

Transnet Port Terminals

an Operating Division TRANSNET SOC LTD

[Registration Number 1990/000900/30]

## REQUEST FOR PROPOSAL (RFP)

PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS **"TPT") AS A ONCE OFF SUPPLY**

RFP NUMBER	: ICLM PE 747/TPT
ISSUE DATE	: 12 NOVEMBER 2024
COMPULSORY BRIEFING AND SITE MEETING	: 20 NOVEMBER 2024
CLOSING DATE	: 03 DECEMBER 2024
CLOSING TIME	: 16H00
TENDER VALIDITY PERIOD	: 12 weeks from closing date

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## T1.1 TENDER NOTICE AND INVITATION TO TENDER

### SECTION 1: NOTICE TO TENDERERS

#### 1. INVITATION TO TENDER

Responses to this Tender [hereinafter referred to as a Tender] are requested from persons, companies, close corporations or enterprises [hereinafter referred to as a Tenderer]. It is estimated that tenderers must have a CIDB contractor grading designation of 7EP or higher class of construction work.

DESCRIPTION	Provision of Services to Design, Fabricate and Install a Reclaimer Bypass System at the Port Elizabeth Manganese Terminal for Transnet SOC Ltd (Reg No. 1990/000900/30) operating as Transnet Port Terminals (Hereinafter referred to as <b>"TPT"</b> ) as a once off supply
TENDER DOWNLOADING	This Tender may be downloaded directly from the National Treasury eTender Publication Portal at <a href="http://www.etenders.gov.za">www.etenders.gov.za</a> and the Transnet website at <a href="https://transnetetenders.azurewebsites.net">https://transnetetenders.azurewebsites.net</a> (please use Google Chrome to access Transnet link). <b>FREE OF CHARGE.</b>

COMPULSORY TENDER CLARIFICATION MEETING	<p>A Compulsory Tender Clarification and Site Meeting will be conducted at the Port of Port Elizabeth, Technical Boardroom, Shop 17, Baakens Street entrance, on the 20<sup>th</sup> of November 2024, at 10h00 for a period of <math>\pm</math> 3 (three) hours. [Tenderers to provide own transportation, accommodation and personal protective equipment (hard hat, reflective vest and safety shoes)].</p> <p>The Compulsory Tender Clarification Meeting will start punctually and information will not be repeated for the benefit of Tenderers arriving late.</p> <p>Contact person for directions: Brett Killian (Cell: 083 778 0601)</p> <p>A Site visit to the Manganese Terminal will take place after the clarification meeting, tenderers are to note:</p> <ul style="list-style-type: none"> <li>• Tenderers are required to wear safety shoes, high visibility vests and hard hats.</li> <li>• Tenderers without the recommended PPE will not be allowed on the site walk.</li> <li>• Tenderers and their employees, visitors, clients and customers entering Transnet Offices, Depots, Workshops and Stores will have to undergo breathalyser testing.</li> <li>• All forms of firearms are prohibited on Transnet properties and premises.</li> <li>• The relevant persons attending the meeting must ensure that their identity documents, passports or <b>drivers'</b> licences are on them for inspection at the access control gates.</li> </ul>
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	<p>Certificate of Attendance in the form set out in the Returnable Schedule T2.2-01 hereto must be completed and submitted with your Tender as proof of attendance is required for a compulsory site meeting and/or tender briefing.</p> <p>Tenderers are required to bring this Returnable Schedule T2.2-01 to the Compulsory Tender Clarification Meeting to be signed by the <b>Employer's</b> Representative.</p> <p>Tenderers failing to attend the compulsory tender briefing will be disqualified.</p>
CLOSING DATE	<p><b>16h00 on 03 December 2024</b></p> <p>Tenderers must ensure that tenders are uploaded timeously onto the system. If a tender is late, it will not be accepted for consideration.</p>

## 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) Each company must register its profile using its company details and use the corresponding registered profile to log an intent to bid as well as submitting any bid.
- c) Transnet will not accept a bid or will disqualify a bidder who submits a bid in the Transnet **e-tender submission through another bidders'/Company's profile. In other words, each bidder must register the intent to bid and submit its bid through its own profile under the same company name that will eventually bid for the tender. No company shall submit a bid on behalf of another company regardless of the company being a subsidiary or holding company.**
- d) In case of a Joint Venture, any of the parties/companies to the Joint Venture may use its registered profile to submit a bid on behalf of the Joint Venture.
- e) 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.
- f) 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 the 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 on T2.2-17, [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

Tenderers 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/>. Tenderers 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](mailto: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](http://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 <i>Employer</i> is Transnet SOC Ltd (Reg No. 1990/000900/30)
C.1.2	The tender documents issued by the <i>Employer</i> comprise:  Part T: The Tender  Part T1: Tendering procedures Part T2 : Returnable documents  Part C: The contract  Part C1: Agreements and contract data  Part C2: Pricing data
	T1.1 Tender notice and invitation to tender T1.2 Tender data  T2.1 List of returnable documents T2.2 Returnable schedules  C1.1 Form of offer and acceptance C1.2 Contract data (Part 1 & 2) C1.3 Form of Securities  C2.1 Pricing instructions C2.2 Activity Schedule

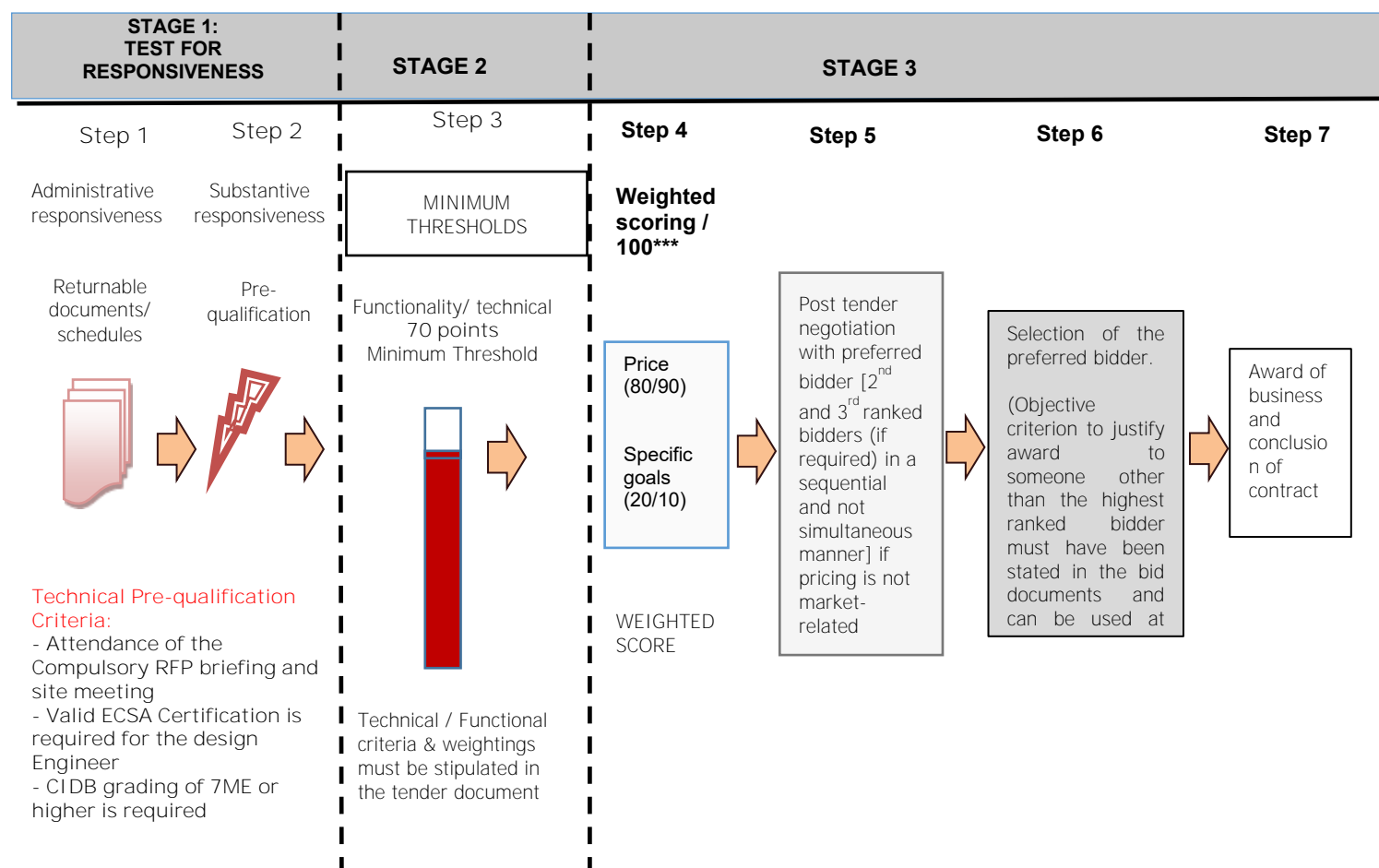


DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

Part C3: Scope of work	C3.1 Works Information
Part C4: Site information	C4.1 Site information
C.1.4	<b>The Employer's agent is:</b>
Name:	Lesley Pillay
Address:	TPT Admin Building, Neptune Road, Ngqura Container Terminal, Port of Ngqura
Tel No.	041 – 507 8333
E – mail	Lesley.Pillay@transnet.net

### Evaluation Methodology

Transnet will utilise the following methodology and criteria in selecting a preferred Supplier, if so required:





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

C.2.1 1. Stage One : Step 2

- Eligibility with regards to attendance at the compulsory clarification meeting:

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

- Eligibility with regards to a Valid ECSA Certification:

ECSA Certification is required for the design Engineer who will be responsible for the final signoff and must be ECSA registered as Professional Engineers (must be verifiable on the ECSA website).

- 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 7ME 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 7ME 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.*

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2. Stage Two - Functionality:

Only those tenderers who obtain the minimum qualifying score for functionality will be evaluated further in terms of price and the applicable preference point system. The minimum qualifying score for functionality is 70 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.*

3. Stage Three – Weighted Scoring (Price & Specific Goals):

Only tenders that achieve the minimum qualifying score for functionality will be evaluated further in accordance with the 80/20 or 90/10 preference points systems as described in Preferential Procurement Regulations.

