TRANSNET SOC LTD

TENDER NUMBER: iCLM HQ 728/TPT - TPT/2022/10/1641/14790/RFP

UPGRADE OF EMPTY STACK (AREA 100) AT PIER 1, DURBAN CONTAINER TERMINAL FOR TRANSNET SOC LTD (REG. NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT")

ADDENDUM NO. 1 **DATED: 22 June 2023**

The following information is furnished in addition to, in amplification and substitution of, matters contained in the tender documents issued in respect of the abovementioned works.

1.	Tender Closing Time	CLOSING DATE : **12 July 2023 at 10:00am**
2.	Evaluation Criteria	• T2.2-04: Evaluation Schedule: Programme • T2.2-04: Evaluation Schedule: Management & CVs of Key Persons Replace the above in its entirety
3.	Works Information	Replace the Works Information in its entirety
4.	Additional Annexures	Annexure G - Empty Container Handler Spec Annexure H - Container Empty Spec

Snegugu Nhlapho
Procurement Officer
Date: 22/06/2023

Nolan Reddy
Project Manager
Date: 23/06/2023

Thabile Zuma
Acting Commodity Manager
Date:

FROM : _____

_____

_____

_____

DATE : _____

TO : Transnet Port Terminals

202 Anton Lembede Street
Durban
4000
South Africa

Attention : Snegugu Nhlapho
Email: Snegugu.Nhlapho@transnet.net

TENDER No: iCLM HQ 728/TPT - TPT/2022/10/1641/14790/RFP

UPGRADE OF EMPTY STACK (AREA 100) AT PIER 1, DURBAN CONTAINER TERMINAL FOR TRANSNET SOC LTD (REG. NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT")

ADDENDUM NO. 1 **DATED: 22 June 2023**

Receipt of **Addendum No. 1** is hereby acknowledged.

_____
TENDERER

NOTE: This acknowledgement must be signed and returned to this office on or before closing date of tender. This addendum must be signed and submitted with your tender.

WITNESSES:

1. _____ _____
TENDERER / CONTRACTOR

2. _____ Date: _____

Transnet Port Terminals

an Operating Division **TRANSNET SOC LTD**

[Registration Number 1990/000900/30]

REQUEST FOR PROPOSAL (RFP)

FOR THE:

UPGRADE OF EMPTY STACK (AREA 100) AT PIER 1, DURBAN CONTAINER TERMINAL FOR TRANSNET SOC LTD (REG. NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT")

RFP NUMBER	**: iCLM HQ 728/TPT / TPT/2022/10/1641/14790/RFP**
ISSUE DATE	**: 31 May 2023**
COMPULSORY BRIEFING	**: 09 June 2023**
CLOSING DATE	**: 12 July 2023**
CLOSING TIME	**: 10h00am**
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 Document

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 Activity Schedule

Part C3: Scope of Work

C3.1 Works Information

Part C4: Site Information

C4.1 Site Information

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].

DESCRIPTION	**UPGRADE OF EMPTY STACK (AREA 100) AT PIER 1, DURBAN CONTAINER TERMINAL FOR TRANSNET SOC LTD (REG. NO 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT")**
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 Pier 1 Auditorium **on the 09 June 2023,** at **10:00am [10 O'clock]** for a period of ± 2 (two) hours. [Tenderers to provide own transportation and accommodation]. Venue: **Transnet Port Terminals – Pier 1 Auditorium Board details** **Pier 1 Auditorium** **Pier 1 Container Terminal** Port Entrance 8 Bayhead Road Bhekulwandle Staff Facility Building **Direction Attached** 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 drivers licences are on them for inspection at the access control gates. Certificate of Attendance in the form set out in the **Returnable Schedule T2.2-02** 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 T2.2-02 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	**10:00am on 12 July 2023** Tenderers must ensure that tenders are uploaded timeously onto the system. **If a tender is late, it will not be accepted for consideration**.

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 bids and upload their bid 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 bidder 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 bid;
- Submit bid documents by uploading them into the system against each tender selected.
- **Tenderers are required to ensure that electronic bid 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 bidders 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 T2.2-19, [**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

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annex C of the CIDB Standard for Uniformity in Engineering and Construction Works Contracts. The Standard for Uniformity in Construction Procurement was first published in Board Notice 62 of 2004 in Government Gazette No 26427 of 9 June 2004. It was subsequently amended in Board Notice 67 of 2005 in Government Gazette No 28127 of 14 October 2005, Board Notice 93 of 2006 in Government Gazette No 29138 of 18 August 2006, Board Notice No 9 of 2008 in Government Gazette No 31823 of 30 January 2009, Board Notice 86 of 2010 in Government Gazette No 33239 of 28 May 2010, Board Notice 136 of 2015 in Government Gazette 38960 of 10 July 2015 and Board Notice 423 of 2019 in Government Gazette No 42622 of 8 August 2019.

This edition incorporates the amendments made in Board Notice 423 of 2019 in Government Gazette 42622 of 8 August 2019. (see www.cidb.org.za).

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.

Clause		**Data**
C.1.1	The *Employer* is	**Transnet SOC Ltd** **(Reg No. 1990/000900/30)**
C.1.2	The tender documents issued by the *Employer* 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 Activity Schedule

	Part C3: Scope of work	C3.1 Works Information
	Part C4: Site information	C4.1 Site information
C.1.4	The Employer's agent is:	Procurement Officer
	Name:	Snegugu Nhlapho
	Address:	Transnet Port Terminals 2nd Floor, 202 Anton Lembede Street, Durban Central Durban, 4001.
	Tel No.	060 847 5715
	E – mail	Snegugu.Nhlapho@transnet.net

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

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 tenderering entity that intends to form a Joint Venture (JV) must attend the compulsory clarification meeting in terms C2.7

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

a) 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 **6CE or higher** class of construction work, are eligible to have their tenders evaluated.

b) 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 **6CE** or higher 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 eligibility criteria will be regarded as an unacceptable tender.

3. Stage Four - 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 for score for functionality is 60 points.

The evaluation criteria for measuring functionality and the points for each criteria and, if any, each sub-criterion are as stated in C.3.11.3 below.

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

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 T2.2-02 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 C2.15.1	The *Employer*'s details and identification details that are to be shown on each tender offer are as follows: Identification details: The tender documents must be uploaded with: ▪ Name of Tenderer: (insert company name) ▪ Contact person and details: (insert details) ▪ The Tender Number: ▪ The Tender Description

Documents must be marked for the attention of:
***Employer*'s Agent:**

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: **10:00am** on the **12 July 2023** **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 Tenderers 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	The minimum number of evaluation points for functionality is: **60** The procedure for the evaluation of responsive tenders is Functionality, Price and Preference: **Only those tenderers who attain the minimum number of evaluation points for Functionality will be eligible for further evaluation, failure to meet the minimum threshold will result in the tender being disqualified and removed from any further consideration.**

Functionality Criteria

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

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

Functionality criteria	Sub-criteria	Sub-criteria points	Maximum number of points
T2.2-03 Occupational Plan	- Aligned to Method Statement - Aligned to Programme - Drawing showing occupation		**15**
T2.2-04 **Management & CV's of Key Persons**	Relevant Technical experience:	**5**	**15**
	Education, training and skills for the following:	**5**	
	Knowledge of issues pertinent to the project	**5**	
T2.2-05 Method Statement	- Execution Approach (including limitations due to required occupations to carry out work in operational areas) - Resource Allocation - Health and Safety (including security) - Quality Control - Civil Work - Traffic Control	**20**	**20**
T2.2-06 Programme	Ability to Provide the *Works* in terms of the Scope as detailed under C3: *Works* Information and within the required timeframe, indicating, in a logical sequence, the order and timing of the activities that will take place in order to Provide the *Works* and detailed at an appropriate level of decomposition to support the scope and associated duration estimates.	**6**	

	Dates when the *Contractor* will need *access* to any part of the Site/s and/or persons, as well as submission, approval process and timing for Health & Safety, Environmental and Quality pre-requisites/requirements. In addition the Programme must clearly demonstrate adequate provision for the review and approval processes. Moreover, the Programme must clearly demonstrate adequate provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals.	**3**	
	The Contractor indicates how he plans in achieving the following dates and clearly demonstrates them on the schedule - Starting Date, Access Date, Planned Completion and Completion Dates. In addition the Programme clearly demonstrates adequate provisions for Time Risk Allowance (TRA).	**3**	
	The Programme shall be aligned to the C3: *Works* Information, and detailed at an appropriate level of decomposition to support the scope and associated duration estimates.	**3**	
	The Programme must clearly support and demonstrate alignment to the Method Statement per as contained under T.2.2-05. In addition the programme needs to have a basis of a schedule not limited to assumptions, constraints and approach to providing the *Works* and construction monitoring as detailed in the programme.	**5**	

T2.2-07 **Previous Experience**	A list of past / current comparable projects. Execution of similar works as detailed in the Works Information with reference to: - Previous Experience of tarmacadam paving, sub-grade preparation, palisade fencing, stack markings projects by tenderer, or their partner/ subcontractor over the past five years with a minimum value of R4 000 000. References to provide letter of reference, to be traceable and contactable to allow verification of track record provided. - Sufficient references to substantiate experience indicated (Client name and contact details, project description, duration and contract value).		**15**
T2.2-08 **Health and Safety Requirements**	Project Specific Safety Plan	**3**	**15**
	Policy (State points allocated)	**1**	
	Roles & Responsibilities	**2**	
	Training Matrix	**1**	
	Overview of the Baseline	**3**	
	One year synopsis	**2**	
	Safety Questionnaire	**2**	
	Cost Breakdown Sheet	**2**	
Maximum possible score for Functionality			**100**

C.3.11. Only tenders that achieve the minimum qualifying score for functionality will be/Only tenders that are Administratively and Substantively Responsive (in case Functionality is not applicable – Please delete this note) (Please select the applicable statement and delete the other and delete this note) will be evaluated further in accordance with the 80/20 preference points systems as described in Preferential Procurement Regulations.

80 where the financial value of one or more responsive tenders received have a value equal to or below R50 million, inclusive of all applicable taxes,
Up to 100 minus W_1 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 BBBEE 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 tenderers scorecard components at any stage from the date of close of the tenders until completion of the contract.

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:

   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, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,

e) complies with the legal requirements, if any, stated in the tender data and

f) is able, in the option of the employer 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).

T2.2-04: Evaluation Schedule: Management & CV's of Key Persons

Please describe the management arrangements for the *works* and the tenderer is to take note that evaluation of this schedule must contain the following information:

Comprehensive CV's should be attached to this schedule:

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

1. Personal particulars;
2. Qualifications (degrees, grades of membership of professional societies and

   Professional registrations, all these certificates are to be attached);
3. Skills;
4. Name of current employer and position;
5. Overview of post graduate experience (year, organisation, position and responsibilities); and
6. Outline of recent assignments / detailed experience that has a bearing on the scope of work.
7. CV's for people proposed for all identified posts including:

i) **Contracts Manager**

The Contracts Manager should at least have a minimum qualification of a BSc. Eng./B.Tech./National Diploma in Civil Engineering and a ECSA/SACPCMP registration as Pr. Eng/Pr. Tech. Eng./Pr. Cert Eng./Pr. CPM with at least 10 years of experience in civil infrastructure projects. The Contracts Manager must have experience working with the NEC3 Engineering and Construction Contract in at least 3 separate projects, with at least 1 project in excess of R 20M in civil Works component value.

ii) **Construction Manager**

The Construction Manager should at least have a minimum qualification of a B.Tech./National Diploma in Civil Engineering and a ECSA/SACPCMP registration as Pr. Eng/Pr. Tech. Eng./Pr. Cert Eng./Pr. CM with at least 10 years of experience in civil infrastructure projects. The Construction Manager must have experience working with the NEC3 Engineering and Contract in at least 1 project in excess of R15m in civil Works component value.

iii) **Site Agent**

The Site Agent must have a minimum of NTC 4 Trade Certificate in Civil Engineering with at least 10 years of experience in civil infrastructure projects.

iv) **Foreman**

Building and civil infrastructure Foreman must have a minimum of NTC 4 Trade Certificate in Civil Engineering with at least 10 years of experience in building services and civil /building construction.

v) **Planner**

vi) The Planner should have at least 5 years of experience working as a Planner using Microsoft Projects in civil projects. In addition, experience working with the NEC Engineering Construction Contract option chosen for this contract will be an added advantage.

vii) **Quality Officer**

The Quality Officer should have a Diploma or certified qualification in quality systems with at least 5 years of relevant quality experience in civil projects. If staff experience is limited, an indication of relevant training that they have attended would be helpful.

viii) **Safety, Health and Environmental Officer**

Health and Safety Officer should have SAMTRAC, NEBOSH and Modern SHEQ Risk Management (MSRM) training course with accredited health and safety service provider as a minimum qualification and registered as a Health and Safety Officer with SACPCMP. At least 5 years' experience as a Safety, Health and Environmental Officer on construction projects. The SHEO must also have undergone Environmental awareness and short courses.

ix) **Document Controller**

The Document Controller should have at least 5 years of experience working in construction related projects.

8. Details of experience for proposed staff working in similar projects in terms of nature, competency and value.
9. An explanation of how you propose to allocate adequate resources to enable you to comply with the requirements and prohibitions imposed on you by or under the statutory provisions relating to health and safety.
10. Details of experience for proposed staff in respect of NEC3 Engineering & Construction Contract option chosen for this Contract. If staff experience is limited, an indication of relevant training that they have attended would be helpful.

The scoring of the Management & CV's of Key Persons will be as follows:

Weight	**Relevant Technical experience:**	**Education, training and skills for the following:**	**Knowledge of issues pertinent to the project for the following:**
	Management	**Management**	**Management**
20%	Contracts Manager	Contracts Manager	Contracts Manager
20%	Construction Manager	Construction Manager	Construction Manager
30%	Site Agent	Site Agent	Site Agent
30%	Foreman	Foreman	Foreman
	Site Officers	**Site Officers**	**Site Officers**
30%	Planner	Planner	Planner
20%	Quality Officer	Quality Officer	Quality Officer
30%	HSE Officer	HSE Officer	HSE Officer
20%	Document Controller	Document Controller	Document Controller

Points	**5**	**5**	**5**
(score 0)	Failed to provide information or inadequate information provided to determine a score	Failed to provide information or inadequate information provided to determine a score	Failed to provide information or inadequate information provided to determine a score
(score 20)	Key staff do not have relevant levels of relevant experience. ▪ Contracts Manager: < 5 years ▪ Construction Manager: < 5 years ▪ Site Agent: < 5 years ▪ Foreman: < 5 years ▪ Planner: < 1 year ▪ Quality Officer: < 1 year ▪ Safety Officer: < 1 year ▪ Document Controller: < 1 year ▪ Environmental Officer: < 1 year	Key staff does not have project specific education, skills, training and experience as indicated above.	Key staff has no experience of issues pertinent to the project.
(score 40)	Key staff have limited levels of general experience ▪ Contracts Manager: ≥ 5 < 10 years ▪ Construction Manager: ≥ 5 < 10 years ▪ Site Agent: ≥ 5 < 10 years ▪ Foreman: ≥ 5 < 10 years ▪ Planner: < 2 years ▪ Quality Officer: < 2 years ▪ Safety Officer: < 2 years ▪ Document Controller: < 2 years ▪ Environmental Officer: < 2 years	Key staff have limited levels of project specific education, skills, training and experience	Key staff have limited experience of issues pertinent to the project
(score 60)	Key staff have reasonable levels of general experience	Key staff have reasonable	Key staff have reasonable

	▪ Contracts Manager: < 10 years ▪ Construction Manager: < 10 years ▪ Site Agent: < 10 years ▪ Foreman: < 10 years ▪ Planner: < 3 years ▪ Quality Officer: < 3 years ▪ Safety Officer: < 3 years ▪ Document Controller: < 3 years ▪ Environmental Officer: < 3 years	levels of project specific education, skills, training and experience	experience of issues pertinent to the project
(score 80)	Key staff have extensive levels of general experience ▪ Contracts Manager: ≥ 10 < 15 years ▪ Construction Manager: ≥ 10 < 15 years ▪ Site Agent: ≥ 10 < 15 years ▪ Foreman: ≥ 10 < 15 years ▪ Planner: > 4 < 5 years ▪ Quality Officer: > 4 < 5 years ▪ Safety Officerr: > 4 < 5 years ▪ Document Controller: > 4 < 5 years ▪ Environmental Officer: > 4 < 5 years	Key staff have extensive levels of project specific education, skills, training and experience	Key staff have extensive experience of issues pertinent to the project
(score 100)	Key staff have outstanding levels of general experience ▪ Contracts Manager: ≥ 15 years ▪ Construction Manager: ≥ 15 years ▪ Site Agent: ≥ 15 years ▪ Foreman: ≥ 15 years ▪ Planner: ≥ 5 years ▪ Quality Officer: ≥ 5 years ▪ Safety Officer: ≥ 5 years ▪ Document Controller: ≥ 5 years ▪ Environmental Officer: ≥ 5 years	Key staff have outstanding levels of project specific education, skills, training and experience	Key staff have outstanding experience of issues pertinent to the project

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.

