with the following:

"(iii) Silicone-based joint sealants shall comply with the requirements of subclauses 7102(e)(iii) and 7102(e)(iv)."

Add the following subclause:

"(h) Concrete placed in a precast concrete median drain

(i) Cement

The type of cement for the concrete shall be cement complying with SANS 50197-1 (CEM I 42,5). The maximum water:cement ratio shall be 0,45. The cement content of the mix shall be a maximum of 500 kg/m³ and not less than 320 kg/m³.

(ii) Aggregates for concrete

The aggregate to be used in the concrete mix shall satisfy the following:

- The maximum chloride ion content of fine aggregate shall be 0,2% by mass of aggregate as measured by SANS 202.

- For concrete thickness over the precast concrete floor of less than 100 mm, a 7,0 mm nominal maximum size aggregate shall be used. For thickness in excess of 100 mm, the nominal maximum size shall be 14 mm.
- The fineness modulus of the fine aggregate shall not differ by more than 0,2 from that approved by the Engineer at the mix design stage.

(iii) Proprietary bonding agent

The proprietary product described in this subclause shall be applied to the precast concrete median drain to ensure adequate adhesion between the precast concrete elements and the concrete mix. Alternative products of similar quality may be used in place Contec Primer N, a specially developed dry ready mixed cementitious bonding agent subject to the acceptance by the Engineer.

(iv) Joint sealant

The sealant used in joints shall be a cold-poured, self-levelling liquid silicon-rubber sealant, Dow Corning 890SL or similar. The application of the sealant shall strictly follow the supplier's specifications and shall not be undertaken when the air temperature is 5 °C (degree Celsius) and falling.

(v) Concrete

The consistency of the concrete mix shall be such that, with the equipment in use, the concrete can be fully compacted without bleeding or segregation of the components. The concrete consistency shall be suited to the type of equipment used, the haul, the weather and the site conditions. Where consistency is measured by way of a slump test in accordance with TMH1 Method D3, the slump shall not deviate by more than 20 mm from the optimum value for mixes with a target slump of 35 mm or greater.

The maximum water : cement ratio shall not exceed 0,45 (instead of 0,53 as per standard specification).

The *Contractor* shall take into consideration in his programme that the process of finalising mix designs in this Contract could take as long as one (1) month."

B2304 CONSTRUCTION

(e) Cast in situ kerbs and channels

Add the following:

"Cast in situ kerbs, channels and edge beams shall be provided with a contraction joint every 2,0 m and an expansion joint every 20 m. The contact area of the contraction joint shall be painted with two (2) coats of bitumen. Alternatively, joints may be cut and finished to a depth of 50 mm. The expansion joint shall consist of *12 mm thick Flexcell or an approved equivalent placed between adjoining concrete sections / 12 mm thick preformed rigid cane fibre board, impregnated with a durable asphaltic compound or an approved equivalent placed between adjoining concrete sections. The top part of the joint shall be sealed with a 12 mm x 12 mm silicone sealant. All joints shall be provided for the full depth of the concrete."

Add the following subclause:

"(I) Demolition of existing kerb and channel

Where shown on the drawings and/or indicated by the Engineer, the existing kerb and channel shall be removed and transported to spoil as directed."

B2307 MEASUREMENT AND PAYMENT

Replace the description of payment item 23.01 with the following:

"Item	Unit
B23.01 Concrete kerbing, including joints <i>(class of concrete indicated for in situ concrete)</i>	metre (m)"

Add the following to the payment paragraph:

"The tendered rates shall also include full compensation for the construction of expansion and contraction joints as specified."

Item

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

In the second paragraph, commencing with "The tendered rates shall ...", delete in the fifth, sixth and seventh lines the following words "including removing unsuitable ground and backfilling with suitable material."

SECTION B3300: MASS EARTHWORKS

B3302 MATERIALS

(b) Fill

- (iii) Compaction requirements, minimum in situ dry density

Add the following after the first paragraph:

"All fills shall be compacted to 93% of modified AASHTO density, unless otherwise specified by the Engineer."

Add the following to subclause B3302(b)(iv):

"The maximum swell at 100% of modified AASHTO compaction shall not be more than 1.5%."

B3303 CLASSIFICATION OF CUT AND BORROW EXCAVATION

(a) Classes of excavation

- (ii) Intermediate excavation

Replace the paragraph with the following:

"No distinction shall be made between soft and intermediate excavation, and all intermediate excavation shall be classified and measured as soft excavation."

B3305 TREATING THE ROADBED

(a) Removing unsuitable material

Replace "or" in the eighth line of the third paragraph with "and".

Add the following after the last paragraph:

"In addition, the *Contractor* must classify and manage all soil materials to be removed on site in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);

- Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials."

(d) In situ treatment of roadbed

Add the following after the second paragraph:

"Shales and mudstone shall under no circumstances be subject to the above treatment."

B3306 CUT AND BORROW

(a) Dimensions of cuts

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

"No additional or extra over payment will be made for the widening of existing or partly completed cuttings along the road. The widening of such cuttings shall be measured and paid for as 'cut and borrow to fill' (payment item B33.01) or 'cut to spoil' (payment item B33.04) as instructed by the Engineer."

(c) Borrow

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

"Where insufficient material is available for fill from cut, material will be imported from commercial sources, Employer-identified sources or stockpiles of milled pavement layers (which may include asphalt), or stockpiled natural gravels excavated from nearby developments. The *Contractor* shall use only material that conforms to specification and keep overhaul to a minimum."

(e) The temporary stockpiling of materials

Replace the contents of this subclause with the following:

"The *Contractor* shall plan his activities in such a manner so that materials excavated from cuttings can be directly transported to and placed at the designated points."

The temporary stockpiling of material will not be paid for separately unless instructed by the Engineer. Full compensation will be deemed to have been included in the rates tendered for the various payment items for work for which the stockpiled material is to be used."

(f) The disposal of surplus material

Add the following after the first paragraph:

"In addition, the *Contractor* must classify and manage all soil materials to be removed on site in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);
- Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials."

(g) General

Add the following after the first sentence of the second paragraph:

"The final cut surface in hard excavation shall not be more than 0,5 m below the specified slope face, measured at right angles to the strike and dip directions of the slope face."

B3307 FILLS

(a) General

Add the following:

"Where existing embankments are to be widened or where new embankments are to be constructed adjacent to existing embankments, the existing side slopes shall be benched as specified in subclause B3307(d) and in accordance with the details on the drawings.

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

- (i) where the thickness exceeds 1,5 m, it shall be compacted to a minimum of 93% of modified AASHTO density to a depth of at least 1,5 m below the final road level;
- (ii) where the thickness is less than 1,5 m, the in situ roadbed and fill material shall be compacted to 93% of modified AASHTO density."

(c) Constructing a pioneer layer

Add the following at the end of the first paragraph:

"Where instructed by the Engineer or shown on the drawings, the pioneer layer shall be wrapped in a Grade 2 geotextile."

(d) Benching

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

"The dimensions of benches, as well as the extent to which existing fills have to be cut back to form benches, shall be subject to the Engineer's approval."

(i) Widening of fills

Replace the last sentence in the sixth paragraph with:

"The spoil of material from the benches shall not be paid for separately, and full compensation shall be deemed to have been included in the rates tendered for the various payment items for work for which the material is to be used."

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

"No additional or extra over payment will be made for widening of existing fills along the road. The widening of fills shall be measured and paid for under payment item B33.01 as instructed by the Engineer."

B3308 FINISHING THE SLOPES

(d) General

Add the following:

"Where existing cut and fill slopes are excessively eroded or where slippages occurred in slopes, the slopes are to be reinstated by backfilling with suitable gravel material. All loose material and vegetation shall first be removed from the eroded cut and fill slopes before backfilling may commence from the bottom of the cut or fill. The backfill material shall be benched into the existing slopes and compacted to 93% of modified AASHTO density, utilising suitable small compaction equipment, e.g. Bomag walk-behind rollers or handheld compaction tools. Benching shall be executed to the dimensions shown on the drawings. Upon completion of the backfilling operation the cut and fill slopes shall be neatly finished as specified."

B3312 MEASUREMENT AND PAYMENT

General directions

(3) Work in restricted areas

Delete the contents of this subclause and replace it with the following:

"No additional or extra over payment will be made for work in restricted or confined areas."

Amend the description of payment item 33.01 as follows:

"Item	Unit

B33.01 Cut and borrow to fill, including free-haul up to 1,0 km:"

In the fifth paragraph replace "free-haul distance of 0,5 km" with "free-haul distance of 1,0 km".

Amend the description of payment item 33.04 as follows:

"Item	Unit

B33.04 Cut to spoil, including free-haul up to 1,0 km:"

In the fourth paragraph replace "free-haul distance of 0,5 km" with "free-haul distance of 1,0 km".

Add the following after the last paragraph:

The *Contractor* must classify and manage all soil materials to be removed on site in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);
- Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the *Contractor* shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials.

Payment for the spoiling of all contaminated or hazardous material as per National Environmental Management: Waste Act 59 of 2008 (NEM:WA) shall be paid under 33.07."

Amend the description of payment item 33.07 as follows:

"Item

B33.07 Removal of unsuitable material, including free-haul up to 1,0 km:"

In the fourth paragraph replace "free-haul distance of 0,5 km" with "free-haul distance of 1,0 km".

Add the following payment items:

(iii) Contaminated (hazardous) material.....cubic metre (m³)

Add the following after the 2nd paragraph:

Subitem 33.07(iii) shall apply only to material that has been classified as hazardous according to National Environmental Management: Waste Act 59 of 2008 (NEM:WA). Testing of the materials shall be paid for under Section 1200. The tendered rate shall include full compensation for the removal and disposal of at a licensed landfill facility authorised for hazardous material as per National Environmental Management: Waste Act 59 of 2008 (NEM:WA). It will also include compensation for free-haul up to 1,0 km."

Replace the heading of payment item 33.09 with the following:

"Item

Unit

B33.09 Material temporarily removed and placed in a windrow... cubic metre (m³)"

Replace "bladed to" in the second line of the first paragraph with "removed and placed in a".

Replace "bladed off" in the fourth line of the first paragraph with "removed and placed in a windrow".

Replace "bladed to" in the first line of the third paragraph with "removed and placed in a".

Item

B33.16 Widening of fills as specified in subclause B3307(i) extra over:

Replace paragraphs 1, 2 and 3 with:

"The extra over for widening of fills as specified in subclause B3307(i) shall not be paid for separately and full compensation shall be deemed to have been included in the rates tendered for the various payment items for work for which the material is to be used. No additional payment under payment item B33.16 (extra over item) will be considered."

Item

Add the following payment items:

"Item	Unit

B33.20 Fill constructed with material obtained from commercial sources or sources provided by the *Contractor*, including all haul:

(a)	Gravel material in compacted layer thicknesses of 200 mm and less:	
(i)	Compacted to 90% of modified AASHTO density.....	cubic metre (m ³)
ii)	Compacted to 93% of modified AASHTO density.....	cubic metre (m ³)
(iii)	Eight-roller-passes compaction.....	cubic metre (m ³)
(b)	Gravel material in compacted layer thicknesses from 200 mm to 500 mm:	
(i)	Compacted to 90% of modified AASHTO density.....	cubic metre (m ³)
(ii)	Compacted to 93% of modified AASHTO density.....	cubic metre (m ³)

- (iii) Eight-roller-passes compaction.....cubic metre (m³)
- (c) Rock fill (as specified in subclause 3209(c)) cubic metre (m³)
- (d) Rock protection at the toes of fills cubic metre (m³)
- (e) Pioneer layer (as specified in subclause B3307(c)) cubic metre (m³)

The unit of measurement is the cubic metre of material measured in the compacted fill. The quantity measured shall be calculated by the method of average end areas from levelled cross-sections prepared from the ground line after clearing and grubbing, and the removal of topsoil and the completion of any preparatory roadbed treatment which may have been ordered by the Engineer, but prior to the construction of the fill, and the final specified or authorised fill cross-section superimposed at 20 m intervals along the centre line of the road. All measurement shall be neat and no payment will be made for that part of the fill placed in excess of the authorised cross-section shown on the drawings or instructed by the Engineer, irrespective of the tolerances in workmanship allowed under the Contract. Where the roadbed has subsided under the fills, the quantities shall be adjusted to make allowance for such subsidence, as set out in the note at the beginning of clause B3312. Measurement of fill shall distinguish between the alternative methods of processing and compacting.

Where measurement by cross-section is considered by the Engineer to be impractical, the volume of compacted material may be taken as equivalent of 70% of the loose volume in the haul vehicles.

The tendered rates shall include full compensation for the costs of negotiations and payment of royalties, for the procuring, furnishing and transporting of the materials over the entire haul distance from the sources to the Site, for the placing, preparing, processing, shaping, watering, mixing and compacting the materials to the densities or in the manner specified, and for removing and disposing of all oversize material from the road after processing, including transport for the entire haul distance to approved dumping sites provided by the *Contractor*.

Payment shall distinguish between the various methods of processing and compacting specified as itemised above.

Item	Unit
B33.21 Fill constructed with material from designated stockpiles or directly from existing pavement layers and existing road prisms, irrespective of material type, including all haul:	

(a) Gravel material in compacted layer thicknesses of 200 mm and less:

- (i) Compacted to 90% of modified AASHTO density.....cubic metre (m³)
- (ii) Compacted to 93% of modified AASHTO density.....cubic metre (m³)
- (iii) Eight-roller-passes compaction.....cubic metre (m³)

The unit of measurement is the cubic metre of material measured in the compacted fill. The quantity measured shall be calculated by the method of average end areas from levelled cross-sections prepared from the ground line after clearing and grubbing and the removal of topsoil and the completion of any preparatory roadbed treatment which may have been ordered by the Engineer, but prior to the construction of the fill, and the final specified or authorised fill cross-section superimposed at 20 m intervals along the centre line of the road. All measurement shall be neat and no payment will be made for that part of the fill placed in excess of the authorised cross-section shown on the drawings or instructed by the Engineer, irrespective of the tolerances in workmanship allowed under the Contract.

Where the roadbed has subsided under the fills, the quantities shall be adjusted to make allowance for such subsidence, as set out in the note at the beginning of clause B3312. Measurement of fill shall distinguish between the alternative methods of processing and compacting.

The sources shall be points where existing pavement layers have been excavated or milled out or stockpiled and deemed to be acceptable for their use in the new fills elsewhere within the project boundaries. Fill and pavement layers from existing ramps or materials to be excavated or milled out from the existing pavements on sections that require repair or rehabilitation shall be included in this item.

Where measurement by cross-sections is considered by the Engineer to be impractical, the compacted volume of the material may be taken as equal to 70% of the loose volume of material in the hauling vehicles as an alternative method of measurement.

The tendered rates shall include full compensation for the costs of procuring, furnishing and transporting the materials over the entire haul distance from the sources to the Site, for placing, breaking down if required, preparing, processing, shaping, watering, mixing and compacting the materials to the densities or in the manner specified, and for removing and disposing of all oversize material from the road after processing, including transport for the entire haul distance to approved dumping sites provided by the *Contractor*.

Item

Unit

B33.22 Geotextile:

(a) Composite reinforced separation layer square metre (m²)

The unit of measurement is the square metre of composite reinforced geotextile supplied and installed as specified.

The tendered rate shall include full compensation for the furnishing, procuring, cutting, overlapping, jointing, placing and protecting the geotextile as specified, as well as for wastage."

SECTION B3400: PAVEMENT LAYERS OF GRAVEL MATERIAL

B3402 MATERIALS

(a) General

Add the following after the first paragraph:

"Gravel material shall be obtained from approved commercial sources or approved sources provided by the *Contractor*."

Replace "and 3402/4" in the third line of the second paragraph with ", 3402/4 and 3402/5".

Replace the grading and grading modulus sections in Table 3402/1 with:

"

	Nominal aperture size of sieve (mm)	Percentage passing through sieve by mass			
		Crushed material produced by multi-stage crushing and screening	Uncrushed material or material produced by single stage crushing		
GRADING	53		None specified	The percentage by mass passing the 2,0 mm sieve shall not be less than 20% nor more than 70%	None specified
	50	100			
	37,5	100			
	28				
	20	61 - 91			
	14	48 - 82			
	5	31 - 66			
	2	20 - 50			
	0,425	10 - 30			
	0,075	5 - 15			

GRADING (GM)	MODULUS	-	$2,4 \geq GM \geq 1,5$	$2,4 \geq GM \geq 1,5$	$2,6 \geq GM \geq 1,2$

Note:

Refer to standard COLTO table for COLTO grading if required."

B3403 CONSTRUCTION

Add the following subclauses:

“(f) Treatment of in situ material or existing pavement layers as new pavement layers

Where the in situ material or existing pavement layers are classified as suitable for new pavement layers and have to be reconstructed as prescribed by the Engineer, the material or layers shall be scarified, watered and compacted to a percentage of modified AASHTO density. The density and compaction depth will be prescribed by the Engineer.

When additional material has to be imported to obtain the required level and layer thickness, and when the thickness of the layer of imported material will be less than the specified layer thickness after compaction, the in situ material or existing pavement layers shall be scarified, the necessary imported material placed, and the combined material mixed and compacted to the full specified thickness of the layer.

The imported material will be measured and paid for under payment item B34.14 and the in situ material will be measured and paid for under payment item B34.04.

(g) Surface regularity

Where transverse construction joints in base layers are made between newly and previously constructed sections, the *Contractor* shall exercise level control at such joints by installing level poles at 5,0 m intervals on either side of the joint of the layer covering at least a 30 m length into the newly constructed section.

(h) Temporary stockpiling of material

The *Contractor* shall plan his activities so that materials excavated from borrow areas and cuttings or imported from commercial sources can be directly transported to and placed at the designated points.

The temporary stockpiling of material will not be paid for separately unless instructed by the Engineer, and full compensation will be deemed to have been included in the rates tendered for the various payment items for work for which the material is to be used.

This subclause does not apply to the excavation and temporary stockpiling of existing pavement layers as instructed by the Engineer, in terms of subclause B3403(h), as these will be measured and paid for separately under payment item 32.06.

(i) Existing asphalt base or surfacing

Existing asphalt base or surfacing which cannot be broken down effectively to be used as part of the recovered pavement material, shall be separately excavated from the existing pavement layers and disposed of at approved dumping sites provided by the *Contractor*.

(j) Storing recovered pavement material

Excavated pavement material intended for reprocessing but which cannot be reprocessed in place or cannot, in the opinion of the Engineer, be placed in a windrow next to the excavation, nor be directly placed in position anywhere else, shall be transported to approved stockpile or dumping sites with written permission from the Engineer.

Stockpile sites for material to be recycled or reprocessed shall be located as approved by the Engineer.

The stockpile site shall be cleaned, and all stones, vegetation and other materials which may cause contamination shall be removed. The site shall be graded smooth with an adequate slope to ensure proper drainage of water. If instructed by the Engineer, the surface shall be watered and compacted to a depth of at least 150 mm and to a density of 90% of modified AASHTO density. The compacted surface shall be firm. Upon completion, the surface shall be swept clean.

Stockpile sites shall be large enough to allow the different types of material to be stockpiled without overlapping or exceeding the limits of the prepared site. Enlargement of the stockpile sites after the stockpiles have been placed will not be permitted without the Engineer's approval.

Upon completion of the work, the stockpile sites shall be rehabilitated in accordance with the Engineer's instructions.

Costs associated with payment item 32.06 shall be used for payment of cleaning and preparing the stockpiling sites. This shall also include all levelling and reinstating of the Site after completion of the work. Spoiled material shall be dealt as per relevant payment items in Section 3300."

B3405 CONSTRUCTION TOLERANCES

(a) Level

Add the following:

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

LAYER	INTERVAL
Selected layer, subbase, shoulders and wearing course	20 m
Base	10 m

"

B3406 QUALITY OF MATERIALS AND WORKMANSHIP

Replace the second paragraph with the following:

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

B3407 MEASUREMENT AND PAYMENT

Delete the first paragraph and replace it with the following:

"No additional or extra over payment will be made for work in restricted or confined areas."

Amend description of payment item 34.01 as follows:

"Item	Unit
B34.01 Pavement layers constructed from gravel taken from cut or borrow or stockpile, including free-haul up to 1,0 km:"	

Item	Unit
B34.03 Pavement layers constructed from gravel obtained from existing pavement layers:	

Add the following after "pavement" in the third line of the second paragraph:

"blading or temporarily stockpiling the material,".

Item	Unit

B34.04 In situ reconstruction of existing pavement layers as:

Replace subitem 34.04(a) with the following:

- "(a) Gravel selected layer, using non-cemented material for compacted layer thickness of 150 mm compacted to:
- (i) 90% of modified AASHTO density cubic metre (m³)
- (ii) 93% of modified AASHTO density cubic metre (m³)"
- (b) Gravel selected layer compacted to 95% of modified AASHTO density, using:

Add the following subitem:

- "(iii) A mixture of in situ milled asphalt and/or seal, existing gravel pavement material (both cemented and non-cemented) and imported material for a compacted layer thickness of 150 mm cubic metre (m³)"

Add the following at the end of this payment item:

"The tendered rates for subitems B34.04(b)(iii) and B34.04(f)(iii) shall include full compensation for the in situ milling and mixing by a suitable milling machine and for effectively breaking down and mixing of the respective material types, regardless of the thickness and hardness of the respective layers namely asphalt, base and subbase."

Amend the description of payment item 34.05 as follows:

Item	Unit
B34.05 Extra over subitems B34.03(g), B34.04(b) and B34.04(f), for the construction of gravel pavement layers from recovered pavement material mixed with existing bituminous surfacing material cubic metre (m³)"	

Delete the first paragraph and replace with:

"The extra over subitems B34.03(g), B34.04(b) and B34.04(f) for the construction of gravel pavement layers from recovered pavement material mixed with existing bituminous surfacing material shall not be paid for separately. Full compensation shall be deemed to have been

included in the rates tendered for the various payment items for work for which the material is to be used. No additional payment under payment item B34.05 (extra over item) will be considered."

Item

B34.06 Extra over payment item B34.04 for adding extra material as specified in subclause 3207(b)(iii)

Amend the payment paragraph as follows:

"The tendered rate shall include full compensation for procuring and adding the material to the in situ broken down pavement layer."

Add the following payment items:

Item	Unit
B34.14 Pavement layers constructed from gravel obtained from commercial sources or approved sources provided by the Contractor, including all haul:	
(a) Gravel selected layer compacted to:	
(i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m ³)	
(ii) 95% of modified AASHTO density for a compacted layer thickness of 150 mm cubic metre (m ³)	
(b) Gravel subbase (unstabilized gravel) compacted to:	
(i) 95% of modified AASHTO density for a compacted layer thickness of 200 mm.....cubic metre (m ³)	
(i) 97% of modified AASHTO density for a compacted layer thickness of 200 mm.....cubic metre (m ³)	
(c) Gravel subbase (chemically stabilized material) compacted to:	
(i) 95% of modified AASHTO density for a compacted layer thickness of 200 mm.....cubic metre (m ³)	

- (ii) 97% of modified AASHTO density for a compacted layer thickness of 200 mm.....cubic metre (m³)
- (d) Gravel shoulders compacted to:
 - (i) 93% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m³)
 - (ii) 95% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m³)
- (e) Gravel subbase (unstabilized gravel) compacted to:
 - (i) 95% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m³)
 - (ii) 97% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m³)
- (f) Gravel subbase (chemically stabilized material) compacted to:
 - (i) 95% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m³)
 - (ii) 97% of modified AASHTO density for a compacted layer thickness of 150 mm.....cubic metre (m³)
- (g) Gravel subbase (chemically stabilized material) compacted to 96% of modified AASHTO density, using:
 - (i) Non-cemented material for a compacted layer thickness of 150 mm cubic metre (m³)
 - (ii) Cemented material for a compacted layer thickness of 150 mm cubic metre (m³)

The unit of measurement shall be the cubic metre of compacted pavement layer constructed with material obtained from commercial sources or approved sources provided by the *Contractor*, the quantity of which shall be calculated in accordance with the authorised dimensions of each separate completed layer by the method of average end areas from levelled cross-sections prepared from the ground line prior to the construction of new pavement layers,

and the final specified or authorised layer cross-section superimposed at 20 m intervals along the centre line of the road.

The tendered rates shall include full compensation for the costs of negotiations and payments of royalties, for procuring, furnishing, placing, spreading, mixing imported and in situ material if required, breaking down, shaping, watering, preparing and compacting the material, for hauling the material over an unlimited free-haul distance from the source to the point of use, for protecting and maintaining the layer and for conducting control tests, all as specified. The tendered rates shall include full compensation for blading all oversize material off the road into windrows, for loading and transporting the material for an unlimited free-haul distance to approved dumping sites provided by the *Contractor*, and for off-loading and spreading the material, all as specified.

Item	Unit
B34.15 Removal of excess pavement material resulting from the in situ reconstruction of existing pavement layers.....cubic metre (m³)	

The unit of measurement is the cubic metre of excess material removed in accordance with the Engineer's instructions, and the volume shall be taken as 70% of the loose material in the hauling vehicles.

The tendered rate shall include full compensation for loading the excess material, transporting the material for the full haul distance to approved dumping sites provided by the *Contractor*, off-loading and disposing of the material, including shaping and levelling-off any piles of spoil material.

SECTION B3800: BREAKING UP EXISTING PAVEMENT LAYERS

B3804 PLANT AND EQUIPMENT

(a) Milling equipment

Add the following paragraphs:

"The milling machine shall be capable of milling out the unheated asphalt material accurately to line and level and to depths of between 10 mm and 500 mm over widths of 1,0 m up to 4,0 m in accordance with the instructions of the Engineer. The plant shall have capacity to remove the designated material in the early part of the shift and to allow asphalt replacement to be completed in the same shift. The plant shall have the capability of loading the milled material directly onto trucks.

No payment shall be made for moving the milling machine onto or within the Site."

B3805 CONSTRUCTION

(a) General

Add the following:

"Milling of the existing asphalt surfacing and bituminous treated base (BTB) or gravel base shall be required as shown on the drawings and as indicated by the Engineer. The Engineer may change the widths of milling.

The *Contractor* shall submit details of the equipment he proposes to use for the breaking up and excavation of existing pavement layers to the Engineer for approval prior to commencing with any work.

Milling shall not proceed if weather conditions which may hinder construction are imminent."

(b) Milling

(iii) Asphalt

Add the following new paragraph:

"The material originating from the milling of the existing asphalt layers shall become the property of the Employer and shall be stockpiled at sites indicated by the Engineer. Overhaul on milled material for distances in excess of 1,0 km shall be paid in accordance with payment item B16.02 of Section 1600."

Add the following clause:

"B3808 MILLING SPECIFICATION

(a) Setting out and control of the Works

The *Contractor* shall establish his own reference and level beacons for the setting out and control of the Works.

The *Contractor* shall indicate his own reference and control beacons to the Engineer at least one (1) week before the rehabilitation work is programmed to commence. The Engineer will take control measurements to determine the accuracy and adequacy of the reference/control beacons, and may instruct the *Contractor* to correct any faulty work and to take and provide such additional measurements and details as he may deem necessary. The survey work will not be measured and paid for directly and compensation for any work involved in staking or setting out will be deemed to be covered by the rates tendered and paid for the various items of work included in this Contract.

No payment will be made for any inconvenience or delay caused by compliance with these requirements.

(b) Construction

(i) Removal of grass and weeds

Prior to commencing milling operations, all grass, weeds, etc., encroaching into or onto the road surface or growing between the edge of the existing surfacing and kerbs, channels, etc., shall be removed.

(ii) Preparing the pavement surface

Before milling may commence, the pavement surface shall be clean and free from shale or other deleterious material.

(iii) Construction in confined areas

No additional payment will be made to the *Contractor* for work done within confined areas.

(iv) Recovery of bituminous material – if required

The existing bituminous material shall be milled out as indicated on the drawings. The recovered material shall be transported and stockpiled as specified in Section B3800.

The limits of milling shall be demarcated clearly and these limits shall not be exceeded by more than 100 mm in width. Areas milled outside the specified limits shall be repaired by the *Contractor* at his own cost and to the satisfaction of the Engineer.

(c) Work outside normal working hours

Any work to be carried out outside normal working hours must be approved by the Engineer, and the *Contractor* shall give the Engineer at least 48 hours' notice of his intention to do work outside the normal working hours, which are specified in the project amendments and additions to the standard specifications. The closure of traffic lanes will only be permitted during these times. The provision and layout of lighting for the Works and warning lights for the accommodation of traffic shall be approved by the Engineer. No additional payment will be made for the provision of warning lights outside working hours. The *Contractor* shall allow for the provision, erection and maintenance of additional items required in his tendered rates."

B3807 MEASUREMENT AND PAYMENT

(a) General

Add the following subclause:

"(vi) Providing the milling machine and moving the milling machine on site

No separate payment shall be made for providing the milling machine on site or for moving the milling machine on site. The size and numbers of milling machines required on site shall be determined by the *Contractor* in accordance with the scope of the work and the approved works programme, noting that approval of the works programme shall be subject to compliance with the accommodation of traffic constraints. Temporary removal of milling machines from site and the re-establishment of the machines shall be subject to the approval of the Engineer and shall be in accordance with the approved works programme. No additional payments shall be made for the temporary removal and re-establishment of milling plant."

Delete subclause 3807(c) and replace with the following:

"(c) No additional or extra payment shall be made for work in restricted or confined areas."

Amend payment item 38.04 to read as follows:

"Item	Unit

B38.04 Milling or excavating and moving to stockpile or spoiling material from an existing pavement and/or the underlying fill:	

- (a) Non-cemented material cubic metre (m³)
- (b) Cemented material cubic metre (m³)
- (c) Asphalt cubic metre (m³)"

Replace in the fourth line of the second paragraph after the subitems "a free-haul distance of 1,0 km)" with "an unlimited free-haul distance".

SECTION B3900: PATCHING AND REPAIRING EDGE BREAKS

B3901 SCOPE

Delete the first and second paragraphs and replace with the following:

"This section covers the patching of existing pavement layers as well as patching of the existing bituminous surfacing and pothole repairs. Patching shall be any work to the existing pavement layers and surfacing with the purpose of repairing local failures.

It also covers the saw cutting of the existing pavement layers for the purposes of patching and the use of geotextiles and/or geogrids in areas where the existing surfacing is to be overlaid with asphalt."

B3902 MATERIALS

Add the following:

"(a) Excavation for patching

Excavations for patching shall be backfilled with existing pavement material or asphalt base or asphalt surfacing as instructed by the Engineer.

All the requirements of Section 4200: Asphalt Base and Surfacing shall apply to the asphalt material.

Asphalt for patching work shall be a medium continuously graded mixture (with 50/70 penetration grade binder) where the thickness is 40 mm and less, and a 20 mm coarse continuously graded mixture (with 50/70 penetration grade binder) where the thickness is more than 40 mm.

Existing pavement material of excavations shall be milled out pavement material from existing roads.

The material shall be compacted to 97% of modified AASHTO density.

B3903 PLANT AND EQUIPMENT

Add the following:

"A sawing machine shall be provided on site before any excavation of patches shall commence. It shall be power-driven and able to cut accurately to the required depths and alignment. Skilled operators are required for operating the sawing machines. No payment shall be made for standing time of the sawing machine."

B3904 PATCHING

(a) Demarcation

Add the following:

"Before saw cutting may commence, the cut line shall be accurately pre-marked to the specified dimensions."

(c) Excavating pavement material

Add the following after the first sentence of the first paragraph:

"Asphalt and seal layers shall be cut with approved sawing equipment."

Add the following:

"Saw cutting shall be undertaken within the following dimension tolerances:

Horizontally: The maximum deviation from the specified line shall not be more than 10 mm.

Vertically: The cut depth shall never be less than the specified depth.

If the edge of a mechanically sawn surfacing layer is damaged by construction activities, the *Contractor* shall at his own cost make good such damaged edges until the specified tolerances are met."

(d) Backfilling excavations

Add the following after the last paragraph:

"Excavations shall be backfilled with continuously graded, coarse grade asphalt surfacing using 50/70 penetration grade binder. Backfilling of excavations shall be in layers not exceeding 40 mm."

Replace the contents of the subclause with the following:

"Excavations for patching shall either be backfilled with existing pavement material (from B34.03) or asphalt base or asphalt surfacing as instructed by the Engineer.

All the requirements of Section B4200: Asphalt Base and Surfacing shall apply to the asphalt material. Asphalt for patching work shall be a medium continuously graded mixture where the thickness is greater than 35 mm but does not exceed 60 mm, and a coarse continuously graded mixture where the thickness is more than 60 mm.

Add the following:

"(f) Patchwork on existing surfaces

Where the depth of patching is less than 60 mm, continuously graded asphalt materials (as specified in Section B4200) shall be used for backfill.

Where the depth of patching exceeds 60 mm, continuously graded asphalt base material (as specified in Section B4200) shall be used for backfilling up to a depth of 40 mm below the road surface.

The remaining 40 mm shall be backfilled with bitumen-rubber continuously graded asphalt (as specified in Section B4200).

(g) Patchwork on milled surfaces

Excavations shall be backfilled with continuously graded asphalt base material as specified in Section B4200.

A tack or prime coat of 30% stable-grade emulsion shall be applied to all excavated surfaces for patchwork.