Preferential Procurement points will be allocated as per the table below:

Preference Point System 80/20

Specific Goals	Number of Points	Price
B-BBEE Level 1&2	10	
EME & QSE (51% Black Owned)	10	
Total	20	80

Preference Point System 90/10

Specific Goals	Number of Points	Price
B-BBEE Level 1&2	5	
EME & QSE (51% Black Owned)	5	
Total	10	90

Note: Stage three also includes post tender negotiations, objective criteria and award of business

C.2.7

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

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



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C.2.12 No alternative tender offers will be considered.

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

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

Identification details:

The tender documents must be uploaded with:

- Name of Tenderer: **(insert company name)**
- Contact person and details: **(insert details)**
- The Tender Number: ICLM PE 747/TPT
- The Tender Description: Provision of Services to Design, Fabricate and Install a Reclaimer Bypass System at the Port Elizabeth Manganese Terminal for Transnet SOC Ltd (Reg no. 1990/000900/30) operating as Transnet Port Terminals (hereinafter **referred as "TPT"**) as a once off supply

Documents must be marked for the attention of:

**Employer's Agent:** Lesley Pillay

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

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

Time: 16h00 on the 03 December 2024

Location: **The Transnet e-Tender Submission Portal:**

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

**NO LATE TENDERS WILL BE ACCEPTED**

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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.

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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;
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3. Proof of CIDB 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: 70

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:

Evaluation Criteria	Description	Scoring Principal	Weight
Technical and Operational	Quality Management Returnable Schedule T2.2-04	Contractor to supply the following: Project Quality Management plan - 6 points Quality Control Plans - 6 points Quality Policy - 6 points Audit Schedule - 2 point Total of 20 points awarded for quality as a sum of the above individually scored areas.	20
	Guarantee of the structure Returnable Schedule T2.2-05	<b>Guarantee <math>\geq</math> to 8 years = 20 points</b> <b>Guarantee <math>\geq</math> to 6 years but <math>&lt;</math> 8 years = 16 points</b> <b>Guarantee <math>\geq</math> to 4 years but <math>&lt;</math> 6 years = 12 points</b> <b>Guarantee <math>\geq</math> to 2 years but <math>&lt;</math> 4 years = 8 points</b>	20



DESCRIPTION OF THE WORKS: **PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY**

		<p><b>Guarantee <math>\geq</math> to 1 years but <math>&lt;</math> 2 years = 4 points</b></p> <p>Guarantee <math>&lt;</math> 1 year = 0 Points</p>	
	<p>Programme</p> <p>Returnable Schedule</p> <p>T2.2-06</p>	<p>Ability to execute the works in terms of <b>the Employer's requirements, indicating</b> the order and timing of all activities that will take place in order to provide the works in the shortest possible duration.</p> <p>- 20 points</p> <p>Schedule supplied in Gant Chart Format indicating 10 requirement elements - 10 points</p> <p>Total of 30 points for schedule awarded as a sum of the above individually scored areas.</p>	30
Previous Experience	<p>Previous Experience</p> <p>Returnable Schedule</p> <p>T2.2-07</p>	<p>Substantive experience of a successful project of similar works specific to bulk material handling equipment. Project information includes client name, contact details, project description, duration, value and year actioned. Supporting information includes appointment letters, completion certs, purchase orders, contracts.</p> <p>No experience: 0 points</p> <p>One (1) successful project of at least R15m within last 10 years: 12 points</p> <p>Two (2) successful projects of at least R15m within last 10 years: 18 points</p> <p>Three (3) successful projects of at least R15m within last 10 years: 24 points</p> <p>At least four (4) successful projects of at least R15m within last 10 years: 30 points</p>	30
Total Rating			100

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

- T2.2-04 Quality Management



TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

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- T2.2-05 Guarantee of the structure
  - T2.2-06 Programme
  - T2.2-07 Previous Experience

Each evaluation criteria will be assessed in terms of scores of 0, 20, 40, 60, 80 or 100

The scores of each of the evaluators will be averaged, weighted and then totalled to obtain the final score for functionality, unless scored collectively. (See CIDB Inform Practice Note #9).

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

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- C.3.11. Only tenders that achieve the minimum qualifying score for functionality will be evaluated further in accordance with the 80/20 or 90/10 preference points systems as described in Preferential Procurement Regulations.

The following preference point systems are applicable to all bids:

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

Either the 80/20 or 90/10 preference point system will apply.

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.

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- 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.

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C.3.17	The number of paper copies of the signed contract to be provided by the Employer is 1 (one).
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STAATSKOERANT, 8 AUGUSTUS 2019

DEPARTMENT OF PUBLIC WORKS

NOTICE 423 OF 2019

STANDARD FOR UNI FORMITY IN ENGI NEERIN G AND CONSTRUCTION

WORKS CONTRACTS

AUGUST 2019

## Annex C

### Standard Conditions of Tender

#### C.1 General

##### C.1.1 Actions

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

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

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



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

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

#### C.1.2 Tender Documents

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

#### C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are Included in the returnable documents are deemed to be part of these conditions of tender.

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

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

a) conflict of interest means any situation in which:

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

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

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

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

#### **C.1.4 Communication and employer's agent**

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



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from or by a tenderer. **The name and contact details of the employer's agent are stated in** the tender data.

#### C.1.5 Cancellation and Re-Invitation of Tenders

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

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

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

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

#### C.1.6 Procurement procedures

##### C.1.6.1 General

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

##### C.1.6.2 Competitive negotiation procedure

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

C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.  
Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified,



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Specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

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

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

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

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

C.1.6.3.2 Option 2

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

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

## **C.2 Tenderer's obligations**

C.2.1 Eligibility

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

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



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time for tenders.

#### C.2.2 Cost of tendering

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

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

#### C.2.3 Check documents

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

#### C.2.4 Confidentiality and copyright of documents

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

#### C.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

#### C.2.6 Acknowledge addenda

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

#### C.2.7 Clarification meeting

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

#### C.2.8 Seek clarification



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

#### C.2.9 Insurance

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

#### C.2.10 Pricing the tender offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes

Except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.

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

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

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

#### C.2.11 Alterations to documents

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

#### C.2.12 Alternative tender offers

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

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

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



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### C.2.13 Submitting a tender offer

- C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
- C.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.
- C.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number Of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.
- C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
- C.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the Packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender **data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details** stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
- C.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

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

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



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#### C.2.15 Closing time

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

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

#### C.2.16 Tender offer validity

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

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

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

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

#### C.2.17 Clarification of tender offer after submission

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

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

#### C.2.18 Provide other material



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C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender **offer, the tenderer's commercial position (including notarized joint venture agreements),** preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission **stated in the employer's request, the employer may regard the tender offer** as non-responsive.

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

#### C.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

#### C.2.20 Submit securities, bonds and policies

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

#### C.2.21 Check final draft

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

#### C.2.22 Return of other tender documents

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

#### C.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

### C.3 The employer's undertakings

#### C.3.1 Respond to requests from the tenderer

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



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

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

#### C.3.2 Issue Addenda

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

#### C.3.3 Return late tender offers

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

#### C.3.4 Opening of tender submissions

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

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

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



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### C.3.5 Two-envelope system

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

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

### C.3.6 Non-disclosure

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

### C.3.7 Grounds for rejection and disqualification

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

### C.3.8 Test for responsiveness

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

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

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

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the



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contract, or

- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified. Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

### C.3.9 Arithmetical errors, omissions and discrepancies

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

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

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

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

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

- a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- b) Where there is an error in the total of the prices either as a result of other corrections Required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

### C.3.10 Clarification of a tender offer

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

### C.3.11 Evaluation of tender offers



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The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project. Conditions of tender are by definition the document that establishes **a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers**. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:

Requirement Qualitative interpretation of goal

Fair The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.

Equitable Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.

Transparent The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.

Competitive The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.

Cost effective The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer



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g) Prepare a tender evaluation report

h) Confirm the recommendation contained in the tender evaluation report

#### C.3.11.1 General

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

#### C.3.12 Insurance provided by the employer

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

#### C.3.13 Acceptance of tender offer

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

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

#### C.3.14 Prepare contract documents

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by

The employer as part of the tender documents to take account of:

- a) addenda issued during the tender period,



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- b) inclusion of some of the returnable documents and
  - c) other revisions agreed between the employer and the successful tenderer.

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

C.3.15 Complete adjudicator's contract

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

C.3.16 Registration of the award

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

C.3.17 Provide copies of the contracts

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

C.3.18 Provide written reasons for actions taken

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

## T2.1 List of Returnable Documents

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

- T2.2-01 Stage One as per CIDB: Eligibility Criteria Schedule - Certificate of attendance at Compulsory Tender Clarification Meeting
- T2.2-02 Stage One as per CIDB: Eligibility Criteria Schedule – Valid ECSA Certification
- T2.2-03 Stage One as per CIDB: Eligibility Criteria Schedule - CIDB Registration

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

- T2.2-04 Evaluation Schedule: Quality Management
- T2.2-05 Evaluation Schedule: Guarantee of the Structure
- T2.2-06 Evaluation Schedule: Programme
- T2.2-07 Evaluation Schedule: Previous Experience

Stage Three (Step 4): these schedules will be utilised for Specific Goals:

**Valid proof of Respondent's compliance to Specific Goals evidence (Preference Claim Form)**  
requirements stipulated in SBD6.1. (Refer to T2.2-15)

2.1.3 Returnable Schedules:

General:

- T2.2-08 Authority to submit tender
- T2.2-09 Record of addenda to tender documents
- T2.2-10 Letter of Good Standing
- T2.2-11 Risk Elements
- T2.2-12 Schedule of proposed Subcontractors
- T2.2-13 Site Establishment requirements

Agreement and Commitment by Tenderer:

- T2.2-14 CIDB SFU ANNEX G Compulsory Enterprise Questionnaire
- T2.2-15 Non-Disclosure Agreement
- T2.2-16 RFP Declaration Form
- T2.2-17 RFP – Breach of Law
- T2.2-18 Certificate of Acquaintance with Tender Document
- T2.2-19 Service Provider Integrity Pact
- T2.2-20 Supplier Code of Conduct

Bonds/Guarantees/Financial/Insurance:

- T2.2-21 Insurance provided by the Contractor
- T2.2-22 Form of Intent to provide a Performance Guarantee
- T2.2-23 Three (3) years audited financial statements

2.2 C1.1 Form of Offer & Acceptance Offer

2.3 C1.2 Contract Data

2.4 C1.3 Forms of Securities

2.5 C2.1 Pricing Instructions (Activity Schedule)

2.6 C2.2 Activity Schedule



**Mandatory Returnable**

T2.2-01: Eligibility Criteria Schedule:

Certificate of Attendance at Tender Clarification Meeting

This is to certify that

(Company Name)

Represented  
by:

(Name and  
Surname)

Was represented at the compulsory tender clarification meeting

Held at:	Technical Boardroom, Shop 17, Baakens Street entrance, Port of Port Elizabeth	
On (date)	20 November 2024	Starting time: 10h00

Particulars of person(s) attending the meeting:

Name

Signature

Capacity

Attendance of the above company at the meeting was confirmed:

Name

Signature

For and on Behalf of the  
*Employers Agent.*

Date

**Mandatory Returnable**

## T2.2-02: Eligibility Criteria – Valid ECSA Certification

Tenderers to submit the following:

1. Provide proof of ECSA approved certification for the Design Engineer

Attached submissions to this schedule:

Signed

Date \_\_\_\_\_

Name \_\_\_\_\_

Position

Tenderer



**Mandatory Returnable**

## T2.2-03: Eligibility Criteria Schedule – Valid CIDB Grading

### Designation

Note to tenderers:

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

CRS Number	Status	Grading	Expiry Date

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

#### 2. Joint Venture (JV)

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

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

## T2.2-04: Evaluation Schedule – Quality Management

The tenderer shall as a minimum submit the following:

1. Project specific Project Quality Management Plan which satisfies the technical and quality requirements of the *works*, identifying all procedures, reviews, audits, controls and records used to control and verify compliance with the Works Information. The Project Quality Management Plan must include as a minimum;
  1. Objectives,
  2. Roles & responsibilities,
  3. Standards,
  4. Assurance,
  5. Control
2. Quality Control Plans (QCPs) to be included specific to the Works Information  
These QCPs shall identify all inspections, tests and verification requirements to meet Contractual obligations, specifications, drawings and related details including testing, witnessing and hold points.  
The QCPs must include as a minimum;
  1. Activity/Requirement,
  2. Specifications,
  3. Acceptance criteria,
  4. Approval status,
  5. Controlling documents.
3. A signed Quality Policy based on International Organisation for Standardisation (ISO 9001:2008). The policy must clearly articulate the companies Quality Management System objectives and the methodology of achieving the stated objectives of the System. The policy must display the five key policy requirements. These requirements include:
  1. Is appropriate to the purpose of the organisation,
  2. Includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system,
  3. Provides a framework for establishing and reviewing quality objectives,
  4. Is communicated and understood within the organisation,
  5. Is reviewed for continuing suitability.
4. An Audit Schedule for internal and external audits during the contract.

Attached submissions to this schedule:

.....

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.....

The scoring will be as follows:

Weight 20% of Technical Evaluation Criteria	Project Quality Management Plan (6/20) score/100*6	Quality Control Plans (6/20) Formula: score/100*6	Quality Policy (6/20) score/100*6	Audit Schedule (2/20) score/100*2
score 0	A Project Quality Management Plan was not submitted.	No QCPs submitted.	No Quality Policy submitted.	No audit schedule submitted.
score 20	Includes one of 1.Objectives 2.Roles & responsibilities 3.Standards 4.Assurance 5.Control.	Includes one of 1.Activity/Requirement 2.Specifications, 3.Acceptance criteria, 4.Approval status 5.Controlling docs	The Quality Policy is provided and one of the five key policy requirements are displayed, and the policy is signed.	N/A
score 40	Includes two of 1.Objectives 2.Roles & responsibilities 3.Standards 4.Assurance 5.Control.	Includes two of 1.Activity/Requirement 2.Specifications, 3.Acceptance criteria, 4.Approval status 5.Controlling docs	The Quality Policy is provided and two of the five key policy requirements are displayed, and the policy is signed.	N/A
score 60	Includes three of 1.Objectives 2.Roles & responsibilities 3.Standards 4.Assurance 5.Control.	Includes three of 1.Activity/Requirement 2.Specifications, 3.Acceptance criteria, 4.Approval status 5.Controlling docs	The Quality Policy is provided and three of the five key policy requirements are displayed, and the policy is signed.	N/A
score 80	Includes four of 1.Objectives 2.Roles & responsibilities 3.Standards 4.Assurance 5.Control.	Includes four of 1.Activity/Requirement 2.Specifications, 3.Acceptance criteria, 4.Approval status 5.Controlling docs	The Quality Policy is provided and four of the five key policy requirements are displayed, and the policy is signed.	N/A
score 100	Includes all of 1.Objectives 2.Roles & responsibilities 3.Standards 4.Assurance 5.Control.	Includes all of 1.Activity/Requirement 2.Specifications, 3.Acceptance criteria, 4.Approval status 5.Controlling docs	The Quality Policy is provided and all of the five key policy requirements are displayed, and the policy is signed.	An Audit Schedule for internal and external audits submitted.

TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO.

**1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A**  
ONCE OFF SUPPLY

---

Signed

Date

\_\_\_\_\_

Name

\_\_\_\_\_

Position

\_\_\_\_\_

Tenderer

## T2.2-05: Evaluation Schedule: Guarantee

The extent of guarantees and warranties that can be offered by the Tenderer on the structure will play an important role in the evaluation of the tenders.

Tenderers to note that, to score maximum points, the preferred guarantee for the structure is 8 years.

The Tenderer is required to indicate on the schedule what guarantee period is offered.

Item	Guarantees (months)
Structural Guarantee	

Attached submissions to this schedule:

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The scoring will be as follows:

Formula: score/100x20

	Score
Weight 20% of Technical Evaluation Criteria	<b>Guarantee on Structure</b>
<b>Score 0</b>	Guarantee < 1 year
<b>Score 20</b>	Guarantee ≥ to 1 years but < 2 years
<b>Score 40</b>	Guarantee ≥ to 2 years but < 4 years
<b>Score 60</b>	Guarantee ≥ to 4 years but < 6 years
<b>Score 80</b>	Guarantee ≥ to 6 years but < 8 years
<b>Score 100</b>	Guarantee ≥ to 8 years

Signed

Date

\_\_\_\_\_

\_\_\_\_\_

Name

Position

\_\_\_\_\_

\_\_\_\_\_

Tenderer \_\_\_\_\_

## T2.2-06: Evaluation Schedule: Programme

Note to tenderers:

### Programme

The Tenderer details the programme for evaluation and attaches it to this schedule.

The tenderer shall provide the proposed programme, at a minimum Level 2 showing but not limited to the following:

- Ability to execute the works in terms of the *Employer's requirements within 6 months* indicating, in a logical sequence, the order and timing of the activities that will take place in order to Provide the Works
- A level 2 programme that includes all of the following:
  1. Start Date
  2. Submission & approval process & timing for Health & Safety Files and Quality Files.
  3. Access Date
  4. Design
  5. The Programme must clearly demonstrate the procurement process
  6. Fabrication
  7. Installation
  8. Commissioning
  9. Close out
  10. The Programme clearly demonstrates adequate provisions for Time Risk Allowance

Attached submissions to this schedule:

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.....

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

The scoring of the Programme in terms of the abovementioned requirements will be as follows:

	Score	
Weight 30% of Technical Evaluation Criteria	Ability to execute the works in terms of <b>the Employer's requirements</b> , indicating the order and timing of all activities that will take place in order to provide the works in the shortest possible duration. 20/30 Score/100*20	At a minimum a Level 2 Programme is developed and supplied with the Tender document. This must be in Gant chart format. 10/30 Score/100*10
Score 0	≥ 9 months	A level 2 programme was not submitted
Score 20	≥8 but < 9 weeks	The Program shows 2 of the10 elements
Score 40	≥7 but < 8 months	The Program shows 4 of the10 elements
Score 60	N/A	The Program shows 6 of the10 elements
Score 80	≥6 but < 7 months	The Program shows 8 of the10 elements
Score 100	< 6 months	The Program shows 10 of the10 elements

Signed

Date

Name

Position

Tenderer

## T2.2-07: Evaluation Schedule: Previous Experience

Note to tenderers:

Tenderers are required to demonstrate performance in comparable projects of similar size and nature by supplying the following:

- Supporting information with sufficient references (Client name and contact details, project description, duration, contract value & year actioned) to substantiate that the tenderer has substantive experience of at least three (3) successful projects of similar works specific to bulk material handling equipment with an individual project value of at least R20m within the last 10 years.
- The supporting information must be supported with evidence such as Appointment Letters and/or Completion Certificates and/or Purchase Orders and/or Contracts that shows when the experience was gained, high level scope and value.

Attached submissions to this schedule:

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DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER **REFERRED TO AS "TPT"**) AS A ONCE OFF SUPPLY

The scoring will be as follows:

Formula:  $\text{score}/100 \times 30$

	Score
Weight 30% of Technical Evaluation Criteria	Previous Experience
Score 0	The tenderer has no substantive experience of a successful project of similar works specific to bulk material handling equipment within the last 10 years.
Score 40	The tenderer has substantive experience of at least one (1) successful projects of similar works specific to bulk material handling equipment with an individual project value of at least R20m within the last 10 years.
Score 60	The tenderer has substantive experience of at least two (2) successful projects of similar works specific to bulk material handling equipment with an individual project value of at least R20m within the last 10 years.
Score 80	The tenderer has substantive experience of at least three (3) successful projects of similar works specific to bulk material handling equipment with an individual project value of at least R20m within the last 10 years.
Score 100	The tenderer has substantive experience of at least four (4) successful refurbishment projects of similar works specific to bulk material handling Stackers/Reclaimers with an individual project value of at least R20m within the last 10 years.