Signed

Date .....

Name .....

Position .....

Tenderer .....

T2.2-06: Evaluation Schedule - Programme

Programme

The Tenderer details the programme for evaluation and attaches it to this schedule. In addition, the Tenderer is to provide a PDF copy of the programme in the format of Microsoft Project. Document should be in A3, all columns and Gantt chart visible. Landscape Orientation preferred.

The Tenderer's attention is drawn to core clause 31.2 of the NEC3 Engineering and Construction contract regarding the items to be shown on a programme.

The tenderer shall provide the proposed programme, at a minimum Level 3 showing but not limited to the following:

- Ability to Provide the *Works* in terms of the Scope as detailed under C3: *Works* Information and within the required timeframe indicating, in a logical sequence, the order and timing of the activities that will take place in order to Provide the *Works* and detailed at an appropriate level of decomposition to support the scope and associated duration estimates
- Dates when the *Contractor* will need *access* to any part of the Site/s and/or persons, as well as submission, approval process and timing for Health & Safety, Environmental and Quality pre-requisites/requirements as well as designs. In addition, the Programme must clearly demonstrate adequate provision for the review and approval processes. Moreover, the Programme must clearly demonstrate adequate provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals.
- The *Contractor* indicates how he plans in achieving the following dates and clearly demonstrates them on the schedule - Starting Date, Key Dates, Planned Completion and Completion Dates. In addition the Programme clearly demonstrates adequate provision for Time Risk Allowance (TRA).
- The Programme must clearly support and demonstrate alignment to the Method Statement as contained under T.2.2-05. In addition, the programme needs to have a basis of a schedule not limited to assumptions, constraints and approach to providing the *Works* as detailed in the programme.

The scoring of the Programme will be as follows:

	Ability to Provide the *Works* in terms of the Scope as detailed under C3: *Works* Information and within the required timeframe, indicating, in a logical sequence, the order and timing of the activities that will take place in order to Provide the *Works* and detailed at an appropriate level of decomposition to support the scope and associated duration estimates.	**Dates when the *Contractor* will need *access* to any part of the Site/s and/or persons, as well as submission, approval process and timing for Health & Safety, Environmental and Quality pre-requisites/requirements. In addition the Programme must clearly demonstrate adequate provision for the review and approval processes. Moreover, the Programme must clearly demonstrate adequate provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals.**	**The *Contractor* indicates how he plans in achieving the following dates and clearly demonstrates them on the schedule - Starting Date, Access Date, Planned Completion and Completion Dates. In addition the Programme clearly demonstrates adequate provisions for Time Risk Allowance (TRA).**	**The Programme shall be aligned to the C3: *Works* Information, and detailed at an appropriate level of decomposition to support the scope and associated duration estimates.**	**The Programme must clearly support and demonstrate alignment to the Method Statement as contained under T.2.2-05. In addition the programme needs to have a basis of a schedule not limited to assumptions, constraints and approach to providing the *Works* and construction monitoring as detailed in the programme.**
Total Points	**6**	**3**	**3**	**3**	**5**
Score 0	The tenderer has submitted no information.				
Score 20	▪ The Programme is not acceptable as it will not satisfy project objectives or requirements. The tenderer has misunderstood the scope of *Works* and does not deal with the critical aspects of the overall Programme.	▪ The tenderer has not addressed critical access requirements. ▪ The tenderer has not allowed timing for undertaking deliverables as stipulated within the *Works Information*. ▪ The tenderer has not allowed approval process and timing for Health &	▪ The tenderer has addressed some but not all date requirements and submission contains critical logic and sequencing errors which renders it unrealistic / unachievable. ▪ The tenderer has not demonstrated Time Risk Allowance (TRA).	▪ No alignment between Programme and the *Works Information*.	▪ No alignment between Programme and Approach Paper. ▪ The Basis of the Schedule document contains insufficient detail, critical errors and omissions. As such it does not support the programme model and the submission does not contain the minimum requirements

		Safety, Environmental and Quality pre-requisites/requirements. ▪ The tenderer has not demonstrated provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals.			as stipulated. ▪ No alignment between Basis of Schedule documentation and the programme model.
Score 40	▪ The Programme is generic, not practical and unrealistic, therefore is unlikely to satisfy project objectives or *Employer's* requirements. The tenderer has misunderstood certain aspects of the scope of the *Works* and does not deal with the critical aspects of the project.	▪ The tenderer has addressed some critical but not all access requirements. ▪ The tenderer has not made an adequate allowance in timing for undertaking deliverables as stipulated within the *Works Information*. ▪ The tenderer has not made an adequate allowance for the approval process and timing for Health & Safety, Environmental and Quality pre-requisites/requirements. ▪ The tenderer has not adequately demonstrated provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals.	▪ The tenderer has addressed most date requirements however submission contains critical logic and sequencing errors which renders it unrealistic/unachievable. ▪ The tenderer has demonstrated inadequate provision for Time Risk Allowance (TRA) i.e. TRA in insufficient quantities and not assigned to specific activities and/or critical components of the scope which are known to be subject to uncertainty.	▪ Some alignment between Programme and *Works Information*.	▪ Critical errors and or omissions in alignment between Programme and Approach Paper. ▪ The Basis of the Schedule document contains sufficient detail, but critical errors exist. As such the Basis of Schedule does not fully support the programme model however the submissions contains some of the minimum requirements as stipulated. ▪ Critical errors in alignment between Basis of Schedule documentation and the programme model.
Score 60	▪ The programme addresses certain specific project objectives but does not adequately deal with all the critical characteristics of the project.	▪ The tenderer has addressed all access requirements. ▪ The tenderer has made an adequate allowance in timing and scope for undertaking deliverables as	▪ The tenderer has addressed all date requirements correctly and submission contains logic and sequencing which is accurate, and renders the submission realistic and	Programme and *Works Information* are relatively aligned but the level of decomposition of the Programme is not appropriate to support the scope and associated duration estimates for the phase in question and the	▪ Minor errors and or omissions in alignment between Programme and Approach Paper. ▪ The Basis of Schedule document contains sufficient detail, but minor

	▪ The programme is complete and decomposed, as demonstrated in the project WBS which fully demonstrates the *Provision* of the *Works* and the Scope of *Works* and is in accordance with the *Works Information*; ▪ The programme is adequately predictive in that it contains minor errors or omissions in critical path. ▪ The programme contains minor errors and omissions in logic (i.e. horizontal and vertical traceability) ▪ The programme demonstrates the sequence, methodology and underlying approach to *Provision* of the *Works* and the Scope of *Works*, in line with the requirements of the Contract, as such adequately deals with some but not all of the critical characteristics of overall project.	stipulated within the *Works Information* and *Employer's* Scope of *Works*. ▪ The tenderer has made an adequate allowance for the approval process, timing and scope for Health & Safety, Environmental and Quality pre-requisites/requirements. ▪ The tenderer has not adequately demonstrated provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals.	achievable. ▪ The tenderer has demonstrated inadequate provision for Time Risk Allowance (TRA) i.e. TRA in insufficient quantities, and not assigned to specific activities and/or critical components of the scope which are known to be subject to uncertainty.	project overall.	errors still exist, however critical aspects of the Programme model are adequately substantiated . ▪ Minor errors and or omissions exist in alignment of the Basis of Schedule document and the Programme model.
Score 80	▪ The programme addresses specific project objectives and critical aspects. ▪ The programme is complete and sufficiently decomposed, as	▪ The tenderer has addressed all access requirements. ▪ The tenderer has made an adequate allowance in timing and scope for	▪ The tenderer has addressed all date requirements correctly and submission contains logic and sequencing which is accurate, and renders the submission realistic and	▪ Programme and *Works Information* are fully aligned and the level of decompsotion of the Programme is appropriate to support the scope and	▪ Programme and Approach Paper are fully aligned and submission contains no critical errors or omissions. ▪ The Basis of the Schedule document contains sufficient detail, no critical errors or

	demonstrated in the project WBS which fully demonstrates the *Provision* of the *Works* and the Scope of *Works* and is in accordance with the *Works Information* and /or encompasses project scope as detailed but not limited to the Scope of *Works.* ▪ The programme is adequately predictive in that it provides meaningful critical path(s) and forms an accurate/realistic model of project risk, the latter as demonstrated in activity duration estimates; ▪ The programme contains logic that is horizontally, vertically traceable as supported by realistic duration estimates. ▪ The programme adequately demonstrates the sequence, methodology, and underlying approach to *Provision* of the *Works* and the Scope of *Works*, in line with the requirements of the W*orks information* as such adequately deals with the critical characteristics of overall project.	undertaking deliverables as stipulated within the *Works Information* and *Employer's* Scope of *Works*. ▪ The tenderer has made an adequate allowance for the approval process, timing and scope for Health & Safety, Environmental and Quality pre-requisite/requirements. ▪ The tenderer has adequately demonstrated provision for the process and timeframes associated with undertaking procurement processes, inductions, permits and medicals i.e. all items condiered and sufficient timeframes allowed.	achievable. ▪ The tenderer has demonstrated adequate provision for Time Risk Allowance (TRA) i.e. TRA in sufficient quantities, correctly assigned to specific activities and/or critical components of the scope which are known to be subject to uncertainty.	associated duration estimates for the phase in question and the project overall.	omissions and as such fully supports the Programe model. In addition the submissions contains the minimum requirements as stipulted. ▪ Basis of Schedule document and Programme model are fully aligned.
Score 100	Besides meeting the above	Besides meeting the "80" rating,	Besides meeting the "80" rating,	Besides meeting the "80" rating,	Besides meeting the "80" rating,

	"80" rating, the important issues are approached in an innovative and efficient way.	the tenderer has exceeded the required expectations.	the tenderer has exceeded the required expectations.	the tenderer has exceeded the required expectations.	the tenderer has exceeded the required expectations.

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.

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

Documentation	**Revision No.**	**Distribution**	**Prepared By**	**Approved By**
Scope of Work Upgrade of Empty Stack (Area 100) at Pier 1, DCT	00	Owner Approval	Nolan Reddy	Lulamile Mtetweni

Compiled by:

_____

Nolan Reddy

Project Manager
Date:_____

Reviewed by:

_____

Sishosonke Dlamini
Senior Project Manager:
Date:_____

Recommended by:

_____

Abubaker Badat
Regional Finance Manager
Date:_____

Recommended by:

_____

Musawenkosi Ntleko
Operations Manager – Pier 1
Date:_____

Approved by:

_____

Lulamile Mtetweni
Terminal Manager – Pier 1
Date:_____

PART C3: SCOPE OF WORK

Document reference	Title	No of page
	This cover page	1
C3.1	*Employer's Works* Information	60
	Total number of pages	**61**

C3.1 *EMPLOYER'S WORKS* INFORMATION

Contents

PART C3: SCOPE OF WORK 2
Section 1 4
1 Description of the Works 4
2 Engineering and the *Contractor's* design 6
3 Construction 10
4 Plant and Materials Standards and Workmanship 20
4.2 Investigation, Survey and Site Clearance 20
4.3 Civil Engineering 20
5 List of Drawings 34
5.1 Drawings issued by the *Employer* 34
SECTION *2* 35
6 Management and start up 35
7 Procurement 56
8 Equipment Plant and Materials standards and workmanship 59
9 General 59
10 List of Annexures 60
All the annexures listed hereunder shall be deemed to form part of the *Works* Information. 60

SECTION 1

1 DESCRIPTION OF THE WORKS

1.1 EXECUTIVE OVERVIEW

Pier 1, Durban Container Terminal currently utilises three (3) areas to stack empty containers, Area 100's stacking pavement is in a poor condition and is affecting operational productivity. Utilisation of the stacking area is estimated at 50% due to the poor condition of the pavement and associated infrastructure, Empty Container Handling equipment (ECH) are also experiencing breakdowns and irregular maintenance regimes due to the poor condition of the pavement. Furthermore, the current pavement conditions are considered unsafe and are not aligned to Safe Operating Procedures for operating of the ECH.

The *Works* that the *Contractor* is to perform involve civil *Works* for the Area 100 project. Area 100 is designated for stacking of empty 20 foot containers, containers are stacked four (4) high.

The scope of the *Works* includes but is not limited to the following:

- The Design, Construction, Commissioning and Hand-Over of Area 100 to Pier 1 Operations.

1.2 *EMPLOYER'S* OBJECTIVES

The *Employer's* objectives are to appoint a suitably qualified and experienced Contractor to design, construct, commission and hand-over Area 100 to Pier 1 operations to enable 100% utilisation of the stacking area in accordance with the various regulatory statutory requirements.

In addition to the above, the *Employer's* objectives are to achieve Completion of the *Works* by meeting the Completion Date whilst still maintaining the highest environmental, quality and safety standards and whilst minimising disruptions to on-going port and terminal operations and the operations and activities of other stakeholders.

1.3 INTERPRETATION AND TERMINOLOGY

The following abbreviations are used in this *Works* Information:

Abbreviation	**Meaning given to the abbreviation**
BBBEE	Broad Based Black Economic Empowerment
CEMP	Construction Environmental Management Plan
CD	Compact Disc
CDR	*Contractor* Documentation Register
CDS	*Contractor* Documentation Schedule
CRL	*Contractor* Review Label
CSHEO	*Contractor*'s Safety, Health and Environmental Officer
CIRP	*Contractor*'s Industrial Relations Practitioner
CM	Construction Manager
DCT	Durban Container Terminal
DTI	Department of Trade and Industry
DWG	Drawings
ECH	Empty Container Handling equipment

EO	Environmental Officer
HAW	Hazard Assessment Workshop
HAZOP	Hazard and Operability Study
HSSP	Health and Safety Surveillance Plan
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
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
SES	Standard Environmental Specification
SHE	Safety, Health and Environment
SHEC	Safety, Health and Environment Co-ordinator
SIP	Site Induction Programme
SMP	Safety Management Plan
SSRC	Site Safety Review Committee
SCADA	Supervisory Control And Data Acquisition
TPT	Transnet Port Terminals
TNPA	Transnet National Ports Authority
TFR	Transnet Freight Rail
ISPS	International Ship and Port Facility Security
PSIRA	Private Security Industry Regulatory Authority.