The following nominal application rates shall apply:

Excavated asphalt material surfaces: 0,4 litre/m²

Excavated granular material surfaces: 1,0 litre/m²

Specified nominal application rates may be adjusted by the Engineer if required."

B3906 QUALITY OF MATERIALS AND WORKMANSHIP

Add the following:

"The surface regularity of completed asphalt patches shall be measured with a 3,0 m straight edge in accordance with subclause 8111(b) and no irregularity may exceed a value of 5,0 mm."

Add the following clauses:

"B3908 CONSTRUCTION TOLERANCES, FINISH REQUIREMENTS AND RESTRICTIONS

The final riding surface on any particular point on patches shall not deviate more than 5,0 mm from the bottom of a 3,0 m long straight edge.

B3907 MEASUREMENT AND PAYMENT

Item

Unit

B39.01 Sawing asphalt or cemented pavement layers for patching:

Replace subitems B39.01(a) and B39.01(b) with the following:

- "(a) Sawing asphalt to an average depth:
- (i) Not exceeding 50 mm metre (m)
 - (ii) Exceeding 50 mm but not exceeding 100 mm metre (m)
 - (iii) Exceeding 100 mm metre (m)
- (b) Sawing cemented pavement layers to an average depth:
- (i) Not exceeding 50 mm metre (m)
 - (ii) Exceeding 50 mm but not exceeding 100 mm metre (m)
 - (iii) Exceeding 100 mm metre (m)"

Replace the first payment paragraph with the following:

"The unit of measurement shall be changed from square metre to linear metre."

Item	Unit

B39.02 Excavation in existing pavements for patching in:

Replace subitem B39.02(c) with the following:

- "(c) Other layers cubic metre (m³)"

Replace the second measurement and payment paragraph with the following:

"The tendered rates shall include full compensation for demarcating the excavation, excavating, disposing of the excavated material at approved dumping sites provided by the Contractor, including all haul, complete as specified, and also for work in restricted areas."

SECTION B4200: ASPHALT BASE AND SURFACING

B4201 SCOPE

Add the following to subclause 4201(a):

"(viii) Proprietary semi-rigid asphalt surfacing comprising specifically graded conventional open-graded asphalt surfacing (20% to 25% voids), the voids of which are filled with a resin modified cementitious grout."

B4202 MATERIALS

(a) Bituminous binders

(i) Conventional binders

Insert "and the latest amendments thereof" after the words... "SABS specifications".

Add the following:

"The binders shall comply with SANS 4001-BT1 latest amendment. "

Add the following clauses:

"B4216 RUMBLE STRIPS

750 mm wide prefabricated rumble strips with 10 mm nominal-sized aggregate (Petrocol, Freyssinet or approved equivalent) shall be placed as instructed by the Engineer.

B4217 CEMENTITIOUS GROUTED ASPHALT

a) Product description

A semi-rigid asphalt surfacing comprising a specifically graded conventional gap graded asphalt surfacing where the voids of which are filled with a resin modified cementitious grout. This mix shall be certified for specific application by an approved agency as being fit for purpose.

b) Bituminous binders

Conventional bitumen of standard grades conforming to PG64E-16 with properties as specified in SANS 4001-BT1.

c) Aggregate used in the mix

The aggregate properties must conform to all requirements as stated in clause 4202.

d) Nominal mix proportions for Tender Purposes

Table B4216

GRADING					
SIEVES mm	% PASSING			TARGET	
	MIN		MAX		
20.0	100			100	
14.0	90	-	100	95	
10.0	40	-	60	50	
5.0	9	-	15	12	
2.0	8	-	12	10	CRITICAL VALUE
0.6	3	-	8	5.5	
0.3					
0.15					
0.075	2	-	3	2.5	
VOIDS	20	-	25	22	
BITUMEN CONTENT	3.9	-	4.2	4	
BRIQUETTE MANUFACTUR E	45		BLOWS PER SIDE		
MIXING TEMPERATURE	120		140	130	CRITICAL VALUE

Subject to the approval of the Engineer, the combined grading of the aggregate used for the cementitious grouted asphalt mix, must be in accordance with the requirements of the manufacturer. The proposed grading must be submitted to the Engineer for approval at least 8 weeks prior to the construction of the surfacing.

e) Filler

Cementitious grout is to be supplied and applied as per the manufacturer specifications and recommendations.

f) Construction method

The surfacing must be constructed in two stages as follows:

The asphalt shall be paver laid and compacted with a tandem steel wheel roller only. (No Pneumatic Tyred Rollers)

After the asphalt has cooled to below 30°C (Normally at least the following day or thereafter as required), a resin modified cementitious grout shall be poured onto the asphalt and vibrated into the voids using light, smooth steel wheeled vibratory roller or other vibratory equipment. No grouting will be done if surface temperatures rise above 40°C.

No traffic shall be permitted onto the layer before the grout is applied or until a period agreed to by the manufacturer after the grout is applied."

B4215 MEASUREMENT AND PAYMENT

2. *REPLACE THE FIRST PARAGRAPH WITH THE FOLLOWING:*
3. *"NOTE: NO ADDITIONAL OR EXTRA OVER PAYMENT SHALL BE MADE FOR WORK IN RESTRICTED OR CONFINED AREAS.*

The *Contractor* shall note that, notwithstanding the fact that various payment items indicate that haul, overhaul and all associated items will be paid for separately, this shall not apply to this Contract. Payment for haul, overhaul and associated items will be made as specified in Section 1600."

Item	Unit
B42.04 Tack coat of 30% stable-grade emulsion	litre

Add the following to the payment item:

"The tendered rate and unit of measurement shall apply mutatis mutandis for the application of a tack coat by means of hand sprayers on written approval by the Engineer only."

4. <i>ITEM UNIT</i>	
B42.08 100 mm cores in asphalt paving	number

Amend the first sentence by adding the following after the word "drilled":

"irrespective of depth of core."

5. ITEM UNIT

B42.09 Asphalt surfacing on bridge decks:

6. ADD THE FOLLOWING PAYMENT ITEM:

7. "(G) PROPRIETARY SEMI-RIGID ASPHALT SURFACING COMPRISING SPECIFICALLY GRADED CONVENTIONAL OPEN-GRADED ASPHALT SURFACING (20% TO 25% VOIDS), THE VOIDS OF WHICH ARE FILLED WITH A RESIN MODIFIED CEMENTITIOUS GROUT TON (T)"

Add the following payment items:

8. "ITEM UNIT

B42.21 Rumble strips

- (a) Supply and installation rumble strips Provisional sum
- (B) Handling costs, profit and all other chargers in respect of
- subitem B42.21(a) cubic metre (m³)

This item provides for the supply and installation of approved rumble strips placed in accordance with the Engineer's instructions.

The tendered rate shall include full compensation for procuring and furnishing all materials, manufacturing the strips, placing and fixing the strips in accordance with the manufacturer's instructions on the instruction of the Engineer.

The tendered percentage is a percentage of the amount actually spent under the provisional sum item, which shall include full compensation for the profit in connection with providing the specified service.

9. ITEM UNIT

B42.22 Milling of existing asphalt, (for a minimum area of 20 m²) including removal to spoil or stockpile, to an average depth of:

- (a) 20 mm up to and including 50 mm.....cubic metre (m³)
- (b) 50 mm up to and including 100 mm.....cubic metre (m³)

(c) 100 mm up to and including 200 mm cubic metre (m³)

The unit of measurement for milling of existing asphalt to varying depths shall be the cubic metre of material removed, measured in place in the pavement before removal, as instructed by the Engineer.

The tendered rate shall include full compensation for all materials and labour required to mill to the specified depth, and for transporting the milled materials to spoil or stockpile including the vacuum brooming of the surface on completion.

Item	Unit
B42.23 Removal of existing bituminous surfacing from bridge decks and approaches by milling cubic metre (m³)	

The unit of measurement is the cubic metre of existing bituminous surfacing material removed from the bridge decks and pavement material on bridge approaches by milling to a depth of 40 mm or up to concrete level, whichever is the lesser, on the bridge decks and to a depth and defined length as indicated on the drawings or as instructed on the bridge approaches by the Engineer.

The quantity shall be calculated in accordance with the authorised dimensions or as directed by the Engineer.

Levels shall be taken on a regular grid before and after the work to determine the correct volume.

The tendered rate shall include full compensation to establish equipment on site, as well as for all labour, constructional plant and materials required for removing the bituminous surfacing down to the required level, and for loading, transporting over an unlimited free-haul distance and disposing of the debris at approved dumping sites provided by the Contractor.

SECTION B5100: PITCHING, STONEMWORK AND PROTECTION AGAINST EROSION

B5102 MATERIALS

(a) Cement

Replace the first paragraph with the following:

"SABS 471" with "SANS 50197 – 1: 2013"

(b) Stone

Replace the second paragraph with the following:

"SABS 1083" with "SANS 1083: 2018"

B5108 MEASUREMENT AND PAYMENT

Item	Unit

B51.01 Stone pitching

Delete "excluding trench and bulk excavations" in the third line of the second paragraph.

Add "and the disposing of surplus excavated material at approved dumping sites provided by the Contractor, including all haul," after "surfaces," in the fifth line of the second paragraph.

SECTION B5200: GABIONS

B5201 SCOPE

Add the following:

"This section also covers backfilling behind gabion protection walls."

B5205 MEASUREMENT AND PAYMENT

Add the following payment item:

Item	Unit
B52.05 Backfilling behind gabion protection walls, including all haul	erosion cubic metre (m³)

The unit of measurement shall be the cubic metre of material in place after compaction. The quantities shall be calculated by the method of average end areas from levelled cross-sections prepared from the ground line, prior to the backfilling and the final cross-section superimposed thereon. As an alternative, the volume may be taken as equal to 70% of the loose volume of material in the trucks, if approved by the Engineer.

The tendered rate shall include full compensation for procuring, furnishing, placing and compacting the material, hauling the material over an unlimited free-haul distance, conducting of control tests, trimming and for all other work to be done to finish off the area."

SECTION B5400: GUARDRAILS

B5402 MATERIALS

At the end of the first sentence replace "SABS 1350" with " SANS 1350: 2023 or SANS 51317 and carry the SABS mark."

(i) Galvanizing

Replace "SABS 763 for the coating of Type A1" and replace with "SANS 121, thickness > 6 mm."

(ii) Steel posts

Replace the paragraph with the following:

"Where offered or instructed to be used, steel posts shall be part of an approved guardrail system as tested and complying with SANS 51317 and galvanized in compliance with the requirements of SANS 121, thickness > 6 mm, shall be used.

Where guardrails are placed on concrete retaining walls or concrete structures, the steel posts shall be of the type and size shown on the drawings or described in the project specifications."

(c) **Reflective plates**

Replace "engineering grade" in the seventh line with "Class I".

Replace "CKS 191" in the fourth last line with "SANS 1519-1: 2022 & SANS 1519-2: 2022".

Add the following subclause:

B5403 CONSTRUCTION

(a) **Erection**

Replace the seventh paragraph with the following:

"Steel posts placed on concrete retaining walls or concrete structures shall be erected and fixed as shown on the drawings. For all other applications, steel posts shall be erected and fixed in compliance with the approved guardrail system as tested and approved in terms of SANS 51317."

B5405 REMOVING, RENOVATING AND RE-ERECTING EXISTING GUARDRAILS

(a) **Removing the guardrails**

In the third line of the first paragraph, after "150 mm layers," delete the full stop and add "of suitable Type G7 quality material."

B5406 MEASUREMENT AND PAYMENT

Replace payment item 54.01 with the following:

"Item"	Unit
B54.01 Guardrails on 3,0 m spaced posts:	
(a) Complete galvanized system on:	
(i) Timber posts	metre (m)
(ii) Steel posts	metre (m)
(b) Extra over payment item B54.01(a) for the following:	
(i) Flared ends (including end wing)	number
(ii) End treatments where single guardrail sections are used (including additional posts)	number
(iii) End treatments where double guardrail sections are used (including additional posts)	number
(iv) Bridge adaptors (including extra rail and posts).....	number
(v) Horizontally curved guardrails factory bent to a radius of less than 45 m	metre (m)

The unit of measurement for subitems B54.01(a) and B54.01(b)(v) shall be the metre of guardrail as erected, (including length of end treatments and curved guardrails).

The unit of measurement for subitems B54.01(b)(i), B54.01(b)(ii), B54.01(b)(iii) and B54.01(b)(iv) shall be the number of end treatments of each type installed.

The tendered rates shall include full compensation for furnishing all materials and labour for erecting and galvanizing the guardrails, complete with posts, spacer blocks, bolts, nuts, washers and reinforcing plates, and excavating holes in all classes of material, concrete, backfilling and removing any surplus material. It shall also include full compensation for incidentals in respect of supplying and erecting curved guardrails, end treatments, and turned down sections.

Reflective plates and drilling and blasting will be paid for separately under payment items 54.06 and 54.12 respectively."

Replace payment item 54.02 with the following:

"Item	Unit
B54.02 Guardrails on 1,3 m spaced posts:	
(a) Complete galvanized system on:	
(i) Steel posts metre (m)	
(b) Extra over subitem B54.02(a) for the following:	
(i) Flared ends (including end wing) number	
(ii) End treatments where single guardrail sections are used (including additional posts) number	
(iii) Horizontally curved guardrails factory bent to a radius of less than 45 m metre (m)	

The unit of measurement for subitems B54.02(b)(i), B54.02(b)(ii), and B54.02(b)(iii) shall be the number of end treatments of each type installed.

The tendered rates shall include full compensation for furnishing all materials and labour for erecting and galvanizing the guardrails, complete with posts, spacer blocks, bolts, nuts, washers and reinforcing plates, and excavating holes in all classes of material, concrete, backfilling and removing any surplus material. It shall also include full compensation for incidentals in respect of supplying and erecting curved guardrails, end treatments, and turned down sections.

Reflective plates and drilling and blasting will be paid for separately under payment items 54.06."

Item	Unit
B54.07 Removing existing guardrails.....	metre (m)

Add the following:

"The tender rate shall also include for the backfill of the holes with suitable Type G7 quality material."

Add the following payment items:

"Item	Unit
B54.14 Nailing of gang nail plates on top of timber guardrail posts	number

The unit of measurement shall be the number of gang nail plates supplied and fixed as specified.

The tendered rate shall include full compensation for supplying all materials and labour and for fixing to the top of the sealed guardrail post.

Item	Unit
B54.15 Steel base plates for steel guardrail posts on structures.....	number

The unit of measurement is the number of steel base plates installed complete as shown on the drawings or directed by the Engineer.

The tendered rate shall include full compensation for supplying all labour, materials, equipment and transport required for manufacturing, galvanizing and installing the base plates complete with cement mortar pad, for cutting the guardrail post to the required length, drilling an additional hole, treating the hole and butt face with approved corrosion protection paint and fixing the post all as specified on the drawings."

SECTION B5600: ROAD SIGNS

B5601 SCOPE

Replace "South African Road Traffic Signs Manual" in the second paragraph with "SADC Road Traffic Signs Manual".

B5602 MATERIALS

(a) Structural steel

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

"Channels, square tubes, angle irons and other steel members on the reverse side of the sign boards and steel tubes for sign supports shall be painted in accordance with the following specifications: SANS 926 for a two-pack zinc-rich epoxy primer, SANS 681 for the undercoat and SABS 1413 for a chloro-rubber finishing coat."

Replace the second paragraph with the following:

"All structural steel, including tubes, shall be galvanized in accordance with the requirements of SANS 121, thickness > 6 mm, as applicable."

(g) Retro-reflective material

In the first sentence replace "SABS 1519" with "SANS 1519-1" and delete "and the adhesion requirements of CKS 191".

In the second paragraph add the following:

"Class IV material - ten (10) year warranty grade"

Replace the third last paragraph with the following:

"The *Contractor* shall provide proof that Class I and Class III of the retro-reflective commercial products to be used have been generally and successfully used in South Africa during the last three (3) years.

Classes I and III retro-reflective materials shall be warranted against any abnormalities as described in SANS 1519 for seven and ten years respectively.

The specific commercial products used as Class III and Class IV shall be subject to the approval of the Engineer."

Add the following after the second last paragraph:

"Should a *Contractor* manufacture signs without the necessary approval it shall be deemed that the *Contractor* unconditionally guarantees the sign for the full period of seven (7) years. Should failure of the sign due to suspected incompatibility of materials (in the opinion of the Engineer) occur within seven (7) years, the *Contractor* shall remanufacture the sign and re-erect the sign at no cost to the Employer."

Add the following to the last paragraph:

"Reflective sheeting shall be applied to sign faces strictly in accordance with the retro-reflective material manufacturer's specifications. Legend and background materials shall be supplied by the same manufacturer. Every batch of material used for signs on the Contract shall be identified by a batch number.

A certificate of all the materials' compliance with SANS 1519 shall be submitted to the Engineer within three (3) months of the material being used. An outdoor weathering test will not be required.

Add the following:

"Retro-reflective materials shall comply with the requirements of SANS 1519, but the requirements of clauses 3 and 4 of CKS 191 shall take precedence.

Mixing 3M Scotchlite, Kiwalite or any other approved products on the same sign will not be permitted. The *Contractor* will also be required to produce lifespan guarantees as well as SABS approved certificates with regard to the retro-reflective material specified or tendered for.

When measured in accordance with SANS 1519, the coefficient of retro-reflection of a retro-reflective material shall not be less than the appropriate value given in Table 1 of SANS 1519.

The colour of the retro-reflective material shall match the specified colour and shall not be faded to such an extent that its effectiveness is unacceptably impaired in the opinion of the Engineer. The surface of the retro-reflective material shall be undamaged and free from scratches, stains or other marks.

When, in the opinion of the Engineer, the retro-reflective material does not comply with the above requirements, the *Contractor* shall replace the defective material at his own cost to the satisfaction of the Engineer."

(k) Back vinyl

In the second sentence replace "SABS 1519" with "SANS 1519-1" and delete the rest of the sentence.

Add the following subclauses:

"(l) Chromadek sections

Chromadek sections shall be 1,4 mm thick and shall comply with the details on the drawings.

(m) Temporary covers for road signs

When required, existing road signs shall be fully or partially covered with burlap or other approved material to obscure destinations that are temporarily inapplicable or irrelevant. As reflective material loses its retro-reflective and adhesive qualities in poorly ventilated conditions, 25 mm diameter holes spaced at maximum intervals of 300 mm shall be cut in the plastic to render it permeable.

The covers shall be neatly applied and firmly fixed in position so that they will be able to withstand strong gusts of wind or eddies caused by passing traffic."

B5603 MANUFACTURING OF ROAD SIGN BOARDS AND SUPPORTS

(a) Road sign boards

Add the following to the first paragraph:

"The *Contractor* shall submit a schedule detailing the suppliers and trade names for the main constituent components in the manufacturing process.

The *Contractor* shall also submit documentation from the manufacturer or the South African agents or distributors of the retro-reflective sheeting that will be used in the manufacturing of the road sign boards, attesting to the fact that the road signs manufacturer conforms with the storage, handling and application procedure recommended by the reflective sheeting material manufacturer."

Insert the following after the third paragraph:

"The colour of the retro-reflective material shall match the specified colour and shall not be faded to such an extent that its effectiveness is unacceptably impaired in the opinion of the Engineer. The surface of the material shall be undamaged and free from scratches, stains or other marks.

When, in the opinion of the Engineer, the retro-reflective material does not comply with the above requirements, the *Contractor* shall replace the defective material at his own cost, to the satisfaction of the Engineer.

The *Contractor* shall make every effort to ensure that sign boards are correct in all respects and, before dispatching the boards from the manufacturer's factory, shall provide the Engineer with a 100 mm x 150 mm colour photograph of each sign face for approval of the correctness of the legend. Such approval will not imply final acceptance of the board. If the *Contractor* is in any doubt as to the correctness of the sign detail, the sign designer shall be contacted for verification."

(ii) Steel profile road sign boards

Add the following:

"Chromadek sections shall be assembled in accordance with the details on the drawings.

Where the letter or legends cross the horizontal joints of the sign panels, the letter shall be cut on the joint and both ends folded around the radius.

Retro-reflective material to adjoining Chromadek panels on a sign shall be a practical visual match of the specified colour."

B5604 ROAD SIGN FACES AND PAINTING

(b) Preparing surfaces and applying paint and retro-reflective sheeting

Add the following to the first paragraph:

"and shall conform to the requirements of Type A sign faces, as indicated on the drawings."

Add the following new subclause:

"(e) Application of retro-reflective material

All sign faces shall be faced with retro-reflective material. Painted front sign faces shall not be used.

Where applied to Chromadek sections, retro-reflective material shall be applied as specified for aluminium sections in subclause 5603(d) of the standard specification, and of subclause B5603(a)(ii) of this project specification."

B5605 STORAGE AND HANDLING

Add the following:

"The following shall not be allowed on the sign face:

- drilling of holes, except for the fastening of overlays.
- application of any form of adhesive.
- cleaning with any chemicals that are not specifically approved by the manufacturer of the retro-reflective material.
- covering the sign face with an impermeable material that does not allow free circulation of air."

B5606 ERECTING ROAD SIGNS

(b) Excavation and backfilling

Add the following after the first sentence of the first paragraph:

"A 300 mm thick gravel drainage layer shall be placed at the bottom of the excavations and shall be compacted before the excavations are backfilled.

The dimensions of the excavation for the drainage layers shall be over and above that for the footings as shown on the drawings."

(c) Erection

Add the following paragraphs:

"After erection, the sign board shall be thoroughly cleaned with a cleaning agent approved by the retro-reflective material's manufacturer.

All vegetation obstructing the new or replaced sign board shall be removed and disposed of as instructed by the Engineer.

On completion of signs on the road section, the *Contractor* shall clear an area immediately around the sign. The area shall be 10 m wide at the side closest to the road and 5,0 m wide at the side farthest from the road. The cleared area shall be treated with an approved chemical vegetation growth-retarder in accordance with the supplier's application instructions.

No separate payment shall be made for the clearance, or the procurement and application of the vegetation growth retarder."

B5608 DISMANTLING, STORING AND RE-ERECTING EXISTING ROAD SIGNS

Add the following:

"Existing overhead and ground-mounted road signs that are being replaced by new signs shall be dismantled and disposed of by the *Contractor*. Where possible the dismantling of the signs shall not occur before the replacement sign is erected and displayed. Where dismantling of the sign is required before erection of the replacement sign, the dismantling shall not take place until immediately before work is to commence on the replacement sign. The replacement shall be completed and the new sign displayed as soon as possible thereafter (within 72 hours).

Dismantling shall include sign panels and ground-mounted sign supports.

Ground-mounted sign supports shall be cut off just below ground level. Material excavated for the removal of buried poles shall be replaced and any depression made good using excess material from excavation for new signs.

Payment items are provided in the Pricing Schedules. Payment will differentiate between the different types of sign panels."

Add the following clauses:

"B5610 DISMANTLING AND REMOVING ROAD SIGNS AND THEIR SUPPORTS

Existing overhead and ground-mounted road signs that are being replaced by new signs shall be dismantled by the *Contractor*. Dismantled ground-mounted signs shall be disposed of by the *Contractor* in a manner approved by the Engineer. Dismantled overhead signs shall be stored at a location indicated by the Engineer, unless the *Contractor* is instructed to treat either the signs or the gantries in the same manner as that of ground-mounted signs. If motorists are depending on the information provided by specific signs, the dismantling of these signs shall not be done before the replacement signs have been erected and displayed. Where dismantling of the sign is required before erection of the replacement sign, the dismantling shall not take place until immediately before work is to commence on the replacement sign. The replacement shall be completed and the new sign displayed as soon as possible thereafter (within 48 hours).

When instructed by the Engineer, concrete footings of existing signs shall be demolished and removed to a depth of 200 mm below the adjacent ground level or the finished ground level after construction, whichever is the deeper.

Dismantling shall include sign panels and ground-mounted sign supports, unless otherwise instructed by the Engineer.

Ground-mounted sign supports shall be cut off just below ground level. Material excavated for the removal of buried poles shall be replaced, and any depression made good using excess material from excavation for the new signs. The finishes around ground-mounted sign supports located on sidewalks shall be re-instated and made good to resemble the surrounding finishes, all to the approval of the Engineer. No separate payment shall be provided for such finishing.

The accommodation of traffic for the dismantling of overhead sign panels and overhead sign gantry supports shall be subject to the approval of the Engineer. No closure of the freeway shall be allowed.

Payment items are provided in the Pricing Schedules. Payment will differentiate between the different types of sign panels."

B5609 MEASUREMENT AND PAYMENT

Add the following note immediately after the heading of clause B5609 Measurement and Payment:

"Note:

The *Contractor* shall note that, notwithstanding the fact that various payment items indicate that haul, overhaul and all associated items will be paid for separately, this shall not apply to this section. Payment for haul, overhaul and associated items will be made as specified in Section 1600."

Item	Unit

B56.01 Road sign boards with painted or coloured semi-matt background. Symbols, lettering, and borders in semi-matt black or in Class I retro-reflective material, where the sign board is constructed from:

mend the last two lines of the second paragraph to read:

"completion, delivery, installation of the road sign board complete as specified, and the removal and disposal of all vegetation obstructing the motorists' view of the new or replaced sign board."

Add the following payment items:

Item	Unit

B56.10 Gravel drainage layer below road sign footings cubic metre (m³)

The unit of measurement is the cubic metre of compacted gravel placed below road sign footings in accordance with the details on the drawings. The quantity will be calculated from the authorised dimensions. Gravel placed outside the authorised dimensions will not be measured for payment.

The tendered rate shall include full compensation for procuring, furnishing and placing the gravel.

Item	Unit
B56.11 Hazard plates, (size indicated)	number

The unit of measurement is the number of each size of hazard plate supplied and erected complete in accordance with the details on the drawings.

The tendered rates shall include full compensation for all labour and materials, painting, posts, excavating, disposing of excavated material, erecting and painting the hazard plates and posts, and for placing and compacting the soilcrete backfilling as may be necessary for completing the work in accordance with the drawings.

Item	Unit
B56.12 Dismantling and disposal of road signs:	
(a) Hazard marker signs	number
(b) Single post signs (other 'R'- and 'W'-signs)	number
(c) Multiple post ground-mounted signs.....	number

The unit of measurement is the number of signs removed.

The tendered rate shall include full compensation for dismantling the sign boards, removing the supports and foundations of ground-mounted signs, disposing of the material and clearing or reinstatement of surrounding finishes at the removal site. It shall also include for all labour, plant, supervision and all other incidentals.

Item	Unit
B56.13 Collapsible edge marker posts	

The tendered rate shall include full compensation for delivery of the post with all bolts, fasteners and other items required to fix the post, setting out and placement, drilling of holes in the

concrete and any agent required to fix bolts in the concrete. It shall also include for all labour, plant, supervision and all other incidentals.

Item Unit

B56.14 Provision for TNPA general signage

- (a) Manufacture, supply and installation of TNPA signage Prov Sum
- (b) Handling costs, profit and all other charges in

 respect of subitem B56.14(a) above..... percentage (%)

The tendered rate shall include full compensation for manufacturing, completion, delivery, installation of the road sign board complete as specified, and the removal and disposal of all vegetation obstructing the road user’s view of the new or replaced sign board."

The tendered percentage is a percentage of the amount actually spent under the provisional sum item, which shall include full compensation for the profit in connection with providing the specified service.

No separate payment shall be made for temporary works, transport, disposal of redundant materials, or disruptions to the site unless specifically scheduled elsewhere."

SECTION B5700: ROAD MARKINGS

B5701 SCOPE

Replace "South African Road Traffic Signs Manual" in the second paragraph with:

"SADC Road Traffic Signs Manual"

Replace the words "ordinary road-marking paint" with "water-borne road-marking paint".

Replace "BS 3262" with "IS EN 1436".

Replace "Hot melt plastic road marking" with "Thermoplastic road-marking".

After the last paragraph, add the following:

"Provision is made in the Pricing Schedules for different road-marking materials. The *Contractor* shall take note that the Employer reserves the right to utilise any, or all, or a combination of any of these road-marking materials at any stage during the construction period. The utilisation of the road-marking materials as indicated cannot be regarded as grounds for any claim by the *Contractor*."

Add the following after the last paragraph:

"The kerb markings shall be either black and white or red and white as instructed by the Engineer."

B5702 MATERIALS

Insert the following before subclause B5702(a):

"The selection of the appropriate road-marking paint and materials for permanent road markings to ensure conformance with the requirements of this specification rests with the *Contractor*. This may include applying an initial bonding layer according to the paint manufacturer's requirements.

Such paint and material shall have technical characteristics (brightness, luminance, skid resistance, durability) equal to or greater than road-marking paint and materials specified in subclauses B5702(a), B5702(b) and B5702(c). Where an initial bonding layer is required, it shall be the *Contractor's* responsibility to ensure the final road-marking colour does not deviate from the specified subclause B5702(a).

Where plastic road-marking material (hot-melt plastic (also known as thermoplastic) and two-component (also known as cold plastic)) is used, the *Contractor* shall obtain an approved guarantee from the manufacturer that the paint complies with the specification. This shall be submitted to the Engineer on request."

(a) Paint

(i) Road-marking paint

Replace subclause B5702(a)(i) with the following:

"Road-marking paint shall be Type 1 as specified in SANS 731-2 (water-borne paints). Only paint, manufactured in a SANS approved and accredited facility shall be accepted. The no-pick-up time of road-marking paint shall comply with the Type 1 requirement in accordance with SANS 731-2.

The paint shall be delivered at the Site in sealed containers marked in accordance with SANS 731-2.

The viscosity of the paint shall be such that it can be applied without being thinned down."

(ii) Retro-reflective road-marking paint

Replace "CKS 192" in the first paragraph with "SANS 51423 (EN1423) for medium-grading glass beads".

Add the following:

"When measured in accordance with SANS 6261 within a period of two (2) weeks ($\pm$ one (1) week) after application, the coefficient of retro-reflected luminance, R_L , of temporary road markings shall be at least 150 mcd/m².lx for white markings and 100 mcd/m².lx for yellow markings."

(iii) Plastic road-marking material

Replace subclause B5702(a)(iii) with the following:

"(iii) Thermoplastic road-marking material

Thermoplastic road-marking material shall comply with the requirements of EN 1436, and SANS 51423 (EN 1423) for drop-on glass beads for road marking and anti-skid aggregates and mixtures thereof. Blending of thermoplastic road-marking material and glass beads shall comply with SANS 51424 (EN 1424).

The binder shall be a plastised synthetic resin and the material shall be reflectorized by mixing in 25% by mass Class A glass beads in accordance with SANS 51424 (EN 1424). An additional topping of glass beads shall be applied to the hot surface of the material for instant retro-reflectivity.

The white road-marking material shall contain 6% by mass minimum titanium dioxide content and shall have a skid resistance of 45 S.R.T. – units or higher. SANS 6248 shall be used for determination of traffic wear index; indication of durability.

The following minimum lumination values are required for the completed product:

- 250 mcd/m².lux and 120 mcd/m².lux for white and yellow lines respectively, at thirty (30) days after application.
- 200 mcd/m².lux and 100 mcd/m².lux for white and yellow lines respectively, at six (6) months after application.

Determination of coefficient of retro-reflected luminance by means of portable retro-reflectometer shall be carried out using SANS 6261. Application of the permanent road marking will thus have to be performed six (6) months before the Defects Date to allow for the second measurement to fall within the Contract dates. Should the application of the permanent road marking fall outside the six months, for whatever reason, the settlement of the retention money will be delayed until the second measurement of luminance can be performed at the stipulated time and the required adjustment can be made to the tendered rate (if required).

Two-component cold plastic road-marking material shall be used for symbols, arrows and letters (hand painted markings) unless otherwise instructed by the Engineer."

Add the following:

"Notwithstanding the specified composition of hot-melt thermoplastic, it is required that the permanent road markings shall comply with the requirements of EN 1436 Type 1 road markings of Class R5 for white markings ($R_L \geq 300$ mcd/m².lx) and class R3 for yellow markings ($R_L \geq 150$ mcd/m².lx) for dry road markings when measured in accordance with SANS 6261 within a period of two (2) months ($\pm$ two (2) weeks) after application.

The Employer retains the right to require the *Contractor* to apply EN 1436 Type 2 road markings as the permanent road markings on this Contract. (Type 2 road markings are road markings with special properties meant to enhance the retro-reflection in wet or rainy conditions.)

The product supplied for permanent road markings shall be subject to the approval of the Engineer, who may request the *Contractor* to provide sufficient supporting evidence to compare the durability of the proposed product with that of hot-melt thermoplastic material."

Add the following subclauses:

"(v) Cold plastic road-marking material

Cold plastic road-marking material shall be used for symbols, arrows and letters (hand painted markings) and shall consist of a solvent-free reactive acrylic resin, stuffing, beads and pigment to which a hardener shall be added. Application is carried out using a trowel. Material applied by paint brush shall not be used.

Cold plastic road-marking material shall be reflectorized by mixing in 25% by mass (or 400 g/m²) Class A glass beads in accordance with SANS 51424 (EN 1424). An additional topping of glass beads is applied to the wet surface of the material after application and will comply with SANS 51423 (EN 1423).

(vi) Textured road-marking materials

Various proprietary textured road-marking products are available in the market, including Drop-on line™, Vibraline™, Stamark™ and Rumble-strip.

In the interest of road safety the Employer may require the application of such proprietary textured road markings. Such markings shall be applied by a *Contractor* suitably licensed by the proprietary holder for such application. The application shall be done strictly in accordance with the suppliers' requirements."