Signed

Date

\_\_\_\_\_

\_\_\_\_\_

Name

Position

\_\_\_\_\_

\_\_\_\_\_

Tenderer \_\_\_\_\_

## T2.2-08: Authority to submit a Tender

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

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

### A. Certificate for Company

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

Signed

Date

Name

Position

Chairman of the Board of Directors

## B. Certificate for Partnership

We, the undersigned, being the key partners in the business trading as \_\_\_\_\_

\_\_\_\_\_ hereby authorise Mr/Ms \_\_\_\_\_

acting in the capacity of \_\_\_\_\_, to sign all documents in

connection with the tender offer for Contract \_\_\_\_\_ and any

contract resulting from it on our behalf.

Name	Address	Signature	Date

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

### C. Certificate for Joint Venture

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

Mr/Ms \_\_\_\_\_, an authorised signatory of the company

\_\_\_\_\_, acting in the capacity of lead

partner, to sign all documents in connection with the tender offer for Contract \_\_\_\_\_

\_\_\_\_\_ and any contract resulting from it on our behalf.

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

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

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

#### D. Certificate for Sole Proprietor

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

Signed

Date

Name

Position

Sole Proprietor

## T2.2-09: Record of Addenda to Tender Documents

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

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

Attach additional pages if more space is required.

## T2.2-10 Letter/s **of Good Standing with the Workmen's Compensation Fund**

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

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

Name of Company/Members of Joint Venture:

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

## T2.2-11: Risk Elements

Tenderers to identify and evaluate the potential risk elements associated with the Works and possible mitigation thereof. The risk elements and the mitigation as identified thereof by the Tenderer are to be submitted.

If No Risks are identified "No Risks" must be stated on this schedule.

Tenderers are also to evaluate any risk/s stated by the *Employer* in Contract Data Part C1, and provide possible mitigation thereof.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled document.

Tenders to note: Notwithstanding this information, all costs related to risk elements which are at the Contractor's risk are deemed to be included in the tenderer's offered total of the Prices.

## T2.2-12: Schedule of Proposed Subcontractors

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

Note to tenderers:

- In terms of PPPFA Regulation 6 (5), A tenderer may not be awarded points for B-BBEE status level of contributor if the tender documents indicate that the tenderer intends subcontracting more than 25% of the value of the contract to any other person not qualifying for at least the points that the tenderer qualifies for, unless the intended subcontractor is an EME that has the capability to execute the subcontract.
- In terms of PPPFA Regulation 12 (3), A person awarded a contract may not subcontract 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 that the person concerned, unless the contract is subcontracted to an EME that has the capability and ability to execute the contract.

Tenderer to note that after award, any deviations from this list of proposed sub-contractors will be subject to acceptance by the *Project Manager* in terms of the Conditions of Contract.

Provide information of the Sub-contractors below:

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work	
% Black Owned	EME	QSE	Youth	Women	Disabilities		Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work	
% Black Owned	EME	QSE	Youth	Women	Disabilities		Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Name of Proposed Subcontractor			Address		Nature of work		Amount of Worked	Percentage of work
% Black Owned	EME	QSE	Youth	Women	Disabilities	Rural/ Underdeveloped areas/ Townships		Military Veterans
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

## T2.2-13: Site Establishment Requirements

Tenderers to indicate their Site establishment area requirements:

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is a vertical margin line on the left side, creating a narrow left margin. The paper appears to be from a notebook or a standard ruled document.

## T2.2-14: ANNEX G Compulsory Enterprise Questionnaire

The following particulars hereunder must be furnished.

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

Section 1: Name of enterprise: \_\_\_\_\_

Section 2: VAT registration number, if any: \_\_\_\_\_

Section 3: CIDB registration number, if any: \_\_\_\_\_

Section 4: CSD number: \_\_\_\_\_

Section 5: Particulars of sole proprietors and partners in partnerships

Name	Identity number	Personal income tax number

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

Section 6: Particulars of companies and close corporations

Company registration number \_\_\_\_\_

Close corporation number \_\_\_\_\_

Tax reference number: \_\_\_\_\_

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

Section 8: The attached SBD 6 must be completed for each tender and be attached as a requirement.
---

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

- i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;
- ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed	_____	Date	_____
Name	_____	Position	_____
Enterprise name	_____		

SBD 6.1

PREFERENCE POINTS CLAIM FORM

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

---

1. GENERAL CONDITIONS

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

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

1.2 Either the 80/20 or 90/10 preference point system will apply.

1.3 Preference points for this bid shall be awarded for:

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

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

	POINTS
PRICE	80
SPECIFIC GOALS	
B-BBEE status level of contribution level 1 or 2	10
Exempted Micro Enterprises ( <b>EME's</b> ) and Qualifying Small Business Enterprises ( <b>QSE's</b> ) owned by Black people (at least 51% Black owned)	10
Total points for Price and B-BBEE must not exceed	100

	POINTS
PRICE	90
SPECIFIC GOALS	
B-BBEE status level of contribution level 1 or 2	5
Exempted Micro Enterprises ( <b>EME's</b> ) and Qualifying Small Business Enterprises ( <b>QSE's</b> ) owned by Black people (at least 51% Black owned)	5
Total points for Price and B-BBEE must not exceed	100

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

## 2. DEFINITIONS

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

- i) the B-BBEE status level certificate issued by an authorised body or person;
- ii) a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice; or
- iii) any other requirement prescribed in terms of the B-BBEE Act.
- (j) **"QSE"** means a Qualifying Small Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (k) **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties.
- (l) **"Specific goals"** means targeted advancement areas or categories of persons or groups either previously disadvantaged or falling within the scope of the Reconstruction and Development Programme identified by Transnet to be given preference in allocation of procurement contracts in line with section 2(1) of the PPPFA.

### 3. POINTS AWARDED FOR PRICE

#### 3.1 THE 80/20 or 90/10 PREFERENCE POINT SYSTEMS

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

$$\begin{array}{ccc}
 80/20 & \text{or} & 90/10 \\
 P_s = 80 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right) & \text{or} & P_s = 90 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right)
 \end{array}$$

Where

$P_s$  = Points scored for comparative price of bid under consideration

$P_t$  = Comparative price of bid under consideration

$P_{\min}$  = Comparative price of lowest acceptable bid

### 4. EVIDENCE REQUIRED FOR CLAIMING SPECIFIC GOALS

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

Specific Goals	Acceptable Evidence
B-BBEE Status contributor	B-BBEE Certificate / Sworn- Affidavit / B-BBEE CIPC Certificate (in case of JV, a consolidated scorecard will be accepted) as per DTIC guideline
EME or QSE 51% Black Owned	B-BBEE Certificate / Sworn-Affidavit / CIPC Certificate

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

Enterprise	B-BBEE Certificate & Sworn Affidavit
Large	Certificate issued by SANAS accredited verification agency
QSE	Certificate issued by SANAS accredited verification agency Sworn Affidavit signed by the authorised QSE representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership (only black-owned QSEs - 51% to 100% Black owned) [Sworn affidavits must substantially comply with the format that can be obtained on the DTI's website at <a href="http://www.dti.gov.za/economic_empowerment/bee_codes.jsp">www.dti.gov.za/economic_empowerment/bee_codes.jsp</a> .]
EME <sup>1</sup>	Sworn Affidavit signed by the authorised EME representative and attested by a Commissioner of Oaths confirming annual turnover and black ownership Certificate issued by CIPC (formerly CIPRO) confirming annual turnover and black ownership Certificate issued by SANAS accredited verification agency only if the EME is being measured on the QSE scorecard

- 4.3 A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Status Level verification certificate for every separate bid.
- 4.4 Tertiary Institutions and Public Entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.
- 4.5 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.
- 4.6 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.
- 4.7 Bidders are to note that the rules pertaining to B-BBEE verification and other B-BBEE requirements may be changed from time to time by regulatory bodies such as National Treasury or the DTI. It is **the Bidder's responsibility to ensure that his/her bid complies** fully with all B-BBEE requirements at the time of the submission of the bid.

## 5. BID DECLARATION

<sup>1</sup> In terms of Transnet Preferential Procurement Policy (TPPP) and Procurement Manuals, preference points must be awarded to a bidder for providing evidence in accordance with clause 4.1

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

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

6.1 B-BBEE Status Level of Contribution: . = .....(maximum of 20/10 points)

(Points claimed in respect of paragraph 6.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

## 7. SUB-CONTRACTING

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

(Tick applicable box)

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

7.1.1 If yes, indicate:

i) What percentage of the **contract will be subcontracted**.....%

ii) The name of the sub-**contractor**.....

iii) The B-BBEE status level of the sub-**contractor**.....

iv) Whether the sub-contractor is an EME or QSE.

(Tick applicable box)

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

v) Specify, by ticking the appropriate box, if subcontracting with any of the following enterprises:

Designated Group: An EME or QSE which is at least 51% owned by:	EME ✓	QSE ✓
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

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

8.2 **VAT registration number:**.....

8.3 **Company registration number:**.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
  - ☐ One person business/sole propriety
  - ☐ Close corporation
  - ☐ Company
  - ☐ (Pty) Limited
- [TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

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

8.6 COMPANY CLASSIFICATION

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

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

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

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

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

**WITNESSES**

1. ....

2. ....

.....

**SIGNATURE(S) OF BIDDERS(S)**

**DATE:** .....

SBD4

## **BIDDER'S DISCLOSURE**

### **1. PURPOSE OF THE FORM**

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

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

### **2. Bidder's declaration**

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest<sup>2</sup> in the enterprise, employed by the state? **YES/NO**

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

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<sup>2</sup> the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

Full Name	Identity Number	Name of institution	State

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

2.2.1 If so, furnish particulars:

.....  
.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

.....  
.....