2 ENGINEERING AND THE *CONTRACTOR'S* DESIGN

2.1 *EMPLOYER'S* DESIGN

2.1.1 THE *EMPLOYER'S* DESIGN FOR THE *WORKS* IS:

2.1.2 CIVIL ENGINEERING:

- Stack markings specifications + stack markings layout/drawing
- Palisade fencing specifications

2.2 PARTS OF THE *WORKS* WHICH THE *CONTRACTOR IS* TO DESIGN

All designs undertaken by the Contractor as per the below clauses are required to be endorsed by an ECSA Registered Professional Engineer/Professional Technologist suitably experienced in the Civil Engineering discipline in road/pavement infrastructure.

2.2.1 THE *CONTRACTOR* IS TO DESIGN THE FOLLOWING PARTS OF THE *WORKS* AND WILL BE RESPONSIBLE IN HIS DESIGN FOR THE OVERALL INTEGRATION OF THE DESIGN OF THE WORKS WITH THE EXISTING ADJACENT AREAS.

a) Asphalt surfacing including associated layerworks required to implement all of the *Employer*s' objectives. Design to cater for ECH equipment and empty container loads.
b) Concrete mix design for islands/non stacking areas.
c) The Contractor shall submit detailed drawings and Workshop details for all designs, both Contractor's designs and OEM designs, to the Project Manager for acceptance by the *Employer*'s Consultant or the *Employer*'s Engineers.
d) All and any equipment, formwork, and temporary work associated with the provision of the Works.

2.2.2 THE *CONTRACTOR* IS RESPONSIBLE IN HIS DESIGN FOR THE OVERALL INTEGRATION OF THE DESIGN OF THE *WORKS* WITH THE EXISTING ADJACENT AREAS.

a) All supporting infrastructure required to support the *Employer*s' high level designs.
b) Asphalt surfacing and layerworks design. The Contractor is wholly responsible for all design coordination, integration and liaison activities involved with the Works, and shall take all measures necessary and make all arrangements with the Project Manager for activities such as meetings, inspections, endorsements, and any other activities required for the timeous completion of the Works and to the appropriate quality. When these activities require the involvement of the *Employer*'s Professional Engineering team or any other stakeholders, the Contractor is required to make these arrangements with due consideration of the *Employer*'s Professional Engineering team's availability and the availability of other stakeholders. The Contractor shall submit detailed drawings and Workshop details for all designs, both Contractor's designs and OEM designs, to the Project Manager for acceptance by the *Employer*'s Consultant or the *Employer*'s Engineers.
c) Concrete mix designs for islands/ non stacking areas.

2.2.3 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*.

a) The Contractor shall engage the services of ECSA registered Engineers and/or Technologists for all aspects of the Works for which the Contractor is to design as per Clauses 2.2.1 and 2.2.2 above.
b) The Contractor shall thus be wholly accountable and responsible for all aspects of his designs, including the implementation of all Statutory Safety, Health and Environmental Regulations of South Africa and the particular requirements, specifications, and regulations of the *Employer* pertaining to Health and Safety, Environment, Quality and Engineering.
c) The Contractor shall be wholly accountable and responsible for the implementation of the aspects of his designs including commissioning, putting into service, and handover of his constructed designs to the *Employer*, and his duly appointed ECSA registered Engineers shall be held accountable and responsible for these aspects of the Works for the lifetime duration of the Works.

2.2.4 REVIEW AND ACCEPTANCE OF THE CONTRACTORS DESIGNS:

a) Acceptance of documentation by the Project Manager will in no way relieve the Contractor of is responsibility for the correctness of information, or conformance with his obligation to Provide the Works. This obligation rests solely with the Contractor.
b) 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 copy shall be returned to the Contractor under cover of the project's Transmittal Note for revision or re-submittal as instructed.
c) The Contractor shall allow the Project Manager 2 weeks (unless otherwise stated and agreed) to review and respond to the Contractor's submission of their documentation, i.e. from time of receipt by the project to the time of despatch. However, work shall proceed without delay in the event of late return of the documentation by the Project Manager with prior notification in writing by the Contractor.
d) 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 re-submittal.
e) Any re-submittals, which have not included the changes/comments identified, will be returned to the Contractor to be corrected. The Contractor shall re-issue the revised documentation incorporating all comments and other specified details not included in the previous issue within 2 working days of receipt of the marked-up document.
f) The Contractor is required to undertake design safety reviews with the Project Manager the NEC Supervisor, the *Employer*'s Engineer's and Professional team, the *Employer*'s Health and Safety Officers, the *Employer*'s Environmental Officers, the *Employer*'s Quality Assurance and Quality Control Officers and any other Specialists and/or Subject Matter Experts (SME) as deemed by the *Employer* necessary for the provision of the Works.

2.2.5 OTHER REQUIREMENTS OF THE CONTRACTOR'S DESIGN:

2.2.5.1 The *Contractor*'s design complies with the following:

a) All Statutes, Standards, Specifications, Policies, Conventions, Requirements as referenced in this document and all Statutes, Standards, Specifications, Policies, Conventions, Requirements as referenced in any Annexures thereto.

2.2.6 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*.

2.2.6.1 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 as follows:

a) All supporting infrastructure required to implement all of the *Employer*s' high level designs.
b) Asphalt surfacing and layerworks design.
c) Concrete mix designs for islands/ non stacking areas.
d) All and any equipment, formwork, and temporary work associated with the provision of the Works.
e) Design of Equipment.

2.2.6.2 The Contractor submits his design details for the following categories of his proposed principal equipment to the Project Manager for his information only:

a) Any formwork required to Provide the Works
b) Temporary electrically powered compressed air systems and pneumatic equipment that may be required to Provide the Works
c) Small electrically powered equipment
d) Equipment designed for the lifting of personnel to access any areas necessary to provide the Works, which are not at ground level.
e) Equipment designed for the lowering of personnel to access any areas necessary to Provide the Works, which are below ground level.

2.2.6.3 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:

a) Temporary petrol or diesel powered compressed air systems and pneumatic equipment that may be required to Provide the Works
b) Small petrol or diesel powered equipment
c) Specialist Equipment required to Provide the Works
d) Rigging platforms and specialised rigging Equipment that may be required by the Contractor to Provide the Works.
e) Temporary access platforms, ladders, walkways, scaffolds, and any other temporary structures required to Provide the Works.

2.2.6.4 The design of equipment is considered in terms of this Contract as Contractor's design and any and all applicable requirements of 2.2, 2.3, 2.4 of this document shall apply.

2.3 EQUIPMENT REQUIRED TO BE INCLUDED IN THE WORKS

Any shuttering/formwork that is left in-situ as required by the design of the *Works*, notwithstanding it be *Employer's* Design or *Contractor*'s design, and necessary for the provision of the *Works*.

2.4 AS-BUILT DRAWINGS, OPERATING MANUALS AND MAINTENANCE SCHEDULES

2.4.1 THE *CONTRACTOR* PROVIDES THE FOLLOWING:

2.4.1.1 As-built/final documentation

a) 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 included in Annexure M (Refer DOC-STD-0001 Rev 03).
b) The Contractor prepares two (3) marked up hard copies of the latest revision of the *Employer* documents/drawings to represent the As-Built/Final status.
c) The mark-ups shall be in RED pencil or pen and be complete and accurate. The Contractor submits same to the Project Manager under cover of a Contractor's Transmittal Note.

4 x CD Roms with Adobe Acrobat (.pdf) and "Native" formats

2.4.1.2 As-built/final documentation

a) In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Contractor Document Submittal Requirements' Standard included in Annexure M (Refer DOC-STD-0001 Rev 03).

2.4.1.3 Installation, maintenance and operating manuals and data books.

a) In undertaking the 'Works' (including all incidental services required), the Supplier shall conform and adhere to the requirements of the 'Data Books and Manuals' Standard included in Annexure M (Refer DOC-STD-0001 Rev 03) and the 'Contractor Documentation Submittal Requirements' Standard included in Annexure M (Refer to DOC-STD-0001 Rev 03).

3 CONSTRUCTION

3.1 TEMPORARY *WORKS*, SITE SERVICES & CONSTRUCTION CONSTRAINTS

3.1.1 THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE *EMPLOYER* WITH REGARD TO SITE ENTRY, SECURITY CONTROL, PERMITS, AND SITE REGULATIONS.

3.1.1.1 The *Contractor* complies with the following requirements of the *Employer:*

a) The Contractor shall attend and or conduct all necessary Safety Inductions and ensure that all personnel engaged in the provision of the Works are inducted as directed by the Project Manager, NEC Supervisor.
b) The Contractor and all personnel engaged in the provision of the Works shall attend and or conduct all Safety Inductions as required by the Transnet Officer as directed through the Project Manager.
c) The Contractor and all personnel engaged in the provision of the Works shall attend and or conduct all Safety Inductions as required by the *Employer*'s Safety Officer, *Employer*'s Engineer and/or as directed by the Project Manager.
d) All work carried out on roadways or adjacent to railway lines shall require necessary permits or occupation.
e) The Contractor shall make arrangements for the Transnet official (TPT manager) to arrange for the necessary permits or occupations with relevant parties during the execution of the Works.
f) All personnel working adjacent to railway lines in shunting yards are required to daily advice the TFR Yard Master and indicate the time of entry, time of exit and the details of the work carried out.
g) The Contractor shall obtain access permits from the TPT Permit office before accessing the site.
h) The Contractor shall obtain the relevant work permits from the *Employer*'s Representative before performing any work.
i) The Contractor shall at all times comply with the Transnet E7/1 Safety Instructions "Specification for Works On, Over, Under or Adjacent to Railway Lines and Near High Voltage Equipment" whilst providing the Works.
j) The Safety Inductions, Access Permits and Work Permits are part of this Contract and the Contractor shall make allowance for it in his Price and Programme.
k) The Contractor shall ensure that all relevant safety inductions and access permits are obtained well before the Site Access Date as reflected in the Contract Data.
l) The Contractor shall provide all staff working within the Port area of construction with Contractor identification cards which detail the person's photo, name, identity number, Job Title, date inducted and the Supervisor / Construction Manager responsible. The provision of construction personnel with ID cards is considered part of this Contract and shall be made by the Contractor to a standard acceptable to the Project Manager and the Contractor shall make allowance for it in his Price and Programme.
m) The Contractor is to be in constant consultation and cooperation with the Port's security operations to ensure compliance with all the required security procedures and the Contractor shall make allowance for it in his Price and Programme.
n) The Contractor shall send the Safety stats to TPT Safety Practitioner every Friday before 12:00pm.

3.1.2 RESTRICTIONS TO ACCESS ON SITE, ROADS, WALKWAYS AND BARRICADES

3.1.2.1 Access route to the port

a) All vehicles are subject to security checks and all Plant and Equipment brought into the Port and leaving the Port are required to be security cleared by the relevant authorities (Project Manager and TPT Security Manager) before access or exit is granted, as the situation may require.
b) The Contractor is required to arrange for the clearing of the items with the Project Manager and the TPT Security Manager well in advance of the access or exit requirement to avoid delays in the provision of the Works.

c) The Contractor ensures that any of his staff, labour and Equipment moving outside of his allocated Site and Working Areas does not obstruct the *Employer*'s operations. To this end access routes are allocated and co-ordinated by the Contractor in liaison with the Project Manager.
d) The Contractor ensures the safe passage of traffic, to and around the various site and Working Areas at all times. This includes providing flagmen, protective barriers, signage, etc. for protection, direction and control of traffic.
e) The Contractor shall provide designated, signed and demarcated walkways for all personnel who are required to traverse between the different working areas at the various site. Personnel outside of the designated walkways are required to be conducting work activities, and when traversing, are required to use the designated walkways.
f) The Contractor plans and organises his work in such a manner so as to cause the least possible disruption to the *Employer*'s operations.

3.1.2.2 Barricades and fencing around site

a) The Contractor shall be responsible for providing a temporary barricade fence between the port operations, roadway and railway traffic and the construction site and maintaining, providing, and/or relocating the fence, if required for construction purposes, to ensure the boundary fence is continuous, and the Contractor shall make allowance for it in his Price and Programme.
b) The Contractor shall ensure that his site office where equipment may be stored, prepared or refurbished has an access gate that is manned 24hrs a day for the duration of the Works and over any builder's breaks, by a Security Provider acceptable to the Project Manager and registered with the PSIRA and the Contractor shall make allowance for it in his Price and Programme.

3.1.2.3 Restrictions to access on site

a) The Contractor is prohibited from entering the *Employer*'s Operational Areas, unless authorised to do so.
b) The Contractor plans and organises his work in such a manner so as to cause the least possible disruption to the *Employer*'s operations.
c) The Contractor ensures that all his construction staff, labour, and Equipment remains within his allocated and fenced off construction areas.

3.1.2.4 People restrictions on site; hours of work, conduct and records:

d) The working hours shall be in accordance with the requirements of the Department of Labour or with the agreement of the relevant trade unions. This information relating to working hours shall be supplied to the Project Manager prior to commencement of the proposed working hours.
e) The Contractor complies with a nine (9) hour a day, five (5) day a week standard work day/week for all activities to be undertaken by his people (including Sub-Contractors) employed on site.
f) Work times (i.e. start and end times within a standard work day) shall be as mutually agreed with the Project Manager.
g) In the event that the Contractor requests to work overtime to make up for time lost due to his own delays, the Contractor will be liable for the supervision cost required from the *Employer*'s team during the Works.
h) The Contractor keeps daily records of his people, Plant and equipment 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
i) Minimum requirements of people employed on the Site are as follows:
    - South African identity document or passport/ visa and work permit for foreign nationals;
    - Employment of local labour only for unskilled and semi-skilled job categories as per PIRPMP;
    - Secondment of skilled core/ permanent employees if skills are not locally available;
    - Pre-employment medical examinations; and
    - Induction in IR matters and conditions of employment on the Project.
j) The Contractor complies with the requirements of the IRCC involving the engineering construction Contractors engaged (including all future Contractors) by the *Employer*.

3.1.3 HEALTH AND SAFETY FACILITIES ON SITE

a) The Contractor complies with the requirements stated under paragraph entitled "Safety Risk Management" of the *Employer*'s Works Information.

3.1.4 ENVIRONMENTAL CONTROLS, FAUNA & FLORA, DEALING WITH OBJECTS OF HISTORICAL INTEREST

b) The Contractor complies with the CEMP, SES and PES in the construction of the Works, all as described under paragraph "Environmental constraints and management" of the *Employer*'s Works Information.

3.1.5 TITLE TO MATERIALS FROM DEMOLITION AND EXCAVATION

a) The Contractor has no title to any materials arising from excavation, dismantling and demolition in the performance of the Works with title to such materials remaining with the *Employer*. The Contractor informs the Project Manager immediately upon encountering any such materials who shall then instruct the Contractor how to label, mark, set aside and/or dispose of such materials for the benefit of the *Employer* in accordance with ECC3 Clause 73.1

3.1.6 COOPERATING WITH AND OBTAINING ACCEPTANCE OF OTHERS

3.1.6.1 THE CONTRACTOR PERFORMS THE WORKS AND CO-OPERATES WITH:

a) The Contractor performs the Works and co-operates with the *Employer* (including the agents of the *Employer*) who operate on Site during the entire duration of the Contract period.
b) The Contractor performs the Works and co-operates with The TPT manager and agents of TPT, as directed by the Project Manager, who operate on Site during the entire duration of the Contract period.
c) The Contractor performs the Works and co-operates with others, of whom the Contractor is to be notified once appointed by the *Employer*, who operate on Site during the entire duration of the Contract period.