(b) Roadstuds

Replace the clause with the following:

"Permanent and temporary road studs shall comply with the requirements of the European Standard for road studs IS EN 1463.

The road studs to be used on this contract shall be RSA-1, RSA-2 and, where required, RSA-T.

Road studs for the areas of application shall be supplied and installed in accordance with the requirements set out in Table B5702/1 with reference to IS EN 1463.

TABLE B5702/1:

CLASSIFICATION	AREA OF APPLICATION			
	RSA-1	RSA-2	RSA-3	RSA-T
Description	Bi-directional	Bi-directional	Circular Cats-Eye	Bi-directional
Material	Galvanized Cast Iron	Plastic	Glass	Plastic
Design	Type A	Type A	Type A	Type A
Use	Type P	Type P	Type P	Type T
Reflector	Type 1	Type 1	Type 1	Type 2
Reflectivity	R1	R1	R1	Not specified
Installation System	Anchored	Bonded	Embedded	Self-adhesive or Bonded
Height above Road	H3	H3	H3	H1
Dimensions (min-footprint)	100mm x 80mm	100mm x 100mm	100mm dia	100mm x 100mm
Colours	W – R – Y	W – R – Y	W	W – R – Y
Road Trials	S1	S1	S1	Not applicable

”

Add the following subclause:

”(c) Retro-reflective beads

Retro-reflective glass beads shall be applied to the wet paint, thermoplastic and cold plastic.

The beads shall comply with Class A beads in accordance with SANS 51424 (EN 1424), with the following requirements or as approved by the Engineer:

- colour : crystal clear
- roundness : > 80%
- size range of : 14 - 200 US Mesh (75 – 1 400 Microns)
- refractive index : > 1,5
- specific gravity : ± 2,5

– granulometry :

CUMULATIVE RETAINED MASS		
SIEVE	MIN.	MAX.
1 700	0	2
1 400	0	10
1 180	5	30
850	40	80
600	70	100
425	80	100
355	90	100
212	95	100
PAN	100	100

The beads shall be delivered to the Site in sealed bags, marked with the name of the manufacturer, the batch number and an inspection seal of SABS, confirming that the beads form part of a lot tested by SABS and comply with the requirements of SANS 51424 (EN 1424). Alternatively, the *Contractor* shall at all times have a SABS certificate on the Site, identifying the batches to which the inspection seals apply and certifying that they have been tested by SANS, and comply with the requirement of SANS 51424 (EN 1424)."

B5704 MECHANICAL EQUIPMENT FOR PAINTING

Add the following sentence at the end of the first paragraph:

"The road-marking machine shall be fitted with a device to guide the operator to the centre of the line to be painted. This device shall be used at all times of operation."

Add the following:

"The machine shall always operate in the direction of the traffic when applying lane markings."

B5705 SURFACE PREPARATION

Add the following at the end of the second paragraph:

"The onus is on the *Contractor* to ensure that the surface on which the road markings are to be applied is sufficiently clean and dry to ensure that the quality of the road markings will not be adversely affected. The *Contractor* is also responsible for protecting roadstuds from being painted over, and the subsequent cleaning thereof if such over-painting did occur. (The cleaning of the roadstuds shall be done in such a manner that the functionality of the roadstuds will not be detrimentally affected by the cleaning agent.)"

Add the following after the first sentence of the third paragraph:

"The Engineer may also instruct the *Contractor* to remove existing road markings by means of sandblasting. The *Contractor* is also responsible to ensure that the surface on which the road markings are to be applied is sufficiently prepared to meet the paint manufacturer's requirements to ensure proper adhesion to the concrete. The Engineer may also instruct the *Contractor* to prepare the surface by means of sandblasting."

B5706 SETTING OUT THE ROAD MARKINGS

Add the following:

"Where road markings are to be replaced after construction activity, it is essential that all existing road markings be accurately surveyed and referenced before commencement of such construction activities will obliterate the existing road markings. The position of the new road markings shall be reassessed on site by the Engineer before the *Contractor* commences with the road marking.

No separate payment will be made for referencing the existing road markings and full compensation shall be included in the rate tendered for payment item B57.06.

For safety purposes, premarking of the final road markings shall be done on a daily basis at the end of each working shift for the construction of the final overlays, where applicable."

B5707 APPLYING THE PAINT

Insert the following before the first paragraph:

"The *Contractor's* establishment on site and general obligation shall be deemed to fully include the establishment of the road-marking team, irrespective of the number of times the road-marking team is required to be on site or is required to move within the Site."

Replace the sixth paragraph with the following:

"Water-borne road-marking paint shall be applied at a nominal rate of 0,42 litre/m² or as directed by the Engineer. Thermoplastic road marking shall be applied at a nominal rate of 2,5 kg/m² to achieve a minimum thickness of 1,25 mm to 1,5 mm or as directed by the Engineer. The two-component road-marking material shall be applied by hand by means of a trowel. The desired symbol or line shall be marked with a tape or a template on the road surface. Thereafter apply the required volume of material and spread uniformly over the entire area. When dry/set, remove the tape or template. A spreading rate of 4,5 kg/m² is estimated to achieve a 2,0 mm material thickness.

In order to ensure proper coverage on all types of surfaces the Engineer may order an increase in the above nominal application rates. Payment for these variations in application rates shall be made under payment item 57.04.

A daily log-sheet, provided by the Employer, shall be completed and signed by the *Contractor* and the Engineer's representative, recording the quantities of paint and glass beads used on that day and shall be available for inspection at all times. The completed and signed log-sheet for the period covered by a payment certificate shall be attached to the payment certificate."

Replace the last paragraph with the following:

"Where applicable to asphalt surfacing, water-based road markings as specified by the Engineer shall be carried out within fourteen (14) days of opening the road full width to traffic after the completion of the surfacing."

B5708 APPLYING THE RETRO-REFLECTIVE BEADS

In the first paragraph, replace the nominal application rate of 0,8 kg/litre with "400 gm/m²".

Replace the second sentence of first paragraph with the following:

"The rate of application and the distribution of the beads on permanent road markings shall be sufficient to ensure that the specified retro-reflective requirements are met as specified, but shall not be less than 0,34 kg/m² of marking."

Delete the second paragraph.

Add the following:

"Beads shall be applied in accordance with SANS 51424 (EN 1424)."

B5709 ROADSTUDS

Add the words: "or as instructed by the Engineer" in the first sentence after the words "as shown on the drawings".

Add the following:

"Where applicable, the *Contractor* shall remove existing roadstuds from the road surface as instructed by the Engineer. Wedges shall be driven in from four sides between the road surface and the roadstud that has to be removed. Where the roadstuds to be removed have been cored into the existing surface the *Contractor* shall propose an acceptable method of removing the existing studs or rendering them ineffective prior to the replacement thereof. The *Contractor* shall take the necessary measures to protect the road surface, the Works and the safety of persons when roadstuds are removed."

Add the following after the second paragraph:

"The final roadstuds shall be installed immediately after the full length of a particular construction zone has received an overlay. The *Contractor* will not be permitted to occupy a new construction zone before the final roadstuds for the current construction zone have not been installed."

Replace the last paragraph with the following:

"Temporary roadstuds shall be installed on a daily basis on all road sections where pre-treatment work has been carried out. The roadstuds shall be installed at the end of each working shift and installation shall be completed before the road is opened to traffic. The *Contractor* shall maintain the temporary roadstuds in position until the road sections receive the final overlay. The *Contractor* shall remove the temporary roadstuds from the pre-treated road surface prior to the construction of the overlay."

B5710 TOLERANCES

(c) Alignment of markings

Add the following paragraphs:

"When an unbroken line and a broken line are painted alongside each other, the beginning and the end of the unbroken lane shall coincide with the beginning of one (1) broken line and the end of another broken line. When existing lines are repainted, the new markings shall not

deviate more than 100 mm in the longitudinal direction or 10 mm in the transverse direction from the existing marking.

The alignment of the roadstuds shall not deviate from the true alignment by more than 10 mm and shall be positioned so that the reflective faces are within 5 degrees of a right angle of the centre line of the road."

Add the following subclause:

"(e) Testing

(1) Plant

Before painting any permanent road markings, the *Contractor* shall satisfy himself and the Engineer, by painting test lines on a section of pavement other than the section required to be marked:

- (i) that the painting machine is in good working order and properly adjusted;
- (ii) that the operator is fully experienced; and
- (iii) that the machine sprays at the specified rate of paint application.

The *Contractor* shall bear the cost of all materials and workmanship required for the above plant tests.

In addition, the *Contractor* shall conduct random paint thickness tests and dip/spread tests as required by the Engineer."

B5711 GENERAL

Insert the following into the last sentence of the last paragraph between "black paint" and "or chemical paint remover":

", bituminous emulsion, slurry"

Add the following to the last paragraph:

"Where black paint is used, it shall be matt."

Add the following paragraphs:

"The Contractor shall provide all material and equipment for the construction of trial sections, to enable any necessary adjustment to his road-marking process according to prevailing conditions. Trial sections may be constructed on the sections required to be marked on the

written approval of the Engineer for each and every trial section constructed. The costs of all trial sections, including traffic accommodation measures, and removal of/or reconstruction of unacceptable markings, shall be borne by the *Contractor*. No additional payment shall be made for trial sections, and the costs thereof are deemed to be included in the tender rates.

The *Contractor* shall provide temporary traffic control facilities in accordance with Section 1500 of the COLTO's standard specifications for road and bridge works to ensure traffic safety where work is being executed.

Property and/or road signs damaged by the *Contractor*, his personnel, his agents or Subcontractors shall be repaired or restored to their condition prior to the damage at his own cost."

B5712 FAULTY WORKMANSHIP OR MATERIALS

Add the following paragraphs:

"Should less than 95% of the road markings comply with the specified coefficient of retro-reflected luminance when measured in accordance with SANS 6261 at a 5% sample level, the *Contractor* shall repaint the works at his own cost.

The *Contractor* shall rectify in an acceptable manner and at his own costs; all markings that do not comply with the specified requirements.

While work is in progress, tests shall be carried out on materials and/or the quality of work to ensure compliance with the specified requirements. The sampling methods are specified in SANS 731-2. The sampling methods described in TMH5 shall be followed where applicable.

Should it be clear prior to any of the inspections that the road markings would not meet the required level of performance at the inspection dates, the *Contractor* may use his discretion to apply appropriate remedial actions to rectify the shortcomings after getting approval from the Engineer for such remedial, approval which would not be unreasonably withheld. The cost for traffic accommodation provisions shall be borne by the *Contractor*. The remedial works shall be done in a way that would complement the road markings which are deemed to be substandard, in such a way that the specified end product would be achieved without any further remedial work.

All remedial works required for the reinstatement of the Works shall commence within fourteen (14) days of the date determined by the Engineer, and shall be completed by the date determined by the Engineer, after which penalties for delay may be applied.

No additional payment, other than that specified in the Contract, shall be made if any portion of the Works is found to exceed the specifications in any respect, or for any benefits accruing as a result of any superior performance of the applied road markings."

B5713 PROTECTION

Add the following paragraph:

"Traffic cones shall not be smaller than 750 mm in height and shall be placed on the road not further than 36 m apart. Cones shall not be removed before the paint on the road has hardened to such an extent that it will not be damaged by traffic and the adhesive of the roadstuds has hardened to such an extent that the studs will not turn or become loose. All marks on the road caused by traffic driving over wet paint shall be removed by the *Contractor* at his own cost."

B5714 MEASUREMENT AND PAYMENT

Add the following note immediately after the heading of clause B5714 Measurement and Payment:

"Note:

The *Contractor* shall note that, notwithstanding the fact various payment items indicate that haul, overhaul and all associated items will be paid for separately, this shall not apply to this section. Payment for haul, overhaul and associated items will be made as specified in Section 1600."

Add the following clauses:

"B5715 REMOVAL OF EXISTING ROADSTUDS

The existing roadstuds shall be removed from the road surface prior to milling."

Amend the heading for payment item 57.03 as follows:

"Item	Unit

B57.03 Thermoplastic road-marking paint (<i>particulars stated</i>).....	kilometre (km)"

Add the following after the third paragraph:

"Full payment of the tendered rate will be applicable upon completion of the application of the road-marking paint. However, should the coefficient of retro-reflected luminance fall below the

required minimum levels as specified in clause B5702 above, payment will be reduced on the following sliding scale:

White lines:

- Below 250 mcd/m².lux at thirty (30) days : minus 10% of the tendered rate
- Below 200 down to 180 mcd/m².lux at six (6) months : minus 10% of the reduced rate
- Below 180 down to 160 mcd/m².lux at six (6) months : minus 20% of the reduced rate
- Below 160 down to 140 mcd/m².lux at six (6) months : minus 30% of the reduced rate

Yellow lines:

- Below 120 down at thirty (30) days : minus 20% of the tendered rate
- Below 100 down to 80 mcd/m².lux at six (6) months: minus 20% of the reduced rate

The reduction in the tendered rate applicable for failing to meet the specified minimum luminance level at the thirty (30) days and six (6) months measurement dates shall be applied accumulative in the certificate immediately following the date of measurement."

Item	Unit
B57.05 Roadstuds (type stated)	number (No)

Add the following after the first sentence of the second paragraph:

"No additional payment will be made should permanent roadstuds be replaced if lost or broken during construction or the Defects Date period."

Item	Unit
B57.06 Setting out and pre-marking the lines (excluding traffic-island markings, lettering and symbols)	kilometre (km)

Add the following paragraph:

"Referencing of existing road markings prior to milling and other operations shall be included in the tendered rate for setting out and pre-marking."

Amend the heading for payment item 57.07 as follows:

"Item	Unit
B57.07 Re-establishing the painting unit within 30 days before the Defects Date	number (No)"

In the fifth line of the first paragraph delete the words "at the end of the maintenance period" and replace with "within 30 days before the Defects Date".

Add the following payment item:

"Item"	Unit
B57.10 Cold plastic road-marking material:	
(a) White lettering and symbols	square metre (m ²)
(b) Yellow lettering and symbols	square metre (m ²)
(c) Transverse lines, painted island and arrestor bed markings (any colour).....	square metre (m ²)

The unit of measurement for applying the road-marking material for the lettering, symbols, transverse lines, islands and arrestor bed markings shall be the square metre, and the quantity to be paid for shall be the actual surface area of the lettering, symbols, transverse lines, islands and arrestor bed markings, completed in accordance with the instructions of the Engineer.

The tendered rate per square metre for applying the road-marking material shall include full compensation for procuring and furnishing all material, including the retro-reflective beads and all necessary equipment, and for applying, protecting and maintenance as specified, including the setting out of lettering, symbols, transverse lines, islands and arrestor bed markings."

SECTION B5900: FINISHING THE ROAD AND ROAD RESERVE AND TREATING OLD ROADS

B5901 SCOPE

This section covers the final finishing and cleaning up of the road and road reserve after construction, and scarifying and treating of old roads and temporary deviations.

The *Contractor* shall note that this section does not cover the finishing which has to be done under section 1700: Clearing and Grubbing, section 3100: Borrow Materials, Section 3300: Mass Earthworks and section 5800 Landscaping and planting plants.

B5902 FINISHING THE ROAD AND ROAD RESERVE

Retain the existing paragraphs as a new subclause:

"(a) New construction"

Replace the sixth paragraph with the following:

"All materials resulting from the finishing operations shall be disposed of at approved spoil sites provided by the *Contractor* in accordance with the Environmental Management Plan."

Add the following subclause:

"(b) Renewal construction"

After completing construction work within the Site, the *Contractor* shall ensure that all construction generated or related material that may have been swept, windrowed, stockpiled, stored or spread beyond the road surface is removed. This shall be done before any other rehabilitation work is undertaken, including shaping, topsoiling and grassing. Should, during the removal of construction generated or related material, existing vegetation or topsoil be disturbed or destroyed, the *Contractor* shall, at his own cost, reinstate the road reserve to its original state. This shall include ripping, should the construction material have compacted the existing surface.

Culvert inlets and outlets, culvert barrels, and open drains shall be cleared of debris, soil, silt and other material generated from the construction activities.

The surfacing shall be cleared of all dirt, mud and foreign objects. Dragging, pushing or scraping material across the finished surfacing shall not be permitted.

All junctions, intersections, islands, kerbing and other elements making up the completed Works shall be neatly finished off.

The *Contractor* shall ensure that all undesirable plants have been removed from the road reserve and borrow-pit areas.

All materials resulting from the finishing operations shall be disposed of at approved spoil sites provided by the *Contractor* in accordance with the Environmental Management Plan."

B5904 MEASUREMENT AND PAYMENT

Add the following note directly after the clause heading:

"Note:

The *Contractor* shall note that, notwithstanding the fact that various payment items indicate that haul, overhaul and all associated items will be paid for separately, this shall not apply to this section. Payment for haul, overhaul and associated items will be made as specified in Section 1600."

Item	Unit

B59.01 Finishing the road and road reserve

Replace subitem B59.01(b) with the following:

"(b) Single carriageway road:

(i) Roads with concrete surfacing kilometre (km)

SECTION B6100: FOUNDATIONS FOR STRUCTURES

B6101 SCOPE

Add the following:

"This section also covers the excavation for retaining walls adjacent to roads where limited space is available. It also covers the excavation for retaining structures in line with stormwater channels that are measured under Series 6000."

B6103 GENERAL

(a) Subsurface data

Add the following paragraph:

"It is expressly understood that, while all subsurface information is given in good faith, the correctness of the information furnished is not guaranteed. Where the actual foundation conditions encountered are considerably at variance with conditions visualised and described in the Contract documents and those items for which the rate or price provided for in the Contract is rendered unreasonable or inapplicable, such other rate or price consistent with the rates set out in the Contract shall be fixed as set out in accordance with the Conditions of Contract, subject always to a founding depth variation not exceeding 2,0 m in any foundation component (except for piling depth) of the permanent structure not, by itself, being held to constitute cause for variation for the Contract rates or prices."

B6104 ACCESS AND DRAINAGE

(a) General

In the second and last lines of the first paragraph replace the word "excavations" with "excavations and working areas".

(c) Drainage

In the third line of the first paragraph replace the word "excavations" with "excavations and working areas".

Add the following paragraph:

"Where dewatering and keeping dry of excavations has not been billed separately as per payment item 61.03. Access and drainage, it shall be deemed to be included in the rates tendered and paid for excavation and backfill."

B6105 EXCAVATION

(g) The safety of excavations

Add the following paragraph:

"The design for shoring, signing of the drawings and inspection prior to construction of the permanent works of excavations to ensure it is safe shall be undertaken by the *Contractor's* competent person, who shall be a professional Engineer with the relevant experience. The *Contractor* shall ensure that all temporary works undertaken shall comply with the relevant sections of the Occupational Health and Safety Act and the Construction Regulations."

B6108 BACKFILL AND FILL NEAR STRUCTURES

(d) Fill within restricted area

Add the following paragraph:

"In the immediate vicinity of any structural concrete only hand-operated mechanical compaction equipment shall be used to achieve the specified density."

B6109 FOUNDATION FILL

Add the following to the third paragraph:

"The extent of the foundation fill to be constructed will be indicated by the Engineer in writing. The granular material shall meet the requirements of a Type G7 material according to Table 3402/2."

Replace "60" with "45" in the seventh line of the fifth paragraph.

Add the following after the sixth paragraph:

"Concrete blinding shall extend 100 mm all round beyond the horizontal dimensions of all formed footings to facilitate placing of the formwork, unless otherwise directed by the Engineer.

In the case of structures where excessive ground water is encountered, the blinding layer shall extend over the full plan area of the base of the excavation and beyond the edge of the foundation where required. Payment shall be made for the quantity of concrete calculated as the product of the specified thickness of blinding layer and the actual area of blinding placed subject to a maximum distance of 500 mm beyond the edge of the foundation."

B6115 MEASUREMENT AND PAYMENT

Add the following note immediately after the clause heading:

"Note:

The *Contractor* shall note that, notwithstanding the fact that various payment items indicate that haul, overhaul and all associated items will be paid for separately, this shall not apply to this section. Payment for haul, overhaul and associated items will be made as specified in Section 1600."

Item

Unit

B61.02 Excavation:

Delete the following words in the second last paragraph:

"the hauling of excavated material for the free-haul distance of 1,0 km,"

Add the following sentence at the end of the same paragraph:

"The haulage and disposal of excavated material to an approved spoil site shall be deemed to be included in the tendered rates, irrespective of the hauling distance."

Item

Unit

B61.04 Backfill to excavations utilising:

- (a) Material from the excavation cubic metre (m³)
- (b) Imported material.....cubic metre (m³)
- (c) Soil cement cubic metre (m³)

Delete the following words in the last paragraph:

... "transporting the material within the free-haul distance of 1,0 km," ...

Add the following sentence at the end of the same paragraph:

"The transportation of backfill material shall be deemed to be included in the tendered rates, irrespective of the hauling distance."

SECTION B6200: FALSEWORK, FORMWORK AND CONCRETE FINISH

B6204 DESIGN

(a) Formwork

Add the following paragraph:

"The height to which formwork for piers, walls and abutments may be erected at any one time shall be subject to the approval of the Engineer."

B6205 CONSTRUCTION

(b) Formwork

(i) General

Add the following:

"Formwork to faces of structures with a gradient equal to or greater than ten (10) vertical to one (1) horizontal shall be classified as vertical formwork.

Formwork to faces of structures with a gradient of less than ten (10) vertical to one (1) horizontal, or equal to or greater than one (1) vertical to ten (10) horizontal, shall be classified as inclined formwork.

Formwork to faces of structures with a gradient of less than one (1) vertical to ten (10) horizontal shall be classified as horizontal formwork."

SECTION B6300: STEEL REINFORCEMENT FOR STRUCTURES

B6302 MATERIALS

(a) Steel bars

Replace the following:

"SABS 920" with "SANS 920: 2011"

Replace the following:

"SABS 82" with "SANS 282: 2011"

(b) Welded Steel fabric

Replace the following:

"SABS 1024" with "SANS 1024: 2012"

(c) Mechanical couplers

Replace the following:

"SABS 920" with "SANS 920: 2011"

B6304 BENDING THE REINFORCING STEEL

Replace the following:

"SABS 82" with "SANS 282: 2011"

SECTION B6400: CONCRETE FOR STRUCTURES

B6401 SCOPE

Add the following paragraph:

"The *Contractor* shall take and submit samples of materials and/or mixtures to the Engineer who must approve mix designs before construction work can commence."

B6402 MATERIALS

(a) Cement

Replace the colon at the end of the first paragraph with a comma, and add the following:

"taking into account the adoption of the new SANS 50197-1:2013, Part 1: Composition, specifications and conformity criteria for common cements (refer to C&CI website www.cnci.org.za)"

Add the following new paragraphs:

"The type of cement to be used in any concrete element shall take into account the environmental conditions and durability requirements at the location of the Site of the Works, and shall be as approved by the Engineer.

With the exception of the standard SANS approved cement blends supplied by the primary cement producers, the blending of CEM I and extenders shall not be permitted unless specifically approved by the Engineer on the basis of an acceptable quality assurance procedure."

(b) Aggregates

Replace the following:

"SABS 1083" with "SANS 1083: 2018"

In subclause B6402(b)(i)(2) replace the remainder of the sentence after "exceed" with the following:

"200% and of the coarse aggregate 175% of that of the reference norite aggregate or any of the other three (3) reference aggregates."

In the first paragraph of subclause B6402(b)(i)(3) replace the remainder of the sentence after "exceed" with the following:

"235% of that of the reference norite aggregate or any of the other three (3) reference aggregates."

Delete the entire last paragraph of subclause B6402(b)(i)(3) commencing with "The drying shrinkage of concrete ..."

Replace subclause B6402(b)(iv) with the following:

"The particular combination of aggregate and cement shall be tested for potential alkali aggregate reactivity in accordance with the test method as described in subclause 8105(f) and, where the results point to such reaction, either the aggregate or the cement, or both shall be replaced so that an acceptable combination may be obtained."

Add the following subclauses:

- "(vi) The maximum chloride ion content of fine aggregate shall be 0,03% by mass of aggregate as measured by SANS 1083:2018. Where concrete is situated in a chloride environment, the value shall be reduced from 0,03% to 0,01%.
- (vii) In addition to SANS 1083:2018 grading requirements for fine aggregates, the grading of the approved sand shall be such that between 25% and 35% by mass shall pass the 300 µm sieve. Sands that do not comply with this requirement will have to be blended with an approved fine sand in order to achieve the requirement.
- (viii) The aggregate shall have a wet 10% FACT value of at least 75% of that of the determined dry value (SANS 1083:2018)."

(d) Water

Add the following:

"Water for concrete other than prestressed concrete, shall not contain chlorides, calculated as sodium chloride, in excess of three thousand parts per million (3 000 ppm) nor sulphates, calculated as sodium sulphate, in excess of two thousand parts per million (2 000 ppm).

Water for curing concrete shall not contain impurities in sufficient amount to cause discolouration of the concrete or produce etching of the surface.

No seawater or water containing salts shall be used.

No water shall be added on site to ready-mixed concrete prior to placing to improve workability. All concrete delivered to site shall be checked for workability using the slump cone test and slump measured outside the limit set from the design mix shall be rejected."

(e) Admixtures

Add the following subclauses:

- "(v) Admixtures, which have a retarding effect on the rate of hydration of the cement, may not be used when the concrete temperature is below 20 °C.
- (vi) A retarding admixture shall be used if temperatures of concrete mixes using cements of strength class 42,5 or higher are between 20 °C and 30 °C or where the ambient temperatures are between 20 °C and 30 °C."

Add the following:

"Note: Only admixtures of the type that do not increase the water content of the mix will be considered by the Engineer. In addition, no admixtures shall be added on site to ready-mixed concrete prior to placing to improve workability."

B6403 STORING THE MATERIALS

(b) Aggregates

Add the following paragraph:

"The concrete surface of the storage bin shall be sloped at 1:50 from the centre towards the outside and then drained to prevent subsoil contamination and water ponding."

B6404 CONCRETE QUALITY

(a) General

Insert the following paragraph after the second paragraph:

"When structural concrete prefixed 'W' is shown on the drawings, it shall in addition to the strength requirement comply with the durability requirements specified in subclause B6404(h).

(b) Strength concrete

Add the following after the fifth paragraph:

"The minimum cement content of structural concrete shall be 340 kg/m³, but for structures in contact with aggressive water the minimum cement content shall be 420 kg/m³."

Replace subclauses B6404(b)(ii) and B6404(b)(iii) of the seventh paragraph with the following:

"(ii) a characteristic cube compressive strength corresponding to all the relevant durability parameter requirements set out in subclause B6404(h), for a particular environmental type."

(e) Bleeding

Delete the existing paragraph and replace with the following:

"The concrete shall be proportioned with suitable materials that total bleeding does not exceed 0,3 mm/cm² as measured by ASTM C232-92."

Add the following new subclauses:

"(h) Concrete durability

(ii) Durability parameters

Water sorptivity: Sorptivity is sensitive to surface effects and may be used to assess the effectiveness of initial curing.

Oxygen permeability: Permeability is sensitive to changes in the coarse pore fraction and thus a means of assessing compaction of concrete. It is used to quantify the microstructure of the concrete and sensitive to macro-defects such as voids and cracking.

Chloride conductivity: Chloride conductivity provides a method of characterisation of concretes in the marine environment and is used to assess the chloride resistance of concrete.

Cover concrete: Cover concrete is the outer concrete layer that protects reinforcing steel. Concrete cover is a requirement for all concrete whether specified as durability concrete (Class 'W') or normal reinforced concrete.

Individual cover depth Individual cover depth measurement determined

measurement (CDM): by an electromagnetic cover meter, complying with BS 1881, Part 204.

Average cover:	The average of at least thirty (30) individual CDMs per square metre determined on a clearly identified area.
Overall cover:	The mean average cover determined for the scanned area per structure.
Scan area:	Areas of approximately 1,0 m ² , randomly distributed over the entire structure, representing at least 5% of total surface area for that structure.
Individual bar reading:	A minimum of three (3) linear CDMs, spaced at 100 mm intervals, representing a single bar of reinforcement.
Capped CDM:	The value applied to all CDMs in excess of the maximum allowed CDM, determined by the Engineer (e.g. 40 mm (specified cover) + 15 mm (upper limit) = 55 mm) or
Capped value:	A value in millimetre (mm), assigned to a cover reading where the raw reading exceeds the specified cover, plus a value (mm) specified by the Engineer.
Quick/Linear scan:	For evaluation of cover depth measurements taken perpendicular to closest rebar in a line covering required area to be scanned.
Image/Block/Grid scan:	Provides an overview of rebar layout. Measurements taken over a square metre clearly indicating position of first and second layer of rebar.
Notes:	
1.	Water sorptivity and oxygen permeability tests are required to assess carbonation resistance.
2.	Water sorptivity, permeability and chloride conductivity tests are required to assess chloride resistance.
Concrete cover:	Concrete cover is a dimensional indicator of cover concrete depth and it varies according to the requirements of the different environmental exposure classes.

When tested in accordance with the test protocols described in clause 8106 for each potential durability parameter, the concrete shall meet the limits listed in Table B6404/4 and Table B6404/6.

(iii) Cement content

In order to meet the durability criteria, the proportions of cementitious binder used shall be determined to suit the fine and coarse aggregate and cement type used in order to achieve the durability limits specified in Table B6404/4 and Table B6404/6 under the Acceptance Category of 'Concrete made, cured and tested in the laboratory'.

In order to avoid the possibility of alkali silica reaction (ASR), the following shall be taken into account when designing the mixes:

1. Where the cementitious contents is less than 350 kg/m^3 , the maximum equivalent sodium monoxide content (calculated as Na_2O) permitted shall be 0,60%, unless a test certificate from the CSIR (Built Environment) is provided stating that the long-term testing has proved the aggregate to be non-reactive.
2. Where the cement content exceeds 350 kg/m^3 , the maximum equivalent sodium monoxide content permitted shall be 2,1 kg/m^3 of concrete.
3. Where potentially reactive aggregate is used, the maximum cement content shall be 400 kg/m^3 and the equivalent sodium oxide (Na_2O) content permitted shall be 2,4 kg/m^3 of concrete.
4. The *Contractor* shall prior to the use of cement provide test certificates from an approved laboratory confirming the equivalent sodium oxide (Na_2O) content of the batch of cement to be used.
5. Special literature should be consulted, e.g. *Fulton's Concrete Technology*.

(iv) Environmental Classes of Exposure

For this project, the environmental classes for carbonation and chloride exposure for the different structural elements are shown in Table B6404/3.

TABLE B6404/3: ENVIRONMENTAL CLASSES OF EXPOSURE FOR ELEMENTS OF STRUCTURE

ELEMENT	CARBONATION ENVIRONMENT (OPI)	CHLORIDE ENVIRONMENT (CHLORIDE CONDUCTIVITY)
Foundations	N/A	XS1
Substructures	XC3	XS1
Superstructures	XC3	XS1

(v) Acceptance ranges

TABLE B6404/4: DURABILITY PARAMETERS' ACCEPTANCE RANGES

ACCEPTANCE CATEGORY	TEST NO./DESCRIPTION/UNIT				
	WATER SORPTIVITY (mm/h)	OXYGEN PERMEABILITY (LOG SCALE)			
		PARAPETS	SUB-STRUCTURES	SUPER-STRUCTURE	ETC. FOR OTHER MEMBERS
Concrete made, cured and tested in the laboratory using trial panels	< 10,0	> a*	> c*	> e*	> g*
Full acceptance of in situ using test panels	< 10,0	> a*	> c*	> e*	> g*
Conditional acceptance of in situ concrete based on results of test panels	Not applicable ²	b* - a*	d* - c*	f* - e*	h* - g*

Rejection based on results of test panels	Not applicable ²	< b*	< d*	< f*	< h*

Note:

- ¹ A value has been given, but the value to be adopted shall be based on the results from the design mixes.
- ² Although no value has been given due to ongoing research, values above twelve (12) are regarded as poor quality concrete.
- ³ For purposes of interpretation, substructure is deemed to be all supporting elements below the deck (superstructure), including buried lengths of columns, etc, but excluding foundation elements like bases and spread footings.

Chloride index testing is required where specified by the Engineer. The maximum water:binder (only blended binders omitted) content of concrete used in the XS environment classes shall be 0,55.

Chloride conductivity testing shall be used for materials selection and design of mixes in aggressive chloride conditions. It will therefore only be used as a check on mix designs during the initial stages of construction (based on trial panels) and on the test panels constructed as described in subclause B6404(i). Testing shall be undertaken during the construction as described in subclause B8106(i).

Where a cement blend is used which is different from that given in Table B6404/5, the appropriate limits shall be discussed with the Engineer for approval.

TABLE B6404/5: APPROPRIATE LIMITS FOR CHLORIDE CONDUCTIVITY

(mS/cm) (For a range of possible cement blends with a minimum cover of 50 mm)

ENV CLASS	70:30 CEM I : FA	50:50 CEM I : GGBS	50:50 CEM I : GGCS	90:10 CEM I : CSF
XS 1	Provide value	Provide value	Provide value	Provide value
XS 2a	Provide value	Provide value	Provide value	Provide value
XS 2b, XS 3a	Provide value	Provide value	Provide value	Provide value
XS 3b	Provide value	Provide value	Provide value	Provide value

FA = Fly-ash, GGBS = Ground granulated blast furnace slag, GGCS = Ground granulated corex slag, CSF = Condensed silica fume

Notes:

1. Table B6404/5 only shows typical blends of cements with appropriate chloride conductivity values. These are minimum values to be achieved in the as-built structure. Cement blends used under the Contract that differ from these must be tested in the laboratory to obtain appropriate values.
2. Acceptable cement blends shall be as approved by the design engineer.