### 3 DECLARATION

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

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium<sup>3</sup> will

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

- not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

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

.....	.....
Signature	Date
.....	.....
Position	Name of bidder

## T2.2-15 NON-DISCLOSURE AGREEMENT

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

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

TRANSNET SOC LTD

(Registration No. 1990/000900/30), a company incorporated and existing under the laws of South Africa, having its principal place of business at Transnet Corporate Centre, 138 Eloff Street, Braamfontein, Johannesburg 2000

and

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

#### WHEREAS

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

#### IT IS HEREBY AGREED

##### 1. INTERPRETATION

In this Agreement:

- 1.1 Agents mean directors, officers, employees, agents, professional advisers, contractors or sub-contractors, or any Group member;
- 1.2 Bid or Bid Document (hereinafter Tender) **means Transnet's Request for Information [RFI]** Request for Proposal [RFP] or Request for Quotation [RFQ], as the case may be;
- 1.3 Confidential Information means any information or other data relating to one party [the Disclosing Party] and/or the business carried on or proposed or intended to be carried on by that party and which is made available for the purposes of the Bid to the other party [the Receiving Party] or its Agents by the Disclosing Party or its Agents or recorded in agreed minutes following oral disclosure and any other information otherwise made available by the Disclosing Party or its Agents to the Receiving Party or its Agents, whether before, on or after the date of this Agreement, and whether in writing or otherwise, including any information, analysis or specifications derived from, containing or reflecting such information but excluding information which:

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

## 2. CONFIDENTIAL INFORMATION

- 2.1 All Confidential Information given by one party to this Agreement [the Disclosing Party] to the other party [the Receiving Party] will be treated by the Receiving Party as secret and confidential and will not, **without the Disclosing Party's written consent, directly or indirectly communicate or disclose** [whether in writing or orally or in any other manner] Confidential Information to any other person other than in accordance with the terms of this Agreement.
- 2.2 The Receiving Party will only use the Confidential Information for the sole purpose of technical and commercial discussions between the parties in relation to the Tender or for the subsequent performance of any contract between the parties in relation to the Tender.
- 2.3 Notwithstanding clause 2.1 above, the Receiving Party may disclose Confidential Information:
- 2.3.1 to those of its Agents who strictly need to know the Confidential Information for the sole purpose set out in clause 2.2 above, provided that the Receiving Party shall ensure that such Agents are made aware prior to the disclosure of any part of the Confidential Information that the same is confidential and that they owe a duty of confidence to the Disclosing Party. The Receiving Party shall at all times remain liable for any actions of such Agents that would constitute a breach of this Agreement; or
- 2.3.2 to the extent required by law or the rules of any applicable regulatory authority, subject to clause 2.4 below.
- 2.4 In the event that the Receiving Party is required to disclose any Confidential Information in accordance with clause 2.3.2 above, it shall promptly notify the Disclosing Party and cooperate with the Disclosing Party regarding the form, nature, content and purpose of such disclosure or any action which the Disclosing Party may reasonably take to challenge the validity of such requirement.

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

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

### 3. RECORDS AND RETURN OF INFORMATION

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

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

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

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

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

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

### 4. ANNOUNCEMENTS

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

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

### 5. DURATION

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

### 6. PRINCIPAL

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

## 7. ADEQUACY OF DAMAGES

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

## 8. PRIVACY AND DATA PROTECTION

8.1 **The Receiving Party undertakes to comply with South Africa's general privacy protection in terms** Section 14 of the Bill of Rights in connection with this Tender and shall procure that its personnel shall observe the provisions of such Act [as applicable] or any amendments and re-enactments thereof and any regulations made pursuant thereto.

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

## 9. GENERAL

9.1 Neither party may assign the benefit of this Agreement, or any interest hereunder, except with the prior written consent of the other, save that Transnet may assign this Agreement at any time to any member of the Transnet Group.

9.2 No failure or delay in exercising any right, power or privilege under this Agreement will operate as a waiver of it, nor will any single or partial exercise of it preclude any further exercise or the exercise of any right, power or privilege under this Agreement or otherwise.

9.3 The provisions of this Agreement shall be severable in the event that any of its provisions are held by a court of competent jurisdiction or other applicable authority to be invalid, void or otherwise unenforceable, and the remaining provisions shall remain enforceable to the fullest extent permitted by law.

9.4 This Agreement may only be modified by a written agreement duly signed by persons authorised on behalf of each party.

9.5 Nothing in this Agreement shall constitute the creation of a partnership, joint venture or agency between the parties.

9.6 This Agreement will be governed by and construed in accordance with South African law and the parties irrevocably submit to the exclusive jurisdiction of the South African courts.

Signed

Date

Name

Position

Tenderer

## T2.2-16: RFP DECLARATION FORM

NAME OF COMPANY: \_\_\_\_\_

We \_\_\_\_\_ do hereby certify that:

1. Transnet has supplied and we have received appropriate tender offers to any/all questions (as applicable) which were submitted by ourselves for tender clarification purposes;
2. we have received all information we deemed necessary for the completion of this Tender;
3. at no stage have we received additional information relating to the subject matter of this tender from Transnet sources, other than information formally received from the designated Transnet contact(s) as nominated in the tender documents;
4. we are satisfied, insofar as our company is concerned, that the processes and procedures adopted by Transnet in issuing this tender and the requirements requested from tenderers in responding to this tender have been conducted in a fair and transparent manner; and
5. furthermore, we acknowledge that a direct relationship exists between a family member and/or an owner / member / director / partner / shareholder (unlisted companies) of our company and an employee or board member of the Transnet Group as indicated below:

*[Respondent to indicate if this section is not applicable]*

FULL NAME OF OWNER/MEMBER/DIRECTOR/

PARTNER/SHAREHOLDER:

ADDRESS:

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Indicate nature of relationship with Transnet:

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

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

6. We accept that any dispute pertaining to this tender will be resolved through the Ombudsman process and will be subject to the Terms of Reference of the Ombudsman. The Ombudsman process must first be exhausted before judicial **review of a decision is sought. (Refer "Important Notice to respondents" below).**
7. We further accept that Transnet reserves the right to reverse a tender award or decision based on the recommendations of the Ombudsman without having to follow a formal court process to have such award or decision set aside.
8. We have acquainted ourselves and agree with the content of T2.2-19 **"Service Provider Integrity Pact"**.

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

#### IMPORTANT NOTICE TO TENDERERS

- Transnet has appointed a Procurement Ombudsman to investigate any material complaint in respect of tenders exceeding R5,000,000.00 (five million S.A. Rand) in value. Should a Tenderer have any material concern regarding an tender process which meets this value **threshold, a complaint may be lodged with Transnet's Procurement Ombudsman for further investigation.**
- It is incumbent on the Tenderer to familiarise himself/herself with the Terms of Reference for the Transnet Procurement Ombudsman, details of which are available for review at **Transnet's website** [www.transnet.net](http://www.transnet.net).

- An official complaint form may be downloaded from this website and submitted, together with any supporting documentation, within the prescribed period, to [procurement.ombud@transnet.net](mailto:procurement.ombud@transnet.net)
- For transactions below the R5,000,000.00 (five million S.A. Rand) threshold, a complaint may be lodged with the Chief Procurement Officer of the relevant Transnet Operating Division.
- All Tenderers should note that a complaint must be made in good faith. If a complaint is made in bad faith, Transnet reserves the right to place such a tenderer on its List of Excluded Bidders.

## T2.2-17: REQUEST FOR PROPOSAL – BREACH OF LAW

NAME OF COMPANY: \_\_\_\_\_

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

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

NATURE OF BREACH:

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DATE OF BREACH:

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

Signed on this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

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SIGNATURE OF TENDER

## T2.2-18 Certificate of Acquaintance with Tender Documents

NAME OF TENDERING ENTITY:

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

- a) prices;
  - b) geographical area where Services will be rendered [market allocation]
  - c) methods, factors or formulas used to calculate prices;
  - d) the intention or decision to submit or not to submit, a Tender;
  - e) the submission of a tender which does not meet the specifications and conditions of the tender; or
  - f) Tendering with the intention not winning the tender.
7. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Services to which this tender relates.
8. The terms of the accompanying tender have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening or of the awarding of the contract.
9. I/We am/are aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to tenders and contracts, tenders that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of Section 59 of the Competition Act No 89 of 1998 and/or may be reported to the National Prosecuting Authority [NPA] for criminal investigation. In addition, Tenderers that submit suspicious tenders may be restricted from conducting business with the public sector for a period not exceeding 10 [ten] years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

Signed on this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_

---

SIGNATURE OF TENDERER

## T2.2-19 Service Provider Integrity Pact

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

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

### INTEGRITY PACT

Between

TRANSNET SOC LTD

Registration Number: 1990/000900/30

("Transnet")

and

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

## PREAMBLE

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

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

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

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

## 1 OBJECTIVES

- 1.1 Transnet and the Tenderer/Service Provider/Contractor agree to enter into this Integrity Pact, to avoid all forms of dishonesty, fraud and corruption including practices that are anti-competitive in nature, negotiations made in bad faith and under-pricing by following a system that is fair, transparent and free from any influence/unprejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:
  - a) Enable Transnet to obtain the desired contract at a reasonable and competitive price in conformity to the defined specifications of the works, goods and services; and
  - b) Enable Tenderers/Service Providers/Contractors to abstain from bribing or participating in any corrupt practice in order to secure the contract.

## 2 COMMITMENTS OF TRANSNET

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

- 2.1 Transnet hereby undertakes that no employee of Transnet connected directly or indirectly with the sourcing event and ensuing contract, will demand, take a promise for or accept directly or through intermediaries any bribe, consideration,

gift, reward, favour or any material or immaterial benefit or any other advantage from the Tenderer, either for themselves or for any person, organisation or third party related to the contract in exchange for an advantage in the tendering process, Tender evaluation, contracting or implementation process related to any contract.

- 2.2 Transnet will, during the registration and tendering process treat all Tenderers/ Service Providers/Contractor with equity, transparency and fairness. Transnet will in particular, before and during the registration process, provide to all Tenderers/ Service Providers/Contractors the same information and will not provide to any Tenderers/Service Providers/Contractors confidential/additional information through which the Tenderers/Service Providers/Contractors could obtain an advantage in relation to any tendering process.
- 2.3 Transnet further confirms that its employees will not favour any prospective Tenderers/Service Providers/Contractors in any form that could afford an undue advantage to a particular Tenderer during the tendering stage, and will further treat all Tenderers/Service Providers/Contractors participating in the tendering process in a fair manner.
- 2.4 Transnet will exclude from the tender process such employees who have any personal interest in the Tenderers/Service Providers/Contractors participating in the tendering process.