3.1.6.2 PUBLICITY AND PROGRESS PHOTOGRAPHS

a) The Contractor shall obtain the permission and approval of the Project Manager before erecting any notice boards, using the details of the Contract in any advertising media or revealing any details of the Contract to the public.
b) 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.
c) The Contractor provides progress photographs at monthly intervals in digital format as part of the Contractor's monthly programme narrative report. The photos shall include detailed, close up photos of construction activities.

3.1.7 CONTRACTOR'S EQUIPMENT

a) 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.
b) The Contractor complies with the following permissions and restrictions in the use of Equipment as required by the *Employer*:
    - Equipment used by the Contractor to Provide the Works shall be prepared, painted, assembled and disassembled within the Contractor's Work Area and Site boundaries or lay-down areas as authorised by the Project Manager.
    - The Contractor is required to remove all equipment that is not part of the Works from site after completion of the Works and before de-establishment of the site.

- All and any equipment used by the Contractor for the provision of the Works shall comply to the *Employer*'s SHEQ regulations and restrictions, or any other statutory Health and Safety requirements as directed by the Project Manager in liaison with the *Employer*'s Engineers or the *Employer*s Consultants.

3.1.8 EQUIPMENT PROVIDED BY THE *EMPLOYER*

The *Employer* shall not provide any Equipment to the *Contractor* for the purposes of this Contract.

3.1.9 SITE SERVICES AND FACILITIES:

3.1.9.1 The *Employer* provides the following facilities for the *Contractor*:

a) For the duration of the Contract, the Project Manager will provide an area, free of charge, for the Contractor to establish his offices, lay down areas, stores, workshops, and other Contractor's Equipment.
b) The locations of the potential lay down areas will be identified at the site clarification meeting. The Contractor may establish a site camp anywhere within the boundary of this area that does not impede the provision of the Works.
c) The Contractor shall ensure that the area used has a suitable continuous security fence and the necessary access gates if required or instructed by the Project Manager.
d) The Contractor shall submit details of the layout of his Site establishment to the Project Manager for his acceptance.
e) All costs for preparation of the Site establishment area shall be for the Contractor's account.
f) The Contractor shall provide everything else necessary for providing the Works.

3.1.10 CONNECTIONS TO SERVICES FOR CONTRACTOR'S USE:

a) 50mm Isolation valve for construction potable water; and circuit breaker for construction power at 380 Volts, 3-Phase and Neutral, 50 Hz.
b) No connection to a sewer system will be made available and thus the Contractor will have to make provision for the containment and disposal of foul water from toilets, ablutions, basins, etc.
c) The Contractor shall provide everything necessary for providing the Works in accordance with this Contract and attached Annexures.
d) Wherever the *Employer* provides facilities if applicable in the context of this Contract, (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*.

3.1.11 FACILITIES PROVIDED BY THE CONTRACTOR:

a) The Contractor ensures that the site establishment area is compliant with the relevant safety regulations and restrictions, is clearly sign posted, and has a suitable security fence, lighting and the necessary access control gates.
b) All costs for preparation of the site establishment area are to be allowed for in the Contractor's Price.
c) The Contractor submits details of the layout of his site establishment to the Project Manager for his acceptance.
d) The Contractor installs a metering device, which is acceptable to the Project Manager and the *Employer*'s Engineers, immediately downstream at each of the *Employer*'s connections (if applicable in the context of this Contract) from where he draws services. The Contractor provides the Project Manager details of his monthly consumption of potable water and power.
e) The Contractor is 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 are included in Price.
f) The Contractor provides 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 only makes construction power available upon receipt of the COC.

g) The Supervisor (or his nominated representative) conducts routine inspections of the Contractor's construction power reticulation and power tools. If found to be un-safe and / or non-compliant with statutory requirements, the electrical power supply is disconnected until the Contractor rectifies all defaults.

h) The Contractor shall be responsible for providing water and power for all other Working Areas where not provided by *Employer*.

i) The Contractor provides, at his cost, a sufficient number of toilets and maintains them in a clean and sanitary working condition.

j) The Contractor provides temporary lighting and fencing around every section occupied by him during the construction of the Works.

k) Such fencing demarcates and secures the construction area. The fencing is erected before any work starts and is removed only upon completion of the work in that area.

l) The Contractor includes for all costs for such lighting and fencing, including access control into and out of these restricted areas.

m) 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, 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.

n) Upon Completion the Contractor completely removes 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 leaves the Site and Working Areas in a tidy condition to the satisfaction of the Project Manager.

o) No excess or discarded materials or equipment may be buried or dumped within the port boundary.

p) Demolition of all temporary structures, surfaces etc. shall be first approved by the Project Manager prior to the work being carried out.

q) The *Employer* does not provide any security for the Site and Working Areas. The Contractor provides 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.

r) No housing is available for the Contractor's employees. The Contractor makes his own arrangements to house his employees and transports them to Site in a closed vehicle specifically designed for passenger transport (bus or similar) accepted by the Project Manager.

s) Wherever the *Employer* provides facilities for the Contractor's use 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*.

t) The Contractor shall provide, maintain and remove lockable portable chemical type toilets.

u) The Contractor shall provide a suitably sized construction power supply by means of either municipal supply, or Generation Plant equipment, as required.

v) The Contractor shall be wholly responsible for the provision of this power supply, and shall make all the necessary arrangements for the supply, and the maintenance of the supply for the duration of the Works.

w) 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.

x) Unless explicitly stated as a responsibility of the *Employer*, Site services and facilities, Connections to Services for Contractors' use and 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.

3.1.12 EXISTING PREMISES, INSPECTION OF ADJOINING PROPERTIES AND CHECKING WORK OF OTHERS

a) The Contractor will be held responsible for any damage to the existing structures and surfacing caused by the Contractor during the execution of this Contract; fair wear and tear excluded, and shall repair it to the satisfaction of the Supervisor on conclusion of the Works.
b) For this purpose a joint inspection with the Supervisor will be carried out prior to occupation of the site(s) and any existing damage noted.
c) The Contractor is required to forward a photographic report following the inspection to the Project Manager for record purposes.

3.1.13 EXCAVATIONS AND ASSOCIATED WATER CONTROL

3.1.13.1 The *Contractor* complies with the following requirements:

a) Where applicable, the Contractor protects all excavations against any water ingress whether by seepage, rains, storms, floods or any other means.
b) Where applicable, the Contractor immediately removes any water found in the excavation by pumping and / or bailing and provides all necessary Equipment (pumps, pipes, etc.) to do so.
c) Water is cleared in such a way that it cannot slip or flow back into the excavations.
d) The Contractor shall install shoring where necessary, and in all deep excavations to ensure that the sides of the excavation does not collapse.
e) The Contractor shall comply with the *Employer*'s SHEQ policy in all respects for the Provision of the Works involving deep excavations.
f) All activities related to excavations and water control forms part of this Contract, and the Contractor shall make allowance for these activities in his Price and Programme.

3.1.14 UNDERGROUND SERVICES, OTHER EXISTING SERVICES, CABLE AND PIPE TRENCHES AND COVERS

3.1.14.1 Where the *Contractor* encounters existing underground services or existing service cables, the *Contractor* undertakes the following:

a) The Contractor is required to liaise with the Project Manager, and the Supervisor and the *Employer*'s Engineers, and establish as accurately as possible the location of the various existing services situated within the Work Area and record all such information on a suitable "marked-up" drawing for reference at all times.
b) In addition to the above, the Contractor shall consult the Project Manager, the Supervisor and the *Employer*'s Engineers, prior to undertaking any excavation work.
c) Where the Contractor encounters existing underground services / existing services cables / pipe trenches, the Contractor is to notify the Project Manager, the Supervisor and the *Employer*s Engineers.
d) Where the encountered services are causing a delay in the provision of the Works, the Contractor shall approach the Project Manager, the Supervisor and the *Employer*'s Engineers for a decision by submitting a Field Engineering Query (FEQ).
e) The Contractor shall then provide the solution described in the answered FEQ.
f) The Contractor must thereafter exercise due care and attention in carrying out the agreed excavation Works and any Works as may be directed by the Project Manager to avoid damage or disruption to existing services.
g) The Contractor shall be liable for all claims arising out of any damage caused by such excavation if the Contractor fails to exercise the requisite care and attention in carrying out the excavation.
h) The cost of locating and protecting, if necessary, services shall be included in the rates for the services intersecting and adjoining the trenches.
i) A group of cables intersecting or adjoining a trench will be regarded as one service.
j) The existing services shall be protected when excavating.
k) The costs of protecting these services shall be included in the rates for excavation and compaction.

l) All existing services shall be treated as in service and "live". All necessary Safety Instructions of the *Employer* and statutory requirements as per the OHS Act and its Regulations shall be complied with in the handling of the "live" service.

m) In the case of electrical services the Contractor shall trace, locate and identify all cables within the service and record the information as per this Works Information above.

3.1.15 CONTROL OF NOISE, DUST, WATER AND WASTE

3.1.15.1 The *Contractor* complies with the following:

a) Before moving Equipment onto the Site and Working Areas and commencing the Works, the Contractor submits his proposed methods of construction which demonstrate the measures taken to avoid and or reduce any environmental and health issues arising from dust, noise and vibration for acceptance by the Project Manager.

3.1.16 SEQUENCES OF CONSTRUCTION OR INSTALLATION

3.1.16.1 The Contractor complies with the following:

a) Area 100 is a 24 hour operational area, the Contractor will not be given 100% occupation of Area 100. The Contractor is required to develop an Occupation Plan indicating the sectional area/s and the associated extent (m2) of required occupation, the Occupation Plan must be aligned to the Programme and Method Statement.

b) The Contractor is hereby informed of the requirements of maintaining the continuity of lighting supply to Area 100, and is required to arrange and sequence his Works so as to ensure that there is no disruption to the operations.

c) Should it be impossible to avoid a disruption as described in (b) above, the Contractor shall notify the Project Manager, Supervisor and the *Employer*s Engineers 21 days before the anticipated disruption and request authorization to commence with the aspect of the Works that will cause the disruption. The Contractor shall not proceed without said authorization to proceed.

3.1.17 GIVING NOTICE OF WORK TO BE COVERED UP

a) 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 48 (forty eight) hours prior to the proposed covering up.

b) The Contractor shall not cover the Works without the authorization of the Supervisor.

c) The Contractor shall make the Project Manager and Supervisor aware of any tests and inspections required by the *Employer*'s Quality Management Procedures. Notification of required test and/or the *Employer*s Engineers inspections to be given 24 (twenty four) hours in advance.

3.2 COMPLETION, TESTING, COMMISSIONING AND CORRECTION OF DEFECTS

3.2.1 THE *WORK* TO BE DONE BY THE COMPLETION DATE

a) On or before the Completion Date or Sectional Completion Date, the Contractor shall have done everything required to Provide the Works including removal of his establishment and equipment from the respective site but excluding the work listed below which may be done after the Completion Date but in any case before the dates stated.

b) The Project Manager cannot certify Completion until all the work except that 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
As built drawings as specified in the Works information	14 days prior to Completion
Performance testing of the Works	Sectional Completion dates

3.2.2 USE OF THE WORKS BEFORE COMPLETION HAS BEEN CERTIFIED

3.2.2.1 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:

a) Sectional areas as per the accepted Occupation Plan.

3.2.3 MATERIALS FACILITIES AND SAMPLES FOR TESTS AND INSPECTIONS

3.2.3.1 The Contractor provides the *Employer* with the following materials, facilities and samples during the provision of the Works, as per ECC clause 40.2:

a) The Contractor shall furnish samples of any Plant and Materials that is other than, or different to, that specified by the *Employer*'s Engineers, to the Supervisor for Acceptance by the *Employer*'s Engineers. The Contractor is prohibited from installing said Plant without the required prior authorization from the *Employer*s Engineers.

b) The Contractor shall furnish samples of any Plant and Materials that is other than, or different to, that required by the *Employer*'s Engineering Specifications, that shall be utilised in the Contractor's Designs, to the Supervisor for Acceptance by the *Employer*'s Engineers. The Contractor is prohibited from installing said Plant without the required prior authorization from the *Employer*'s Engineers.

c) The Contractor shall supply concrete mix designs to Transnet specifications, concrete cube tests, compaction results, steelwork shop detail drawings for approval, steelwork material certificates.

d) The Contractor shall furnish samples of any Plant and Materials that is proposed to be used in the Contractor's Designs, to the Supervisor for Acceptance by the *Employer*'s Engineers. The Contractor is prohibited from designing with, and subsequently installing said Plant and Materials without the required prior authorization from the *Employer*'s Engineers.

e) Samples, tests and inspections required of the Contractor, shall be as specified in Paragraph 4 of C3.1 or any other standards, specifications or statutory requirements referred to therein or annexed thereto.

f) The Contractor shall give notice to the Supervisor of the required inspection not less than 48 hours before the inspection is required.

g) The *Employer* will not provide any materials or facilities for the use of the Contractor, to perform tests and inspections.

3.2.4 PRE-COMMISSIONING TESTS AND COMMISSIONING

a) The Contractor shall provide adequate and competent personnel for testing and commissioning of every particular installation and for the full duration of the commissioning process.

b) The Contractor shall prove the full operation, working and compliance of the installation in accordance with the specifications.

c) A detailed programme of the planned commissioning procedures shall be submitted to the Project Manager and *Employer*'s Engineers at least 4 weeks before commissioning commences.

The commissioning programme shall include but is not limited to:

- A schedule of equipment to be commissioned, the proposed tests to be conducted and the testing methods and the range of acceptable results,
- Commissioning check sheets,
- Commissioning programme dates and duration

d) The Contractor shall supply all relevant test equipment, monitoring devices, network analysers, protocol testers/analysers etc. required to test and commission the complete Works.
e) An accurate record of all commissioning and testing is to be taken and included in the handover documentation as a permanent record.
f) The Contractor shall perform any and all tests as required by any Sections or Clauses of the Works Information and any and all tests required by the *Employer*s Specifications annexed thereto, and any and all tests required by any applicable SANS Standard, or other Standard, and/or as directed by the *Employer*'s Engineers and the Project Manager.
g) Testing and commissioning is considered part of the Works and is to be done before completion.

3.2.5 TAKE OVER PROCEDURES

3.2.6 The *Contractor* provides the following assistance to the *Employer*:

a) The Contractor ensures that all the required documentation as described in the Works Information is presented to the Project Manager before Completion.
b) The Contractor ensures that the Project Manager has a full and accurate dossier of As-built documents that represent the completed Works to present to the *Employer*.

3.2.7 ACCESS GIVEN BY THE *EMPLOYER* FOR CORRECTION OF DEFECTS

3.2.7.1 The Contractor complies with the following constraints and procedures of the *Employer* where the Project Manager arranges access for the Contractor after completion:

a) Access into areas already handed over by the Contractor for correction of any defect shall be subject to the approval of Port's Operations, and these times shall be communicated to the Contractor by the Project Manager.
b) The areas required by the Contractor will need to be temporarily barricaded by the Contractor before the Contractor commences with any corrective work.