TABLE B6404/6: DURABILITY PARAMETERS' ACCEPTANCE RANGES: COVER FOR ALL CONCRETE TYPES

TEST NO.	DESCRIPTION OF TEST (mm)	SPECIFIED COVER (mm)	ACCEPTANCE RANGE	
			MIN.	MAX.
			OVERALL COVER	OVERALL COVER
8106(g)(iv)	Concrete cover to reinforcement	30 - 80	85% of specified cover - 5,0 mm	Specified cover + 15 mm or where member depth is less than 300 mm the limit accepted in writing by design engineer.

(vi) Site testing

To ensure that the concrete has been placed, compacted and cured correctly, a number of tests shall be carried out on the concrete by an approved laboratory.

(vii) Non-compliance with specified criteria

The *Contractor* should also note that there is specific provision made for curing of concrete under payment item B64.07 of the project specification. The amount priced under this item will be subject to reduced payments should the durability tests indicated under subclause B8106(h) fail to meet the required targets. Similarly, failure to achieve the required durability test results will be sufficient cause to apply partial payment factors for all the payment items of the elements

of the structure under Section 6300 and Section 6400 of the standard and project specifications or in some cases the removal of the rejected concrete."

Add the following subclauses:

"(i) Mix design approval procedures

(i) General

The compressive strength achieved on Class 'W' concrete shall generally exceed the characteristic strength class structurally required. The *Contractor* shall note that the process of finalising Class 'W' mix designs could take up to two (2) months. In order to expedite the process, the *Contractor* shall submit samples of aggregate and cement to an approved laboratory within seven (7) days of the commencement date. Should Class 'W' concrete be required before the mix design is finalised, the Engineer will approve a preliminary mix design in consultation with the *Contractor*.

(ii) Laboratory designs and site tests, based on trial panels

Good mix design practice is essential and the following criteria shall be taken into consideration when pricing and determination of the mix design:

- (1) Selection of sands and aggregates to achieve a good grading is important if the desirable concrete density and durability are to be achieved.
- (2) The selection and use of the correct cement grade and type for the environmental conditions (and not based solely on costs) is fundamental.
- (3) Water:cement ratios are critical, dictating both the structural strength and the durability requirements.

Mix proportions for the concrete to be used on site need to be determined by an approved laboratory. Cylindrical specimens, $70 \pm 2,0$ mm in diameter, shall be made or cored from a trial panel during the laboratory trial mix for performance of tests. Refer to subclause B8106(g) if required.

Note that concrete cubes are not cored for durability testing during the design trial mix stage or during the construction stage.

Testing for approval purposes shall be carried out by an accredited laboratory approved by the Engineer, the costs of which are deemed to be included in the *Contractor's* rates for structural concrete. Concrete as designed shall satisfy the limits set out in Table B6404/4 under the

heading 'Concrete made, cured and tested in the laboratory, using trial panels'. It is therefore a requirement that the trial panels be cast on the Site and the cores extracted and tested in the laboratory as part of the mix design approval process. Where the Site is remote from the laboratory, the trial panels may be cast at the laboratory in accordance with the requirements of subclause B8106(g).

It will be necessary for the *Contractor* to establish a target mean strength with a margin above the minimum requirement so that small fluctuations due to material changes or workmanship can be accommodated. In general, mean target strength = characteristic strength + $1,645 \times S_n$.

Once the mix is approved, the target mean compressive strength for quality control purposes for durability-class concrete shall be the mean compressive strength obtained from the mix that satisfies the durability requirements."

B6406 MIXING

(a) General

Add the following sentence:

"Volume batching will not be permitted."

B6407 PLACING AND COMPACTING

(a) General

Add the following paragraph:

"Bridge decks shall be cast in sections as indicated on the drawings or as approved by the Engineer."

(b) Placing

Add the following paragraph after the last paragraph:

"Casting of the balustrades/in situ parapets or placing precast parapets shall only commence after removal of the deck staging, and in addition, in the case of prestressed decks, the stressing must be complete. Where specified on the drawings, the top of the balustrades/parapets after placing shall follow the pre-camber levels specified on the drawings to allow for future creep effects. This is of particular importance on the edges of very long skew decks and prestressed

simply supported decks. The levels of the top rail of each panel of the balustrades/parapets shall be confirmed in writing by the design engineer."

B6408 CONSTRUCTION JOINTS

(a) General

Add the following:

"No construction joints other than those indicated on the drawings will be permitted without the written approval of the Engineer. In all cases the proposed method of forming the joint shall be discussed and agreed with the Engineer."

Add the following subclause:

"(d) Construction joints in bridge structures

(i) Horizontal construction joints in substructures

Horizontal construction joints in substructures at positions different to those proposed on the drawings, necessitated by the method of construction employed by the *Contractor*, will be allowed subject to the prior written approval of the Engineer.

(ii) Vertical construction joints

Vertical construction joints in the bridge deck will only be allowed in special circumstances and will be subject to the approval of the Engineer."

B6409 CURING AND PROTECTION

Add the following to the end of subclause B6409(f):

"Where a curing compound is used, it shall consist of an approved water-based low-viscosity clear wax emulsion, applied in accordance with the manufacturer's instructions."

Add the following paragraphs to the end of the clause:

"Where curing by retention of formwork is used as the only method of curing the concrete, it must be left in place for the minimum period specified in Table 6206/1 but in no instance shall it be less than seven (7) days.

The materials used for formwork shall take into account properties such as thermal insulation and moisture absorption when assessing the suitability of the material, to the approval of the Engineer.

If impermeable curing membranes are to be used as a curing method, they shall be installed at the same time as formwork is removed and no portion of a concrete surface may be left unprotected for a period in excess of 2 hours. If the surface is an unformed finish e.g. top of deck slab, then the surface must be protected immediately by appropriate methods approved by the Engineer after it is finished, without damage to that surface, since it is vulnerable to plastic shrinkage cracking due to high rates of evaporation while the concrete is still in a plastic state. Plastic shrinkage and settlement shall not be permitted on any of the structural elements since it compromises the durability of the concrete. In order to prevent early settlement and shrinkage of the concrete, the concrete placed shall be vibrated after initial compaction while the concrete is still in a plastic state. Any remedial measures shall be as approved in writing by the Engineer. On bridge decks, the top surface shall be cured using the method described in subclause 6409(d), i.e. constantly spraying the entire area of exposed surfaces with water.

For all concrete, curing shall be excluded from the make-up of rates for measurement under payment items B64.01 and 64.02 and will be paid for separately under payment item B64.07. Where the application of a curing compound is used, the type and nominal application rate thereof shall be as specified in the schedule of quantities or to the manufacturer's nominal specified rates."

B6410 ADVERSE WEATHER

Add the following new subclause:

"(d) Temperature and hydration of concrete

Site batched concrete: The temperature of concrete delivered to site shall be within the range 10 °C to 30 °C. Concrete which has a temperature outside of this range shall not be placed in the structure.

In the case of ready-mixed concrete the temperature limits at point of delivery shall be as specified in SANS 878 unless the Engineer has specified other limits due to specific design requirements. If slump loss occurs at concrete temperatures of over 30 °C and more than 2 hours after mixing, the concrete shall be rejected. Also if after addition of allowed water the concrete begins to stiffen again such as to place in doubt that full compaction and finishing can be achieved, the concrete shall be rejected. Care must also be taken not to cast concrete onto hot steel shutters as this might induce cracking.

The rate of hydration of the cement in the concrete shall be such that the concrete can be placed and properly compacted within 2 hours after the addition of water to the mix ingredients.

The initial set of the concrete shall not be unduly delayed due to inappropriateness of admixtures or cement type, which could promote bleeding."

B6414 QUALITY OF MATERIALS AND WORKMANSHIP

(a) Criteria for compliance with the requirements

Add the following paragraphs after the first paragraph:

"The cores shall be taken from the trial panels cast using the design mixes made in the laboratory. Where the Site is remote from the laboratory, the trial panels may be cast at the laboratory in accordance with the requirements of subclause B8106(g).

In the event that for Class 'W' concrete strength requirements the actual achieved average cube strengths of an element are less than 85% of the target mean strength needed to meet durability requirements or less than 100% of the target mean strength to meet strength requirements, it may result in the durability parameters not meeting the prescribed targets and the Engineer will instruct the taking of cores from the test panel and structure for additional testing. The cost of these in situ tests shall be borne by the *Contractor* cost.

The approved quality control criteria for process control testing for durability concrete shall be coring and testing of test panels. The frequency of manufacture and coring of test panels shall be as ordered by the Engineer and indicated in Table B8106/1 and Table B8106/2.

Tests numbers B8106(g) (when required), shall be conducted on cores extracted from the test panels when the concrete reaches the age of at least twenty-eight (28) days. To allow for variability in the material potential, the type of chloride conductivity values shall be limited to 90% of the values indicated in Table B6404/5. Test no. B8106(g) shall be conducted to confirm that the specified depth of concrete cover has been achieved. The frequency of these tests shall be as described under subclause B8106(g). The test results shall be accepted or rejected on the criteria set out in Table B6404/4 and Table B6404/5 based on the following categories:

(i) Full acceptance

Concrete shall be accepted unconditionally and full payment shall be made.

(ii) Conditional acceptance

Concrete may be accepted, based on the cube strength and durability index results with a warning that construction methods be examined to improve the durability criteria. A reduced payment shall be applied to all the relevant payment items of the specific element under Section

B6300 where the cover requirements are not achieved and Section B6400 where the oxygen permeability and strength requirements are not achieved for the non-conforming element or concrete pour as set out in Table B8212/1 and Table B8212/2. The decision to accept the substandard concrete at reduced payment shall rest solely with the Employer.

Should the test result(s) indicate conditional acceptance of the element tested, the *Contractor* shall have the option of carrying out additional tests (on four (4) extracted cores) on that element of the structure, at his own expense to confirm or disapprove the original test result(s). These cores shall be extracted within fifty-six (56) days from the date of the element being cast.

Should the additional test confirm the original test result, then the original test result shall serve to determine payment in accordance with Table B8212/1 and Table B8212/2.

Should the additional test show that the structure meets the targets, the penalty shall be halved.

(iii) Rejection

The concrete shall be removed and replaced with fresh concrete at the expense of the *Contractor*, as directed by the Engineer."

(b) Procedure in the event of non-compliance with the requirements

Replace subclause (i) with the following:

"The use of core testing for acceptance control shall be at the sole discretion of the Engineer and shall generally only be permitted where it can be proved that either the cube making, curing or testing procedure has contributed to poor cube test results.

Before the cores are drilled, the members concerned shall be cured and allowed to age twenty-eight (28) days, whereafter the cores shall be drilled and tested within seven (7) days. The concrete age shall thus not exceed thirty-five (35) days at the time of testing. Cores shall be drilled in accordance with SANS 5865, and the Engineer will evaluate these cores in accordance with SANS 10100 - Part 2."

Add the following new subclause:

"(iii) Structural concrete elements or concrete pours shall be represented by test cubes and extracted cores which shall be tested for strengths and the appropriate durability parameters. If the durability parameters are acceptable, the costs for such testing shall be borne by the Employer. However, where non-compliance to the specified

parameters has been identified, the assessed element shall be rejected and, at the Engineer's sole discretion, any of the following measures may be considered at the *Contractor's* expense:

- (aa) Coating with an approved product specifically designed to improve the non-conforming parameter depending on the severity of the test results
- (bb) Acceptance at reduced payments
- (cc) Demolition and rebuilding

Where the Engineer allows conditional acceptance, reduced payment shall be applied to all the relevant payment items under Section 6300 and Section 6400 for the non-conforming element or concrete pour according to the Table B8212/1."

Replace clause 6415 with the following:

"B6415 PARTIAL DEMOLITION AND EXTENSION OF EXISTING STRUCTURES

Where parts of existing structures have to be demolished (without extensions to these structures), these parts shall be cut to predetermined lines and levels. If the concrete is reinforced, the reinforcement shall be exposed and cut off at a depth giving the required cover, and the exposed face shall be restored as specified in clause 6408. The debris shall be removed and disposed of at approved dumping sites provided by the *Contractor*.

Where partial demolition is required for extension work to existing structures, the contact face shall be cut to predetermined lines and levels. Loose material shall be removed and disposed of at approved dumping sites provided by the *Contractor*. Projecting steel shall be cleaned and bent as directed by the Engineer.

Where extension work is required without partial demolition, the contact surface shall be roughened and cleaned of all dirt and loose particles.

If required, dowels shall be installed in holes drilled into the existing structure in accordance with the details on the drawings, and shall be secured by means of an approved epoxy resin grout.

New concrete shall be bonded to existing concrete with a cement paste or slurry or an approved epoxy resin slurry.

All such work shall be carried out without damaging the rest of the structure."

B6416 MEASUREMENT AND PAYMENT

Item	Unit

B64.01 Cast in situ concrete:

Amend the descriptions of subitems 64.01(a) and 64.01(b) to read as follows in the case of cast in situ durability concrete:

- "(a) Durability concrete (Class 'W'):
- (i) *(Indicate strength and part of structure and use)* cubic metre (m³)
- (ii) *(Etc. for other parts of structure)* cubic metre (m³)
- (b) Normal concrete:
- (i) *(Indicate part of structure and strength)*.....cubic metre (m³)
- (ii) *(Etc. for other parts of structure)* cubic metre (m³)"

In the case of cast in situ durability concrete, delete "curing and protecting the concrete," in the sixth line of the second payment paragraph.

Add the following paragraph after the second paragraph:

"Tenderers shall note that the strengths indicated above are to meet structural requirements only. In order for the durability criteria to be achieved, it may result in higher strengths being required. Target mean strengths to be achieved may therefore be higher than those shown above, as discussed under subclauses B6406(b) and B6404(h)(ii). All durability testing tests required for process control testing shall be included in the rate make-up for durability class concrete."

Add the following payment items

"Item	Unit

B64.07 Curing of concrete:

- (a) *(Indicate structural element and surface to be cured and method of curing)*..... square metre (m²)
- (b) *Etc. for various elements. (Method of curing)*..... square metre (m²)

The unit of measurement shall be the square metre of completed concrete element cured using an approved method specified in clause B6409 of the project specifications.

The tendered rates shall include full compensation for providing the curing agent and applying it to the fresh concrete surface by means of an approved pressure distributor (or other approved methods of application) in accordance with the manufacturer’s specified nominal rates of application. Wet fine mist spray curing is also permitted providing it is done for seven (7) days. Payment will also be made under this item if this is the preferred method to be used. Should no curing method be specified at time of tender then it will be assumed wet fine mist spray curing is to be done. Partial payment shall be applied in the event that the Engineer allows conditional acceptance.

Item	Unit
B64.08 Hot weather concreting	lump sum

The tendered lump sum shall include full compensation for all measures specified in subclause B6410(d) required to ensure that the temperature of the concrete placed will not exceed the temperature specified under subclause B6410(d) of these specifications.

Payment will be made pro rata to the quantity of all structural concrete, which is placed on the Contract. Payment will only be made if all the necessary measures are implemented to ensure that the concrete is placed at the temperature specified.

Item	Unit
B64.010 Supply and Place of Pre-Cast Bus Shelters	No

The tendered rate shall include full compensation for the procurement, delivery, placement and fixing of the pre-cast bus shelter units of length 1220mm each as specified on the drawings.

Each unit will be measure separately and payment will be made for complete placement and fixing of three units with bench and end partitions.

SECTION B6600:NO-FINES CONCRETE, JOINTS, BEARINGS, BOLT GROUPS FOR ELECTRIFICATION, AND PARAPETS AND DRAINAGE FOR STRUCTURES

B6601 SCOPE

Delete "and" in the fourth line of paragraph (e). Replace the full stop at the end of paragraph (f) with a semi-colon, and add the following:

- "(g) the installation of service ducts;
- (h) the construction of transition blocks and nose endings at balustrades;
- (i) the construction of brickwork, with or without plaster; and
- (j) the supply and installation of accessories."

B6603 JOINTS IN STRUCTURES

(a) Materials

- (i) General

Add the following after the last paragraph:

"It is a firm requirement that all contracts have **full** Agrément certification for bridge deck joints, with the target date for new applications for Agrément assessment one (1) year from receipt and acceptance by Agrément South Africa of each application. Proof of original acceptance of application by Agrément is required in such a case:

- (1) current Agrément assessments: 1 September 2010
- (2) new applications for Agrément assessment one (1) year from receipt and acceptance by Agrément South Africa of each application. Proof of original acceptance of application by Agrément is required in such a case."

- (iii) Sealants

Add the following:

"The silicone sealant required for sealing movement joints shall be Dow Corning 888, or similar approved."

(g) Installing the expansion joints

Add the following at the beginning of subclause B6603(g):

"All deck expansion joints shall be installed by approved specialist Subcontractors only. Installed deck expansion joints shall have the following guarantees:

Proprietary joints	-	15 years
Asphalt plug type joints	-	10 years
Concrete nosings (replacement)	-	10 years
Joint sealant	-	5 years

All deck expansion joints will only be considered for use on this Contract if the manufacturer has obtained Agrément certification. New applications for Agrément assessment take up to one year from receipt to acceptance by Agrément South Africa.

The specialist *Contractor* shall arrange for the attendance on the Site of the manufacturers or suppliers of the joint system in order to accept the installation in its entirety.

Where existing expansion joints have to be replaced, joints shall be formed as follows:

The previously laid surfacing or joint nosing shall be cut with a diamond saw to correspond with the specified width of the new nosing, and all material shall be removed from the nosing recess, as per instructions on the drawings, with the use of high-pressure water jetting. The use of percussion tools, if necessary, shall be kept to an absolute minimum.

Joint recesses within the sidewalks shall be constructed with formwork where required and the surfaces prepared as for the roadway joints."

Add the following subclause:

"(h) Joint protection plates

All joints to bridge and culvert earwings and wing walls included under this Contract are to receive metal protection plates on the earth face. This metal protection plate shall consist of a 300 mm wide 1,6 mm thick mild-steel sheet galvanized with a Class M coating in accordance with SANS 3575.

Cuts ends and small damaged areas shall be repaired by the application of zinc-rich paint, or by zinc spraying.

The protection plates are to be fixed centrally in place over the joints on the earth face with an appropriate epoxy adhesive, or with Hilti nails at 500 mm spacing on one side of the joint only."

B6604 BEARINGS FOR STRUCTURES

(e) Proprietary bearings

(i) General

Add the following to this clause:

"The technical data necessary to determine the size and type of the required bearing are shown on the drawings."

(v) Construction

Delete the final three (3) paragraphs of subclause B6604(e)(v)(7) and replace with the following:

"Applying two coats of epoxy MIO paint, with each coat a minimum of 75 micrometers of dry-film thickness and of a dark grey colour.

Applying a semi-gloss, acrylic polyurethane (2 pack) finish with a minimum of 50 micrometers of dry-film thickness and of light grey colour.

Surfaces in contact with concrete shall be sprayed with zinc, but not painted, so that it complies with the requirements of SANS 2063, Table 1 (Zn) minimum local thickness of 150 µm."

(vi) Inspection and testing

Replace the third paragraph with:

"The *Contractor* shall ensure that each individual bearing is available on site for inspection and approval by the Engineer at least seven (7) days before installation of the bearing.

The manufacture of bearing assemblies shall be strictly controlled and where directed, the *Contractor* shall arrange for load performance testing to be carried out on one randomly selected bearing of each size and type in a laboratory approved by the Engineer. Certified test certificates shall be submitted to the Engineer."

Add the following subclause:

"(vii) Rejection

Bearing components improperly manufactured or improperly stored, handled or transported such as to cause deterioration, corrosion or any damage harmful to the performance of such assemblies, or units failing the manufacturers' claimed properties or displaying test properties inconsistent with the specifications, will be rejected by the Engineer and on written notice of said

rejection, shall be removed immediately and permanently from the Site by the *Contractor*. Assemblies improperly installed will likewise be rejected and shall be rectified, failing which the assembly shall be removed and rebuilt by the *Contractor*, all to the satisfaction of the Engineer."

B6605 PARAPETS, RAILING AND SIDEWALKS

(f) Concrete surface finish requirements

Add the following:

"All formed concrete surfaces shall be coated with Nitocote SN 552, Dynasylan BH4, Wacker BS44 Protectosil 300 or similar approved coating in accordance with the manufacturer's instructions. The Engineer shall be present during the application of the material."

B6606 DRAINAGE FOR STRUCTURES

(a) Weep holes, drainage pipes and channelling

Add the following:

"Where indicated on the drawings, the drainage pipes behind retaining walls shall be laid on a 300 mm wide by 50 mm thick mortar bed consisting of 1 part cement and five parts sand."

(c) Synthetic-fibre filter fabric

Add the following:

"Drainage behind retaining walls and along culvert walls shall be facilitated by 325 mm wide strips of filter elements wrapped with synthetic-fibre filter fabric in accordance with the details on the drawings. The elements shall comprise Netlon DN1 Flownets (or an approved equivalent) wrapped with Grade 3 synthetic-fibre filter fabric (or an approved equivalent). The filter fabric edges shall overlap at least 75 mm and shall be secured by means of nylon thread with stitches not more than 25 mm apart."

Add the following clauses:

"B6609 SERVICE DUCTS IN BRIDGE DECKS AND APPROACH SLABS

Service ducts in bridge decks and approach slabs shall be fixed and cast into position in accordance with the requirements of clause 6411 and the details on the drawings.

The pipes and fittings used for the construction of ducting shall be rigid uPVC pipes and fittings with flexible rubber joints that comply with the requirements of SANS 967. The duct ends shall be provided with suitable conical wooden stoppers to prevent dirt and concrete from entering the ducts. Two (2) strands of 2,5 mm diameter galvanized steel wire shall be threaded through each

duct. The strands shall extend 2,0 m beyond each end and shall be firmly wedged in position with the wooden stoppers. Inspection eyes for the ducts shall be constructed in accordance with the details on the drawings.

B6610 BRICKWORK

Bricks shall be engineering bricks that comply with the requirements of SANS 227.

The limit for water absorption in the 24-hour immersion test shall be 8%.

Brickwork shall be built in English bond with a mortar consisting of one (1) part cement and six (6) parts sand, or in stretcher bond where the brickwork is 115 mm thick. It shall be well and regularly bonded without false headers. All bricks shall be unbroken, except where required as closers. Bricks shall be well wetted before laying and each brick shall be pressed into its bed to leave a finished joint not exceeding 10 mm in thickness. All joints shall be solidly filled with mortar, and joints for exposed faces shall be pointed as the work proceeds.

Pipes entering brickwork shall be thoroughly caulked into the wall and rendered with mortar.

B6611 PLASTER

When brickwork has to be plastered, all joints shall be well raked out and the brick face shall be thoroughly wetted before plaster is applied. The plaster shall not be less than 12 mm nor more than 20 mm thick. The plaster finish shall be smooth and even without visible trowel marks. The plaster shall be finished with a steel trowel. The plaster shall consist of one (1) part cement to four (4) parts approved fine sand. The plaster shall be cured for at least 48 hours.

B6612 ACCESSORIES

Accessories shall be supplied and/or manufactured and installed in accordance with the details on the drawings."

B6608 MEASUREMENT AND PAYMENT

Item	Unit
B66.04 Installation of proprietary expansion joints	metre (m)

Add the following to the end of the second paragraph:

"The tendered rate for subitems B66.04 shall also include for water test required to prove the joint. The water shall be ponded and maintained to a minimum depth of 150 mm above the top of the joint for a period of 1 hour each. Testing should follow the installation of the various



sections of joints to take advantage of the existing traffic accommodation and each test shall cover the length of each joint installed (generally half width of bridge)."

SECTION B7100: CONCRETE PAVEMENTS

B7101 SCOPE

Add the following:

"The section shall also cover the construction of the following concrete pavements:

- 100 to 150mm thick Lean Mix Concrete (LMC) subbase layers.
- 300mm thick Plain Jointed Concrete Pavement (PJCP) surfacing layers on the road ways.
- 100mm thick PJCP surfacing layers on the sidewalks."

B7102 MATERIALS

Add the following paragraph before subclause 7102(a):

"Materials shall comply with the requirements of Section 7100 except for the following additional amendments contained in this clause.

In order to avoid the possibility of Alkali Silica Reaction (ASR), the following shall be taken into account when designing the mixes:

- Where the cementitious contents are less than 350 kg/m³, the maximum equivalent sodium monoxide content (calculated as Na₂O) permitted shall be 0,60%, unless a test certificate from the CSIR (Built Environment) is provided stating that the long-term testing has proved the aggregate to be non-reactive.
- Where the cement content exceeds 350 kg/m³, the maximum equivalent sodium monoxide content permitted shall be 2,1 kg/m³ of concrete.
- Where potentially reactive aggregate is used, the maximum cement content shall be 400 kg/m³ and the equivalent sodium oxide (Na₂O) content permitted shall be 2,4 kg/m³ of concrete.
- The *Contractor* shall prior to the use of cement provide test certificates from an approved laboratory confirming the equivalent sodium oxide (Na₂O) content of the batch of cement to be used.
- Special literature should be consulted e.g. Fulton's Concrete Technology."

(a) Cement

Replace this subclause with the following:

"The cementitious materials used for concrete shall comply with the following standards:

- Cement shall comply with SANS 50197-1 (EN 197-1) with a strength class of 32,5 or greater, and a rate of strength gain N or greater.
- Cement shall hold valid certification in the form of a Letter of Authority issued as certified approval pursuant to the Compulsory Specification for cement published by Government Notice R.544. Masonry cement shall not be used. The cement type and class incorporated in the mix shall be appropriate to the type of pavement to be constructed and the placing, finishing and saw cutting constraints envisaged.
- Ground Granulated Blast Furnace Slag - SANS 55167-1
- Fly ash - SANS 50450-1

Blends of cement complying with SANS 50197-1 and supplementary cementitious materials complying with the above standards may be used subject to a maximum of 20 % of the total cementitious content.

In order to promote resource sustainability principles, cement shall have a maximum average carbon dioxide emission value of 925 kg CO₂e per ton, determined in accordance with the World Business Council for Sustainable Development Greenhouse Gas Protocol.

All cementitious materials shall be protected from moisture until used, and there shall be sufficient facilities to ensure that the cementitious materials to be used in the work are kept separate from each other and from other cementitious materials.

Where cementitious materials are stored in a silo, the silo must be emptied before using the silo for a different cementitious material. Blended cements with a percentage of SCM differing by more than 2 % shall be considered different cementitious materials.

The cementitious binder shall comprise either cement, complying with SANS 50197-1, or an approved site blend of such cement and supplementary cementitious materials that take appropriate cognisance of environmental conditions, durability and strength requirements. The site blending of cement with supplementary cementitious materials shall only be conducted on the basis of an acceptable quality assurance system approved by the Engineer."

(c) Aggregates for concrete

Add the following to the fifth paragraph:

"The nominal size of coarse aggregate for the different concrete pavement layers shall be as follows:

- 300 mm thick PJCP = 37.5 mm, plus one or more of the following: 19.0 mm, 13.2 mm, 9.5 mm.
- 100 to 150 mm LMC = 19.0 mm
- 100 mm thick PJCP = 19.0 mm"

Add the following new subclauses:

- "(ii) The maximum chloride iron content of the fine aggregate shall be 0,2% by mass of aggregate as measured by SANS 202.
- (iii) Aggregates from crushing of andesite shall not be used."

(e) Materials for joints

- (iii) Silicon sealants

Replace this subclause with the following:

"The cold-poured sealants used in joints and cracks shall be self-levelling silicone-rubber Dow Corning 890 SL or similar for widths less than 30 mm and Dow Corning 902 RC or similar for widths greater than 50 mm. The silicone sealant shall be a one-component material with low-modulus properties. The use of acid cure sealants shall not be permitted. Silicone joint sealant must be compatible with the surface it is applied to and have properties shown in the Table B7102.

TABLE: B7102

Property	Test method	Specification
Tensile stress, 150 % elongation, 7-day cure at 25°C ± 2°C and from 45 % to 55 % Relative Humidity	ASTM D 412 (Die C)	0,31 MPa max
Flow at 25°C ± 2°C with 15 % slope channel A	ASTM C 639	must not flow from channel
Extrusion rate through 3.18mm opening at 0.62 MPa at Material temperature - 18°C	ASTM C 603	min 75 g/min
Extrusion rate through 3.18mm opening at 0.62 MPa at Material temperature 38°C	ASTM C 603	max 250 g/min
Relative density /Specific gravity	ASTM D 792 Method A	1.01 to 1.51
Durometer hardness, at -18°C, Shore A, cured 7 days at 25°C ± 2°C	ASTM C 661	10 to 25
Ozone and UV resistance, after 5,000 hours	ASTM C 793	no chalking, cracking or bond loss
Tack-free at 25°C ± 2°C and 45 % to 55% Relative Humidity	ASTM C 679	less than 75 minutes
Elongation, 7 day cure at 25°C ± 2°C and 45 % to 55 % Relative Humidity	ASTM D 412 (Die C)	500 % min.
Set to Touch, at 25°C ± 2°C and 45 % to 55 % Relative Humidity	ASTM D 1640	Less than 75 minutes
Shelf Life, from date of shipment	—	6 months min.
Bond, to concrete mortar-concrete briquettes, air cured 7 days at 25°C ± 2°C	AASHTO T 132	0,34 MPa min
Movement capability and adhesion, 100 % extension at - 18°C after, air cured 7 days at 25°C ± 2°C, and followed by 7 days in water at 25°C ± 2°C	ASTM C 719	no adhesive or cohesive failure after 5 cycles
Colour		Grey

The *Contractor* shall submit a certificate, less than six months old, from an approved testing laboratory, certifying that the sealant conforms to all the specified requirements.

The silicone sealant shall be applied by means of pumping the sealant from a storage container by means of compressed air powered pumping equipment and applied to the joint slot by means of nozzles designed to ensure that the slot is filled with sealant as indicated on the drawings. Application of the sealant into the joint slot by hand shall not be permitted.

The application of the liquid sealant shall not be undertaken when the air temperature is 5 °C or below unless otherwise specified by the manufacturer. All joints shall be clean and dry before applying the sealant and the Engineer may inspect them."

(iv) Additional materials for silicon sealant

Add the following to this subclause:

"The back-up material (joint former) installed in the joints and cracks shall be of the closed-cell polyethylene foam type with a minimum density of 30 kg/m³, and shall be an approved brand subject to approval by the Engineer."

(g) Curing compound

Add the following before the first paragraph:

"The following curing compounds shall be used:

- On top of the LMC subbase: Wax emulsion curing compound complying with requirements as of ASTM C309.
- On top of PJCP surfaces: White-pigmented solvent resin-based curing compound"

Replace the first sentence with the following:

"The curing compound shall contain no water and comply with the requirements of ASTM C309, except that the water loss requirement be substituted with the efficiency-index and determined in accordance with BS 7542."

Add the following after "A recent certificate" in the first paragraph:

"...not older than 3 months..."

B7103 REQUIREMENTS IN RESPECT OF CONCRETE

(d) Specified strength

Replace the entire subclause with the following:

"The relationship between the 28-day cube compressive and the 28-day flexural of the 300 mm PJCP concrete shall be established by laboratory tests.

The specified compressive strength for the 300 mm PJCP shall be the highest of the following four values:

- (i) 40 MPa at 28 days; or
- (ii) $0,85 f_{c1}$ where f_{c1} is the 28-day compressive strength corresponding to a 28-day flexural strength of 5,2 MPa.
- (iii) $0,85 f_{c2}$, where f_{c2} is the 28-day compressive strength corresponding to a water: cement ratio of 0,53.
- (iv) $0,85 f_{c3}$, where f_{c3} is the 28-day compressive strength corresponding to a cement content of 320 kg/m³.

Where f_{c1} , f_{c2} and f_{c3} shall be the 28-day compressive strengths determined from laboratory mixes as prescribed in Clause 7104.

The minimum required 28-day specified compressive strength for the LMC and PJCP for the sidewalks shall be as indicated in the table below:

Pavement type	Compressive strength
100 to 150mm LMC	15MPa
100mm PJCP (sidewalks)	30MPa

“

B7104 DETERMINING THE MIX PROPORTIONS

(b) Preliminary tests

Change subclause B7104(b)(ii) to read as follows:

"The relationship between 3-day, 7-day and 28-day flexural strengths of the concrete at each of at least three (3) water : cement ratios, namely 0,45; 0,50 and 0,55."

(c) Changes to the mix proportions in the materials

Replace subclause B7104(c)(iv) with the following:

"(iv) When hand placement of concrete is required and instructed by the Engineer, the requirements of clause 7103 shall apply to all concrete which is placed, vibrated and finished by hand methods, irrespective of the size of concrete panel or concrete patch. However, should the *Contractor* produce written proof that the requirements of clause 7103 cannot be complied with; the Engineer may allow the mix proportion to be adjusted to allow hand placing. These changes shall be made in terms of subclause 7104(d)."