### 3 OBLIGATIONS OF THE TENDERER / SERVICE PROVIDER

- 3.1 Transnet has a **'Zero Gifts'** Policy. No employee is allowed to accept gifts, favours or benefits.
  - a) Transnet officials and employees shall not solicit, give or accept, or from agreeing to solicit, give, accept or receive directly or indirectly, any gift, gratuity, favour, entertainment, loan, or anything of monetary value, from any person or juridical entities in the course of official duties or in connection with any operation being managed by, or any transaction which may be affected by the functions of their office.
  - b) Transnet officials and employees shall not solicit or accept gifts of any kind, from vendors, suppliers, customers, potential employees, potential vendors, and suppliers, or any other individual or organisation irrespective of the value.
  - c) Under no circumstances should gifts, business courtesies or hospitality packages be accepted from or given to prospective suppliers participating in a **tender process at the respective employee's Operating Division, regardless of retail value.**

- d) Gratuities, bribes or kickbacks of any kind must never be solicited, accepted or offered, either directly or indirectly. This includes money, loans, equity, special privileges, personal favours, benefit or services. Such favours will be considered to constitute corruption.
- 3.2 The Tenderer/Service Provider/Contractor commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its Tender or during any ensuing contract stage in order to secure the contract or in furtherance to secure it and in particular the Tenderer/Service Provider/Contractor commits to the following:
- a) The Tenderer/Service Provider/Contractor will not, directly or through any other person or firm, offer, promise or give to Transnet or to any of **Transnet's employees involved in the** tendering process or to any third person any material or other benefit or payment, in order to obtain in exchange an advantage during the tendering process; and
  - b) The Tenderer/Service Provider/Contractor will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any employee of Transnet, connected directly or indirectly with the tendering process, or to any person, organisation or third party related to the contract in exchange for any advantage in the tendering, evaluation, contracting and implementation of the contract.
- 3.3 The Tenderer/Service Provider/Contractor will not collude with other parties interested in the contract to preclude a competitive Tender price, impair the transparency, fairness and progress of the tendering process, Tender evaluation, contracting and implementation of the contract. The Tenderer / Service Provider further commits itself to delivering against all agreed upon conditions as stipulated within the contract.
- 3.4 The Tenderer/Service Provider/Contractor will not enter into any illegal or dishonest agreement or understanding, whether formal or informal with other Tenderers/Service Providers/Contractors. This applies in particular to certifications, submissions or non-submission of documents or actions that are restrictive or to introduce cartels into the tendering process.
- 3.5 The Tenderer/Service Provider/Contractor will not commit any criminal offence under the relevant anti-corruption laws of South Africa or any other country. Furthermore, the Tenderer/Service Provider/Contractor will not use for illegitimate purposes or for restrictive purposes or personal gain, or pass on to others, any information provided by Transnet as part of the business relationship,

regarding plans, technical proposals and business details, including information contained or transmitted electronically.

- 3.6 A Tenderer/Service Provider/Contractor of foreign origin shall disclose the name and address of its agents or representatives in South Africa, if any, involved directly or indirectly in the registration or tendering process. Similarly, the Tenderer / Service Provider / Contractor of South African nationality shall furnish the name and address of the foreign principals, if any, involved directly or indirectly in the registration or tendering process.
- 3.7 The Tenderer/Service Provider/Contractor will not misrepresent facts or furnish false or forged documents or information in order to influence the tendering process to the advantage of the Tenderer/Service Provider/Contractor or detriment of Transnet or other competitors.
- 3.8 Transnet may require the Tenderer/Service Provider/Contractor to furnish Transnet with a copy of its code of conduct. Such code of conduct must address the compliance programme for the implementation of the code of conduct and reject the use of bribes and other dishonest and unethical conduct.
- 3.9 The Tenderer/Service Provider/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 3.10 The Tenderer/Service Provider/Contractor confirms that they will uphold the ten principles of the United Nations Global Compact (UNGC) in the fields of Human Rights, Labour, Anti-Corruption and the Environment when undertaking business with Transnet as follows:

a) Human Rights

- **Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and**
- Principle 2: make sure that they are not complicit in human rights abuses.

b) Labour

- **Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;**
- **Principle 4: the elimination of all forms of forced and compulsory labour;**
- **Principle 5: the effective abolition of child labour; and**

- **Principle 6: the elimination of discrimination in respect of employment and occupation.**

c) Environment

- **Principle 7: Businesses should support a precautionary approach to environmental challenges;**

- **Principle 8: undertake initiatives to promote greater environmental responsibility; and**

- **Principle 9: encourage the development and diffusion of environmentally friendly technologies.**

d) Anti-Corruption

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

#### 4 INDEPENDENT TENDERING

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

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

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

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

- a) prices;
- b) geographical area where Goods or Services will be rendered [market allocation];

- c) methods, factors or formulas used to calculate prices;
- d) the intention or decision to submit or not to submit, a Tender;
- e) the submission of a Tender which does not meet the specifications and conditions of the RFP; or
- f) tendering with the intention of not winning the Tender.

4.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the Goods or Services to which his/her tender relates.

4.5 The terms of the Tender as submitted have not been, and will not be, disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official Tender opening or of the awarding of the contract.

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

4.7 Should the Tenderer find any terms or conditions stipulated in any of the relevant documents quoted in the Tender unacceptable, it should indicate which conditions are unacceptable and offer alternatives by written submission on its company letterhead, attached to its submitted Tender. Any such submission **shall be subject to review by Transnet's Legal Counsel** who shall determine whether the proposed alternative(s) are acceptable or otherwise, as the case may be.

## 5 DISQUALIFICATION FROM TENDERING PROCESS

5.1 If the Tenderer/Service Provider/Contractor has committed a transgression through a violation of section 3 of this Integrity Pact or in any other form such as to put its reliability or credibility as a Tenderer/Service Provider/Contractor into question, Transnet may reject the Tenderer's / Service Provider's / **Contractor's** application from the registration or tendering process and remove the Tenderer/Service Provider/Contractor from its database, if already registered.

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

## 6 TRANSNET'S LIST OF EXCLUDED TENDERERS (BLACKLIST)

- 6.1 The process of restriction is used to exclude a company/person from conducting future business with Transnet and other organs of state for a specified period. No Tender shall be awarded to a Tenderer whose name (or any of its members, directors, partners or trustees) appear on the Register of Tender Defaulters kept by National Treasury, or who have **been placed on National Treasury's List of Restricted Suppliers**. Transnet reserves the right to withdraw an award, or cancel a contract concluded with a Tenderer should it be established, at any time, that a tenderer has been restricted with National Treasury by another government institution.
- 6.2 **All the stipulations on Transnet's restriction process as laid down in Transnet's Supply Chain Policy and Procurement Procedures Manual (CPM included) are included herein by way of reference.** Below follows a condensed summary of this restriction procedure.
- 6.3 On completion of the restriction procedure, Transnet will submit the restricted **entity's details (including the identity number of the individuals and registration number of the entity)** to National Treasury **for placement on National Treasury's Database of Restricted Suppliers** for the specified period of exclusion. National Treasury will make the final decision on whether to restrict an entity from doing business with any organ of state for a period not exceeding 10 years and place

the entity concerned on the Database of Restricted Suppliers published on its official website.

- 6.4 The decision to restrict is based on one of the grounds for restriction. The standard of proof to commence the restriction process is whether a "*prima facie*" (i.e. on the face of it) case has been established.
- 6.5 Depending on the seriousness of the misconduct and the strategic importance of the Goods/Services, in addition to restricting a company/person from future business, Transnet may decide to terminate some or all existing contracts with the company/person as well.
- 6.6 A Service Provider or Contractor to Transnet may not subcontract any portion of the contract to a blacklisted company.
- 6.7 Grounds for blacklisting include: If any person/Enterprise which has submitted a Tender, concluded a contract, or, in the capacity of agent or subcontractor, has been associated with such Tender or contract:
  - a) Has, in bad faith, withdrawn such Tender after the advertised closing date and time for the receipt of Tenders;
  - b) has, after being notified of the acceptance of his Tender, failed or refused to sign a contract when called upon to do so in terms of any condition forming part of the Tender documents;
  - c) has carried out any contract resulting from such Tender in an unsatisfactory manner or has breached any condition of the contract;
  - d) has offered, promised or given a bribe in relation to the obtaining or execution of the contract;
  - e) has acted in a fraudulent or improper manner or in bad faith towards Transnet or any Government Department or towards any public body, Enterprise or person;
  - f) has made any incorrect statement in a certificate or other communication with regard to the Local Content of his Goods or his B-BBEE status and is unable to prove to the satisfaction of Transnet that:
    - (i) he made the statement in good faith honestly believing it to be correct;
    - and

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

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

h) has litigated against Transnet in bad faith.

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

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

## 7 PREVIOUS TRANSGRESSIONS

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

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

## 8 SANCTIONS FOR VIOLATIONS

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

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

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

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

## 9 CONFLICTS OF INTEREST

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

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

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

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

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

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

- a) must disclose the interest and its general nature, in the Request for Proposal ("RFX") **declaration form; or**
- b) must notify Transnet immediately in writing once the circumstances has arisen.

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

## 10 DISPUTE RESOLUTION

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

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

## 11 GENERAL

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

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

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

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

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

---

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

Signature .....

Date .....

## T2.2-20 : Supplier Code of Conduct

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

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

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

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

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

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

- Transnet and its employees will follow the laws of this country and keep accurate business records that reflect actual transactions with, and payments to, our suppliers.
- Employees must not accept or request money or anything of value, directly or indirectly, from suppliers.
- Employees may not receive anything that is calculated to:

- Illegally influence their judgement or conduct or to ensure the desired outcome of a sourcing activity;
    - Win or retain business or to influence any act or decision of any person involved in sourcing decisions; or
    - Gain an improper advantage.
  - There may be times when a supplier is confronted with fraudulent or corrupt behaviour of Transnet employees. We expect our Suppliers to use our "Tip-offs Anonymous" Hot line to report these acts. (0800 003 056).
2. *Transnet SOC Ltd is firmly committed to the ideas of free and competitive enterprise.*
- Suppliers are expected to comply with all applicable laws and regulations regarding fair competition and antitrust practices.
  - Transnet does not engage with non-value adding agents or representatives solely for the purpose of increasing BBBEE spend (fronting).
3. ***Transnet's relationship with suppliers requires us to clearly define requirements, to exchange information and share mutual benefits.***
- Generally, suppliers have their own business standards and regulations. Although Transnet cannot control the actions of our suppliers, we will not tolerate any illegal activities. These include, but are not limited to:
    - Misrepresentation of their product (origin of manufacture, specifications, intellectual property rights, etc);
    - Collusion;
    - Failure to disclose accurate information required during the sourcing activity (ownership, financial situation, BBBEE status, etc.);
    - Corrupt activities listed above; and
    - Harassment, intimidation or other aggressive actions towards Transnet employees.
  - Suppliers must be evaluated and approved before any materials, components, products or services are purchased from them. Rigorous due diligence is conducted and the supplier is expected to participate in an honest and straight forward manner.