3.2.7.2 The Contractor complies with the following constraints and procedures of the *Employer* where the Project Manager arranges access for the Contractor after completion:

a) Where the Contractor has to return to Site after Completion to rectify notified Defects, the *Employer* may either impose the same Site access / egress restrictions as communicated elsewhere under C3.1 *Employer*'s Works Information at the starting date / access date stated under Contract Data - Part One, or as the Works are now in use or the *Employer*'s occupation of the Site may be incrementally or substantially changed post Completion, there may be further access / egress restrictions as required by the *Employer* and/The Port Terminal.

3.2.8 PERFORMANCE TESTS AFTER COMPLETION

3.2.8.1 The *Contractor* performs the following performance tests after completion of the *Works*:

a) None.

3.2.9 TRAINING AND TECHNOLOGY TRANSFER

3.2.9.1 The *Contractor* facilitates the following requirements for training Workshops after completion for the *Works* in use:

a) None.

3.2.10 OPERATIONAL MAINTENANCE AFTER COMPLETION

3.2.10.1 The *Contractor performs* the following operational maintenance in relation to the *Works* after completion:

a) None.

4 PLANT AND MATERIALS STANDARDS AND WORKMANSHIP

4.1 Plant and Materials

4.1.1 The *Contractor* provides Plant and Materials for inclusion in the *Works* in accordance with the Standard Specifications and/or Project 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*.

4.1.2 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.

4.1.3 No Plant or Materials will be provided "free issue" by the *Employer*

4.1.4 The *Contractor* provides all Plant and Materials necessary for the *Works*.

4.1.5 The *Contractor* supplies all certification including test certificates, user manuals, maintenance manuals and data books with respect to Plant and Materials procured for the *Works*:

4.2 Investigation, Survey and Site Clearance

4.2.1 The *Contractor* will be responsible for setting out the *Works*.

4.2.2 The *Contractor* validates the information provided by the *Project Manager* and records all existing and final levels on a survey drawing and presents this to the *Project Manager* for acceptance.

4.2.3 Prior to commencing the *Works* the *Contractor* records any defects or inaccuracies related to the existing structures, paving, etc. and presents this record to the *Project Manager* for acceptance. Only items recorded in this manner will be accepted as having pre-existed the *Works* and the remedying of all other damage will be the *Contractor's* responsibility and for his cost.

4.2.4 The *Contractor* is required to prove the existing services prior to construction.

4.2.5 The *Contractor* is required to verify the position of the temporary park homes/ablutions prior to construction.

4.3 Civil Engineering

4.3.1 Standard Specifications applicable to the *Works*

a) The SANS 1200 Series of Specifications are applicable to all Civil Engineering and Structural *Works* associated with this contract. The following interpretations and meanings shall apply:

b) In case of any conflict in interpretation, ambiguity or discrepancy between any 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.

c) In case of any conflict in interpretation, ambiguity or discrepancy between any 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 Manger's express duty to resolve any ambiguity or inconsistency in the *Works* Information under ECC3 Clause 17.1.

d) Within SANS 1200 A: GENERAL, 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 is in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein);

e) Within SANS 1200 A: GENERAL 2.3 DEFINITIONS, 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 is in accordance with the conditions of contract (and the ECC main and secondary options stated therein);

f) Within SANS 1200 A: GENERAL 2.6 APPROVAL, the following applies:

"Approval" by either the *Project Manager* and/or the *Supervisor* is without prejudice to ECC Clause 14.1 and, inter alia, ECC Clauses 13.1, 14.3 and 27.1.

g) SANS 1200 A: GENERAL 2.8 ITEMS IN SCHEDULE OF QUANTITIES, is deleted in entirety. Assessment and payment is in accordance with the *conditions of contract* (and the ECC main and secondary options stated therein).

h) SANS 1200 A: GENERAL 3.2 STRUCTURES AND NATURAL MATERIAL ON SITE, applies only to the extent that it is consistent with paragraph 3.1.6 of C3.1 *Employer's Works* Information.

i) Within SANS 1200 A: GENERAL 7.1 PLANT, the following applies:

Where the word or expression "Plant" is used, read "Equipment".

j) SANS 1200 A: GENERAL 7.2 *CONTRACTOR*'S OFFICES, STORES AND SERVICES, applies but the *Project Manager* resolves any inconsistency with statements included within paragraph 3.1.12 of C3.1 *Employer's Works* Information.

k) SANS 1200 A: GENERAL 3.1 SURVEY, applies only to the extent that it is consistent with paragraph 3.1.14 of C3.1 *Employer's Works* Information.

l) Within SANS 1200 A: GENERAL 3.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS, the following applies:

Where the word or expression "specification" is used, read "*Works* Information".

m) SANS 1200 A: GENERAL 3.4 PROTECTION OF OVERHEAD AND UNDERGROUND 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*.

n) Within SANS 1200 A: GENERAL 5 TESTING, the following applies:

Where the word or expression "Engineer" is used, read "*Supervisor*".

o) SANS 1200 A: GENERAL 8 MEASUREMENT AND PAYMENT, is deleted in entirety. Assessment and payment is in accordance with the conditions of contract (and the ECC main and secondary options stated therein).

p) The principles, meanings and interpretation stated and established within paragraphs 6.3.1 to 6.3.15 with respect to SANS 1200 series and to SANS 1200 A: GENERAL equally apply to the other SANS 1200 specification references used within this paragraph 6.3 of C3.1 *Employer's Works* Information.

4.3.2 DEMOLITION AND EARTH *WORKS*

a) **Scope of work**

4.3.2.a.1 This part covers the demolition of the existing premix.

b) **Supporting Specifications**

SANS 1200 DA - EARTH *WORKS* (SMALL *WORKS*)
SANS 1200 DB - EARTH *WORKS* (PIPE TRENCHES)
SANS 1200 M - ROADS (GENERAL)
SANS 1200 MF - BASE
SANS 1200 ME - SUBBASE
SANS 1200 MFL- BASE (LIGHT PAVEMENT STRUCTURES**)**

c) **Existing services**

All services are unknown due to the lack of adequate as-built records, the *Contractor* will be required to prove services prior to removal. The *Contractor* shall take the necessary precautions to ensure that the services are not damaged.

4.3.2.c.1 As soon as any underground service is discovered, it shall be brought to the attention of the *Supervisor*. The *Contractor* must in collaboration with the *Supervisor*, ascertain whether or not the service is live. The *Contractor* shall not uplift any such service unless he is instructed to do so.

4.3.2.c.2 The *Contractor* shall be held responsible for any damage to known 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.

d) **Excavation**

4.3.2.d.1 The material to be excavated consists of mainly Asphalt surfacing with a crusher run sub-grade.

4.3.2.d.2 For the purposes of uplifting of underground pipes, a trench width of 1m shall be used.

e) **Compaction of insitu material**

The insitu material shall be trimmed, levelled out and compacted.

f) **Imported Backfill material**

4.3.2.f.1 Backfill material shall be selected from the commercial sources and placed in layers and compacted. No clay shall be used as backfill.

g) **Base Course**

4.3.2.g.1 Contractor's design.

4.3.3 SITE CLEARANCE, EARTH *WORKS* & LAYER *WORKS*

a) **Scope of work**

4.3.3.a.1 The *Works* for the site clearance, earthworks and layerworks include the following:

4.3.3.a.1.1 Clearing of site.

4.3.3.a.1.2 Exposing of existing services where indicated by *Project Manager*.

4.3.3.a.1.3 Excavation and treatment of in-situ material.

4.3.3.a.1.4 Construction of sub base from commercial sources.

4.3.3.a.1.5 Construction of crushed stone base from commercial sources.

4.3.3.a.1.6 And any other work arising out of or incidental to the above, or required of the *Contractor* for the proper completion of the *Works*.

b) **Supporting Specifications**

SANS 1200 DM	EARTH *WORKS* (ROADS, SUB GRADE)
SANS 1200 M	ROADS GENERAL
SANS 1200 ME	SUBBASE
SANS 1200 MF	BASE
SANS 1200 MK	KERBING
SANS 1200 MJ	SEGMENTED PAVING
SANS 1200 C	SITE CLEARANCE
SANS 1200 D	EARTH *WORKS*
SANS 1200 MH	ASPHALT SURFACING
SANS 1200 MM	ANCILLARY ROAD *WORKS*

c) **Earthworks (SANS 1200D)**

4.3.3.c.1 **Spoil site**

4.3.3.c.1.1.1 The existing damaged pavement layers are required to be excavated and carted to a spoil site of the *Contractor*'s choice. The nature of the material varies and includes asphalt, crusher-run, etc.

4.3.3.c.1.2 All excess material shall be spoiled off site in a spoil area to be identified by the *Contractor*. The *Contractor* is to allow for everything necessary to load, haul, tip, and spread and compact if necessary. Spoiling on Transnet property shall not be permitted unless a specific authority is obtained in writing. The *Contractor* shall provide written confirmation that permission has been obtained from the operator /owner of the spoil site that they have accepted the material and all obligations in regarding to the spoiling of material has been met.

4.3.3.c.1.3 Where hazardous or contaminated material needs to be spoiled, the *Contractor* shall do so at an approved disposal site. The *Contractor* shall be responsible for receipt of a spoil certificate from the spoil site, which he shall copy to the *Project Manager*

4.3.3.c.2 **Exposing existing services**

4.3.3.c.2.1 A multitude of services are unknown over the whole area of the *Works.* Prior to commencing work in any area the *Contractor* shall consult the *Project Manager* in regard to the location of services and shall assist him when required in locating the exact position and depths of services by means of hand excavated test holes. The location and depth of all services discovered by the foregoing investigations shall be recorded and plotted by the *Contractor* on an "as-built" copy of the services plan.

4.3.3.c.2.2 The *Contractor* shall assist when required in alterations to services by providing labour, Plant and material and shall carry out the necessary work as instructed by the *Project Manager.*

4.3.3.c.2.3 Test holes to locate services shall be excavated at least 2 weeks ahead of construction in order to allow time for alterations to services or amendments to the design of the *Works*. Once the services have been located the test holes are to be backfilled.

4.3.3.c.2.4 Responsibility for protection of all known services shall rest solely with the *Contractor* and he shall bear all costs, which may arise as a result of any damage which he may cause to such services or which may arise as a result of his operations.

4.3.3.c.3 **Bulk excavation**

4.3.3.c.3.1 The existing damaged pavement layers are required to be excavated and carted to spoil site of the *Contractor*'s choice. The nature of the material varies and includes asphalt, crusher-run, etc**.**

4.3.3.c.4 **Disposal of material**

4.3.3.c.4.1 All vegetation, trees, etc. resulting from site clearance shall be removed off site to a disposal dump to be selected by the *Contractor*. The haulage, dump costs and any levies etc. shall be deemed to be included in his tendered rates. Burning of materials on site shall not be permitted**.**

4.3.3.c.5 **Subgrade**

Preparation of the in-situ subgrade will be by means of ripping and compaction.

4.3.3.c.6 **Sub-base**

Contractor's design.

4.3.3.c.7 **Base**

Contractor's design.

d) **Construction**

4.3.3.d.1 **Base**

4.3.3.d.1.1 Any portion of stabilized base that is too high shall be lowered, harrowed and reconstructed to such depth that, after compaction, the base layer is of the same standard and thickness throughout, and falls and level shall comply.

4.3.3.d.1.2 Density is required of least 96% of the Marshall density of the mix**.**

4.3.3.d.2 **Acceptance of Mix Designs**

4.3.3.d.2.1 The *Contractor* shall submit the mix details and properties of the design mixes for both the wearing and levelling courses for approval together with the properties for mixes having bitumen contents 0, 5% above and below that of the proposed mix.

4.3.3.d.3 **Removing unsuitable material**

4.3.3.d.3.1 Any material which is considered by the *Project Manager* to be of a quality that would be detrimental to the performance shall be removed to widths and depths as instructed by the *Project Manager* and shall be disposed of as prescribed. The excavated area shall then be backfilled with approved imported material compacted to the required density.

4.3.3.d.4 **Tolerances**

4.3.3.d.4.1 **Paving as laid**

4.3.3.d.4.1.1 The finished paved surface shall present the smooth surface suitable for container stacking within designated stack markings.

4.3.3.d.5 **Testing**

4.3.3.d.5.1 **Checking**

4.3.3.d.5.1.1 The *Contractor* shall carry out sufficient checks to satisfy himself that the materials used and the workmanship (construction, tolerances and strength) attained comply consistently with the specified requirements. The *Supervisor* will carry out checks and the result made available to the *Contractor*.

4.3.3.d.6 **Quality Control**

4.3.3.d.6.1 Workmanship, tolerances and frequency of testing shall be in accordance with the relevant specifications.

4.3.3.d.7 **Method statement**

4.3.3.d.7.1 The *Contractor* shall submit a detailed method statement setting out what quality control procedures will be implemented with respect to:-

4.3.3.d.7.1.1 Quality assurance during the batching and mixing process. The *Contractor* shall indicate what certification, if any, they have in terms of SANS or ISP quality assurance schemes.

4.3.3.d.7.1.2 Procedures, methods and Plant for the transportation of hot asphalt to site.

4.3.3.d.7.1.3 Procedures, methods and Plant to be used for placing and compacting asphalt on site.

4.3.4 ROAD AND STACKING MARKINGS

a) **Scope of work**

4.3.4.a.1 The *Works* for the road and stacking markings include the following:

4.3.4.a.1.1 Any road markings needed of vehicle driving areas for example road information, warning signs and directional arrows.

4.3.4.a.1.2 Painting of any markings needed for container stacking layout areas.

4.3.4.a.1.3 Painting of any markings needed for designated areas used for certain operations.

4.3.4.a.1.4 And any other work arising out of or incidental to the above, or required of the *Contractor* for the proper completion of the *Works*.

b) **Supporting Specifications**

The Contractor shall provide all plant required to execute the works. The lines or markings are to be painted with Plascon - Hysheen Road and Runway Paint or similar approved, at an application rate the rate of 0.42 l per m2. All paint shall conform to SANS 731-1.

The following must be noted by the Contractor in terms of SANS 731-1:

The paint shall be a Type 2 Paint

The paint shall be suitable for use in a parking area on a segmented concrete surface

The paint is not required to be retro reflective

Drying time classification shall be Class 1

The colours required for the completion of the contract shall be:

- White
- Red
- Golden Yellow (BS381C-356 or CKS 279 – D26)
- Black

All the above colours to meet classifications according to SANS 1091

4.3.5 FENCING

a) **Scope of work**

4.3.5.a.1 The *Works* for the steel palisade fencing include the following and shall be completed according to the Transnet Specification for Security Fencing:

4.3.5.a.1.1 Fabrication, galvanising and installation of steel palisade fencing.

4.3.5.a.1.2 Fabrication, galvanising and installation of security gates where needed.

4.3.5.a.1.3 The connecting of the new fence and tying into the existing palisade fence on site.

4.3.5.a.1.4 And any other work arising out of or incidental to the above, or required of the *Contractor* for the proper completion of the *Works*.

b) **Supporting Specifications**
This part shall be read in conjunction with the following SANS and Transnet standard specifications.