B7105 BATCHING, MIXING AND TRANSPORTING CONCRETE

Delete the first paragraph and substitute with the following:

"The *Contractor* shall be allowed to purchase concrete from a commercial supplier, but only if such product complies in all respects to the desired strength, workability and durability characteristics, and only if the required paving output, as specified under subclause B7110(b) will be achieved. The *Contractor* shall remain responsible for providing suitable materials, determining the mix proportions, providing the mix design details and samples of the components of the concrete and manufacturing the concrete of the required quality as specified in clauses 7103 and 7104 of the standard specifications and clauses B7103 and B7104 of the project specifications."

B7107 GENERAL REQUIREMENTS IN RESPECT OF PLACING AND COMPACTING CONCRETE

(a) Compacting

Add the following to this subclause:

"The *Contractor* may at his discretion place the concrete by hand, all as specified in clause 7111."

(b) Time for placing and compacting

Add the following:

"The *Contractor* shall, with his tender, submit a detailed method statement of his proposed placing/paving technique."

Add the following sub-clauses:

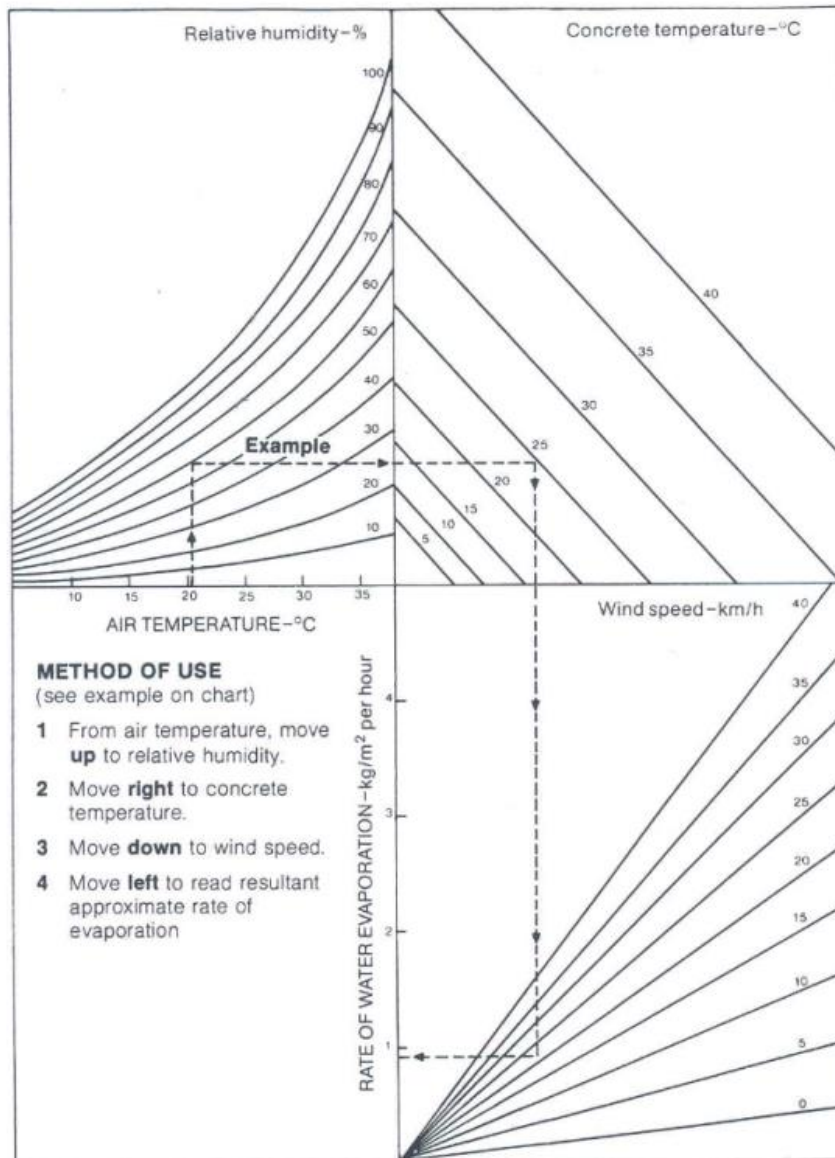
"d) Responsibility for protection

The *Contractor* shall be responsible for the quality and strength of the concrete placed and for its protection. Any concrete damaged by adverse weather, such as, any combination of high or low ambient temperature, low humidity, wind, rain and hail, shall be removed and replaced at the

Contractor's expense."

(e) Hot and windy weather paving

Unless appropriate and adequate protection measures to the plastic concrete are provided, all production of concrete and paving operations shall cease when the prevailing evaporation rate, as determined in accordance with the nomograph given below exceeds 1,0 kg/m²/hr.



Effect of ambient conditions on rate of evaporation

..

B7108 SIDE-FORMS, RAILS AND GUIDE WIRES

(a) Side-forms

Delete the following requirements:

"The height of the side-forms shall not be less than the nominal thickness of the concrete slab less 15 mm."

"Side-forms shall not be removed earlier than 6 hours after the completion of the construction of the slab."

B7110 PLACING, COMPACTION AND FINISHING WITH SLIPFORM EQUIPMENT

(a) General

Add the following:

"Only equipment approved by the Engineer shall be used.

The paving equipment shall be equipped with travelling sideforms of sufficient dimensions, shape and strength to support the concrete laterally for a sufficient length of time during placing to produce a pavement of the specified cross-section.

The sliding forms shall be rigidly held together laterally to prevent spreading of the forms and the forms shall trail behind the paver for such a distance that no appreciable slumping of the concrete will occur.

In case of visible cracking of, or other damage to the concrete pavement, operation of the paver shall immediately be discontinued. Any damage shall be repaired by the *Contractor* at his own expense."

(b) Placing and spreading the concrete

Add the following:

"The concrete shall be fed from the side of the slipform paver and distributed uniformly in a transverse and longitudinal direction by means of a concrete placer spreader. Dumping of large loads of concrete in separate heaps shall not be allowed. The production rate of the side feeder shall be able to meet the production requirements as specified for placing the concrete.

The height of the placed concrete in front of the paver shall not be more than can be conveniently handled by the paver.

The paver shall be operated with as continuous a forward movement as possible and all operations of mixing, delivering and spreading concrete shall be so coordinated as to provide uniform progress with stopping and starting of the paver held to a minimum. The paving output shall be a minimum of 140 m³/hour.

No tractive force shall be applied to the machine except that which is controlled from the machine."

(c) Compaction and finishing

Add the following:

"If for any reason it is necessary to stop the forward movement of the paver, the vibrating and tamping elements shall be stopped immediately.

The paver shall automatically govern the level and the horizontal alignment of the concrete and shall be micro-processor-controlled. The sensor system shall have both an automatic and manual operation mode, and shall be a non-contact type and not adversely affected by heat, humidity, vibration or stray radio signals. The elevation control system shall have an integral off-wire alarm system which signals when the wand comes off the reference string line and locks the machine at its last position before the wand went off the wire.

After the concrete has been finished by the finishing devices incorporated in the slipform paving equipment, the surface of the concrete shall be checked by the *Contractor* by means of a scraping straight edge device no less than 4,0 m in length. High areas indicated by the scraping straight edge shall be removed by hand floats. The scraping straight edge shall be used with its blade in a longitudinal direction and operated transversely across the pavement with successive passes lapping the previous pass by at least half the length of the straight edge.

Following the scraping straight edge operation the final concrete surface shall be checked by the same straight edge by gently placing it in successive positions across the slab with any dragging motion. Each position shall lap a previous one by at least half the length of the straight edge."

(e) Track support

Add the following paragraphs:

"The supporting surface for the tracks of the paver alongside the slab being placed shall be carefully prepared, compacted and maintained by the *Contractor* in a smooth and firm condition at the proper level and grade until the paving operations have been completed.

Where the tracks of the paver will be running on newly constructed concrete, the paver shall be fitted with urethane grouser pads such that the concrete surface is not damaged in any way. Any damage caused by the paver to any final pavement layer shall be repaired at the *Contractor's* expense."

B7111 PLACING, COMPACTING AND FINISHING WITH HAND EQUIPMENT

(d) Compacting and finishing

Add the following:

"Vibration with hand vibrators shall be required adjacent to all transverse construction joints.

The bulk density determined from waxed cores in the bottom half of the PJCP pavement slab shall not vary from the density of the top half by more than 3%.

The finishing device shall be sufficient to obtain the required surface regularity as specified in subclause 7122(f)."

B7114 CURING

Add the following after the fifth paragraph:

"The exposed surfaces should be covered by using wheeled curing tents immediately after the curing compound has been applied. The concrete shall be covered for at least 6 hours. Where the evaporation rate reaches 1,0 kg/m²/hour, the *Contractor* shall keep all exposed surfaces covered for an additional 2 hours and implement shields to block wind from entering the wheeled curing tents to avoid abnormal cracking.

The evaporation rate can be calculated as follows:

$$ER = 5([T_c + 18]^{2.5} - r[T_a + 18]^{2.5})(V + 4) \times 10^{-6}$$

where

ER evaporation rate (kg/m²/h)

T_c concrete temperature (°C)

T_a air temperature (°C)

r relative humidity (%)

V wind velocity (km/h)

Weather measurements, for the evaporation rate calculations, should be taken 1,0 m above the exposed surface except for the concrete temperature that shall be measured by using an infrared thermometer or a temperature gauge installed inside the concrete pavement.

Any damage caused to the concrete surface or texturing during or because of the curing process shall be repaired by the *Contractor* at his own expense and to the approval of the Engineer."

B7116 WEAKENED-PLANE JOINTS

Add the following subclause:

"(c) Sawing of joints

The *Contractor* shall be responsible for determining the optimum time for the sawing of joints. This shall depend on the strength gain characteristics of the cementitious products incorporated in the concrete mix, the hardness of the aggregate and weather conditions at the time of placing. The *Contractor* shall use the type of blade and equipment best suited to the hardness of the concrete, type of aggregate and the site conditions in order to prevent uncontrolled cracking and any spalling adjacent to the joint being sawn.

Sufficient standby power saws shall be held available by the *Contractor*, ready for use, at all times when concrete is being placed in the pavement. Immediately after sawing, the joint grooves shall be washed out with a jet of clean water to remove all fine material which shall be appropriately disposed of at an approved site. The joints shall then be sealed temporarily by means of an approved material, flush with the permanent surface. No traffic of any kind shall be allowed on the pavement until all the joints have been permanently sealed."

B7119 TIE-BARS AND DOWELS

(a) Tie-bars

Add the following after the last paragraph:

"If a slipform paver is used, mild steel tie-bars shall be used at longitudinal joints and shall be bent parallel to the edge of the first lane constructed and later on straightened into their final position before the concrete of the adjacent lane is placed. These tie-bars shall be inserted by means of a tie-bar inserter."

B7120 JOINT SEALING

(a) Pre-formed elastomeric compression seals

Add the following:

"Pre-formed elastomeric compression seals shall not be used in this Contract."

(b) Silicone sealant

(i) Material

Replace the first sentence with the following:

"The joint sealant shall be a low-modulus, self-levelling type sealant approved by the Engineer."

B7124 QUALITY CONTROL AND WORKMANSHIP

Add the following new subclauses:

"(f) Sampling the cement

The *Contractor* shall supply to the Engineer, free of charge, a sample of at least 10 kg in mass from each bulk load of cement delivered to the Site or from the commercial batching plant.

The sample shall be drawn off either directly from the bulk tanker or from the delivery line between the bulk tanker and the storage silo.

The sample shall be drawn off in five (5) approximately equal increments during the discharge of the tanker.

The sample shall be placed in a strong, clean plastic bag which shall be immediately sealed and marked with the following:

- (i) the date and time of sampling
- (ii) an identification of the delivery vehicle
- (iii) the date of manufacture of the cement
- (iv) the silo into which the cement is discharged
- (v) the delivery note number.

(g) Joint cutting and sealing records

The *Contractor* shall deliver to the Engineer within 24 hours of the completion of a shift, details of the following:

- (i) the times of initial cutting of all joints completed during that shift
- (ii) the identification of all joints reamed and/or sealed during the shift together with the batch numbers of the sealant used for sealing the joints."

B7127 MEASUREMENT AND PAYMENT

Item	Unit

B71.01 Concrete trial pavement:

Replace subitem 71.01(a) with the following:

"(a) Mechanical construction:

- (i) Jointed unreinforced concrete pavement (PJCP)
 – 300 mm thick (minimum flexural strength of 5.2 MPa) square metre (m²)
- (ii) Lean mix concrete pavement (LMC)
 – 150 mm thick (minimum compressive strength of 15 MPa) square metre (m²)
- (iii) Jointed unreinforced concrete pavement (PJCP)
 – 100 mm thick (minimum compressive strength of 30 MPa) square metre (m²)"

Replace subitem 71.01(b) with the following:

- "(b) Manual construction
- (i) Jointed unreinforced concrete pavement (PJCP)
 – 300 mm thick (minimum flexural strength of 5.2 MPa) square metre (m²)
- (ii) Lean mix concrete pavement (LMC)
 – 150 mm thick (minimum compressive strength of 15 MPa) square metre (m²)
- (iii) Jointed unreinforced concrete pavement (PJCP)
 – 100 mm thick (minimum compressive strength of 30 MPa) square metre (m²)"

The unit of measurement of trial pavement shall be the square metre of completed trial pavement. The trial pavement thickness shall vary between 100 mm and 300 mm and shall not be more than 60 m in length and will be measured for pavement as described in clause 7121.

The tendered rate shall include full compensation for constructing the pavement complete as specified."

Replace payment item 71.02 with the following:

"Item	Unit
B71.02 Concrete pavement excluding texturing and curing:	
(a) Jointed unreinforced concrete pavement (PJCP) (minimum flexural strength of 5.2 MPa):	
(i) 300 mm thick	square metre (m ²)

- (b) Lean mix concrete pavement (LMC) (minimum compressive strength of 15 MPa):
 - (i) 100 mm thick square metre (m²)
- (c) Jointed unreinforced concrete pavement (PJCP) (minimum compressive strength of 30 MPa):
 - (i) 100 mm thick square metre (m²)

The unit of measurement shall be the square metre of concrete pavement placed and finished in accordance with the specification and the project specifications. The quantity shall be calculated from the net authorised dimensions, without adjustment for the allowed tolerances.

The tendered rate shall include full compensation for procuring and furnishing all the materials, storing the materials, providing all plant, determining the mix proportions, mixing, transporting, placing and finishing the concrete, including formwork, repairs done to defective work, protecting the pavement against damage, construction joints and process control.

The tendered rate shall also allow for variations in the thickness (e.g. edge thickening at joints) as shown on the drawings.

The tendered rate shall also include full compensation for constructing concrete pavements which cannot be constructed with conventional plant (i.e. varying widths), as envisaged in Section 7100."

Replace the description of payment item 71.04 with the following:

Item	Unit
B71.04 Texturing and curing the concrete pavement:	
(a) Broom texture (PJCP road pavements)	square metre (m ²)
(b) Bull float finish (LMC subbase)	square metre (m ²)
(c) Wood float (PJCP sidewalks)	square metre (m ²)
(d) Curing with white-pigmented solvent resin-based curing compound and movable frame cover	square metre (m ²)
(e) Curing with emulsion wax curing compound and movable frame cover	square metre (m ²)

Item	Unit

B71.05 Variation in the rate of application of the curing compounds:

Add the following subitems:

- “(a) White-pigmented solvent resin-based curing compound litre (l)
 (b) Emulsion wax curing compound litre (l)”

Item	Unit

B71.06 Joints:

Replace the description of payment item 71.06(d) with the following:

- (d) Diamond dowels with pocket formers (mild steel), 20 mm x 114 mm x 114 mm::
 (i) Installed in new concrete number”
 (e) Tie-bars:

Add the following items after item 71.06(h):

- “(i) Plain isolation joint (as shown on drawing) metre (m)
 (j) Armoured isolation joint
 (as shown on drawing) metre (m)”
 (k) Forming and sealing diamond dowels metre (m)”

Add the following after the last paragraph:

“The tendered rates for isolation joints shall include full compensation for the complete joint including all plant and material and including, where applicable, the sealant, the backing strip, forming of the rounding, armouring steel, the complete underslab with its reinforcing, all excavations and preparation work, supply, delivery, placing, manufacturing, including a supporting framework where required.

Add the following new payment item:

"Item	Unit

B71.22 Rail level crossing:

- (a) Pre-cast concrete level crossing blocks
 (Insert drawing number) number (No)

(b) Level crossing across a concrete road surface number (No)

The unit of measurement for item (a) shall be the number of pre-cast concrete level crossing blocks complete, and item (b) shall be the number of level crossings constructed in accordance with the project specifications and drawings.

The tendered rate shall include full compensation for procuring and furnishing all the plant and different components and materials (including the precast concrete blocks, sleepers with connectors etc, ballast, bedding material etc.), for removing existing asphalt or concrete or other material between and around the rails, providing all transportation, placing and finishing, repairs done to defective work and process control."

SECTION B8100: TESTING MATERIALS AND WORKMANSHIP

B8102 TESTING METHODS

Insert the following as a new first paragraph:

"Where reference is made to TMH test methods in this specification or the standard specifications, it shall be replaced with the relevant current published SANS test method."

B8103 THE COSTS OF TESTING

Replace subclause B8103(a) with the following:

"(a) Materials quality control

Testing shall be undertaken by a combined laboratory facility for process control (where the process control testing can be utilised as acceptance control), acceptance control and correlation testing subject to the following requirements laid down by the Employer:

- (i) The *Contractor* accepts the test results of the combined laboratory. Should there be any doubts with regard to certain test results, this will be settled by an independent laboratory mutually agreed upon. The cost in such cases will be to the account of the party at fault. The *Contractor* shall apply in writing, quoting this clause, as to which specific tests are in doubt, providing test reference numbers and details as to the reasons why the test result is in doubt.
- (ii) The *Contractor* accepts that the Engineer will be in charge of the combined laboratory.
- (iii) The *Contractor* will be allowed to place a permanent representative in the combined laboratory to observe the laboratory operations. The cost of such representation cannot be claimed as a payment contribution towards payment item B81.04, but will be for the account of the *Contractor*. The *Contractor* shall indicate in writing within 14 days of the commencement date if such representation will be required or declined.

The total cost of the combined laboratory for the fourteen month contract period has been estimated at R 6,000,000.00.

The estimated cost per month to establish and operate the combined laboratory for the contract period as listed above, allows for the following items:

- establishment of laboratory buildings
- salaries and labour for all laboratory staff members

- housing for all laboratory staff members
- transport requirements (based on distance) for staff and material testing
- provision of laboratory equipment (as required for the contract)

10. A PAYMENT ITEM FOR THE MONTHLY CONTRIBUTION FROM THE CONTRACTOR'S INTERIM PAYMENT CERTIFICATES HAS BEEN PROVIDED UNDER PAYMENT ITEM B81.04."

Amend the heading of clause 8106 to read as follows:

"B8106 TESTING THE CONCRETE AND COVER TO STEEL REINFORCEMENT"

Add the following subclauses:

"(g) Trial panels for durability concrete ('W' class concrete)

As part of the durability class concrete mix design approval process, trial panels shall be constructed on the Site (or at the laboratory) before construction of structural elements commences, to ensure that the *Contractor* can successfully achieve the oxygen permeability and sorptivity targets set for the in situ concrete with the method of construction to be adopted. Each trial panel shall be constructed using the same type of concrete mix, shuttering type, placing and curing methods (including application rates of curing compounds if applicable) as to be used on the final structural element to be constructed. The dimensions of such a trial panel shall be 0,4 m wide, 0,60 m high and 150 mm thick. The panel shall be constructed vertically. It is suggested that two lifting hooks be cast into the panel to facilitate lifting, moving or disposal of the panel. Most likely one trial panel will be required for substructures (piers, abutments, retaining walls, etc.) if the same grade of concrete is specified for all substructures and another for the decks due to the type of casting and curing methods.

The test area for taking of cores (taken in horizontal direction) shall not be less than 100 mm from all horizontal and vertical edges. The number of cores to be extracted and tested is described under subclause B8106(i).

"(h) Test panels for durability concrete ('W' class concrete)

During casting of concrete on site, test panels shall be constructed on the site adjacent to where the concrete element is being placed. Each test panel shall be constructed with the same concrete, shutter type, compaction and curing methods being used in the element being cast (including same vibrator frequency and curing compound application rates), and be left to cure for twenty-eight (28) days adjacent to the concrete element. Thereafter it shall either be cored on site or transported to the laboratory for testing of the required durability parameters. The

dimensions of the test panels shall be 0,4 m wide, 0,6 m high and 150 mm thick and that will be cast vertically to simulate vertical casts of the substructures and vertical faces of bridge decks. It is suggested that two (2) lifting hooks be installed at both top ends of the test panel to assist with transport. For precast concrete, test panels will not be constructed, as cores will be drilled from the concrete elements at the precast yard before being placed at its final location. For the horizontal faces of in situ bridge decks and culverts, test panels will also not be constructed. Instead cores will be extracted from the top surface of the decks.

The frequency of the testing and number of cores to be extracted are described under subclause B8106(i).

The test area for the taking of cores (taken in a horizontal direction) shall not be less than 100 mm at all horizontal and vertical edges.

The costs for construction of the test panels shall be deemed to be included under the rates for payment item 64.01.

(i) Testing for concrete durability

Durability predictions for durability concrete prefixed 'W' will be based on the following tests that shall be carried out by an accredited laboratory approved by the Engineer:

- oxygen permeability
- water sorptivity
- chloride conductivity.

Notes:

The tests methods for the above shall be as described below:

When required, cores of $70 \pm 2,0$ mm diameter shall be extracted from the test panels when the concrete reaches the age of at least twenty-eight (28) days and tested for the durability criteria set out in subclause B6404(h) and used to determine the payment as per Table B8212/1. The test for chloride conductivity may only be required where specified (e.g. within a chloride environment along the coast or where chlorides are present in ground water).

A sample for the purposes of durability testing is as defined in Table B8106/1. The cores for durability testing shall be extracted from the test panels for process and acceptance control (at the frequency as shown in Table B8106/2). Durability testing shall only be required for concrete

specified as durability concrete with the prefix 'W'. The number of samples to be taken shall be as shown in Table B8106/2.

TABLE B8106/1: NUMBER OF CORE RESULTS REQUIRED FOR A SINGLE SAMPLE FOR DURABILITY TESTING

DURABILITY PARAMETER	NO. OF CORE RESULTS
Sorptivity	2
Oxygen permeability	4
Chloride conductivity	4

Test undertaken only if specified and within a chloride environment.

TABLE B8106/2: NUMBER OF TEST PANELS REQUIRED FOR DURABILITY TESTING

ELEMENT	NO. OF TEST PANELS TO BE TAKEN (SEE TABLE B8106/1 FOR NUMBER OF CORE RESULTS REQUIRED FOR A SINGLE SAMPLE)
In situ bridge decks	1 (per pour) ¹
Bridge piers/abutments	1 (per element) ²
Precast elements	1 (per element) ^{2, 3}
Bridge/culvert parapets	1 (per element) ²
Culvert walls/wingwalls/slabs	1 (per wall section) ^{1, 2}
Retaining walls	1 (per wall section) ²
All bases	1 (per element/pour) ²

Note:

¹ Test panels required to be cast vertically. Additional cores required to be extracted from top of deck/major culvert slabs, i.e. in situ cores.

² Note that where a group of elements are cast on the same day, only one test panel will be required, but only if the same grade concrete is used.

3 Sample required to be taken from precast element in casting yard. For edge beams, inner face to be cored.

For cores to be extracted from precast elements and the top of bridge decks, the Engineer will indicate the positions at which the cores will be extracted. The filling of holes left by the drilling of the cores shall be the responsibility of the *Contractor* and shall be carried out using an approved proprietary non-shrink repair mortar so as to restore structural integrity and durability of the structural element tested.

If the test results indicate that the durability requirement has not been achieved, then the structural element shall be cored and tested for the durability criteria. The Engineer will indicate the positions at which the cores will be extracted. The costs for testing of the structure shall be borne by the *Contractor*. The filling of holes left by the drilling of the cores shall be the responsibility of the *Contractor* and shall be carried out with material as described in the paragraph above.

Note that if testing has to be undertaken on the sides of decks and walls, the cores shall be taken on the exposed faces of the concrete, i.e. the sidewall face, taking care not to cut the reinforcing bars. Where the cores do contain pieces of reinforcing steel, they shall not be used for the tests. The cores shall be extracted through the cover concrete from the test panels or constructed concrete element as applicable. The outer 5,0 mm of the exposed surface of the core shall be cut off and then a slice (30 mm ± 2,0 mm thick) shall be cut and prepared for testing. The Engineer will indicate the positions at which the cores will be extracted.

B8108 DETERMINING THE TOTAL APPROXIMATE DRY BULK RELATIVE DENSITY AND THE APPARENT DENSITY

Add the following at the end of this clause:

"For materials where the total water absorption, when determined according to SANS 3001-AG20 (Replacing TMH1 Methods B14) and SANS 3001-AG21 (Replacing TMH1 Methods B15), is in excess of 1,5%, the apparent density shall be calculated in accordance with the following formula:

$$\frac{(b - a)}{(d - a) + \left\{ \frac{(w - 1,0)}{100} \times (b - a) \right\} - (b - c)}$$

This formula shall be used as an alternative to note (5) regarding the soaking period, when so instructed by the Engineer."

Add the following clauses:

"B8118 TESTS ON RETRO-REFLECTIVE MATERIAL FOR USE ON ROAD SIGNS

On-site testing of the retro-reflective properties of road signs shall be done with a field retro-reflectometer measuring at an entrance angle of 5,0° and an observation angle of 0,33°. The coefficient of retro-reflection so determined shall not be less than the relevant values given in Table B8118/1 below. The coefficients of retro-reflection are expressed in candelas per lux per square metre (cd/(lux/m²)).

TABLE B8118/1: COEFFICIENTS OF RETRO-REFLECTION

1	2	3	4	5	6	7	8	9	10	11
CLAS S	OBSERVATI ON ANGLE (DEGREES)	ENTRAN CE ANGLE (DEGREE S)	COEFFICIENT OF RETRO-REFLECTION FOR DIFFERENT COLOURS OF MATERIAL WHEN MEASURED WITH STANDARD ILLUMINANT A* (cd/(lux/m ²)) MINIMUM							
			Re d	Orang e	Yello w	Gree n	Blue	Purp le	Whit e	Bro wn
I	0,33	5	10	20	35	7	3	2	50	3
II	0,33	5	20	40	70	14	6	4	100	6
III	0,33	5	30	60	105	21	9	6	150	9

*See CIE Publication 15 (E-1.3.1)

B8117 MEASUREMENT AND PAYMENT

Replace item 81.00 with the following payment:

B81.02 Other special tests requested by the Engineer:

(a) Cost of testing provisional (Prov) sum

(b) Handling costs and profit in respect of subitem B81.02(a) above ...percentage (%)

The provisional sum provided to cover the cost of special tests as requested by the Engineer in terms of clause 8115 shall be expended in accordance with the provisions of the Conditions of Contract. Payment will not be made for any special test should the test indicate that the specifications have not been complied with.

The percentage tendered is a percentage of the amount actually spent under subitem B81.02(a) which shall include full compensation for the handling costs of the *Contractor* and the profit in connection with the tests requested by the Engineer.

The *Contractor* shall appoint a reputable company to perform the applicable tests with a field retro-reflectometer. This company is subject to the Engineer's approval and his approval must be obtained before any test results will be accepted.

Tests on the painted gantries shall also be performed by qualified personnel. These tests shall, inter alia, include checks on film thickness, workmanship and quality control."

Add the following payment items before the "Note:"

"B81.04 Financial contribution for the combined laboratory..... month

The unit of measurement shall be the month.

The negative rate tendered per month shall cover the *Contractor's* contribution towards the establishment and operation of the combined laboratory over the contract period, including any approved extension of time, and shall be deducted from the *Contractor's* payment certificates.

The *Contractor's* tendered contribution for the establishment and operation of the combined laboratory shall be deducted monthly from the payment certificates over the contract period, including any approved extension of time. However, excluded from the tendered contribution shall be the costs of all other special tests requested by the Engineer."

SECTION B8200: QUALITY CONTROL (SCHEME 1)

B8201 SCOPE

Add the following:

"Quality Control Scheme 1 shall apply to this Contract."

Add the following clause:

"B8212 DETERMINING REDUCED PAYMENTS FOR BOTH 'W' CLASS CONCRETE AND COVER METER TESTING

Payments for all durability concrete prefixed 'W' shall be based on the test results of the compressive strengths and of the durability parameters, i.e. oxygen permeability (from test panels) (see Table B8212/1). Payment for both durability and non-durability class concrete cover meter testing shall be as indicated in Table B8212/2.

General note:

The percentage payment shall be applied to a specific concrete member and shall apply to the relevant payment items of Section 6300 (based on the concrete cover test) and Section 6400 (based on the worst results from the oxygen permeability and compressive strength tests).

TABLE B8212/1: TABLE OF REDUCED PAYMENTS FOR OXYGEN PERMEABILITY INDEX - 'W' CLASS CONCRETE

DESCRIPTION OF TEST	OXYGEN PERMEABILITY INDEX (LOG SCALE)	PERCENTAGE (%) PAYMENT
Full acceptance	See Table B6404/4 for limit	100%
Conditional acceptance (with reduced payment)	See Table B6404/4 for limit	80%
Rejection	See Table B6404/4 for limit	Not applicable

TABLE B8212/2: TABLE OF REDUCED PAYMENTS FOR CONCRETE COVER

CONCRETE COVER (mm)	% OF SPECIFIED COVER	PERCENTAGE (%) PAYMENT
	OVERALL COVER	
Full acceptance	≥ 85% < (100% + 15 mm)	100%

Conditional acceptance (with reduced payment)	$< 85\% \geq 75\%$	85%
Conditional acceptance (with remedial measures as approved by the Engineer and reduced payment)	$< 75\% \geq 65\%$	70%
Non-conforming (non-conformance raised with remedial measures as approved by the Engineer)	$< 65\%$	Agreed by the Engineer <i>(Note: Remedial measures at the Contractor's costs should restore full payment)</i>

Note:

1. Specified cover to be reduced by 5,0 mm (allowance for variation of equipment) before applying criteria as defined in Table B8212/2, e.g. where specified cover = 40 mm, test as for 35 mm, apply limits, $85\% * 35 = 30$ mm.
2. For cantilevers, the cover shall in no instance be greater than 10 mm of the specified cover for the top reinforcement.
3. Percentage payment for concrete cover shall be based on the average number of cover meter tests performed on a particular concrete element.

In addition, the Engineer shall confirm with the Employer whether substandard cover at a reduced payment shall be acceptable by agreement with the *Contractor*.

SECTION C3.2: CONTRACTOR’S WORKS INFORMATION: WORKS SPECIFICATIONS

C3.2.2 SANS 1200 SPECIFICATIONS

Contents

GENERAL INFORMATION PERTAINING TO SANS 1200	2
PSD: Earthworks.....	4
PSDB: Earthworks (pipe trenches).....	9
PSL: MEDIUM-PRESSURE PIPELINES.....	15
PSLB: BEDDING (PIPES).....	18
PSLC: CABLE DUCTS.....	20
PD: BUILDING WORK	23
PZ: PALISADE FENCING	40

GENERAL INFORMATION PERTAINING TO SANS 1200

1. SANS 1200 Standardized Specifications, hereafter referred to as SANS 1200, are used and the following interpretations and meanings shall apply.
2. In case of any conflict in interpretation, ambiguity or discrepancy between the SANS 1200 Specification (whether standard or written as a particular project specification) contained in the Works Information and the *conditions of contract*, the *conditions of contract* take precedence within the ECC3 contract.
3. In case of any conflict in interpretation, ambiguity or discrepancy between the SANS 1200 Specification (whether standard or written as a particular project specification) contained in this section and specific statements contained elsewhere in C3.1 *Employer's Works Information*, the specific statements contained elsewhere shall prevail, without prejudice to the *Project Manager's* express duty to resolve any ambiguity or inconsistency in the Works Information under ECC3 Clause 17.1.
4. Within SANS 1200 Standard Specifications, the following amendments and interpretations shall apply:

Where the word or expression "Employer" is used, read "*Employer*";

Where the word or expression "Contractor" is used, read "*Contractor*";

Where the word or expression "Engineer" is used, read "*Project Manager*" or "*Supervisor*" as the context requires;

Where the word or expression "schedule of quantities or bill of quantities" is used, this is deleted in entirety. Assessment and payment is in accordance with the *conditions of contract* (and the ECC3 main and secondary options stated therein);
5. Within SANS 1200 specifications, the following apply:

Acceptable. Approved (Approval)" is interpreted as either a *Project Manager* or a *Supervisor* communication or instruction in relation to Works Information compliance, consistent with the *conditions of contract* as the context requires;

"Adequate" is deleted. The *Project Manager* notifies the *Contractor* where the *Contractor* has not complied with the Works Information;
6. Within SANS 1200 Standard Specifications, the following applies:

Where the word or expression "Plant" is used, read "Equipment".
7. Project Specification amendments to the Standard SANS 1200 Specifications
 - 7.1 The Standard Specifications for Road and Bridge Works for State Road Authorities 1998, prepared by the Committee of Land Transport Officials, (COLTO), as amended, shall apply to this contract.
 - 7.2 In certain clauses the Standard Specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

specifications. It also contains some additional specifications required for this particular contract.