- Suppliers must record and report facts accurately, honestly and objectively. Financial records must be accurate in all material respects.

*Conflicts of Interest*

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

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

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

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

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

Signed on this day \_\_\_\_\_ at \_\_\_\_\_

\_\_\_\_\_  
Signature

## T2.2-21: Insurance provided by the *Contractor*

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

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

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

## T2.2-22: Form of Intent to Provide a Performance Guarantee

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

Name of Guarantor  
(Bank/Insurer)

Address

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

Signed

Name

Capacity

On behalf of (name of  
tenderer)

Date

Confirmed by **Guarantor's** Authorised Representative

Signature(s)

Name (print)

Capacity

On behalf of Guarantor  
(Bank/insurer)

Date

## T2.2-23: Three (3) years audited financial statements

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

NAME OF COMPANY/IES and INDEX OF ATTACHMENTS:

.....

.....

.....

.....

.....

.....

.....



TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30)

OPERATING AS **TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY**

## C1.1: Form of Offer & Acceptance

### Offer

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

PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS

**(HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY**

The tenderer, identified in the Offer signature block, has

<i>either</i>	examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.
<i>or</i>	examined the draft contract as listed in the Acceptance section and agreed to provide this Offer.

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

The offered total of the Prices exclusive of VAT is	R
Value Added Tax @ 15% is	R
The offered total of the Prices inclusive of VAT is	R
(in words)	

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s)

Capacity

For the  
tenderer:

(Insert name and address of organisation)

Name &  
signature of  
witness

Date

Tenderer's CIDB registration number:



TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30)

OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

### Acceptance

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

The terms of the contract, are contained in:

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

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

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

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

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any).

Unless the tenderer (now *Contractor*) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s)

Name(s)

Capacity

for the  
Employer

Transnet SOC Ltd

(Insert name and address of organisation)

Name &  
signature of  
witness

Date



TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30)

OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

## Schedule of Deviations

Note:

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

No.	Subject	Details
1		
2		
3		
4		
5		

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

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

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

## C1.2 Contract Data

### Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	A: Priced contract with Activity Schedule
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X5: Sectional Completion
		X7: Delay damages
		X13: Performance Bond
		X16: Retention
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	of the NEC3 Engineering and Construction Contract June 2005 (amended June 2006 and April 2013)	
10.1	The <i>Employer</i> is:	Transnet SOC Ltd (Registration No. 1990/000900/30)
	Address	Registered address: 138 Eloff Street Braamfontein Johannesburg 2000
	Having elected its Contractual Address for the purposes of this contract as:	Transnet Port Terminals 202 Anton Lembede Street Durban 4001

TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO.

1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

10.1	The <i>Project Manager</i> is: (Name)	Graham Handley
	Address	Transnet Port Terminals Port of Cape Town
	Tel	
	e-mail	Graham.Handley@transnet.net
10.1	The <i>Supervisor</i> is: (Name)	Brett Killian
	Address	Transnet Port Terminals Port of Port Elizabeth
	Tel No.	
	e-mail	Brett.Killian@transnet.net
11.2(13)	The <i>works</i> are	Provision of Services to Design, Fabricate and Install a Reclaimer Bypass System at the Port Elizabeth Manganese Terminal for Transnet SOC Ltd (Reg no. 1990/000900/30) operating as Transnet Port Terminals (Hereinafter referred to as <b>"TPT"</b> ) as a once off supply
11.2(14)	The following matters will be included in the Risk Register	Failure to meet project timelines Commissioning delays Quality Risk Inclement adverse weather challenges Labour unrest Safety
11.2(15)	The <i>boundaries of the site</i> are	As stated in Part C4 <b>"Description of the Site and its surroundings"</b>
11.2(16)	The Site Information is in	Part C4
11.2(19)	The Works Information is in	Part C3
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa subject to the jurisdiction of the Courts of South Africa.
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	2 weeks
2	The <i>Contractor's</i> main responsibilities	No additional data is required for this section of the <i>conditions of contract</i> .

TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO.

1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

3	Time		
11.2(3)	The <i>completion date</i> for the whole t.b.c. of the <i>works</i> is		
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	<i>Condition</i> to be met 1 Detailed design 2 Fabrication 3 Installation/ Commissioning / Handover	<i>key date</i> TBC TBC TBC
30.1	The <i>access dates</i> are	Part of the Site 1 Access to entire site	Date TBC
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	2 weeks of the Contract Date.	
31.2	The <i>starting date</i> is	TBA	

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32.2	The <i>Contractor</i> submits revised programmes at intervals no 2 weeks longer than	
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	
4	Testing and Defects	
42.2	The <i>defects date</i> is	52 (fifty-two) weeks after Completion of the whole of the <i>works</i> .
43.2	The <i>defect correction period</i> is	2 weeks
	Except that the defect correction period for a defect which constraints the machines safe operating capacity to 50% or less is:	
5	Payment	
50.1	The <i>assessment interval</i> is	25 <sup>th</sup> (twenty fifth) day of each successive monthly on the month.
51.1	The <i>currency of this contract</i> is	South African Rand.
	the	
51.2	The period within which payments are made is	Payment will be effected on or before the last day of the month following the month during which a valid Tax Invoice and Statement were received.
51.4	The <i>interest rate</i> is	the prime lending rate of Standard Bank of South Africa.
6	Compensation events	
60.1(13)	The <i>weather measurements</i> to be recorded for each calendar month are,	the cumulative rainfall (mm) the number of days with rainfall more than 10 mm the number of days with wind speed exceeding 40 km/hr

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The place where weather is to be recorded (on the Site ) is: The *Contractor's* **Site establishment area**

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

and which are available from: South African Weather Service 012 367 6023 or [info3@weathersa.co.za](mailto:info3@weathersa.co.za).

7	Title	No additional data is required for this section of the <i>conditions of contract</i> .
8	Risks and insurance	
80.1	These are additional <i>Employer's</i> risks	No additional risks are accepted by the Employer other than those which are provided for in this contract
84.1	The <i>Employer</i> provides these insurances from the Insurance Table	
	1 Insurance against:	Loss of or damage to the <i>works</i> , Plant and Materials is as stated in the Insurance policy for Contract Works/ Public Liability.
	Cover / indemnity:	to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	as stated in the insurance policy for Contract Works / Public Liability
	2 Insurance against:	Loss of or damage to property (except the <i>works</i> , Plant and Materials & Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i> ) arising out of or in connection with the performance of the Contract as stated in the insurance policy for Contract Works / Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability

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	The deductibles are	as stated in the insurance policy for Contract Works / Public Liability
3	Insurance against:	Loss of or damage to Equipment (Temporary Works only) as stated in the insurance policy for contract Works and Public Liability
	Cover / indemnity	Is to the extent as stated in the insurance policy for Contract Works / Public Liability
	The deductibles are:	As stated in the insurance policy for Contract Works / Public Liability
4	Insurance against:	Contract Works SASRIA insurance subject to the terms, exceptions and conditions of the SASRIA coupon
	Cover / indemnity	Cover / indemnity is to the extent provided by the SASRIA coupon
	The deductibles are	The deductibles are, in respect of each and every theft claim, 0,1% of the contract value subject to a minimum of R2,500 and a maximum of R25,000.
	Note:	The deductibles for the insurance as stated above are listed in the document titled "Certificate of Insurance: Transnet (SOC) Ltd <b>Principal Controlled Insurance.</b> " Refer to Annexure A

- 84.1 The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is
- The *Contractor* must comply at a minimum with the provisions of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 as amended.

- 
- The *Contractor* provides these additional Insurances
- 1 Where the contract requires that the design of any part of the *works* shall be provided by the *Contractor* the *Contractor* shall satisfy the *Employer* that professional indemnity insurance cover in connection therewith has been affected
  - 2 Where the contract involves manufacture, and/or fabrication of Plant & Materials, components or other goods to be incorporated into the *works* at premises other than the site, the *Contractor* shall satisfy the *Employer* that such plant & materials, components or other goods for incorporation in the *works* are adequately insured during manufacture and/or fabrication and transportation to the site.
  - 3 Should the *Employer* have an insurable interest in such items during manufacture, and/or fabrication, such interest shall be noted by endorsement to the ***Contractor's*** policies of insurance as well as those of any sub-contractor
  - 4 Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger and Unauthorised Passenger Liability indemnity with a minimum indemnity limit of R 5 000 000.

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		5	The insurance coverage referred to in 1, 2, 3, and 4 above shall be obtained from an insurer(s) in terms of an insurance policy approved by the <i>Employer</i> . The <i>Contractor</i> shall arrange with the insurer to submit to the <i>Project Manager</i> the original and the duplicate original of the policy or policies of insurance and the receipts for payment of current premiums, together with a certificate from the insurer or insurance broker concerned, confirming that the policy or policies provide the full coverage as required. The original policy will be returned to the <i>Contractor</i> .
84.2	The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the works, Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i> ) caused by activity in connection with this contract for any one event is		Whatever the <i>Contractor</i> requires in addition to the amount of insurance taken out by the <i>Employer</i> for the same risk.
84.2	The insurance against loss of or damage to the works, Plant and Materials as stated in the insurance policy for contract works and public liability selected from:		Principal Controlled Insurance policy for Contract OR Project Specific Insurance for the contract
9	Termination		There is no additional Contract Data required for this section of the <i>conditions of contract</i> .
10	Data for main Option clause		
A	Priced contract with Activity Schedule		No additional data is required for this Option.