SANS 1200 AH	GENERAL (STRUCTURAL)
SANS 0214	PALISADE FENCING
ISO 1461:1999	HOT DIPPED GALVANIZING

4.3.6. Concrete Works

4.3.6.1 Scope of Work

The scope of work for concrete works shall include for the delivery to site of all materials necessary to complete the *works*, off-loading on site, storage on-site, setting out, installation, testing, commissioning and handover.
The *works* includes for the following:

- Resurfacing of the required pavement area.
- Earthworks, including excavation, dewatering, preparation of base and foundations
- Reinforcing and formwork
- Casting of concrete

And any other work arising out of or incidental to the above, or required of the *Contractor* for the proper completion of the *works*.
This section, "Concrete Works", must be read in conjunction with the following specifications:

• SANS 1200 G	Concrete
• SANS 1083:1994	Aggregates from natural sources
• SANS 10100-2:1992	The Structural use of concrete – Part 2 : Materials and execution of work
• SANS 50197-1	Cement – composition, specifications and conformity criteria. Part 1: Common cements
• SANS 1491-1	Portland cement extenders – Part 1 Ground granulated blast furnace slag
• SANS 1491-2	Portland cement extenders – Part 2 Fly ash.
• SANS 1491-3	Portland cement extenders – Part 3 Condensed Silica Fume
• SANS 110	Sealing compounds for the building industry, two-component, polysulphide base
• SANS 1023	Preformed Elostomeric Compression Joint Seals
• ASTM C309	Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete
• BS 8110 Part 1	Structural use of Concrete
• AASHTO M153	Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction

4.3.6.2 Cementitious Binders

Cements, complying with SANS 50197-1 shall be used for all concrete work. The use of masonry cements shall not be allowed.

4.3.6.3 Coastal Zone

Where the *Works* is within one kilometre from the sea, one or more of the following cementitious binders shall be used in all concrete applications.

- Blast furnace cement, Type III/A, certified as containing not less than 40% and not more
- than 50% milled granulated blast furnace slag (MGBS), or
- A blend of Type 1 Portland cement with not less than 40% and not more than 50%
- MGBS. MGBS shall comply with SANS 1491 Part 1., or
- Fly ash cement Type II/B-V or Portland fly ash cement Type II/B-W, certified as containing not less than 25% and not more than 30% fly ash shall comply with SANS 1491 Part 2.

4.3.6.4 Alkali Reactive Concrete

Alkali Reactive Aggregates shall not be used in this project. The equivalent Na2O content of the concrete shall not exceed 2,0 kg/m3 where % Na2O equivalent = % Na2O + (0,658 x %K2O)

4.3.6.5 Aggregates

Fine and coarse aggregate shall comply with the relevant clauses of SANS 1083.
If required by the *Project Manager*, the *Contractor* shall submit 40kg samples for approval at least 6 weeks prior to the start of concrete construction. No aggregate shall be delivered for use in the works until approval is given.

4.3.6.6 Admixtures

Admixtures containing chlorides will not be permitted in reinforced concrete. Where applicable, and as indicated on the drawings, water-retaining structures shall have 'Penetron Admix' as an additive to the concrete mix to 0.8% of cement content by weight by a certified Penetron batching plant.

4.3.6.7 Cover Blocks

Cover blocks used to ensure the cover to reinforcement shall be made of cement mortar.
Cover blocks shall be dense and have a minimum 28 day crushing strength of 50 Mpa and shall be cured in water for at least 14 days before being used.
Cover/spacer blocks made of plastic will not be permitted.

4.3.6.8 Concrete Quality

The *Contractor* shall submit a quality assurance plan which will ensure compliance with specification and provide acceptable documentary evidence that all specified operations have been carried out satisfactorily.
Where the minimum dimension to be placed during a single pour is larger than 600mm, and the cement content of the reinforced concrete exceeds the following:

- Cement Types I and II/ * S: 400 kg/m3
- Cement Types II/B-V and II/B-W: 450 kg/m3

The *Project Manager* may require that measures be instituted to reduce heat development in the concrete.

4.3.6.9 Batching

All cementitious binders shall be batched by full sack or by mass batching with approved precision weighing equipment.

All aggregates shall be precisely measured by mass using approved precision weigh-batching equipment, unless otherwise approved by the *Project Manager*.
Should any variation in the composition of the aggregate become apparent, the *Project Manager* shall be notified and a further sample of aggregate submitted immediately for his approval.

4.3.6.10 Concrete Placing

The *Supervisor* shall approve the size, shape and depth of any excavation before concrete is placed.
Unless otherwise approved by the *Supervisor*, no concrete shall be placed until the fixed reinforcement has been accepted and confirmed in writing by a Release Certificate signed off by:

- The *Supervisor*
- The Surveyor - It shall be the responsibility of the *Contractor* to call the Surveyor prior to pouring concrete to verify and confirm all levels, co-ordinates and alignment of the structure to be cast.

No concrete shall be placed unless both the above signatories appear on the Pour Release Certificate.

4.3.6.11 Construction Joints

Unless otherwise shown on the drawings, the exact position of horizontal construction joints shall be marked on the formwork by means of grout checks in order to obtain truly horizontal joints.
Stub columns, stub walls and stays on footings shall be cast integrally with the footing and not afterwards, even where another class of concrete is being used. Joint lines shall be so arranged that they coincide with features of the finished work. Where new concrete is to be cast against a hardened concrete surface, neat cement slurry mixed to a creamy consistency shall be brushed onto the cleaned concrete surface. Contraction joints shall be smooth and shall have one coat of lime wash or PVA applied to the older surface prior to casting the fresher concrete.

4.3.6.12 Finishes

Classification of finishes (Sub clause 5.2.1) - The surface condition required on all exposed finished concrete shall be smooth.

4.3.6.13 Curing Compound

Unless otherwise directed by the *Project Manager*, the curing compound shall be:

- An approved trafficable, resin-based, white pigmented, membrane forming for slopes flatter than 1:1.
- An approved clear, aesthetically acceptable, membrane forming for all other concrete surfaces, including beam and slab soffits.

The curing compound shall comply with specification ASTM C309, except that the maximum permissible water loss in the test shall be 0,40 kg/m2.
Alternatively, the curing compound shall be acceptable if the treated concrete retains 90% or more of its mixing water when subject to the test set out in BS 8110 Part 1 – Chapter 6.6.

4.3.6.14 Curing Compound Application

The total application rate of the curing compound shall be the greater of the supplier's specification or 0,90 ℓ/m2. On textured concrete surfaces, the total application rate shall be 0,90 ℓ/m2.
In cases of concrete surfaces with run-off problems, it may be necessary to apply more than one coat of membrane forming curing compound to obtain the specified total or cumulative application rate.

Curing in accordance with SABS 1200 G shall commence on all concrete surfaces as soon as it is practical in the opinion of the *Supervisor*.
On unformed surfaces the curing compound shall be applied after finishing and as soon as the free water on the surface has disappeared and no water sheen is visible, but no so late that the liquid curing compound will be absorbed into the concrete.
On formed surfaces, the exposed concrete shall be wet with water immediately after the forms are removed and kept moist until the curing compound is applied.
Application of the curing compound shall begin once the concrete has reached a uniformly damp appearance with no free water on the surface.
Application of the compound may be done by hand or power spray.
The compound shall be applied at a uniform rate with two applications at right angles to each other to ensure complete coverage.
Pigmented compounds, without a thixotropic agent, shall be adequately stirred to assure even distribution of the pigment during application.
Unless otherwise directed by the *Supervisor*, the initial 24 hour curing of concrete surfaces not covered by formwork shall be carried out by ponding, covering with constantly wetted sand or mats, or continuous spraying in accordance with SABS 1200 G when the following climatic conditions occur:

- Wind velocity greater than 5 m/s and/or
- Ambient temperature is above 25 · C and/or
- The relative humidity is below 60 %

If plastic shrinkage occurs, the concrete, while still plastic, shall be re-vibrated, floated and recoated with curing compound as if no curing has previously taken place.

4.3.6.15 Curing Period

The curing period for concrete containing only CEM 1 shall be 7 days.
The curing period for concrete containing CEM 1 plus cement extenders (MGBS, FA) shall be 10 days.
The curing period will start on completion of the concrete pour and for formed surfaces shall include the time for which forms are still in place after the pour.

4.3.6.16 Concrete Records

The *Contractor* shall maintain the following daily records for every part of the concrete 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 concrete was placed
- Identification of the part of the structure in which the concrete was placed
- The mixed proportions and specified strength
- The type and brand of cement
- The slump of the concrete
- The identifying marks of test cubes made
- Curing procedure applied to concrete placed
- The times when shuttering was stripped and props removed
- The date of despatch of the cubes to the testing laboratory
- The test results.

The records shall be delivered to the *Project Manager* each week except in the case of substandard concrete, when the *Project Manager* shall be informed immediately.

4.3.6.17 Tolerances

Deviations shall be within the limits listed in SANS 1200 G for degree of accuracy II unless otherwise specified.

4.3.6.18 Testing and Monitoring

Frequency of sampling and testing shall be as specified in SANS 1200 G.

- If the quantity of concrete from which samples were taken exceeds 40 m3, it shall be subject to the testing of a minimum of 3 sets of samples per day from each grade of concrete placed in each independent structure.
- If the quantity of concrete from which samples were taken is less than 40 m3, it shall be subject to the testing of a minimum of 2 sets of samples per day from each grade of concrete placed in each independent structure.

4.3.6.19 Formwork (Clause 5.2)

All exposed concrete corners shall be provided with 20mm x 20mm chamfers.

4.3.7. Drainage

4.3.7.1 Scope of Work

The scope of work for the construction of a storm water drainage system required for this project shall include for the delivery to site, off-loading and storage on-site, setting out, execution of the works, testing, commissioning and handing over.
The *works* for the Storm-water drainage include the following:

- Excavation, layer works bedding and backfill for Storm-water pipes, channels, manholes and any other stormwater infrastructure required to complete the *works.*
- Supply and lay concrete Storm-water pipes, channels, manholes and any other stormwater infrastructure required to complete the *works.*
- Tying into any exisitng stormwater infrastructure as required to complete the *works.*

And any other work arising out of or incidental to the above, or required of the *Contractor* for the proper completion of the *works*.

4.3.7.2 Materials

The supply and delivery to site of the storm water concrete pipes shall conform to specifications detailed in the arrangement drawings and to SANS 677.

4.3.7.3 Brickwork Manholes and Catch Pit's

The construction of the brickwork manholes and Catch Pit' s shall conform the specifications and requirements detailed in the drawings.
All brickwork shall be built in manhole bond i.e. stretchers only on the inside face, using cement mortar as specified.
Bricks shall be well soaked before use and the previous course shall be wetted before bricks are laid thereon.

All joints on the internal face (and the external face above ground) shall be half round recessed and shall be well rubbed with a standard jointing tool of suitable size to ensure that the entire exposed surface on the joint presents a smooth and polished appearance.
Intersecting walls shall be properly toothed with each other and all angles levelled and plumbed.
Should cement bricks be utilised, then all internal surfaces shall be plastered with a 12mm thick 3:1 cement sand mortar mix.
When brick built' manholes are constructed in wet ground, the external surfaces shall be rendered with 12mm thick 3:1 cement sand mortar mix.

4.3.7.4 Pipe crossings
Where pipes cross with a vertical height difference of less than 150mm, a polystyrene block spacer shall be placed between the pipes.
The fill material around the pipes shall be thoroughly moistened and compacted.
The *Contractor* will be held responsible for any damage to pipes resulting from the construction of a pipe crossing.

4.3.7.5 Cut pipe ends
Ends may be cut on site using the appropriate cutting machinery. Reinforcement exposed by such cutting is to be protected with 20mm thick cement mortar.

4.3.7.6 Pipe Laying and Jointing
Pipes that have been exposed for several hours to direct sunlight and have become hot should not be laid until they have cooled to a temperature of approximately 25ºC.
Rubber ring jointing may be carried out in the trench. The pipeline should be laid directly on to the prepared bedding in the trench, and bricks or other hard bodies must not be placed under the pipeline for either temporary or permanent support. Rubber rings used must be those supplied by the pipe or fitting manufacturer. All spigots must be checked to ensure that they are free from burrs, and spigots, sockets and rings must be cleaned with a dry cloth. The pipe end must be chamfered to an angle of approximately 15º and the depth of entry must be marked on the spigot. This mark must be so positioned as to allow a 6mm clearance between the spigot and the bottom of the socket. A thin film of a lubricant recommended by the manufacturer should be applied to each rubber ring and each spigot.

4.3.8. Rail - Perway
4.3.8.1 Scope of Work
This part covers all perway-related works.

4.3.8.2 Lifting Existing Track
Existing track to be uplifted, the extent to be confirmed on site.
Rails shall be cut into lengths to allow loading onto a rail train. Solely disc cutting shall be allowed.
Rail cuts shall be 30 mm from the edge of each thermit weld on track and 25 mm in the case of turnouts.
Offloaded rails are to be secured against the adjacent track in accordance with the uplifted rail securing method diagram.
Sleepers shall be removed and placed alongside clear of earthworks or on the adjacent surface drains for removal to stack when the ballast has been uplifted.
Placement of released material between tracks, irrespective of track centres, may not be undertaken without written authority of the *Employer*.
Due care shall be exercised by the *Contractor* to prevent damage to any existing concrete, signals, track or other structure in existence whilst moving material. In particular, the rail of the adjacent track shall be protected from sleeper contact whilst sleepers are moved across track.
The *Contractor* shall also ensure that the signalling to the adjacent tracks is not interrupted by short-circuiting the two rail legs whilst conveying material across any line (if applicable).
Pins, pads and clips shall be removed from the sleepers and transported to suitable storage sites within 72 hours of release. Items to be appropriately sorted and stored. The steel ferrules of sleepers to be to be appropriately sorted and stored. The costs for loading, transporting, offloading, sorting,

packaging and securing as well as for wire brushing of the steel ferrules shall be included in the rate for removal of pins, pads and fastenings.

4.4 COMPLIANCE CERTIFICATE

a) The *Contractor* shall submit a full set of completed and valid compliance certificates to the *Employer*, if required.

5 LIST OF DRAWINGS

5.1 Drawings issued by the *Employer*

The list of drawings and drawing pack will be issued by the Contractor during construction.

Note: The Contractor should be able to bid without the design drawings from the *Employer*.

SECTION *2*

6 MANAGEMENT AND START UP

6.1 MANAGEMENT MEETINGS

It is the *Employer's* specific intention that the Parties and their agents use the techniques of partnering to manage the Contract by holding meetings designed to pro-actively and jointly manage the administration of the Contract with the objective of minimising the adverse effects of risks and surprises for both parties.

Depending on the size and complexities of the *Works*, it is probably beneficial for the *Employer* to hold a weekly risk register meeting (Clause 16.2). This could be used to discuss safety, environmental, compensation events, sub-contracting, overall co-ordination and other matters of a general nature. Separate meetings for specialist activities such as programming, engineering and design management, may also be warranted.

Types of Management Meetings

Title and purpose	**Approximate time & interval**	**Location**	**Attendance by:**
Risk register and compensation events	4 hours Weekly on (or at shorter intervals if required)	On site	*Project Manager, Supervisor, Contractor* and appropriate key persons
Overall Contract progress and feedback	3 hours Every two weeks	On site	*Employer, Project Manager, Supervisor, Contractor* and appropriate key persons
Technical Meetings	1 hour Daily	On site	*Project Manager, Supervisor, Contractor* and appropriate key persons
SHE meetings	2 hours Every two weeks	On site	Appointed *Contractor* and appropriate key persons
Safety and environmental review meetings	1 hour Weekly	On site	Appointed *Contractor* and appropriate key persons

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.

The *Contractor* attends management meetings at the *Project Manager's* request as set out in the table above. At these meetings the *Contractor* presents all relevant data including safety, health

and environmental issues, progress reports, quality plans, sub-contractor management reports, as may be required.