- 8 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 SANS 1200 specifications. The prefix PS indicates an amendment to SANS 1200. The letters and numbers following these prefixes respectively indicate the relevant Standard Specification and clause numbers in SANS 1200 to which the variation or addition thereto applies.

PSD: EARTHWORKS

PSD 2 INTERPRETATIONS

PSD 2.1 SUPPORTING SPECIFICATIONS

Replace subclause 2.1.2 with the following:

"PSD 2.1.2 Any of the other SANS 1200 specifications may form part of the Contract documents."

PSD 2.3 DEFINITIONS

Replace the word and the definition for "Borrow" with the following:

"Borrow material: Material, other than material obtained from excavations required for the works, obtained from sources such as borrow pits or the authorised widening of excavations. 'Borrow' shall have a corresponding meaning."

Replace the definition for "Specified density" with the following:

"Specified density: The specified dry density expressed as a percentage of modified AASHTO dry density."

Replace the definition for "Stockpile" with the following:

"Stockpile (verb): The process of selecting and, when necessary, loading, transporting and off-loading material in a designated area for later use for a specific purpose"

Add the following definitions:

"Commercial source: A source of material provided by the Contractor, not the Employer, and including any borrow pit, provided by the Contractor

Fill: An embankment or terrace constructed of material obtained from excavations or borrow pits. In roads it includes the earthworks up to the underside of the selected subgrade level.

Fill (material): Material used for the construction of an embankment or terrace

Roadbed: The natural in situ material on which the fill or, in the absence of fill, the pavement layers are constructed"

PSD 3 MATERIALS

PSD 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

PSD 3.1.1 Method of classifying

Add the following:

"The classification of material other than 'soft excavation' shall be agreed upon before excavation may commence.

The Contractor shall immediately inform the Engineer if and when the nature of the material being excavated changes to such an extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Engineer in good time shall entitle the Engineer to reclassify, at his discretion, such excavated material."

PSD 3.2.3 Material suitable for backfill or fill against structures

Replace the contents of this subclause with the following:

"Material used for backfill behind structures shall generally be the material excavated, subject to the following conditions:

- (a) The material shall not contain an excessive number of stones retained on a 50 mm sieve;
- (b) The material shall not contain large clay lumps that do not break up under the action of the compaction equipment; and
- (c) The liquid limit of the material shall not exceed 40, neither shall the PI exceed 18."

PSD 4 PLANT

PSD 4.4 DETECTORS

Replace the contents of subclause 4.4 with the following:

"The Contractor shall, for the purposes of detecting and locating underground services in accordance with the provisions of subclause 5.4 of SANS 1200 A and subclause 5.1.2 of SANS 1200 D, at his own cost, provide and use detecting equipment which is suitable for the detection of underground cables and pipes."

PSD 5 CONSTRUCTION

PSD 5.1 PRECAUTIONS

PSD 5.1.1 Safety

PSD 5.1.1.1 Barricading and lighting

Replace "Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)" with "Occupational Health and Safety Act, 1993 (Act No 85 of 1993)".

PSD 5.1.1.2 Safeguarding of excavations

Replace "Machinery and Occupational Safety Act" with "Occupational Health and Safety Act, 1993 (Act No 85 of 1993)".

PSD 5.1.2 Existing services

PSD 5.1.2.2 Detection, location and exposure

Replace the contents of subclause 5.1.2.2 with the following:

"The exposure by the Contractor of underground services, as required in terms of subclause 5.4 of SANS 1200 A (as amended) shall be carried out by careful hand excavation at such positions and to such dimensions as are agreed to by the Engineer.

Unless otherwise instructed or agreed by the Engineer, no service shall be left exposed after its exact position has been determined and all excavations carried out for the purposes of exposing underground services shall be promptly backfilled and compacted to the following densities:

- (a) In roadways: 93% modified AASHTO density; and
- (b) In all other areas: 90% modified AASHTO density.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

Where hand excavations to expose underground services have to be carried out in roadways, the Contractor shall reinstate the road layer-works in accordance with the provisions of subclause 5.9 of SANS 1200 DB.

Payment in respect of exposing the services by means of hand excavation as described above, will be made in accordance with subclause PSD 8.3.8.1.

Payment in respect of reinstating layer-works in roadways will be made in accordance with subclause 8.3.6.1 of SANS 1200 DB (as amended)."

PSD 5.1.2.3 Protection of cables

Replace subclause 5.1.2.3 with the following:

"5.1.2.3 Protection during construction

Further to the requirements of subclause 5.4.2 of SANS 1200 A (as amended), major excavating equipment and other plant shall not be operated dangerously close to known services. Where necessary, excavation in close proximity to known services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Should any service not being a known service be discovered or encountered during the course of the Contract, the Contractor shall, in addition to complying with the requirements of subclause 5.4.2 of SANS 1200 A (as amended), immediately notify the Engineer thereof and implement such measures as will prevent damage of such service or, if it was damaged in the course of discovery, will prevent and minimise the occurrence of any further damage occurring."

PSD 5.1.2.4 Negligence

Replace the contents of subclause 5.1.2.4 with the following:

"Where a service is damaged because of the Contractor's negligence, the penalty payable by the Contractor shall be specified by the client and the Contractor shall make good or bear the cost of the repairs, as specified. "

PSD 5.1.5 Reinstatement and maintenance of roads

Add the following:

"Where crossings have been made, the roads shall be reinstated in accordance with the details specified in subclause 5.9 of SANS 1200 DB."

PSD 5.1.6 Road traffic control

Delete the second sentence of subclause 5.1.6.

PSD 5.2 METHODS AND PROCEDURES

PSD 5.2.2 Excavation

PSD 5.2.2.1 Excavation for general earthworks and for structures

Add the following to paragraph (b):

"When the nature of the material precludes the above procedure, additional excavations shall be carried out to provide working space for the erection of formwork. The tendered rate for item 8.3.5 will be

deemed to include the cost of a working width of 600 mm, but the Contractor may excavate a greater working width at no additional cost to the Employer."

Replace the first sentence of paragraph (e) with the following:

"Where excavations have been carried below the authorised levels, the Contractor shall backfill such excavations to the correct level with approved gravel compacted to 90% of modified AASHTO density or to the density of the surrounding material, whichever is the higher density.

Where excavations for structures have been carried out in hard material, the Engineer may direct that over-excavation be backfilled with weak concrete if there is a danger of settlement or differential settlement of the foundations.

Where the sides of excavations against which concrete is to be cast have been over-excavated or have collapsed partially, the Contractor shall retrim the excavations if necessary and, unless other remedial measures are agreed to by the Engineer, shall cast the concrete for the structure, including the additional concrete that may be required as a result of the over-excavation or partial collapse. The cost of the additional concrete or remedial measures shall be for the Contractor's account."

PSD 5.2.2.3 Disposal

Replace the second sentence with the following:

"The Contractor shall provide all necessary spoil sites for the spoiling of all surplus and unsuitable materials and shall make the necessary arrangements with the owner of the site where the material is disposed of, and pay all charges and levies as may be applicable for the use of such spoil sites.

Every spoil site provided by the Contractor shall be approved by the local authority in whose area it is located, and the spoiling shall comply with the applicable statutory and municipal regulations as well as the requirements of the owner of the spoil site.

Payment to the Contractor in respect of locating and making arrangements for suitable spoil sites and spoiling material at such sites will be made in accordance with the provisions of subclause PSD 8.3.15."

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.3 SCHEDULED ITEMS

PSD 8.3.8 Existing services

PSD 8.3.8.1 Location

Replace item 8.3.8.1 with the following:

"8.3.8.1 Hand excavation for locating and exposing existing services:

(a)	In roadways	Unit: m ³
(b)	In all other areas	Unit: m ³

The unit of measurement shall be the cubic metre of material excavated, measured in place according to the authorised or actual dimensions of the excavation, whichever is the lesser.

The tendered rates shall cover the cost of excavating in all materials by means of hand tools within authorised dimensions and at locations approved by the Engineer in accordance with the requirements of subclause PSA 5.4.1 for all precautionary measures necessary to protect the services from damage during excavation and backfilling, and for subsequent backfilling and compacting. Compaction of material in all areas except in roadways shall be to 90% of the modified AASHTO density.

The tendered rate for hand excavation in roadways shall include compensation for compacting excavated or selected backfill material to 93% of modified AASHTO density. Reinstating layer-works and surfacing shall be measured and paid for in terms of SANS 1200 DB.

The tendered rates shall also include for keeping excavations safe, for dealing with surface and subsurface water, for removing surplus excavated material from the site, for transporting all material within the free-haul distance, and for supplying adequate supervision during both excavation and backfilling operations. Overhaul, if applicable, will be measured and paid for in terms of SANS 1200 DB."

**"PSD 8.3.15 Extra over items PSD 8.3.2(b) and PSD 8.3.3 for disposing of
 spoil material on a site provided by the Contractor Unit: m³**

The unit of measurement shall be the cubic metre measured in accordance with subclause 8.2 of SANS 1200 D of surplus and/or unsuitable material disposed of, on the instruction of the Engineer, at a spoil site or spoil sites provided by the Contractor.

The tendered rate shall include full compensation for the additional cost of providing a spoil site or other means of disposing of surplus spoil material, for transporting the material regardless of the distance involved, for acceptance charges for such material and for all other incidental costs to dispose of the spoil material."

PSDB: EARTHWORKS (PIPE TRENCHES)

PSDB 3 MATERIALS

PSDB 3.5 BACKFILL MATERIALS

PSDB 3.5 BACKFILL MATERIALS

Add the following paragraphs to subclause 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.

(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."

PSDB 3.7 SELECTION

Replace the words "if he so wishes" in the first line of the second paragraph with the words "at his own cost".

PSDB 5 CONSTRUCTION

PSDB 5.1 PRECAUTIONS

PSDB 5.1.3 Accommodation of traffic and access to properties

Replace the semicolon and the word "and" at the end of subclause 5.1.3(a) with a full stop and replace item (b) with the following:

"(b) Where necessary to achieve compliance by the Contractor with his obligations in terms of subclause C3.4.2.5(e) Scope of Works (for CIDB document format) or PS 8.5 of Portion 1 of the Project Specifications (for non-CIDB document format)* to provide and maintain pedestrian and vehicular access to properties affected by the works, the Contractor shall construct and maintain to the satisfaction of the Engineer, such temporary access roads around, and/or steel or timber bridges over excavations in roads, pavements, entrances or accesses to properties.

Temporary pedestrian access bridges shall be at least 1,2 m wide and temporary access bridges for vehicles shall be at least 3,6 m wide. All temporary access bridges shall be fitted with handrails as well as protective mesh fencing on both sides.

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

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

Add the following new subclause to subclause 5.1:

"PSDB 5.1.5 Removal of existing pipelines

Where existing pipes have to be removed, they shall be carefully opened up by hand excavation after which the whole pipe shall be removed and disposed of at the contractor's expense. The excavation width shall comply with subclause 8.2.3.

PSDB 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.

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 0,6 m, but the Contractor may reduce the actual width with the Engineer's permission."

PSDB 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 700 mm except at road-crossings where the minimum cover shall be 1 000 mm."

PSDB 5.6 BACKFILL

PSDB 5.6.3 Disposal of soft excavation material

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

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

PSDB 5.6.4 Disposal of intermediate and hard rock material

Replace the last section of subclause 5.6.4 ".... disposed of as specified in 5.6.3 or removed to designated sites," with ".... disposed of outside the site boundaries."

Add the following:

"PSDB 5.6.9 Backfilling around structures

Backfilling around a structure shall not be commenced before it has been approved by the Engineer.

Granular material shall be used as backfill material around structures as shown on the drawings and shall be placed in layers not exceeding 150 mm compacted thickness, each layer being thoroughly compacted to 100% of modified AASHTO density as instructed by the Engineer before the succeeding layer is placed. Unsuitable or surplus excavated material shall be spoiled off site."

Add the following new subclauses in clause 5:

"PSDB 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 pipelines.

The Contractor shall by means of careful hand excavation excavate and expose the existing pipes to be removed at positions agreed with the Engineer, in accordance with the requirements of subclause PSA 5.4. 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.

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

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.1 BASIC PRINCIPLES

Add the following:

"PSDB 8.1.2 In the road prism or building platform the ground surface from which depth will be measured will always (irrespective of operation sequenced) be the roadbed level at centre-line."

PSDB 8.2

Replace the contents of subclause 8.2.3 with the following:

- ☐ The side allowance for ducts shall be 150 mm and there shall be 300 mm between a Telkom duct and any other duct/service placed in the same trench. The side allowance for ducts shall be 150 mm.

Where two or more pipes/ducts are to be placed in one trench, the specified base width shall be calculated as follows:

The trench width for the deeper service shall be calculated according to above specifications. The effective trench width for the shallower service shall then be the difference between its specified base width and the overlap with the trench of the deeper service.

The trench width for subsurface drains shall be as shown on the drawings."

The trench width for the deeper service shall be calculated according to above specifications. The effective trench width for the shallower service shall then be the difference between its specified base width and the overlap with the trench of the deeper service.

PSDB 8.3 SCHEDULED ITEMS

PSDB 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."

- (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: m ³ |
| (b) | Intermediate material | Unit: m ³ |
| (c) | Hard material | Unit: m ³ |

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 where 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 subclause 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 subclause 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 and for manholes, catchpits, valve chambers and the like, 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 SANS 1200 D (as amended)."

*Add the following item:**Add the following item:*

"PSDB 8.3.8 Removal of existing pipes

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

(a) Remove existing pipes to be decommissioned. Includes excavation by hand to expose pipes, removal and disposal of existing pipes and fittings and backfill by using existing excavated material
Unit: m

The unit of measurement shall be the linear metre of pipeline finally exposed by hand excavation methods, measured in plan view along the centreline of the pipeline, irrespective of the class or

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

diameter of pipe. The pipe volume as well as the volume of all associated structures such as junction boxes, manholes, valve chambers and the like shall be included from the volume of excavation measured.

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

The unit of measurement includes the number of specials in accordance with the requirements of PSDB 5.11.5.

The tendered rate includes 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.

For backfill and compaction of trench the measurement the tendered rate shall be fully inclusive for placing excavated material in the trench and compacting in accordance with subclauses 5.6 and 5.7.

PSL: MEDIUM-PRESSURE PIPELINES

PSL 3 MATERIAL

PSL 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 $\pm 2\%$.

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."

PSL 3.4 STEEL PIPES, FITTINGS AND SPECIALS

PSL 3.4.2 Pipes of nominal bore up to 150 mm

Add the following:

"The pipes shall be 'normalised' or seamless steel pipes and shall be used with malleable cast-iron fittings complying with the requirements of SANS 14 and SANS 62.

Where flanges are required they shall comply with SANS 1123 table 1600 unless otherwise indicated on the Drawings."

PSL 3.7 OTHER TYPES OF PIPES

Add the following:

PSL 3.7.3 Steel pipes

"Steel pipes and fitting shall be SANS 719 grade B and shall comply with the relevant requirements of SANS 14 and SANS 62."

PSL 3.9 CORROSION PROTECTION

PSL 3.9.2 Steel pipes

PSL 3.9.2.1 Steel pipes of nominal bore up to 150 mm

Add the following:

"Steel pipes shall be coated with fusion bonded epoxy where shown on the Drawings."

PSL 3.9.2.2 Steel pipes of nominal bore over 150 mm

Add the following:

"Steel pipes shall be coated with fusion bonded epoxy where shown on the Drawings"

PSL 3.9.6 Corrosive soil

Add the following:

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

"Where shown on the Drawings, steel pipes in contact with corrosive soil shall be wrapped with Densopol 80 HT or an equivalent approved product, strictly in accordance with the manufacturer's instructions."

PSL 3.10 VALVES

Replace the contents of this subclause with the following:

"Valves shall comply with the following requirements:

- (a) They shall open/close clockwise and shall have a non-rising spindle and handwheel.
- (b) They shall be class 16 valves.
- (c) Valves shall comply with the requirements of SANS 664/1974.
- (d) Valves shall be the resilient seat type.
- (e) Valves shall be coated before delivery, both internally and externally with a suitable bitumastic paint free of phenols."

PSL 5 CONSTRUCTION

PSL 5.6 VALVE AND HYDRANT CHAMBERS

PSL 5.6.1 General

Replace the words "drawing L-1" in the second line with "the Drawings".

PSL 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 subclauses:

PSL 5.12 MARKER BLOCKS

Type 1 and Type 2 marker blocks shall be manufactured and positioned as shown on the Drawings.

PSL 7 TESTING

PSL 7.3 STANDARD HYDRAULIC PIPE TEST

PSL 7.3.1 Test pressure and time of test

PSL 7.3.1.2 The maximum working pressure for the different pipes is indicated by the class of the pipe.

PSL 8 MEASUREMENT AND PAYMENT

PSL 8.2 SCHEDULED ITEMS

PSL 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 Densopol 80 or a similar approved material where the pipes and fittings come into contact with concrete."

Add the following items:

PSL 8.2.16 Marker blocks:

- (a) Type 1 (As per drawing 1006614-DRG-20-NW-CC-D006).....Unit: number
- (b) Type 2 (As per drawing 1006614-DRG-20-NW-CC-D006).....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.

PSL 8.2.17 Connection to existing main supply pipe Unit: number

- (a) Connect to existing 300mm dia. steel pipe with a 300mm dia. steel pipe Unit: number
- (b) Connect to existing 315mm dia. uPVC pipe with a 315mm dia. uPVC pipe Unit: number
- (c) Connect to existing 315mm dia. uPVC pipe with a 160mm dia. uPVC pipe Unit: number
- (d) Connect to existing 315mm dia. uPVC pipe with a 160mm dia. uPVC pipe Unit: number
- (e) Connect to existing 200mm dia.uPVC pipe with a 200mm dia.uPVC pipe Unit: number
- (f) Connect to existing 160mm dia.uPVC pipe with a 160mm dia. uPVC pipe Unit: number
- (g) Connect to existing 110mm dia. uPVC pipe with a 110mm dia. uPVC pipe Unit: number

The tendered rate shall include full compensation for the cost of excavation, connection to existing pipes of various sizes, removal of surplus material, all labour and equipment necessary to make the connection and all liaison with the local authorities.

PSLB: BEDDING (PIPES)

PSLB 3 MATERIALS

PSLB 3.1 SELECTED GRANULAR MATERIAL

Replace the contents of this subclause with the following:

"Selected granular material shall have a PI not exceeding 6 and shall be free from sharp-edged particles exceeding 19 mm."

PSLB 3.3 BEDDING

Add the following:

"uPVC and HDPE pipes are deemed to be flexible pipes for the purposes of this subclause."

PSLB 3.4 SELECTION

PSLB 3.4.1 Suitable material available from trench excavation

Replace the words "(but is not required)" in the fifth line with the words "(at his own cost)".

PSLB 5 CONSTRUCTION

PSLB 5.1 GENERAL

PSLB 5.1.2 Details of bedding

Add the following paragraph:

"The dimension "X" for flexible and rigid pipes as indicated on drawing LB-1 will be 150 mm unless otherwise indicated on the Drawing. The dimension "X" will be measured from the invert of the pipe."

PLSB 5.1.4 Compacting

Replace "90%" with "90% (100% for sand)".

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 PRINCIPLES

PSLB 8.1.5 Disposal of displaced material

Replace the contents of this subclause 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."

PSLB 8.2 SCHEDULED ITEMS

Add the following item:

"PSLB 8.2.6 Provision of stone/geofabric to deal with water Unit : m³/m²

If in the opinion of the Engineer, the Contractor complied with the requirements for dealing with water as specified in PSA 8.8.6., the Engineer may instruct the installation of crushed stone and filter fabric. Payment for these items will only be made where instruction was given in writing by the Engineer.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

The provision of crushed stone bedding material will be measured by volume based on the specified trench width and a maximum layer thickness of 300 mm unless a greater depth has been specified by the Engineer.

The unit rate shall cover the cost of supplying and laying the crushed stone.

The filter fabric will be measured separately by area based on the specified trench width, a stone bedding thickness of 300 mm and an overlap of 300 mm.

The rate shall cover the cost of the supply, delivery and laying of the filter fabric."

PSLC: CABLE DUCTS

PSLC 3 MATERIALS

PSLC 3.1 DUCTS

Add the following:

"PSLC 3.1.1 e) SANS61386-24 in the case of HDPE Type N 450 double-walled corrugated solid pipe. Pipes to be green of colour to differentiate between various services.

PSLC 3.1.2 Split HDPE pipes

Split pipes shall only be used to provide ducts for existing services that cannot be severed and threaded through the ducts. The pipes shall be cut accurately in the middle, and opposite halves shall be matched as sawn. Split pipes shall be placed around the service, firmly bound by steel straps, and encased in concrete."

PSLC 3.4 CABLE DUCT MARKERS

Add the following:

"A cable duct marker shall consist of a 300 mm x 300 mm x 100 mm deep, class 25 MPa/19 mm concrete block, connected by means of a galvanised steel draw wire to the temporary plug seal at the end of the duct. The plug shall prevent moisture or soil from entering the duct. The metal strip shall be firmly connected to both the plug and the concrete block. The concrete block shall be positioned not further than 0,5 m horizontally from the end of the cable duct. The face of the concrete block shall have a 150mm x 150mm aluminium plate on top of it with cable duct descriptions stamped on it as described on the relevant drawing

PSLC 5 CONSTRUCTION

PSLC 5.1 EXCAVATION OF TRENCHES

PSLC 5.1.1 Trench widths and depths

PSLC 5.1.1.2

Add the following:

"For service ducts the pipe trench shall have a minimum depth to provide a cover of not less than 600 mm between the top of pipe and the finished ground level, except underneath road crossings. For service ducts below road crossings the depth will be specified on the engineer's drawings. When the pipe has less cover than 600 mm it shall be covered by concrete slabs with a minimum thickness of 50 mm and a width equal to 400 mm plus the diameter of the pipe they protect, unless otherwise directed by the Telkom Engineer. The concrete slabs shall be provided by the Contractor."

PSL 5.3 DUCT LAYING

PSLC 5.3.1 Straight laying

Add the following:

"If the trench is to contain more than one pipe exceeding 75 mm internal diameter, the base of the trench shall slope so that water may drain away from the pipes. The level of the bottom of the trench shall fall at least 75 mm per 30 m."

PSLC 5.3.3 Draw wire

Replace the contents of this subclause with the following:

"A length of 3,05 mm diameter galvanized steel wire shall be attached to the cleaning-brush and drawn into the pipe and left for use as a draw wire that connects to a concrete marker block. All open pipe ends must be plugged to prevent the ingress of dirt."

Add the following subclauses:

"PSLC 5.3.5 Jointing of HDPE pipes

HDPE ducts to be jointed as per supplier installation guidelines

PSLC 5.6 LAYING OF CABLES WITH OTHER SERVICES

Add the following:

"Trenches for telephone ducts shall be excavated so that pipes can be laid at least 300 mm from power cables. Where this is not possible, pipes shall be separated from power cables by vertically placed concrete or paving slabs."

PSLC 5.7 CROSSING OF TELEPHONE AND ELECTRICITY CABLE DUCTS

Replace this subclause with the following:

"PSLC 5.7 CROSSING OF TELEPHONE DUCTS WITH OTHER SERVICES

When a duct crosses an existing service such as an electricity supply cable, a water supply pipe or a sewerage pipe, the telecommunication duct shall, if possible, be laid not less than 25 mm above the existing service. Where the depth of the existing service is insufficient for this to be done, the telecommunication duct shall be laid to pass not less than 25 mm below the other service."

PSLC 7 TESTING

PSLC 7.1 ACCESS FOR SERVICES PROVIDER ENGINEER

Add the following:

"The various service provider's Engineers shall have free access to the Site at all times. They have the right to inspect work on telecommunication ducts at any stage and may reject any work not executed in an approved, substantial and workmanlike manner and in accordance with the specifications.

No pipes shall be covered before inspection by services provider's Engineers. Arrangements for inspections may be made by contacting the relevant services provider contact person.

Add the following subclause:

"PSLC 7.4 VISUAL INSPECTION

The product is marked with a clearly visible product code printed longitudinally every 3 meters along the pipe."

Add the following subclause:

"PSLC 7.5 FINAL INSPECTION

A final inspection will take place on completion of the work. The Contractor shall, at his own cost, expose all pipe ends prior to the final inspection, after which they may be finally plugged and closed."

PSLC 8 MEASUREMENT AND PAYMENT

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

PSLC 8.2 SCHEDULED ITEMS

PSLC 8.2.5 Supply, lay, bed and prove duct

Replace the payment paragraph with the following:

"Separate items are scheduled for each diameter of duct.

The rates shall cover the cost of providing all the materials and the cost of laying the ducts, installing the draw wire, jointing, bedding and providing all as specified."

PD: BUILDING WORK

CONTENTS

PD 01	SCOPE
PD 02	BRICKWORK, PLASTER WORK AND FLOOR SCREEDS
PD 03	DOORS AND WINDOWS
PD 04	GLAZING
PD 05	CARPENTRY AND JOINERY
PD 06	ROOF SHEETING AND ACCESSORIES
PD 07	ELECTRICAL WORK
PD 08	PLUMBING
PD 09	PAINTING
PD 10	MEASUREMENT AND PAYMENT

PD 01 SCOPE

This is a Particular Specification and covers the various construction activities associated with the erection of buildings which form part of this Contract.

Building work shall be carried out in accordance with the National Building Regulations, SANS 10400, the applicable clauses of the SANS Standardized Specifications and the information contained in this Specification.

Work appurtenant to the erection of buildings such as earthworks, concrete work, structural steelwork, etc shall be carried out as specified in the appropriate Standardized Specifications and will be measured and paid for under those Specifications.

PD 02 BRICKWORK, PLASTER WORK AND FLOOR SCREEDS

PD 02.1 MATERIALS

(a) Bricks

Bricks shall comply with SANS 227 and shall be of the class scheduled or shown on the drawings.

Satisfactory proof of the load-bearing capacity of the bricks offered shall be submitted before deliveries are made to the site.

Air bricks shall be well-burnt terracotta and shall be free from cracks and blemishes and lined with copper mosquito gauze.

Three samples of each type of brick shall be submitted to the Engineer for approval. All subsequent deliveries shall be of a standard equal to or better than that of the approved samples.

(b) Cement

Cement shall comply with the requirements of SANS 50197 and shall be stored under cover. The use of Portland blast-furnace cement (PBFC) which complies with the requirements of SANS 50197 will only be allowed if approved by the Engineer.

(c) Aggregate

Fine aggregate shall consist of natural sand, or crushed rock or gravel, and shall be hard, clean and free from adherent coatings or other deleterious matter. Sand for plaster and mortar shall comply with the requirements of SANS 1090, whereas the aggregates for normal and granolithic floor screeds shall comply with the requirements of BS 1199 and BS 1201 respectively.

(d) Water

Water shall be clean and free from clay, silt, oil, acid, alkali, organic or other matter which would impair the required strength and durability of the mortar, plaster or floor screed.

(e) Wall ties

Wall ties shall be of the galvanized, crimped, single-wire type, 3,5 mm in diameter, and shall comply with the requirements of SANS 28.

(f) Damp-proof sheeting

Damp-proof sheeting shall comply with SANS 248, type FV for fibre felt, or SANS 952, type B for embossed polyethylene sheeting.

PD 02.2 CONSTRUCTION OF BRICKWORK

(a) Cement mortar

Cement mortar shall, unless otherwise specified, consist of one part Portland cement to four parts sand (1:4) by volume for normal brickwork and one part Portland cement to three parts sand (1:3) by volume for reinforced brickwork. The ingredients for cement mortar shall be measured in proper gauge boxes on a boarded platform and thoroughly mixed. Alternatively, mixing may be by means of an approved mechanical batch mixer. Only when the dry ingredients have been thoroughly mixed and a mixture of uniform colour has been obtained may the water be added in sufficient quantity to obtain mortar with the required consistency.

Cement mortar shall be used within two hours of adding water to the mix and shall not be used after two hours or if it has begun to set. Mortar shall be turned over frequently to prevent it from setting until it is used.

(b) Brickwork

Dimensions of all the brickwork shall be set out and built as shown on the drawings. Bricks shall be kept wet before laying and the top of brickwork shall be wetted before any further bricks are laid. Bricks shall be well buttered with mortar before being laid and all joints shall be thoroughly flushed up as the work proceeds. All joints to face brickwork shall be neatly made and key-drawn with a 6 mm key.

Brickwork shall be carried up in a uniform manner with no portion being raised more than 1 m above an adjacent portion. All perpend, quoins, etc., shall be kept strictly true and square and the whole properly bonded together.

Brickwork shall be built in stretcher bond or english bond as shown on the Drawings, and bats shall not be used except where required for the bond. All joints shall be 10 mm wide and four courses shall measure 340 mm.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

Brickwork for cavity walls and solid walls built in stretcher bond shall be tied with wall ties placed not more than one metre apart in every third course, and shall be staggered vertically. At openings, the ties shall be positioned not more than 300 mm apart along the periphery of the opening and 150 mm from the opening.

Face brickwork shall be kept perfectly clean and rubbing down of the brickwork shall not be allowed. Scaffold boards shall be turned back during heavy rain to avoid splashing. Soiled brickwork shall be cleaned at the Contractor's expense, and the cleaning method shall be approved by the Engineer.

(c) Reinforced brickwork

Brickwork over door and window openings shall be reinforced with steel rods, welded or expanded mesh, etc. Reinforcement shall be placed in each course of brickwork for a minimum of four (4) courses or as shown on the drawings. Reinforced brickwork shall continue at least 300 mm on each side of the openings.

Brick lintels shall be built upon rigid temporary supports left in position for not less than seven (7) days after brick-laying. Prestressed concrete lintels may be used where approved by the Engineer.

(d) Key for plaster

Joints of all brickwork receiving plaster shall be raked out, or the brick surfaces shall otherwise be prepared with an acrylic slurry or any other approved bonding agent.

(e) Damp-proofing

A damp-proof course shall be laid over the full width of all the walls at a minimum height of 150 mm above the final ground level or wherever else it may be required, and it shall be lapped for at least 150 mm at angles and joints. A damp-proof course shall also be laid and stepped up under all external sills.

(f) General

Rough and fair cutting shall be performed as required, and the brickwork shall be fitted around any steel work. Face brickwork shall be carefully cut and fitted to suit fittings.

Chases shall be left or formed for edges of concrete floors, staircases, etc. Chases shall also be provided wherever they may be required for pipes, conduits, switch boxes, distribution boards, and the like. Joints shall be raked out for flashings.

PD 02.3 PLASTER WORK

(a) Plaster coats

A plastered finish shall consist of a single coat, comprising one application of a 1:6 cement sand mixture with a wood or steel-float finish.

(b) Thickness

The total thickness of the plaster finish shall be 13 mm minimum and 20 mm maximum.

(c) Workmanship

All plaster work shall be finished smooth and ready to receive paint. Plaster shall be flush with the faces of all switch and plug boxes, the interiors of which shall be kept free from plaster. Plastered surfaces shall be plumb and jambs and reveals shall be formed square.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

The plasterer shall cut out and make good all cracks, blisters and other defects and leave the plaster work, on completion, in a state which is acceptable to the Engineer.

PD 02.4 FLOOR SCREEDS

Floor screeds shall have a mix proportion by mass consisting of one (1) part Portland cement and three (3) parts (1:3) fine aggregate. A minimum amount of water is to be used, but it shall be sufficient to allow adequate compaction.

Screeds shall be laid on clean hardened bases in panels not exceeding 14 m² and shall be steel-trowelled to a true and smooth finish. In monolithic construction, the panels shall not exceed 30 m². Joints in screeds shall coincide as nearly as possible with joints in the bases. The thickness of screeds shall be as shown on the drawings or as directed by the Engineer.

The entire screed surface shall be free from loose or raised particles of aggregate, trowel marks or any irregularities, humps or depressions exceeding 5 mm when measured from a 3 m long straight edge.

Screeds shall be cured for three (3) to seven (7) days as may be directed by the Engineer, and shall be protected from damage.

No moisture-sensitive floor finish shall be laid on screeds unless a reliable moisture test shows that the screed is sufficiently dry to receive the covering.

PD 03 DOORS AND WINDOWS

PD 03.1 MATERIALS

(a) General

All steel and iron work shall be delivered clean and free from rust, pitting or other defects. Shop primings shall be applied before delivery and shall consist of a coat of red oxide paint, or any other approved anti-rust paint on all surfaces.

Unless otherwise specified, all materials shall conform at least to the appropriate SANS or BS standards where such standards apply to ironmongery, or steel, cast iron and any other related materials.

(b) Pressed-steel door frames

Pressed-steel door frames shall comply with SANS 1129 and shall be manufactured from 1,6 mm thick mild-steel sheeting, pressed to the required shapes, properly mitred, welded and reinforced, with all welding neatly cleaned off.

Frames shall be of the widths required to suit the thickness of the walls into which they are built and shall be fitted with suitable tie bars and braces at the bottom. Three lugs to be built into the brickwork shall be provided on each jamb.

Rebates in frames and transoms for doors shall be of the widths required to suit the thicknesses of the doors and shall be fitted with a pair of approved steel butt hinges set flush into recesses in the frames. 4,5 mm thick reinforcing plates shall be welded to the backs of the frames at hinge positions.

Heads of frames over double doors shall be drilled where required to form keeps for bolts and shall be fitted with one rubber buffer for each leaf of the door.