6.2 DOCUMENTATION CONTROL

Each supplier of documentation and data to the Project is responsible for ensuring that all documentation and data submitted is accurate in terms of numbering, uniqueness, quality, accuracy, format, completeness and currency of information. Data not meeting these requirements will be cause for rejection and returned to the Contractor for corrective action and re-submission.

The Contractor shall submit all documentation (including correspondence and drawings) to Transnet (*Employer*s) standards and to the Project Manager's requirements in accordance with the Project Manager's document control procedure. The *Employer* shall use his own suitable document control system for the control, maintenance and handling of all relevant documentation and drawings issued to him.

Should any change be made to documentation or data, which has already been submitted to the Project, then new or revised documentation or data shall be issued to replace the outdated information.

It is the responsibility of all Project participants undertaking work on the Project to ensure they obtain and comply with the relevant requirements to suit their deliverables and Scope of Work.
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.
Electronic files submitted to the Project shall be clear of known viruses and extraneous "macros".
The supplier of documentation is required to have, at all times, the latest generation of virus protection software and up-to-date virus definitions.

The required number of copies of documentation and data shall be specified in the 'Contractor Documentation Schedule' (CDS). The required number of copies shall be a minimum of two (2) (1 x original + 1 x hard copies), with the corresponding PDF and 'Native' file formats upon final submission.

The Contractor shall ensure adequate resources are available to manage and execute the Document Control function as per the requirements of the Project.
The following documentation shall be provided by the Bidder:

Post implementation the Contractor shall document the logical and physical configuration of the system providing a thorough description of the following information,
Physical information
Equipment Configuration
Post Contract award the Contractor shall provide documented procedures to be followed during setup of all equipment, Documents should be specifically related to the installation performed at each of the Transnet Port Terminals site.

6.3 PROCEDURE FOR SUBMISSION AND ACCEPTANCE OF *CONTRACTOR'S* DESIGN

The *Contractor*'s documentation shall be issued to the *Project Manager* under cover of the *Contractor*'s Transmittal Note indicating all Contract references (i.e. Project No, Contract No, etc.) as well as the *Contractor*'s Project Document Number, Revision Number, Title and chronological listing of transmitted documentation. Formats of *Contractor* data submitted is dependent on the project procedure and shall be specified by the *Project Manager*, upon the notified request of the *Contractor*.

The *Contractor* shall deliver both hard copies and electronic media copies (CD Rom) to the *Project Manager* either at the address stated within the Contract Data or at the Project site office.

All electronic documentation shall be submitted by the *Contractor* in Adobe Acrobat (.PDF) and native file format

Acceptance of documentation by the *Project Manager* will in no way relieve the *Contractor* of him undertaking the Works (including all incidental services required).

6.4 AS-BUILT DRAWINGS, OPERATING MANUALS AND DATA PACKS

6.4.1 THE *CONTRACTOR* PROVIDES THE FOLLOWING:

6.4.2 RED LINE/FINAL DOCUMENTATION

- All Red Line information to be signed off by the *Contractor*'s responsible Professional/Technologist before issuing to the *Employer*.

Installation, Maintenance and Operating Manuals and Data Books

- The Contractor provides manuals in an A4 hard covered, red, grease and waterproof binder, using 2 ring type binders. The manuals are well indexed and user friendly and include a summarized Table of Contents.
- Drawings and charts larger than A4 are folded and those greater than A3 are enclosed in an A4 plastic pocket of adequate strength.
- The Contractor submits the draft Table of Contents to the Project Manager for acceptance prior to the compilation and official submittal of the manuals.
- The originals of all brochures shall be issued to the Project Manager. When a general brochure is applicable to a range of equipment, then the specific item, catalogue number or model number shall be stated, which is best achieved by introducing a separate index page, which cross-references the specific item to a tag number.
- The address, phone numbers, fax numbers and reference numbers of all Sub-Contractors is provided
- Where manuals include drawings that still need to be revised to "As-Built" status, and such manuals are required prior to 'As-Built' status, the manual will not be considered to be in its final form until the "As-Built" version of each such drawing has been incorporated. The required number of copies of the manual (s) shall be as specified by the *Project Manager* and submitted per type or model number of equipment included in the Contract, or as specified by the *Project Manager*.
- All electronic copies (pdf) of Data Packs to be properly indexed.
- A typical example of what the binder/file (s) shall be marked with on the spine and the front cover is as follows: -

    - Project No./Name
    - Manual Title, e.g. Installation, Maintenance and Operating Manual
    - FBS No. and Title
    - Manual Numbering (e.g. Volume 1 of 2, etc.)
    - Contract Number
    - *Contractor* Name

- Unless otherwise stated in the CDS, the required number of copies of all As-Built/Final/Data Packs shall be:
    - 3 x hard copies (Full size)
    - 3 x CD Roms with Adobe Acrobat (.pdf) and "Native" formats

6.5 SAFETY RISK MANAGEMENT

Health and Safety Standard

- The Contractor must comply with the requirements of the Project Health and Safety Specification – PHSS-0001 and OHS Act No. 85 of 1993 and its applicable Regulations.

- The Contractor must comply with Post COVID-19 Lockdown Construction Site Health and Safety Guidelines- TPT-IMS-HS-SOP-009.001 and Disaster Management Act: Regulations relating to COVID-19.

6.5.1 *CONTRACTOR'S* GENERAL REQUIREMENTS FOR HEALTH AND SAFETY

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* 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 the *Employer*, its *Contractors*, employees, agents and invitees, or any Government Body.

6.5.2 COSTS FOR THE ABOVE ARE BORNE BY THE *CONTRACTOR*.

The *Contractor* must comply and is responsible for ensuring that all of its Sub-*Contractor*s 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.

6.5.3 *CONTRACTOR'S* HEALTH AND SAFETY MANAGEMENT

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-*Contractor*s 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. Site Supervision
- 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 Section (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 *Supervisor*y 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.

6.5.4 *CONTRACTOR'S* SAFETY OFFICER

The *Contractor* must appoint a full-time Health and Safety Officer for the duration of the Contract who 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-*Contractor*s), 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-*Contractor*s) 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* 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 always ensure compliance ;
- 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* health and safety induction training for all *Contractor* and sub-contractor 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 *Supervisor*s, 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-*Contractor*s), 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. The *Contractor* must ensure that the 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 NEBOSH or Modern SHEQ Risk Management 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.

6.5.5 *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.

6.5.6 PERFORMANCE MEASUREMENT AND REPORTING

6.5.6.1 Health and safety statistics

The *Contractor* and each of its Sub-*Contractor*s 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.

6.5.6.2 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.

6.5.6.3 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 is 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.

6.5.6.4 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 TPT Health and Safety Practitioner.

6.5.6.5 Involvement, communication and motivation

The *Contractor* and sub-contract*or*'s workforce must, through their supervision, safety notice boards, toolbox meetings and daily pre-start meetings be kept aware of safety related matters.

6.5.6.6 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 "tool box" meetings to discuss safety issues and procedures.

6.5.6.7 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. 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.

6.5.6.8 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.

6.5.6.9 Hazop review

The *Contractor* participates in HAZOP reviews upon the instruction and direction of the *Project Manager*.

The reviews may include, but not be limited to, studies to ensure that the Plant is built and operated as designed and that personal safety, employee health and environmental protection systems conform to the *Employer's* and legislative requirements.

6.5.6.10 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*.

6.5.6.11 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)

6.5.6.12 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:
- 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
- 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 wok and to be encouraged to follow HSE requirements
- Conducts *Works*ite 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 incident and near misses.

6.5.6.13 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:

- Electrical integrity systems are in place (e.g. equipment tests and inspections of critical equipment, quality control procedures, etc.) which will confirm that construction, equipment and materials are in accordance with design specifications
- 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.
- As Built 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.

6.5.6.14 Working at nights

A site specific health and safety management plan should be well documented and structured so that both *Employer*s and employees can benefits from its use. The following are recommended components of a safety management plan for night time *Works*.

6.5.6.15 Site Personnel responsibility

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 night time *Works*. *Project Manager*, Engineers, Designers, Safety Officer and Site *Supervisor*s 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.

6.5.6.16 Permission to work at night

The *Contractor* shall apply in writing for permission to work at night and should be obtained from the relevant authority in this case *Project Manager*, before construction *Works* at night is carried out. The *Contractor*s should submit their application for work at night permit to Client representative and it is advisable to follow all requirements enforced by the authority to

executing night time construction *Works*. It is recommended that the *Employer's* representative should also notified TPT responsible personnel about intended night shift work.

6.5.6.17 Housekeeping

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.

6.5.6.18 Emergency preparedness and response (EPR)

Contractor should developed and implement the EPR that is specifically night time 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 occur.

6.5.6.19 Public safety

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 night time 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.

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 walk ways where it is unavoidable to work near or in public vicinity.

Arrange noisy equipment or machinery at furthest 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.

6.5.6.20 Types of risks and factors affecting night time work

In order to decide when to conduct night time work, factors (parameters) affecting night time 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 night time 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.

6.5.6.21 Risk

Night time 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 night time 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 night time 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 the Project Health and Safety Specification requirements that enforces compliance during day shift.

6.5.6.22 Medicals

Pre-employment medicals, including chest X-ray examinations, specific for the Contract will be required for all employees working on the Site regardless of duration spent on Site. Exit medicals, including chest X-ray examinations will be required at the end of the Contract. These medical examinations must be carried out by a registered Occupational Health Practitioner.

6.5.6.23 The *Contractor* must ensure that budget provision for all requirements is in place.

6.6 ENVIRONMENTAL CONSTRAINTS AND MANAGEMENT

6.6.1 All work is to be conducted in accordance with the principles of the National Environmental Management Act, 1998 (Act no 107 of 1998) but not limited to other applicable regulations as well as the accepted environmental good practice. In addition, the Contractor is expected to comply with all applicable Metropolitan Municipality bylaws.

6.6.2 All aspects of the *Works* must comply with the *Employers* environmental standards.

6.6.3 The Contractor shall be responsible for rehabilitation/reinstatement and cleaning all areas to the satisfaction of the *Employer*'s Project Environmental Manager or Environmental Officer.

6.7 QUALITY ASSURANCE REQUIREMENTS

Refer to EEAM-Q-009 for the *Purchaser*'s Quality Management. Special attention must be paid to the following:

- Quality management objectives.
- Documentation and change control procedures.
- Quality control procedures that will apply to purchased materials.
- Quality control plan for all components manufactured or supplied to ensure conformance.
- The identification of suitable hold points to ensure proper quality assurance throughout manufacturing.

The *Contractor* shall ensure that the quality assurance requirements placed on him under this Contract are transferred into any sub-contracts.

Quality system requirements shall be applied on all sub-contracts 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 *Contractors* quality plan shall include or reference the quality plans of sub-contractors.

6.8 PROGRAMMING CONSTRAINTS

6.8.1 The *Contractor's* construction WBS as a minimum shall include but not be limited to the following WBS Elements:

- Procurement and delivery of all long lead items necessary to provide the *Works* in line with the stipulations of the *Employer's Works* Information. Long lead items include but are not limited to; Plant, equipment, materials and any other resources, as required to provide both temporary and permanent *Works*.
- Manufacturing and or Fabrication both on and off-site which may include but is not limited to; Plant, equipment, materials and any other resources, as required to provide both temporary and permanent Works.
- Preparation and Approvals of Health & Safety, Environmental and Quality Documentation.
- Approval of any applicable permits, permissions and licenses, including inductions
- Site Establishment
- Civil Works:
    a. Designs/drawings/specifications
    b. Asphalt surfacing – final course
    c. Layerworks – sub-grade course
    d. Palisade fencing
    e. Stack markings
    f. Concrete and kerbs to island
    g. Testing and commissioning

6.8.2 The *contractor's* construction programme shall correspond with the *contractor's* approach paper.
6.8.3 The *contractor* shows on each programme he submits to the *project manager*, the requirements of the [cemp, ses, pes and smp] as described under the relevant sections of the *works* information, together with the associated environmental method statements.
6.8.4 The *employer* (including the agents of the *employer*) operates on *site* during dates or timings when the *contractor* has completed certain elements of the *works* and/or during the contract period as stipulated in this *works* information.
6.8.5 *Others* operate on *site* during dates or timings when the *contractor* has completed certain elements of the *works* as stipulated in this *works* information.
6.8.6 The *contractor's* first programme submitted for accepted shall be agreed during the pre-contract negotiation period, and no later than the period stipulated under contract data part one (2 weeks after the contract date).
6.8.7 The *contractor* complies with the *employer's* high-level programme when he submits his first programme for acceptance.
6.8.8 The *contractor* presents his first programme for acceptance and all subsequently revised programmes (see ECC clauses 31.2 and 32.1) in hard copy and soft copy format.
6.8.9 The *contractor* shows on his programme submitted for acceptance and all subsequently revised programmes, the critical path or paths and all necessary logic diagrams demonstrating sequence of operations.
6.8.10 The *contractor*'s programme shows duration of operations in working days as per the stipulated definition of the work days and hours in the *employer's works* information.
6.8.11 Each programme submitted by the *contractor* to the *project manager*, is fully cost and resource loaded (people, equipment, plant, materials & other resources) with the exception of the *contractor's* tender programme submission.
6.8.12 The *contractor* shows on each programme he submits to the *project manager*, the requirements as listed in the NEC 3, ECC, and clause 31.2.
6.8.13 The *contractor* attends, participates in and makes a meaningful contribution to, planning initiation & set–up meetings held during the pre-contract negotiation period and no later than the period stipulated under *contract data part one* (2 weeks after the contract date); to agree and set-up - including but not limited to - the first schedule for acceptance; monitoring, control

and reporting requirements; proposed templates and planning/scheduling procedures to be complied with for the duration of the project.

6.8.14 The *contractor* shows on each revised programme he submits to the *project manager* a resource histogram showing planned progress versus actual, deviations from the accepted programme and any remedial actions proposed by the *contractor*, including a spread sheet identifying instances of resource over-allocation and/or conflicts, accompanied by proposed resolutions.

6.8.15 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. Individual operations will be assigned a code. The *Employer* notifies any subsequent layouts and corresponding filters on revised programmes.
- Level 4 Project Schedule –detailed discipline/speciality level schedule decomposed to the appropriate levels of detail in order to accurately substantiate activity scope and activity duration estimates; developed and maintained by the *Contractor* relating to all operations identified on the programme representing the daily activities by each discipline, with activities and operations adequately decomposed in order to accurately represent the effort required to execute said activity/operation and support accurate duration estimates.
- A narrative status report, which includes but is not limited to status and performance of operations on the *Site* and Working Areas; status and performance of operations outside the Working Areas; manpower histograms; S-curve of overall progress; critical action items (top 10) and deviations from the Accepted Programme and action plan to rectify.
- Basis of Programme/Schedule document detailing but not limited to the following minimum requirements:

- Basis of latest accepted programme, including an overview of assumptions, constraints, specific and quantified resource allocations, productivity assumptions and basis of calculation, identification and justification of general scheduling provisions such as calendars and working times, lags, date constraints, activity durations longer than one reporting period, etc.
- Description of network logic and sequencing.
- Description of general construction approach.
- Description of approach to allocation, use and management of all resources dedicated to the project.
- Description of and trend analysis of critical risks as identified through schedule risk analysis and included in schedule contingency and or Time Risk Allowance provisions.
- Discussion regarding the basis, method of calculation and validity of the critical path and near critical paths, (interrogate longest path and total float as contained in the programme).