Frames for single doors shall be fitted with approved chromium striking plates and an adjustable striking-plate keeper boxed in at the back of the frame by a welded-on sheet-metal box. The frames shall be fitted with a minimum of two rubber buffers.

Frames shall be protected against twisting and damage during transit and erection.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

(c) Pressed-steel doors

Pressed-steel doors shall be manufactured from 1,6 mm thick steel plate. The doors shall be of standard design, pressed to shape with 40 mm reveals all round. The doors shall be strengthened with full-length vertical V-shaped or other approved sectional strengthening ribs projecting to the outer face. Two horizontal stiffening rails shall also be welded to the inner face of the doors.

A door shall be hung on a pair of 100 mm long steel butt hinges with loose pins. The leaves of the hinges shall be welded to both the door and the door frame, and a 1,6 mm thick steel plate shall be welded to the inner face of the door to protect the lock.

One leaf of double doors shall be fitted at the top and bottom with approved 150 mm cast brass barrel bolts in an approved manner and the other leaf shall be fitted with a lock, the striking plate of which shall be fixed to the first leaf.

Where indicated on the drawings, doors shall be fitted with louvred ventilation grills of approved design, backed with insect and vermin-proof gauze screening.

(d) Steel window frames

All steel window frames shall comply with SANS 727 and shall be of the types and sizes shown on the drawings.

Standard industrial types of steel window frame shall be constructed from rolled mild-steel industrial sections, 35 mm wide by 3 mm thick, with opening sections constructed from standard residential sections, 25 mm wide by 3 mm thick, welded at angles and properly jointed at intersections.

Window frames shall be formed perfectly flat, truly square and properly jointed at all angles, and the opening portion shall fit properly on all faces and shall open and close freely.

Glazing bars shall be continuous with jointed intersections, the ends being neatly tenoned into the frame and securely welded in position.

Frames shall be fitted with standard fixing lugs.

Opening sections shall open as indicated on the drawings, and shall be fitted with steel hinges with brass pins. Pivots shall be fitted with bronze ring centres.

Side hung or top hung opening sections shall be fitted with brass handles and friction stays. Bottom hung sections shall be fitted with friction pivots and spring catches.

Weather bar drips shall be attached to the fixed frames for the complete width of the window at the head of outward opening sections.

Composite windows shall preferably be delivered to the Site fully assembled, complete with mullions and transoms.

(e) Door-locks and handles

All door-locks shall comply with the requirements of SANS 4 and shall be of approved manufacture and pattern. All locks shall be supplied with two keys. Keys shall be distinctly numbered with consecutive numbers and each key shall be stamped with the same number as that of the lock which it controls. No two locks in any one building may have the same key.

External doors shall be fitted with four-lever heavy-duty mortice locks, which shall be master-keyed.

All locks shall be properly installed and, after completion, striker plates shall be adjusted and the locks serviced.

Door-handles shall be of cast zinc of approved manufacture and pattern.

(f) Miscellaneous fittings

All retaining devices for doors and windows as well as fittings such as coat hooks, retaining hooks, etc. shall be of solid brass. All fittings shall be secured by screws or set screws of the same material and finish as the fitting.

Fittings to be fixed to plastered walls, masonry or floors shall be fixed direct by means of patent plastic or fibre plugs fitted into drilled holes.

Door stops shall be provided at every door and shall be 40 mm diameter rubber stops.

PD 03.2 INSTALLATION OF DOORS AND WINDOWS

All built-in door and window frames shall be set straight, plumb and level, and shall operate to the satisfaction of the Engineer after fixing has been completed.

Fittings shall be either removed, or wrapped and protected from damage, until all rough trades have been completed.

PD 04 GLAZING

PD 04.1 MATERIALS

(a) Glass

Glass shall comply with the requirements of CKS 55. The quality of all window glass shall be such that surface deterioration will not develop after glazing.

All glass shall be free from bubbles, waviness, scratches, stains or other imperfections.

Unless otherwise specified, sheet glass for glazing shall be flat-drawn clear glass of ordinary glazing quality and of the thicknesses indicated below:

For panes not exceeding 0,75 m ² in area	3 mm
For panes exceeding 0,75 m ² but not exceeding 1,5 m ² in area	4 mm

(b) Putty

All putty shall comply with the requirements of SANS 680.

Putty shall not be too hard or soft or caked when used, and shall dry evenly without crazing or cracking.

Defective putty shall be cut out and replaced by the Contractor at his own expense, and any broken glass shall also be so replaced and putty so repainted.

PD 04.2 GLAZING

Glass shall be cut in panes to suit all glazed openings with sufficient clearance all round to prevent cracking by expansion, contraction or vibration.

In all cases the glass shall be well bedded and back-puttied and installed as specified in SANS Code of Practice 10137.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

All putty shall be carefully trimmed, cleaned off and neatly finished off straight with smooth surfaces and sharp mitres. A paint primer shall be applied as soon as the putty has dried out sufficiently to prevent shrinkage cracks from forming.

The entire glazing operation shall be cleaned before the premises are handed over for occupation.

PD 05 CARPENTRY AND JOINERY

PD 05.1 GENERAL

(a) Materials

All timber used for structural purposes shall be of merchantable grade and shall comply with the requirements of SANS 1783 and SANS 1245. Structural timber shall be carefully selected and of the best quality, free from large or dead knots, shakes, waney edges or other defects. Purlins and bracing shall comply with the requirements of SABS 1783. Finger-jointed structural timber shall comply with the requirements of SANS 10096 and laminated timber with the requirements of SABS 1089.

Hardwoods and softwoods for joinery shall comply with SANS 1099 and SANS 1359 respectively and suitable species shall be used for the various purposes.

Unless otherwise specified, all materials shall conform to the appropriate SANS or BS Specification where such standards exist for nails, screws, bolts, adhesives, etc.

(b) Preservative treatment

All structural timber shall be given a preservative treatment suitable for the duty for which the timber is intended in accordance with SANS 10005, and no untreated timber shall be used. The preservative treatment shall not impair the final finish. The timber shall be impregnated throughout. When surface coating is specified, the compounds applied on the surfaces of the timber shall form an unbroken film.

(c) Priming

The jointing surfaces of all joints exposed to the weather and built-in portions of frames shall be thickly primed except where adhesives are specified.

Carpentry and joinery items which are prepared for painting by the manufacturer, shall be knotted and primed before being dispatched to the Site.

Primed surfaces shall be touched up where necessary during the progress of the work or where site adjustments have been made.

PD 05.2 CARPENTRY WORK

(a) Scope of work

Carpentry work shall be carried out in a manner consistent with good workmanship and in compliance with the drawings.

The carpenter shall perform all cutting away and making good in attendance upon all other trades and he shall provide and maintain temporary coverings required for the protection of any finished work that might be damaged if left unprotected during the progress of the work.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

(b) Dimensions

Unwrought timber shall be as sawn and shall be to the dimensions and within the tolerances specified in the relevant SANS Standard Specifications mentioned in subclause PD 05.1(a).

(c) Jointing

Unless otherwise specified, all joints shall be secured by means of a suitable type and a sufficient number of approved connectors. All joints shall be carefully made in such a way that they will not impair the strength and stiffness of the beams or members.

(d) Timber roof construction

The plates, joists, rafters, purlins, bracing and other pieces used for the construction of the roof and trusses shall be of the dimensions, spacing and construction as shown on the drawings.

All the joints in the framework shall be of the most appropriate type, accurately formed and adequately secured with fasteners as specified.

PD 05.3 JOINERY WORK

(a) Scope of work

Joinery work shall consist of the manufacture, delivery to the site, and fixing in the buildings, of all joinery shown on the drawings.

Except where a special finish is specified, the Contractor shall have all stairs, landings, doors, shelves and other joinery work cleaned and scrubbed down and shall leave all his work in a good order to the satisfaction of the Engineer.

(b) Dimensions

All wrought timber shall be sawn, planed, drilled or otherwise machined or worked to the correct sizes and shapes shown on the drawings.

Reasonable tolerances shall be provided at all connections between joinery works and the building structure to compensate adequately for any irregularities, settlements or any other movements.

(c) Manufacture

The joiner shall perform all the necessary mortising, tenoning, grooving, matching, tonguing, housing, rebating and all the other works necessary for correct jointing. He shall also provide all metal plates, screws, nails and other fixings that may be necessary for doing the specified joinery work properly.

(d) Joints

Where joints are not specifically indicated, they shall be the recognised forms of joints for each position. The joints shall be so made as to comply with Part 2 of BS 1186.

(e) Doors and frames

Door frames, linings, panel doors, framed, ledged and braced doors, flush doors, sliding doors, etc. shall be supplied or made by the joiner and shall be installed, fitted or hung as detailed on the drawings.

All timber shall be wrought and prepared for oiling, staining, varnishing or painting.

(f) Skirtings, cornices, etc.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

Skirtings, cornices, etc. shall not be installed until after the wall coverings have been applied, the flooring laid and ceilings installed, unless otherwise specified.

(g) In-situ joinery

In-situ joinery work shall not be executed until after all floor, wall and ceiling surfaces have been formed or constructed, unless otherwise instructed.

(h) Ceilings

Ceilings shall consist of plaster board or fibre-cement panels as shown on the drawings and shall be nailed to the bracing or suspended from the roof structure. The panels shall be separated by exposed tees and insulated with a 50 mm thick fibreglass wool blanket where shown on the drawings.

PD 06 ROOF SHEETING AND ACCESSORIES

Roof sheeting and accessories shall comply with and will be measured and paid for under SANS 1200 HC.

PD 07 ELECTRICAL WORK

The electrical wiring of buildings shall be carried out by registered and licensed electricians in accordance with the requirements of SANS 10142-1 and the regulations of the Employer.

The electrician shall work in close co-operation with the Contractor to ensure that all conduits, switchboards, plug boxes and switch boxes are installed in their correct position.

The work shall be carried out in accordance with the drawings and to the satisfaction of the Engineer and the local authority.

PD 08 PLUMBING

PD 08.1 MATERIALS

(a) General

All materials shall be of the best quality and shall be approved by the Engineer before installation. Cracked, chipped, dented or faulty items or materials shall be replaced at the Contractor's expense. Glazed ceramic sanitary ware shall comply with the requirements of SANS 497 and all other materials shall comply with the standards as specified, scheduled or shown on the Drawings.

(b) Water closet (WC) suites

WC suites shall consist of a white glazed vitreous china closet with an S or P trap and seat lugs, a 14 litre low-level matching flat-bottomed flushing cistern placed and fixed on the closet, or a suspended enamelled cast-iron cistern with the flush pipe connected to the flushing rim of the closet with rubber cone joints, and a solid heavy-duty plastic seat with cover, hinges and buffers.

(c) Wash-hand-basins

Wash-hand-basins shall be of white glazed vitreous china or enamelled cast iron, wall mounted on a pair of cast-iron brackets, and fitted with chromium-plated fittings consisting of two taps, outlet and chain, and supplied with a plug and an anti-siphon trap.

(d) Sinks

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

Sinks shall comply with the requirements of SANS 242 and shall be complete with cabinet, chromium-plated outlet, anti-siphon trap, plug, chain and two bib taps or one mixer tap, all as detailed or as scheduled.

(e) Pipes and tubing

Cast-iron and steel pipes used in plumbing work shall comply with the requirements of SANS 746 and SANS 62 respectively. Copper tubing shall comply with the requirements of SANS 460 and malleable cast-iron fittings with SANS 509.

PD 08.2 CONSTRUCTION

Plumbing shall be carried out strictly in accordance with the Drawings and with the National Building Regulations, with specific reference to Government Notice R1875 dated 31 August 1979.

teel pipes and their malleable cast-iron fittings shall be joined with red lead and hemp, lead pipes shall have wiped soldered joints, and cast-iron pipes shall be joined by caulking with hemp and metallic lead.

Soil pipes from WCs shall have an internal diameter of at least 100 mm and shall be fitted with a pan connector and an access bend (or an access junction where a vent pipe is used), and carried through walls and into the ground for connection to the sewer. Vent pipes shall be fitted with approved balloon gratings.

Waste pipes from basins and sinks shall have an internal diameter of at least 32 mm and shall discharge into gulleys. Bends for waste pipes shall incorporate cleaning eyes.

Cisterns, basins and sinks shall be connected to the pipe system with 12 mm diameter copper service pipes, and chromium-plated stopcocks shall be installed for isolation and maintenance purposes.

PD 09 PAINTING

PD 09.1 GENERAL

No paint shall be applied to any surface containing traces of dust, grit, grease, oil, loose rust, millscale or corrosion products of any kind or to any surface that is not free from moisture. Where necessary, surfaces shall be thoroughly washed to remove all traces of soluble salts and/or corrosive air-borne contaminants prior to painting, and the surfaces shall be dried and painted immediately thereafter.

Welding shall be completed in so far as it is possible before painting commences, but in cases where welding can be done only at a later stage, no paint shall be applied to within 75 mm of the proposed weld position unless otherwise specified. Welds and adjacent parent metal shall be abrasive blasted and/or ground and all contaminants such as flux shall be removed prior to painting.

Surfaces of members which are to rest on concrete or other floors or which will be otherwise inaccessible after erection shall receive the full paint system prior to erection.

Damaged paint areas on metal surfaces shall be cleaned, rust spots removed where applicable and the surrounding paint which is still intact shall be feathered for a distance of 20 mm beyond the damaged area. Spot priming and repair shall consist of all the coats previously applied and shall overlap the damaged area.

Damaged galvanised areas shall be cleaned and any rust spots and any flakes of the coating surrounding the damaged area removed. The coating shall then be restored by zinc spraying or soldering, or painting with a zinc-rich paint, as may be approved by the Engineer.

Where the shop coat is allowed to age for a few months before the final painting is done, light sanding or rubbing with steel wool or scrubbing with clean water using a bristle brush shall be carried out.

Steel to be embedded in concrete shall not be painted below 50 mm from the final level of the concrete.

Each priming coat and each undercoat of paint shall be inspected and approved by the Engineer before any subsequent undercoat or finishing coat is applied.

All finishing colours shall be as shown on the drawings, or as directed by the Engineer.

PD 09.2 MATERIALS

Paints shall comply with the requirements of the appropriate Specifications below:

(a) Primers

SANS 312	:	Red-lead based for structural steel
SANS 678	:	For wood
SANS 679	:	Zinc chromate for steel
SANS 723	:	Etch-wash primer for metals
SANS 912	:	Calcium plumbate for galvanized iron
SANS 926	:	Zinc-rich epoxy for steel

(b) Undercoats

SANS 681	:	For all undercoats

(c) Finishing coats

SANS 515	:	For interior use, flat and egg-shell finish
SANS 630	:	For interior and exterior use, high-gloss enamel
SANS 631	:	For interior and exterior use, oil gloss paint
SANS 633	:	For interior use, emulsion paint
SANS 634	:	For exterior use, emulsion paint
SANS 684	:	For exterior use on structural steel
SANS 801	:	For interior and exterior use, epoxy-tar paint
SANS 802	:	For interior and exterior use, bituminous aluminium paint
SANS 887	:	For interior use, glossy and egg-shell varnish

The Contractor shall furnish the Engineer with the following information and details regarding the paints and decorative materials for the painting system he proposes to use, for written approval:

- (i) The name of the manufacturer and trade name
- (ii) The brand, type or grade of paint and the appropriate SANS Specification

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

- (iii) Manufacturer's data sheets, colour references, instructions for use, including surface preparation, sealers, primers, undercoats, finishing coats, coat thicknesses and curing periods, which shall all be considered as being part of these Specifications if approved by the Engineer
- (iv) Safeguards to protect the applied paint from damage until the work is accepted by the Engineer
- (v) The shelf or pot life of materials, if applicable
- (vi) An undertaking that the proposed paint system is suitable for its intended use and that the various coats of paint are compatible with one another

Where proprietary brands are used, the manufacturer's priming and all subsequent coats of paint suitable for that particular brand shall be employed in accordance with the manufacturer's instructions.

No other materials of a similar nature and quality or from another manufacturer may be used instead of those approved, unless written permission to do so has been obtained from the Engineer.

All materials shall be brought onto the site in containers sealed by the manufacturer. Paints of a different quality, type, brand or colour shall not be mixed or thinned and shall not be adulterated in any way, but shall be used as supplied by the manufacturer. Any mixing or tinting required shall be carried out by the manufacturer.

Tinting of paint on the site by the Contractor will only be allowed with the written permission of the manufacturer and the Engineer.

PD 09.3 INSPECTION AND PRELIMINARY WORK

Before commencing paintwork, the Contractor shall carefully inspect the surfaces to be painted to satisfy himself that the surfaces are in a satisfactory or acceptable condition to receive the paint system specified.

All metal fittings and fastenings shall be removed where applicable before the preparatory processes are commenced. On completion, the metal fittings and fastenings shall be cleaned and refitted in position.

PD 09.4 WORKMANSHIP AND FINISHES

Paint may be applied by spray, brush or roller depending on the materials used, the surface to be painted, and the manufacturer's instructions.

Every coat of paint, irrespective of the method of application, shall be adequately and permanently keyed or bonded to the base material or previously applied coat, and shall be evenly distributed, continuous, free from sags, runs, brush marks, pin holes or other imperfections, and shall dry to a smooth finish.

An approved water trap and air-regulating valve shall be furnished and installed on all equipment used in spray painting.

Before painting the interiors of buildings they shall be cleaned and the floors shall be washed and kept free from dust during the progress of the interior work.

The Contractor shall protect all nearby surfaces against disfigurement by spatters, splashes and smirches of paint or paint materials. The Contractor shall be responsible for any damage by paint or dirt caused by his operations to vehicles or property or injury to persons and he will be required to provide

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

protective measures to prevent any such damage or injury and make good, where required, at his own expense.

If passing traffic creates dust which may harm or spoil the appearance of external painted surfaces, the Contractor shall sprinkle the adjacent areas with water, at his own cost, for a sufficient distance on each side of the location where painting is being done.

Undercoats shall be tinted by the manufacturer to distinguish between successive coats.

The final coats or finishing coats of paint shall be applied after all the other work in the vicinity has been completed.

The painter shall keep some of the final paint in reserve in the event of his having to make good any patching which may be required as a result of damage or unforeseen circumstances.

Upon completion, the Contractor shall, in the case of buildings, clean all glass, remove all paint spots from walls, floors and fittings, and leave the premises clean and fit for occupation.

All inflammable materials, comprising solvents, thinners, wiping cloths, etc, shall be placed in tightly closed containers and properly disposed of.

PD 09.5 PAINTING OF PLASTER, CONCRETE OR BRICK SURFACES

(a) Surface preparation

Surfaces for painting shall be prepared by sandpapering, scraping or wire-brushing to remove loose material, dust, laitance, scum or other deleterious materials or high spots. Defective areas shall be cut out where necessary and made good with an approved non-shrink filler. Cracks shall be cut out, suitably keyed, and given a coat of an approved bonding agent before the filler is applied. All patches shall be rubbed down to an even surface. Surfaces shall be washed and allowed to dry.

Surfaces shall be treated with neutralising liquid for walls, and if the surface is coarse or textured, either one full coat of pigmented wall sealer or one full filler coat shall be applied in addition to the neutralising liquid.

(b) Paint application

Prior to the emulsion paint being applied, the surface shall be sealed with an approved clear sealer and primed with an undercoat diluted to 50%. Emulsion paint (PVA or acrylic) shall then be applied in two finishing coats.

Egg-shell finish (alkyd oil-based), oil gloss paint or enamel gloss paint shall be applied as follows: one coat of universal undercoat shall be applied and it shall be followed by one coat of a mixture comprising 50% of the undercoat and 50% of the paint to be used for the finishing coat. A finishing coat of semi-gloss egg-shell, or oil gloss paint or enamel gloss paint shall then be applied.

PD 09.6 PAINTING OF WOODWORK

(a) Surface preparation

The surfaces shall be cleaned, sandpapered and rubbed down to a smooth, even face before painting. The moisture content of the timber shall not be more than 20% at the time when the first coat is applied. All cracks, shakes or scars shall be filled flush with a filler approved by the Engineer before painting. The surface shall then be washed with cleaner and allowed to dry.

(b) Primer application

One coat of an approved wood primer shall be applied.

After open-grained timber has been prepared and primed, the grain shall be stopped and filled with synthetic filler and rubbed down with water paper.

All new woodwork shall be properly primed on all surfaces and edges before being fixed in position. All woodwork not previously painted shall be given a prime coat, well brushed in.

(c) Paint application

One coat of universal undercoat shall be applied followed by one coat of a mixture of 50% of the undercoat and 50% of the paint to be used for the finishing coat. A finishing coat of oil gloss paint or enamel gloss paint or semi-gloss egg-shell (alkyd oil-based) paint shall then be applied.

(d) Varnish finish

Two coats of gloss varnish or egg-shell varnish shall be prepared, stopped and applied.

PD 09.7 PAINTING OF METAL SURFACES

(a) General

Wherever possible, all painting shall be done at the manufacturer's works, but where this is not feasible, the Engineer may permit the application of the undercoat and finishing coats to be carried out on the Site, in which case a prime coat shall be applied at the manufacturer's works prior to the members being despatched to the Works.

(b) Surface preparation

The preparation of metal surfaces shall comply with SANS Code of Practice 10064 and shall receive the greatest care to ensure rust-free conditions prior to the paint system being applied.

All surfaces shall be prepared by removing loose paint, rust, plaster, scale, dust, dirt, grease, etc. and by repairing or patching defective paint surfaces before painting or repainting. Damaged shop-primed surfaces shall be thoroughly cleaned of rust and patched with a prime coat.

(c) Paint application

(i) Iron and steel work

All iron and steel work shall be properly primed with a red-lead-based primer where steel work is likely to be exposed to the elements for longer than 30 days. Zinc-chromate primer may be used where overpainting will be completed within 30 days of priming. Metal-etch wash primers may be used under dry conditions where overpainting will be completed within 24 hours of priming. The dry-film thickness of the prime coat shall not be less than 0,300 mm.

After priming, one coat of universal undercoat shall be applied. If necessary, the undercoat shall be tinted to a shade just lighter than the desired finish with approved liquid stainers. The dry-film thickness shall not be less than 0,250 mm.

The two finishing coats shall either be of alkyd resin-based synthetic enamel, gloss or matt oil paint, or as specified elsewhere. The dry-film thickness shall not be less than 0,250 mm per coat.

When mating surfaces are brought together, both surfaces shall have been given the full treatment specified, but where this cannot be done, each surface shall be given a copious coating of primer and the surfaces drawn together while the paint is still wet.

The portion of structural steel members to be buried in soil, and all bases to a height of 500 mm shall be given two coats of an epoxy-tar primer instead of the zinc-chromate primer specified for other surfaces.

The surfaces of steel and cast-iron articles, such as floor gratings, grids and manhole covers, shall, after a thorough brushing to remove loose rust, be painted with two coats of epoxy-tar paint, each at least 0,230 mm thick.

(ii) Galvanized iron and steel

All traces of protective coating shall be removed with galvanized iron cleaner, and two coats of calcium plumbate primer shall be applied. One coat of tinted universal undercoat and two finishing coats of alkylid resin-based synthetic enamel gloss paint shall be applied.

(iii) Non-ferrous metals

Surfaces of aluminium, copper, etc. shall be prepared and cleaned, and one coat of self-etch zinc-chromate wash primer shall be applied. One coat of universal tinted undercoat and two finishing coats of enamel gloss paint shall then be applied. Where non-ferrous metals are not to be painted, the surfaces shall be cleaned, polished and two coats of lacquer applied.

PD 09.8 PAINT THICKNESS

Unless otherwise specified, all coats of paint, whether prime coat, undercoat or finishing coat, shall have a dry-film thickness of not less than 0,200 mm, irrespective of the method of application.

PD 09.9 INSPECTION

The Contractor shall provide the necessary equipment to establish whether the primers, undercoats and finishing coats have been applied to the correct thickness according to the correct applications. The Engineer may take samples of the paints during painting operations for testing and quality control.

PD 10 MEASUREMENT AND PAYMENT

PD.01 Brickwork:

(a) (Thickness, type and class indicated) Unit: m²

(b) Etc. for other thicknesses, types and classes

The unit of measurement shall be the square metre of each type of brickwork built, calculated from the leading dimensions of the brickwork. Areas of pipes, etc. built into brickwork shall not be included in the areas measured. At corners and intersections common to more than one brick wall, the areas shall be measured only once.

The tendered rates shall include full compensation for the construction of the brickwork complete as specified, including pointing, the building-in of conduits, beams, lintels, pipe sleeves, doors, windows, the raking-out of joints, damp-proof course, brickwork reinforced as specified, etc.

PD.02 Plaster work:

(a) (Thickness of plaster and finish indicated) Unit: m²

(b) Etc. for other thicknesses and finishes

The unit of measurement shall be the square metre of each type of coat completed as specified.

The tendered rates shall include full compensation for the construction of the plaster work, including supplying all materials, mixing, applying, finishing, forming reveals, joints, narrow widths, rounded angles, V-joints, etc. complete as specified.

PD.03 Floor screeds:

- (a) (Description and thickness indicated).....Unit: m²
 (b) Etc. for other thicknesses

The unit of measurement shall be the square metre of floor screed laid, as specified, on floors, steps or areas shown on the drawings or as designated by the Engineer.

The tendered rates shall include full compensation for constructing the floor screeds, including supplying all materials, mixing, laying, finishing, and forming nosings, reedings, skirtings, etc.

PD.04 Doors and windows:

- (a) (Type and size indicated).....Unit: number
 (b) Etc. for other types and sizes

The unit of measurement shall be the number of doors and windows installed complete as specified.

The tendered rates shall include full compensation for manufacturing and installing steel doors, windows, and frames complete with hinges, handles, locks, barrel bolts, retaining devices, door stops, stays and any other work necessary to complete the work as specified or as shown on the drawings. The tendered rate for windows shall also include full compensation for glazing, window sills as specified, and damp-proof sheeting.

PD.05 Structural timber:

- (a) Plates (sizes indicated) Unit: m
 (b) Beams (sizes indicated).....Unit: m
 (c) Joists (sizes indicated) Unit: m
 (d) Rafters (sizes indicated) Unit: m
 (e) Purlins (sizes indicated) Unit: m
 (f) Roof trusses complete (drawing number indicated) Unit: number

The unit of measurement shall be the metre of individual types of timber element or the number of complete trusses installed.

The tendered rates shall include full compensation for supplying all materials and manufacturing, cutting, wasting, jointing and installing the timber as shown on the drawings.

PD.06 Ceilings:

- (a) Plaster-board ceiling (type and thickness indicated):
 (i) Fixed ceiling.....Unit: m²
 (ii) Suspended ceiling Unit: m²
 (b) Fibre-cement ceiling (thickness indicated):
 (i) Fixed ceiling.....Unit: m²
 (ii) Suspended ceiling Unit: m²

The unit of measurement shall be the square metre of fixed or suspended ceiling installed complete as scheduled.

The tendered rates shall also include full compensation for the construction of the ceilings, including the exposed tees, insulation blanket and brandering as specified, as well as the suspension system where applicable.

PD.07 Joinery:

- (a) Items measured by number:
 - (i) Doors (type and size indicated) Unit: number
 - (ii) Etc. for other items measured by number
- (b) Items measured by length:
 - (i) Skirtings (type and size indicated) Unit: m
 - (ii) Etc. for other items measured by length

The units of measurement shall be the metre of each type and/or size of joinery item specified.

The tendered rates shall include full compensation for supplying all materials, and manufacturing, cutting, wasting, fixing and installing the joinery items.

PD.08 Miscellaneous work:

- (a) Paintwork..... Unit: sum
- (b) Plumbing..... Unit: sum
- (c) Electrical work Unit: sum
- (d) Concrete work for foundations..... Unit: sum
- (e) Imported Earth fill under Foundations and Floors Unit: sum
- (f) Tiling Unit: sum
- (f) Placement of Roof Sheets Unit: sum

The tendered sums shall include full compensation for the supply of all materials, for transport, storage, all equipment and labour, all temporary work and safety precautions, replacement of defective work, protection of completed work and clean-up after completion.

PD.09 Miscellaneous items:

- (a) Items measured by number:
 - (i) Supply and Install of Wooden desk as specified on the drawings Unit: sum
 - (ii) Supply and Install of Wooden seating bench as specified on the drawings Unit: sum
 - (iii) Provision of portable Chairs for seating..... Unit: sum
 - (iv) Supply of Vinyl Tiles Unit: sum
 - (v) Supply and install of Steel Lockers..... Unit: sum

(vi) Supply of IBR roof sheeting Unit: sum

The unit of measurement shall be sum but will be quantified to sum based on the number, linear metre, square metre and cubic metre as applicable to each item.

The tendered rates shall include full compensation for all labour, plant, equipment, transport, etc, manufacturing or providing and installing each item complete as scheduled and shown on the drawings, and shall include all corrosion protection where applicable.

PZ: PALISADE FENCING

CONTENTS

CD 01	SCOPE
CD 02	STANDARD SPECIFICATIONS
CD 03	OPERATING AND MAINTENANCE MANUALS
CD 04	EXECUTION OF WORK
CD 05	QUALITY STANDARD
CD 06	MATERIALS
CD 07	MAINTENANCE
CD 08	MEASUREMENT AND PAYMENT

CD 01 SCOPE

This specification covers the erection of mild steel palisade fencing and gates as well as the removal of existing fencing.

This specification shall form an integral part of the contract document and shall be read in conjunction with all other relevant specifications included in this document.

CD 02 STANDARD SPECIFICATIONS

CD 02.01 GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender, of the following specifications, codes and standards shall be read in conjunction with this specification and shall be deemed to form part thereof:

- SANS 10162, including all relevant other specifications and standards referred to therein
- SANS 2553, ditto
- Specifications and regulations as listed in Section 5: List of Specifications in this document, ditto

CD 02.02 OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) shall be adhered to.

CD 02.03 MANUFACTURERS' SPECIFICATIONS, CODES OF PRACTICE AND INSTALLATION INSTRUCTIONS

All equipment and materials shall be installed strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

CD 02.04 MUNICIPAL REGULATIONS, LAWS AND BY-LAWS

All municipal regulations, laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

CD 03 OPERATING AND MAINTENANCE MANUALS

No operation and maintenance manuals will be required for palisade fencing and gates, unless it is required in terms of the manufacturer's specifications.

CD 04 EXECUTION OF WORK

Unless this specification dictates otherwise or the Engineers instructs otherwise, the palisade fencing erected under this contract shall, as far as possible, be of the same type, dimensions, specification and colour as the existing palisade fencing on site previously erected by others.

The Contractor shall report any problem areas or uncertainties he may have to the Engineer who shall issue all necessary instructions.

All fencing work shall be carried out to the satisfaction of the Engineer.

The Contractor shall ensure that the necessary materials, skilled personnel, tools and equipment are always available so as to ensure a high standard of work.

Prior to the execution of work, the Engineer shall indicate where existing fences are to be removed and where new fences and gates, etc are to be erected.

Whenever existing fencing is removed, it will immediately be replaced with new fencing in order to avoid security risks. The Contractor shall ensure that such open areas are not left unguarded and shall liaise closely with the Employer's security personnel in this regard.

CD 04.01 SCOPE OF WORK

The scope of work is as follows:

- (a) Erection of new galvanized mild steel palisade security fencing and gates to match existing

CD 04.03 ERECTING POSTS

Posts shall be accurately and vertically set in holes and be provided with 300 x 300 x 600 mm concrete bases for corner- and intermediate posts and 500 x 500 x 800 mm concrete bases for gate posts.

Corner- and intermediate posts shall be set 600 mm deep in concrete and gate posts shall be set 800 mm deep in concrete.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

Holes shall be dug to the fully specified dimensions. Where posts are to be erected in existing paving or other surface covering, the existing shall be carefully removed and reinstated after completion of the new fencing.

Posts shall be firmly planted at the same spacing as those of the existing palisade fence on site previously erected by others (approximately 3,07 m centres). The spacing of posts shall be uniform. A post shall be erected at all corners and T intersections in the palisade fencing, unless otherwise approved by the Engineer.

CD 04.04 ERECTING PALISADE INFILL PANELS

Palisade infill panels, uniform in appearance, shall consist of vertical angle iron pale sections welded at a right angle to two horizontal rails, the ends of which, in turn, shall be welded to the posts. The pales shall always be vertical and shall all be parallel to each other at approximately 154 mm centres. The two horizontal rails shall also be parallel to each other. These two rails shall be spaced at approximately 1 815 mm centres: the bottom rail being not exceeding 300 mm above ground level. The top- and bottom ends of the vertical pales shall form two straight virtual lines (i.e. virtual lines connecting the top- or bottom ends of the palisade panels shall be straight).

Each palisade panel, i.e. a standard panel between two intermediate posts, shall consist of in no. 19 vertical pales, unless conditions dictate otherwise at ends, gates, etc.

CD 04.05 ERECTING GATES

All gates shall be hung to gateposts on three heavy-duty bullet hinges welded on and shall consist of parallel vertical pale sections welded onto a rectangular framework. The gates shall be so erected that they swing in a horizontal plane at right angles to the gateposts, clear of the ground in all positions.

Double swing gates shall not leave a gap of more than 25 mm between them when closed and other gates shall not be further than 25 mm from the gatepost when closed. The clearance below the gates shall not exceed 90 mm with the gates closed.