- Reporting on change management, i.e. identify and record any deviations/changes that have taken place within the previous reporting cycle, and their resultant impact on the remaining *Works* and as identified and highlighted in the current revision of the programme for acceptance.
- Identification critical activities, as well as top 10 near critical activities and undertake trends analysis on such activities with the aim of identify any deviations from planned performance.
- Identification of any recovery and or mitigation action required in order to neutralise any deviations.

6.9 REPORTING AND MONITORING

The Contractor attends weekly planning meetings and Contractual matters in line with NEC ECC core clauses 31, 32.

The *Contractor* submits programme narrative report to the *Project Manager* at weekly intervals in addition to the intervals for submission of revised programmes stated under *Contract Data Part One*. The *Contractor* also submits fortnightly expediting report and monthly programme narrative report to *Project Manager*.

The *Contractor* completes an assessment of all activities in progress and to completion to determine physical percentage complete, forecasted completion dates, deviations from the Accepted Programme and proposes remedial action to rectify deviations.

The *Contractor* shows on each revised programme he submits to the *Project Manager* a resource histogram showing planned progress versus actual, deviations from the accepted programme and any remedial actions proposed by the *Contractor*.

The *Contractor* submits the programme narrative report detailing the status and performance of operations on the Site and Working Areas, status and performance of operations outside the Working Areas, man-power histograms, Plant and equipment histograms, S-curve of overall progress, and critical action items (top 10). Report shall indicate "progress this period" and "progress to date".

The *Contractor*'s **weekly** project progress report (narrative report) includes but is not limited to:

- 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.
- Progress Spreadsheet detailing actual progress achieved (target/planned quantity versus actual quantity) on current (critical) activities for the previous week, planned progress for the current week, deviations and proposed recovery for each activity in question. A 1-week Look Ahead Spreadsheet in line with the aforementioned stipulations to be included. Priority to be given to identification of critical activities, progress and any deviations from planned performance in this regard.
- 3-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.

- Dependencies/Deliverables matrix detailing interim approvals and/or any other inputs/requirements from *Employer/Supervisor/Project Manager/Others* or any other project *Stakeholder* in line with the activities identified in the 3-week Look Ahead Schedule.
- Interfacing Matrix, detailing timeous identification of any requirements for providing the *Works* and/or *Works* to be executed by *Others* and any other *Stakeholders* party to this Contract in line with the stipulations of the *Works Information*.
- Manpower Histogram – reflecting actual, forecasted and planned activities.
- Plant and Equipment Histogram – reflecting actual, forecast and planned activities.
- S-curves – reflecting the actual percentage complete versus the planned percentage for the overall Contract.
- Identification critical activities, progress and any deviations from planned performance.
- Adherence and actual performance achieved with regards to Environmental, Health & Safety and Quality Management.

The *Contractor's* **fortnightly** expediting report includes but is not limited to:

- The *Contractor* shall submit to the *Project Manager*, a bi-weekly report on progress of any off-site manufacturing activities undertaken during the previous half-month.
- Based on the Accepted Programme, the *Contractor* submits a cash flow forecast report that details the anticipated monthly cash flow, represented by the expected assessment of the amounts due, to the *Project Manager*. The cash flow forecast is to be extrapolated from the latest Accepted Programme through the mechanism of the cost loaded schedule or other similar methodologies with the prior approval of the *Project Manager*.

The *Contractor*'s **monthly** project progress report includes but is not limited to:

- Monthly, the *Contractor* completes an assessment of all activities in progress and to completion, and accordingly revises and submits the updated programme for acceptance and cash flow forecast report detailing any variances and proposes remedial actions to rectify deviations.
- The *Contractor's* monthly programme narrative report is submitted a week before the last Friday of each month, or as required by the *Project Manager*. The report shall indicate "progress this period" and "progress to date" and shall include, but is not limited to, the following;
  - Summary of progress achieved during the reporting period.
  - Latest Accepted Programme.
  - Deviations from the current Accepted Programme and action plans to rectify.
  - Project milestones table – planned versus actual and forecast.
  - Status and performance of operations on the site and Working Areas.
  - Status and performance of operations outside Working Areas.

- Cash flow forecast report.
- Digital photographic record of the progress of the *Works*.
- Manpower histograms, including a control spread sheet detailing specific over-allocation and/or conflicts in allocation of resources.
- *Contractor's* Plant and equipment histograms, including a control spread sheet detailing specific over-allocation and/or conflicts in allocation of resources.
- S-curves of overall progress.
- Critical action items list (top 10).

6.10 Other conditions

6.10.1 The *contractor* shall comply with the specific provisions of NEC 3 ECC clauses 24.1 when supplanting any planning resources previously appointed in line with the provisions of this contract. Appointment shall follow upon written approval of the *project manager*.

6.10.2 The *employer* (including the agents of the *employer*), reserves the right to exercise the provisions of nec 3 ECC clause 24.2, where deemed necessary in order to meet the *employer's* objectives as stipulated in paragraph 1.2 of the *works* information.

6.11 *Contractor*'s management, supervision and key people

The *Contractor* shall make an adequate, experienced and stable project team available for the duration of the Contract. Every effort must be exercised by the *Contractor* to minimise the replacement of project team members in order to ensure optimum Contract management continuity and efficiency.

The *Contractor* employs full time, fully qualified and experienced key persons who have been delegated sufficient authority to manage the Contract efficiently on Site during completion of the *Works* including and not limited to:

- Contracts Manager
  - The Contracts Manager should at least have a minimum qualification of a BSc. Eng./B.Tech./National Diploma in Civil Engineering and a ECSA/SACPCMP registration as Pr. Eng/Pr. Tech. Eng./Pr. Cert Eng./Pr. CPM with at least 10 years of experience in civil infrastructure projects. The Contracts Manager must have experience working with the NEC3 Engineering and Construction Contract in at least 3 separate projects, with at least 1 project in excess of R 20M in civil Works component value.
- Construction Manager X 1
  - The Construction Manager should at least have a minimum qualification of a B.Tech./National Diploma in Civil Engineering and a ECSA/SACPCMP registration as Pr. Eng/Pr. Tech. Eng./Pr. Cert Eng./Pr. CM with at least 10 years of experience in civil infrastructure projects. The Construction Manager must have experience working with the NEC3 Engineering and Contract in at least 1 project in excess of R15m in civil Works component value.
- Site Agent X 1
  - The Site Agent must have at least 10 years of experience in civil infrastructure projects.

Foremen**:**

- Foreman (building and civil infrastructure) X 1

  - Building and civil infrastructure Foreman must have a minimum of NTC 4 Trade Certificate in Civil Engineering with at least 10 years of experience in building services and civil /building construction.

- Planner X 1,

  - The planner should at least 5 years of experience working in civil projects as planner.

- Quality Assurance Officer X 1,
- Quality Assurance officer should have a Diploma or Certified qualification in quality systems with relevant quality experience in construction. At least 5 years of experience in a quality systems environment and relevant experience in civil construction projects is required.
- Safety, Health and Environmental Officer
- Health and Safety Officer should have SAMTRAC, NEBOSH and Modern SHEQ Risk Management (MSRM) training course with accredited health and safety service provider as a minimum qualification and registered as a Health and Safety Officer with SACPCMP. At least 5 years' experience as a Safety, Health and Environmental Officer on construction projects. The SHEO must also have undergone Environmental awareness and short courses.
- Document Controller X 1,

  Document controller should have at least 5 years of experience working in construction and experience working with the NEC3 Engineering and Construction Contract Option chosen for this Contract.

The *Contractor* employs personnel listed above but not limited to those mentioned in order to perform the functions of key persons under NEC3 ECC Clause 24.1. These appointments shall have the necessary experience and be suitably qualified.

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 2.5 of C3.1 *Employer's Works* Information.

6.12 TRAINING WORKSHOPS

The *Contractor* facilitates the following requirements for training Workshops:

- A safety pre-mobilisation Workshop.
- Contractor employee safety training programme.
- The Contractor shall utilise local people for staffing up some of his requirements and shall ensure that there is adequate skills transfer taking place.
- Any other training as required by law or specifications referred to in this document

The Contractor shall consider and make the necessary allowances for the following training requirements:

- Training approach and delivery to be tailor made according to the above audience.
- The Contractor shall provide all courseware for the training.
- Training shall be delivered in a classroom environment.
- The Contractor shall provide any or all training material required for the training.

6.13 CONTRACT CHANGE MANAGEMENT

For ease of communication standard templates shall be used for Contract change management. The *Contractor* forwards all correspondence with respect to Contract change management, i.e. Early Warnings and notifications of Compensation Events, on the standard templates provided.

6.14 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:

- Records of design employees location of work or professional engineers engaged by the *Contractor*
- Records of people and Equipment within the Working Areas
- Records of Equipment used and people employed outside the Working Areas
- Records of quotations, invoices and pay slips.

7 PROCUREMENT

7.1 CODE OF CONDUCT

The *Employer* 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 the *Employer* must understand and support. These are:

- The Transnet Detailed Procurement Procedure (DPP);
- 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); and
- The Anti-Corruption Act.

This code of conduct has been included in this Contract to formally apprise the *Employer* Suppliers of the *Employer's* expectations regarding behaviour and conduct of its Suppliers.

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

The Employer 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 *The Employer will not participate in corrupt practices and therefore expects its suppliers to act in a similar manner.*

- *The Employer* 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 *the Employer* employees. We expect our Suppliers to use our "Tip-offs Anonymous" Hot line to report these acts (0800 003 056).

2. *The Employer 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.

- *The Employer* does not engage with non-value adding agents or representatives solely for the purpose of increasing BBBEE spend (fronting)

3. *The Employer'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 *The Employer* 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 *the Employer* 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

1. *A conflict of interest arises when personal interests or activities influence (or appear to influence) the ability to act in the best interests of the Employer.*
   - Doing business with family members
   - Having a financial interest in another company in our industry

7.2 THE *CONTRACTOR'S* INVOICES

When the *Project Manager* certifies payment (see NEC3 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.

Invoices must be submitted by the defined date of the month forecasted to the date of the month to be advised by the Project Manager.

The invoice states the following:

- Invoice addressed to Transnet Limited;
- Transnet Limited's VAT No;
- Invoice number;
- Registered name of the *Contractor*;
- Address (Physical and Postal) of the *Contractor*;

- The *Contractor's* VAT Number; and
- The Contract number

The invoice contains the supporting detail:

- The amount paid to date;
- Amount for payment (excluding VAT);
- VAT amount;
- Amount for payment (including VAT);
- Any retention monies to be deducted from the invoice;
- Any interest payable;
- Escalation formula used where applicable;
    - Settlement discount;
    - Proof of ownership of Materials supplied;
    - A statement is to accompany each invoice

The invoice is presented either by post or by hand delivery on the last working day of the assessment month. Statements must accompany invoices.

The invoice is presented as an original.

The *Contractor* ensures that the *Employer* has his correct banking information to make the electronic payment transfer.

All payments are provisional and subject to audit. The *Contractor* preserves his records for such a period of time as legislation requires, but in any event not less than five (5) years.

The *Employer* deducts any amount owed by the *Contractor* to the *Employer* from any amount payable by the *Employer* to the *Contractor*.

7.3 SUB-CONTRACTING

The *Contractor* shall not appoint or bring Sub-contractors onto Site without the prior acceptance of the *Project Manager*, and all Sub-contractors will be required to conform to the requirements as set out herein as if they were employees of the *Contractor*.

The *Contractor* shall not deviate from an approved Sub-contractors list without prior acceptance of the *Project Manager*

Sub-Contract documentation, and assessment of sub-contract tenders:

The *Contractor* is required to appoint his Sub-contractors under the NEC3 Engineering Contract Sub-contract unless accepted otherwise by the *Project Manager*, and all Sub-contractors will be required to conform to the requirements as set out herein as if they were employees of the *Contractor*.

The *Contractor* shall ensure that the quality assurance, health and safety, industrial relations, environmental, documentation control and all other requirements placed on him under this Contract are transferred into any sub-contracts.

The *Contractor* **shall 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 of contributor than the person concerned, unless the Contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

8 EQUIPMENT PLANT AND MATERIALS STANDARDS AND WORKMANSHIP

8.1 REFERENCED STANDARD SPECIFICATIONS

The tests prescribed in the relevant standard specifications shall be carried out at the manufacturer's Works before delivery of the Equipment, Plant and Materials ordered by the *Contractor*. The test results shall be submitted to the *Project Manager*.

Plant and Materials made and tested to alternative standard specifications will be considered at the discretion of the *Project Manager*, provided that such specifications are not less stringent than those laid down.

9 GENERAL

All Equipment, Components Plant and Materials shall be new.
All Equipment Plant shall be installed according to the manufacturer's recommendations.
All TPT standards and/or specifications shall be complied with where applicable.

10 LIST OF ANNEXURES

ALL THE ANNEXURES LISTED HEREUNDER SHALL BE DEEMED TO FORM PART OF THE *WORKS* INFORMATION.

The Annexures listed in the Table below are available **only** in the soft copy format (CD).

Annexure	Description / Discipline	Document No(s)
A	Project Health and Safety Specifications	**HAS-PHASS-0001**
B	Site Emergency Management	**HAS-P-0001 - Rev 0**
C	Occurrence Reporting and Investigation	**HAS-P-0002 - Rev 0**
D	Guidelines for Managing Common Hazardous Activities and Tasks	**HAS-GN-0001 rev 0**
E	Transnet Integrated Management Systems Policy Commitment Statement	**IMS-GRP-GDL-0002.1**
F	Contractor Safety Questionnaire	
G	CAD Standards	**ENG-STD-0001**
H	Construction Environmental Management Plan (CEMP)	**ENV-STD-001 Rev 04**
I	Standard Environmental Specifications (SES)	**ENV-STD-002 Rev 04**
J	Health & Safety Pricing Schedule	**TRN-IMS-GRP-GDL 014.4**
K	Schedule Trades and Occupational Bylaws	
L	Integrated Waste Management Approach	
M	Contractor Documentation Submittal Requirements	**DOC-STD-0001 rev 3**
N	General Quality Requirements for Suppliers and Contractors	**QAL-STD-001 rev 0**

O	Project Specific Insurance Details	
R	Covid-19 Post Lockdown Construction Site Health and Safety Guidelines rev 002	**TGC-IMS-HS-GL-009-01**
8.1	Protocol for COVID positive cases	
8.2	Cleaning and Disinfection Procedure	
8.3	Hand washing Procedure	
8.4	Site Meeting Procedure	

EMPTY CONTAINER HANDLER SPECIFICATION

The specification for the Empty Container Handlers to be used on the area to be paved is as follows:

Max Lifting Height:	**19 m**
Stacking Layer:	**8 high (TPT only stacks 5 high)**
Gross Mass:	**43 000 kg**
Load Capacity:	**10 t (10 000 kg)**
Axle load Front unloaded:	**27875 kg**
Axle load Front loaded:	**43175 kg**
Axle load Rear unloaded:	**14500 kg**
Axle load Rear loaded:	**9000 kg**
Min Turning Radius:	**6,6m**
Tyres: Front (driven)	**4 x Pneumatic**
Rear	**2 x Pneumatic**

Notes to Tenderers:

Tenderers are to note the limitation of four (4) high empty containers to be stacked at Empty Stack 100.

CONTAINER (EMPTY) SPECIFICATIONS

The specifications for the empty containers to be handled and stacked, no more than 5 high, on the area to be paved are as follows:

Container Size	Weight -Empty (kg)	Length (mm)	Width (mm)
20 foot	**2 370**	5 898	2 352
40 foot	**4 000**	12 031	2 352

Notes to Tenderers:

Tenderers are to note the limitation of four (4) high empty containers to be stacked at Empty Stack 100.