All gates shall be equipped with an approved locking device and barrel bolt with concrete keep like, or of higher quality than those of the existing palisade gates on the site

CD 04.06 CLOSING OPENINGS UNDER FENCES

At ditches, drainage channels or other hollows where it is not possible to lengthen the vertical palisade pale sections or otherwise erect the fence so that it follows the general contour of the ground, the Contractor shall neatly and securely cover the openings with black PVC wire netting or galvanised steel diamond mesh fixed to the fence.

CD 04.07 EXISTING FENCES

Where a new palisade fence joins an existing palisade fence at an existing post, the horizontal bars of the starter palisade panel of the new fence may be welded to the existing post, provided that proper welding preparations are done and all existing paintwork is repaired. However, should the intersecting point not be an existing post, a new starter post for the new fence shall be erected as close as possible to the existing fence with no welding connections or disturbance of the existing fence.

Existing fences that require to be taken down shall be neatly stacked and removed as soon as possible with no material left behind, unless the Engineer issues an instruction to the contrary. Existing posts in concrete bases shall be removed to below ground level so as to enable the complete covering of the existing bases with topsoil, paving, etc. Where new posts with concrete bases are to be erected in the same location as existing, the existing bases shall be completely broken up and removed so as to enable the casting of a new base.

CD 04.08 NEW MATERIAL

No second-hand material shall be used on the site unless the Engineer issues an instruction to the contrary.

CD 05 QUALITY STANDARD

The completed fences shall be plumb, taut, true to line and ground contour, with all posts, panels, etc. firmly set.

The Contractor shall, on completion of each section of fence, remove all cut-offs and other loose materials so as not to create a hazard or a nuisance to the Employer, his employees or the public.

CD 06 MATERIALS

CD 06.01 POSTS

CD 06.01.01 Mild steel posts

All posts, except gate posts, shall be of 75 x 75 x 2 mm thick square hollow section with a 100 mm wide x 100 mm wide x 115 mm high x 2 mm thick pyramid shaped steel cap welded on.

Gate posts shall be of 100 x 100 x 5 mm thick square hollow section with a 125 mm wide x 125 mm wide x 140 mm high x 5 mm thick pyramid shaped steel cap welded on, standing approximately 2,65 m high above ground level.

After erection, posts shall stand approximately 2,65 m high above ground level. Where not practical or possible due to circumstances, this height shall be adjusted to suit.

Concrete for post bases shall be class C mass concrete (15 MPa).

CD 06.02.02 Mild steel vertical pales

The pales shall be approximately 2,4 m long (may vary depending on specific circumstances on site) and fabricated from 40 x 40 x 2 mm angle sections. The top ends shall be uniformly devil fork shaped with two sharp ends and the bottom ends shall be uniformly sharp arrow shaped.

CD 06.03 GATES

New palisade gates shall have the same appearance, detail and construction as the existing palisade gates.

Frames shall be fabricated from 38 x 50 x 5 mm thick rectangular steel hollow sections with solid mitred joints at corners. Vertical pales shall be like those used in the fence.

CD 07 MAINTENANCE

During the execution of the Works up to the issue of the Taking over Certificate, the Contractor shall be responsible for general maintenance of the Works.

CD 08 MEASUREMENT AND PAYMENT

CD.03 SUPPLY AND ERECTION OF NEW STEEL PALISADE FENCING:

- (a) Palisade fencing complete, including intermediate-, end- and corner posts (state height and other basic dimensions) Unit: metre (m)
- (b) Gates complete (state size) Unit: number

Separate items shall be scheduled for fences and gates, etc. of different specifications, heights, etc. as necessary.

TRANSNET NATIONAL PORT AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

The unit of measurement for subitem (a) shall be the linear metre of completed fencing, measured on plan at a constant distance above ground level along the completed fence over posts, etc., but excluding gates and other openings.

The unit of measurement for subitem (b) shall be the number of each type of gate erected. Double gates described as such shall be measured as one gate.

The tendered rates shall include full compensation for supplying, fabricating and erecting the fencing and gates complete as per this specification, including all transport, labour, materials, setting out, determination of component sizes to suit ground lines, welding, excavation, backfilling, concrete and all else necessary.

Part C4: Site Information

PART C4: SITE INFORMATION

Document reference	THE PROVISION OF THE PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY FOR A PERIOD OF 18 MONTHS	Page number
C 4	Site Information	10

PART 4: SITE INFORMATION

Core clause 11.2(16) states

"Site Information is information which

- Describes the Site and its surroundings and
- Is in the documents which the Contract Data states it is in."

In Contract Data, reference has been made to this Part 4 of the contract for the location of Site Information.

1. Description of the Site and its surroundings

1.1. General description

1.1.1 The Port of Richards Bay is situated at longitude 32° 02' E and latitude 28° 48' S, is South Africa's most northern and easterly port, located 160 km northeast of Durban and 465 km southwest of Maputo.

1.1.2 The study will be conducted within the Port of Richards Bay, see Port Road layouts on figure 1 below and detailed engineering drawing layout attached on the scope of works, The *Contractor* shall ensure that safe and proper access to all Port facilities is maintained. The *Contractor* employees will have to go through Port induction prior commencement of the works.

Site location coordinate: 28°47'6.46"S, 32° 2'40.85"E.



Figure 1 Project scope site.

1.1.3 Prospective Contractor shall attend the compulsory briefing session to acquaint themselves with the nature of the Works, the condition under which the work is to be performed, the means of access to site, any limitations or other authorities and all matters that may influence or affect the *Contractor*.

1.1.4 There is a permit card access system to enter the Port Area. The Port staff must arrange the required access permits and issue them to the *Contractor* free of charge. Should any person lose his/her access permit these must be replaced at a cost of R 360-00 per person, cost to be incurred by the *Contractor*. This must also apply if permits are not returned at the end of the project completion.

1.1.5 Normal working hours are between 07:30 and 16:30 Mondays to Fridays. If it is required to work outside the stated normal working hours, the *Contractor* must obtain written permission at least 24 hours before such work needs to be undertaken. TRANSNET NATIONAL PORTS AUTHORITY will not unreasonably withhold permission

1.2. Existing buildings, structures, and plant & machinery on the Site

1.2.1 The *Contractor* shall be made aware of Port stakeholders utilising roads within the Port hence precautionary measures and proper planning shall be conducted prior commencement of work to avoid limited road disruption to several operational areas within the Port.

1.3. Existing Pavement and Subsoil conditions.

1.2.2 The existing road subsoil information is to be provided to the Contractor; however, the Contractor shall do due diligence to ensure the validity of data, as TNPA will not be held responsible for any defects or errors arising from TNPA-supplied data.

1.2.3 Newark Road pavement and subsoil conditions.

Table 6-1: Position of test pits excavated along Newark Road alignment.

Test pit	Chainage (km)
TP23	0.03
TP22	0.13
TP48	0.26
TP 01 NEW	0.45

TP21	0.58
TP24	1.16
TP25	1.86
TP26	2.28
TP 02 NEW	2.43
TP27	2.8
TP28	3.17
TP 03 NEW	3.44
TP29	3.69
TP30	4.1

Table 6-2: Position of test pits excavated along Urania Road alignment.

Test pit	Chainage (km)
TP51	0.08
TP04 NEW	0.35
TP47	0.63
TP05 NEW	0.73
TP45	0.86

Table 6-3: Position of test pits excavated along Urania Road alignment.

Test pit	Uniform Section	Chainage (km)
TP 15	-	0.04
TP 12	-	0.08
TP 06 NEW	-	0.18
TP 14	-	0.25
TP 11	-	0.3
TP 07 NEW	-	0.42
TP 16	-	0.43
TP 13	-	0.52

- All the test pits were excavated up to a depth of at least 1000mm. No refusal was encountered at any of the excavated test pit. The water table was encountered at TP03 New.

-
- Material Investigation Findings
 - The following section discusses the findings from the test pit profiles and the laboratory test results. The material sampled from each of the pavement layers was subjected to the following laboratory tests:
 - Grading and indicator tests;
 - Soaked CBR strength tests; and
 - Optimum moisture content (OMC) and maximum dry density (MDD) tests.
 - In addition to the material sampling at each test pit, Roadlab conducted in-situ chemical tests on the pavement layers. The chemical tests included:
 - Phenolphthalein test—used to test for the presence of cement in the layer, where a positive reaction gives a pink colour.
 - Hydrochloric acid test—used to test for the presence of carbonate compounds in the pavement layers, where frothing indicates a positive reaction.
 - The pavement profiles along the road alignment are illustrated in Figure 6-1 up to Figure 6-4. In Figure 6-3 and Figure 6-4, the superscript (*) denotes that the material classification was derived solely based on road indicator, due to the absence of California Bearing Ratio (CBR) testing for that specific layer. This was done where the CBR test was not done on a specific layer. The superscript (**) indicates that the material classification was inferred through comparative assessment, specifically, by analysing the photographic records and descriptive logs of the test pits in question and cross-referencing them with adjacent test pits. Where the material characteristics and visual appearance were consistent, the classification was assumed to be equivalent. This approach was applied in situations where material samples were not collected for laboratory testing.

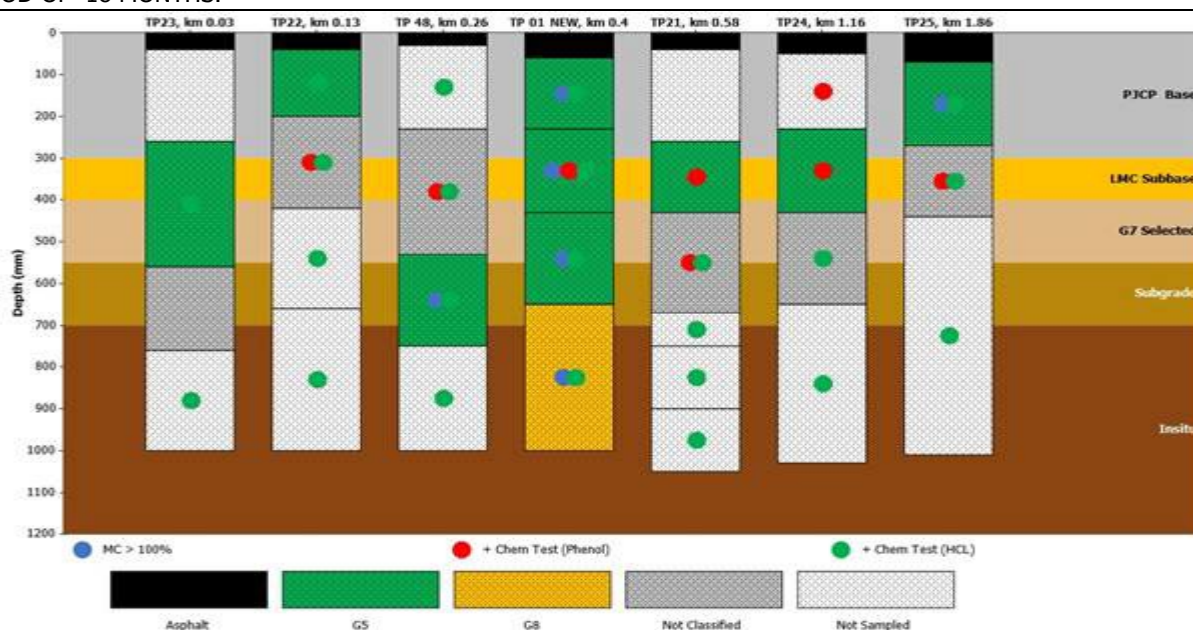


Figure 6-1: Pavement Profile Along the Newark Road Alignment from km0.00 to km 2.00, without material classification Interpretation

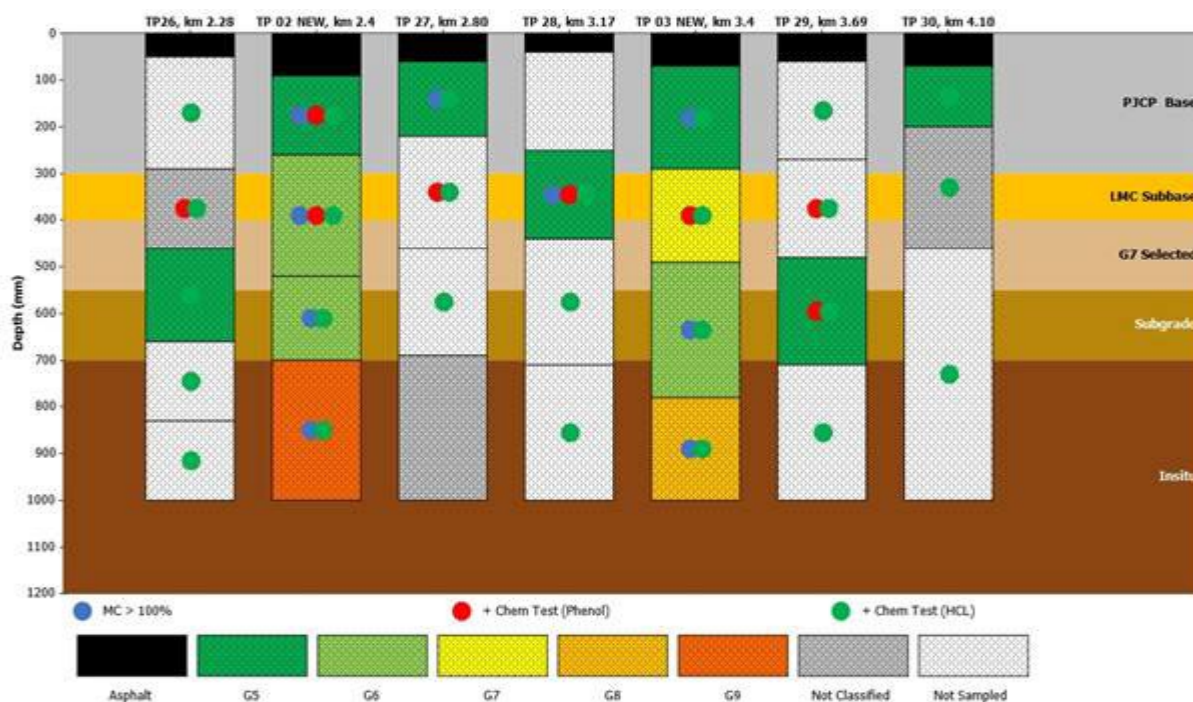


Figure 6-2: Pavement Profile Along the Newark Road Alignment from km2.00 to km 4.30 without material classification Interpretation

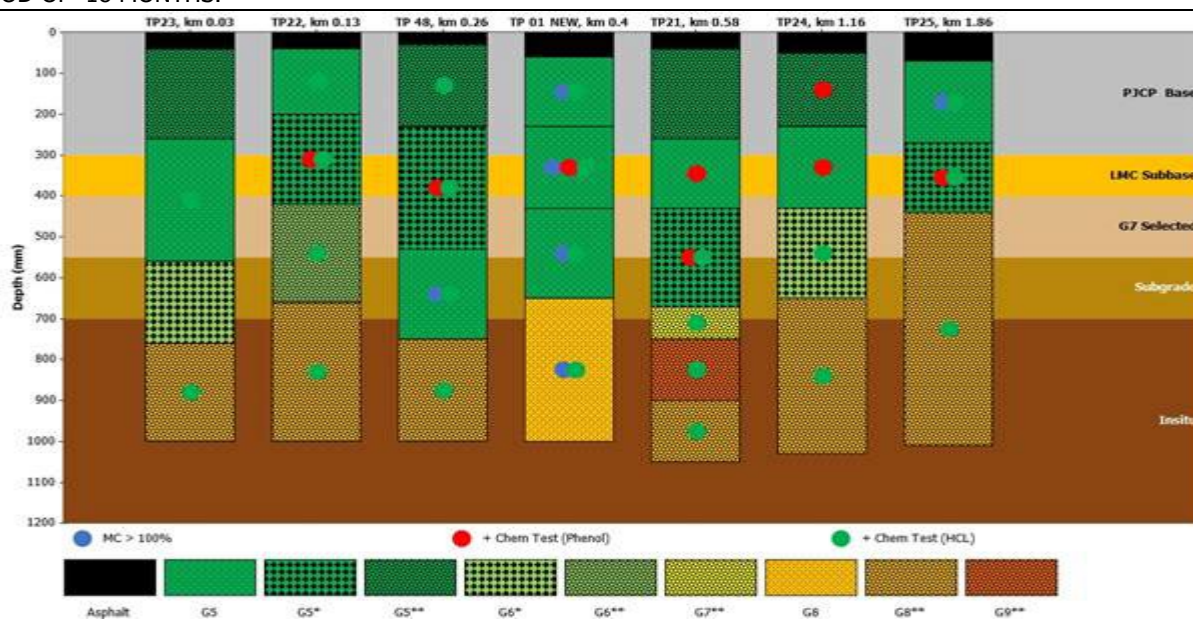


Figure 6-3: Pavement Profile Along the Newark Road Alignment from km0.00 to km 2.00, with material classification Interpretation

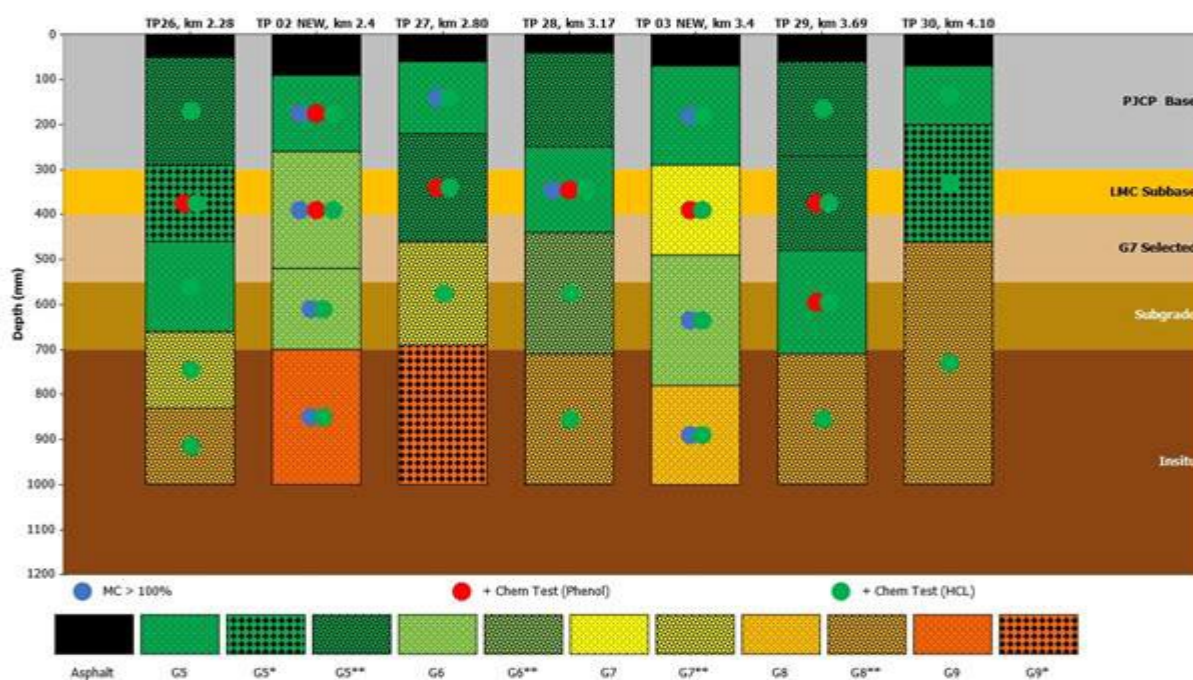


Figure 6-4: Pavement Profile Along the Newark Road Alignment from km2.00 to km 4.30 with material classification Interpretation

1.2.4 Urania Road pavement and subsoil conditions.

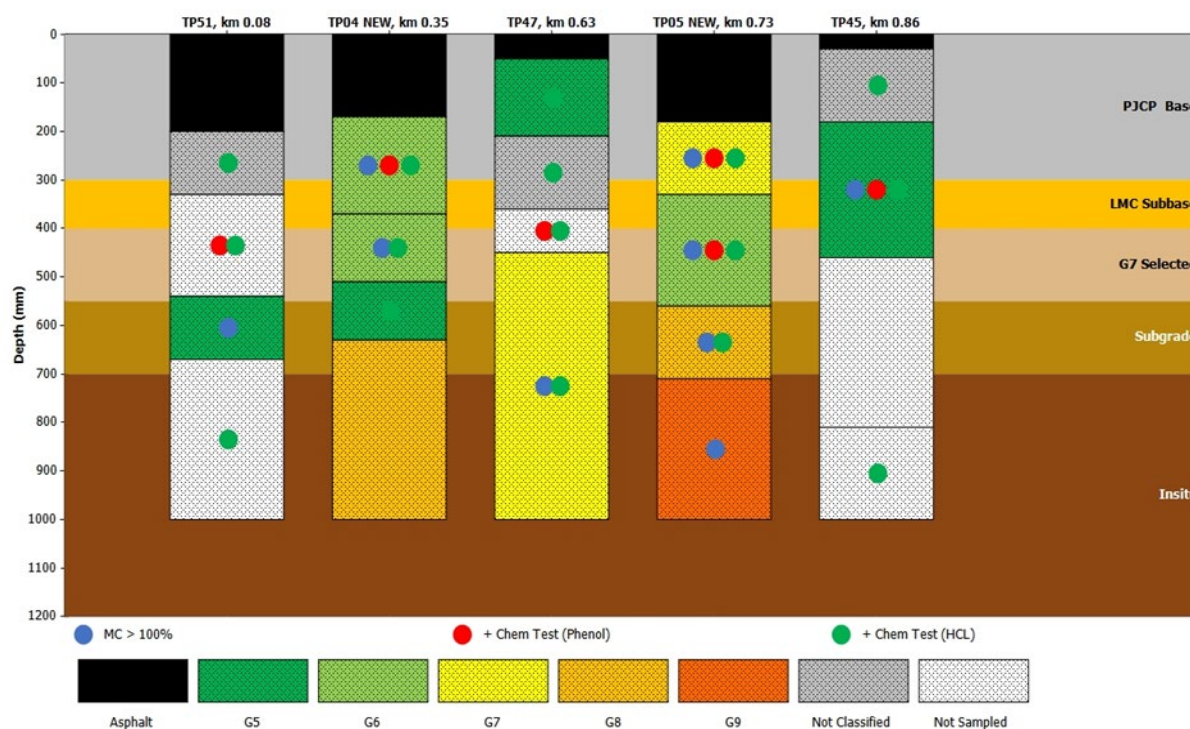


Figure 6-5: Pavement Profile Along the Urania Road Alignment from km 0.00 to km 1.10 without material classification Interpretation

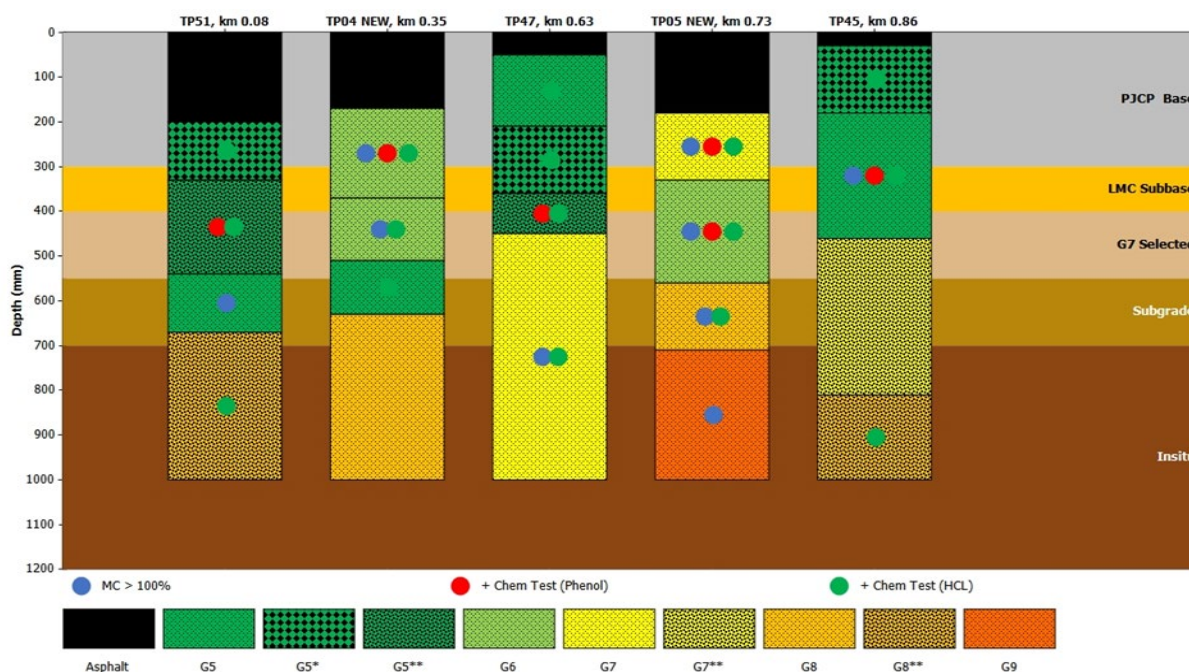


Figure 6-6: Pavement Profile Along the Urania Road Alignment from km 0.00 to km 1.10 with material classification Interpretation

1.2.5 Ventura Road pavement and subsoil Conditions.

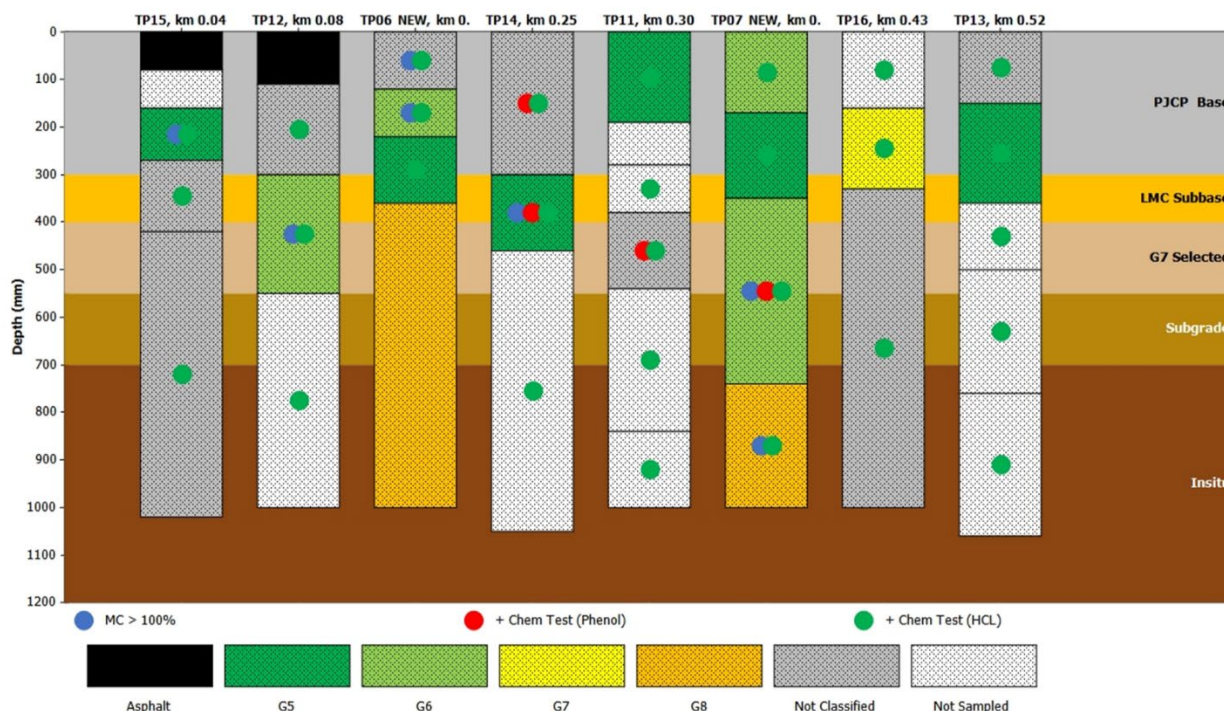


Figure 6-7: Pavement Profile Along the Ventura Road Alignment from km 0.00 to km 0.60 without material classification Interpretation.

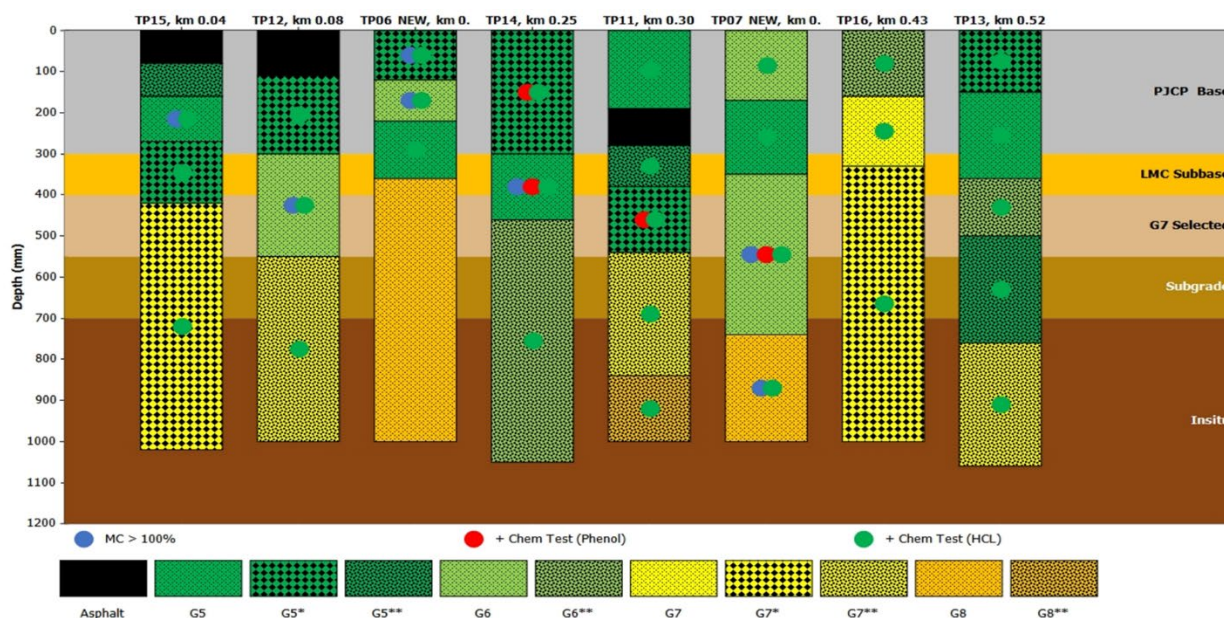


Figure 6-8: Pavement Profile Along the Ventura Road Alignment from km 0.00 to km 0.60 with material classification Interpretation

The Consulting Engineer shall be consulted on any site condition that are found to be different from the geotechnical information supplied to the Contractor, which will be made during the beginning of construction.

"The Contractor must classify and manage all soil materials to be removed on site in compliance with the Waste Classification and Management Regulations (WCMR) (GN R. 634 of 2013) promulgated under the National Environmental Management: Waste Act, 2008 (NEMWA), including associated Norms and Standards. Waste management shall adhere to:

- Classification of waste in terms of the South African National Standard: Globally Harmonised System of Classification and Labelling of Chemicals (GHS) SANS 10234:2008 according to the WCMR (GN R.634, 23 August 2013);
- Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635, 23 August 2013) to differentiate between the different types of the waste (Type 1 to Type 4); and
- The National Norms and Standards for Disposal of Waste to landfill (GN R.636, 23 August 2013).

If contamination is suspected, the Contractor shall evaluate and manage it in accordance with the National Norms and Standards for Remediation of Contaminated Land and Soil Quality (GN R.331, 2014). Hazardous waste must be disposed of at licensed facilities authorised for hazardous materials."

1.4. Weather information for the area.

The number of days in excess of the number of working days anticipated to be lost, due to climatic conditions, are already included on the estimated project duration. The number of anticipated rain days are shown in section 1200, subclause B1215 in the project specifications.

1.5. Hidden services

1.4.1 The *Contractor* is to apply care not to damage existing services. The Contractor is required to hand dig the site to prevent damages to services running on site.

1.4.2 Newark and Octopus intersection has phosphoric acid line including the sea water intake, the pipeline is anticipated to be at least 300mm from the natural ground level or road surfacing, the contractor shall carefully dig this road section and furthermore ensure that the pipe is protected during construction.

TRANSNET NATIONAL PORTS AUTHORITY

CONTRACT NUMBER: TNPA/2025/06/0004/99874/RFP

DESCRIPTION OF THE WORKS: PORT ROAD UPGRADE AND REHABILITATION PHASE 1: UPGRADE AND REHABILITATION OF URANIA, NEWARK, AND VENTURA CONCRETE ROADS WITHIN THE PORT OF RICHARDS BAY, FOR A PERIOD OF 18 MONTHS.

1.4.3 There several bulk services along the road servitude including the on the green field where expansion are proposed, this includes the following but not limited, the contractor shall practice due diligence to ensure services are not damaged and they are protected, any damage to such infrastructure will be required at contractor's cost.

1.4.3.1 Water, sewer, and stormwater services.

1.4.3.2 Telecommunication lines.

1.4.3.3 Electrical distribution lines.

1.4.3.4 Other services that might not be known by the employer.