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11	Data for Option W1			
W1.1	The <i>Adjudicator</i> is	Both parties will agree as and when a dispute arises. If the parties cannot reach an agreement on the <i>Adjudicator</i> , the Chairman of the Association of Arbitrators will appoint an <i>Adjudicator</i> .		
W1.2(3)	The <i>Adjudicator nominating body</i> is:	The Chairman of the Association of Arbitrators (Southern Africa)		
	If no <i>Adjudicator nominating body</i> is entered, it is:	the Association of Arbitrators (Southern Africa)		
W1.4(2)	The <i>tribunal</i> is:	Arbitration		
W1.4(5)	The <i>arbitration procedure</i> is	The Rules for the Conduct of Arbitrations of the Association of Arbitrators (Southern Africa)		
	The place where arbitration is to be held is	Durban, South Africa		
	The person or organisation who will choose an arbitrator	The Chairman of the Association of Arbitrators (Southern Africa)		
	- if the Parties cannot agree a choice or			
	- if the arbitration procedure does not state who selects an arbitrator, is			
12	Data for secondary Option clauses			
X5	Sectional Completion			
X5.1	The <i>completion date</i> for each <i>section</i> of the <i>works</i> is:	<i>Section</i>	Description	<i>Completion date</i>
		1	Detailed Design	TBC
		2	Fabrication	TBC
		3	Installation/ Commission/ Handover	TBC

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X7	Delay damages	
X7.1	Delay damages for Completion of the whole of the <i>works</i> are	0.1% of the total contract value per day limited to 10% of the total contract value
X13	Performance bond	
X13.1	The amount of the performance bond is	5% of the total of the Prices
X16	Retention	
X16.1	The retention free amount is	Nil
	The retention percentage is	10% on all payments certified.
X18	Limitation of liability	

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X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	An amount being equal to the loss or total contract value inclusive of VAT
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	The deductible of the relevant insurance policy
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to:	The cost of correcting the Defect
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	The Total of the Prices
X18.5	The <i>end of liability date</i> is	A period being 12 (twelve) consecutive months after the completion by the Contractor of the whole of the works to the Employer in terms of the Contract
Z	<i>Additional conditions of contract</i> are:	

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Z2	Additional clause relating to Performance Bonds and/or Guarantees	
Z2.1		The Performance Guarantee under X13 above shall be an irrevocable, on-demand performance guarantee, to be issued exactly in the form of the Pro Forma documents provided for this purpose under C1.3 (Forms of Securities), in favour of the <i>Employer</i> by a financial institution reasonably acceptable to the <i>Employer</i> .

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Z3 Additional clauses relating to Joint Venture

Z3.1 Insert the additional core clause 27.5

27.5. In the instance that the *Contractor* is a joint venture, the *Contractor* shall provide the *Employer* with a certified copy of its signed joint venture agreement, and in the instance that the joint venture is an **'Incorporated Joint Venture,'** the Memorandum of Incorporation, within 4 (four) weeks of the Contract Date. The Joint Venture agreement shall contain but not be limited to the following:

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

	<ul style="list-style-type: none"> <li>iii. Identification of the roles and responsibilities of the constituents to provide the Works.</li> <li>• Financial requirements for the Joint Venture:</li> <li>iv. the working capital requirements for the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the constituents from time to time;</li> <li>v. the names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.</li> </ul>
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Z3.2

Insert additional core clause 27.6

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

Z4	Additional obligations in respect of Termination
Z4.1	<p>The following will be included under core clause 91.1:</p> <p>In the second main bullet, after the word <b>'partnership'</b> add <b>'joint venture whether incorporate or otherwise (including any constituent of the joint venture)'</b> and</p> <p>Under the second main bullet, insert the following additional bullets after the last sub-bullet:</p> <ul style="list-style-type: none"> <li>• commenced business rescue proceedings (R22)</li> <li>• repudiated this Contract (R23)</li> </ul>

Z4.2	Termination Table	The following will be included under core clause 90.2 Termination Table as follows:  <b>Amend "A reason other than R1 – R21" to "A reason other than R1 – R23"</b>
Z4.3		<b>Amend "R1 – R15 or R18" to "R1 – R15, R18, R22 or R23."</b>
Z5	Right Reserved by the <i>Employer</i> to Conduct Vetting through SSA	
Z5.1		The <i>Employer</i> reserves the right to conduct vetting through State Security Agency (SSA) for security clearances of any <i>Contractor</i> who has access to National Key Points for the following without limitations: <ul style="list-style-type: none"> <li>1. Confidential – this clearance is based on any information which may be used by malicious, opposing or hostile elements to harm the objectives and functions of an organ of state.</li> <li>2. Secret – clearance is based on any information which may be used by malicious, opposing or hostile elements to disrupt the objectives and functions of an organ of state.</li> <li>3. Top Secret – this clearance is based on information which may be used by malicious, opposing or hostile elements to neutralise the objectives and functions of an organ of state.</li> </ul>

Z6	Additional Clause Relating to Collusion in the Construction Industry	
Z6.1		The contract award is made without prejudice to any rights the <i>Employer</i> may have to take appropriate action later with regard to any declared tender rigging including blacklisting.
Z7	Protection of Personal Information Act	
Z7.1		The <i>Employer</i> and the <i>Contractor</i> are required to process information obtained for the duration of the Agreement in a manner that is aligned to the Protection of Personal Information Act.
Z8	Assignment and Waiver	
Z8.1		Neither the Employer nor the Contractor may, without the written consent of the other, assign the Contract or any part thereof or any obligation under the Contract or cede any right or benefit thereunder.
Z8.2		No grant by the Contractor or the Employer to the other of any concession, waiver, condonation or allowance is, in respect of any specific event or circumstance other than that in respect of which the grant was made to constitute a waiver of the rights of the grantor in terms of the Contract or an estoppel of the <b>grantor's right to enforce the provisions</b> of the Contract.

Z9	Anti-corruption, TPT Indemnity	
Z9.1	Anti - Corruption	<p>In the event that the Contractor is alleged to be, or found by any competent court or Tribunal to be involved in any corrupt, unlawful or illegal activities, or is being investigated for any alleged corrupt, unlawful or illegal activity in relation to Transnet or any other party with whom Contractor does business, or if Transnet learns that:</p> <ol style="list-style-type: none"> <li>Improper payments are being or have been made or offered to Transnet officials or any other person by Contractor or those acting on behalf of Contractor with respect to the Services; or</li> <li><i>Contractor</i> or those acting on behalf of <i>Contractor</i> has accepted any payment or benefit, regardless of value, as an improper inducement to award, obtain or retain business or otherwise gain or grant an improper business advantage from or to any other person or entity.</li> </ol> <p>Transnet reserves the right to terminate the aforementioned awarded contract, by giving immediate written notice to the effect that, all or any Agreements it may have with <i>Contractor</i> or any and all Awards made <i>Contractor</i> for breach of this clause.</p>

Further in the event of such termination, Contractor shall not be entitled to any further payment, regardless of any activities undertaken or agreements with additional third parties entered into by Contractor prior to such termination; and further.

Contractor shall be liable to Transnet for any actual damages or remedies as provided either in the Agreements that are to be signed or in law.

## Z9.2 Indemnity

- 1) Contractor irrevocably and unconditionally undertakes to indemnify and does hereby keep TPT indemnified and hold TPT harmless against, and, in respect of, all and any loss or damage incurred by itself or any other third- Party as a result of, arising out of or connected with any failure, act or omission or breach of this Agreement by Contractor or any of its employees, security officers, servants, agents , assigns, contractors or sub-contractors, or occurring during or as a result of the provision by the Contractor of the Security Service. Such absolute obligation of Contractor to indemnify TPT on a full indemnity basis against all claims shall including, but not be limited to:

a) liability in respect of any loss or damage to property, whether movable or immovable, belonging to third parties; or other

b) liability in respect of lost property belonging to third parties;

c) liability arising out of any unlawful act committed by or *Contractor* or its employees, security officers, servants, agents, contractors and sub-contractors during the process of rendering a Security Services; or at any other time when a claim



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has been and could be made against the TPT arising out of the acts of or omissions of one or more of such persons;

d) liability in respect of the death, unlawful arrest, injury, illness or disease of any person, or entity should the damage, loss, unlawful arrest, death, injury, illness or disease referred to above be attributable to or arise out of the Security Services that are being or have been rendered by the Contractor, its agents, contractors, sub-contractors in terms of this Agreement.

2) *Contractor* shall at its own expense and with effect from the date of signature hereof, take reasonable precautions for the protection of life and or property that is in any way connected with in whole or any part of this agreement and shall hold TPT harmless against all claims for any loss, demands, proceedings, damages, costs, charges, expenses whatsoever, arising out of this agreement.

3) *Contractor* agrees that it shall intervene in any claim arising and to indemnify and hold TPT harmless from any claim, damage, loss, cost, expense, legal expenses, arising from or attributable to *Contractor* provision of services, its acts, or omissions or those of its agents, employees, sub-contractors, representative/s or other for whom TPT may be / may not be deemed responsible for in terms of the agreement.

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## C1.2 Contract Data

### Part two - Data provided by the *Contractor*

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

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

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

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled.
11.2(14)	The following matters will be included in the Risk Register	
31.1	The programme identified in the Contract Data is	
A	Priced contract with activity schedule	
11.2(20)	The <b>activity schedule</b> is in	C2 Part 2 Pricing Data Option A
11.2(30)	The tendered total of the Prices is	(in figures)  (in words), excluding VAT
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60 of ECC, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC.</i>

A	Priced contract with activity schedule	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	%		
21 in SSCC	The published list of Equipment is the last edition of the list published by			
	The percentage for adjustment for Equipment in the published list is	% (state plus or minus)		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate



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61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are	Category of employee		Hourly rate
62 in SSCC	The percentage for design overheads is	%		
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:			

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## C1.3 Forms of Securities

### Pro forma Performance Guarantee

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

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

Option X13: Performance bond

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

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

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

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

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

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

Transnet SOC Ltd  
C/o Transnet Port Terminals  
Transnet Corporate Centre  
138 Eloff Street  
Braamfontein  
Johannesburg  
2000

Date:

Dear Sirs,

Performance Bond for Contract No. ICLM PE 747/TPT

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

Transnet SOC Limited, Registration No. 1990/000900/30

(the *Employer*) and

**{Insert registered name and address of the Contractor}**

(the *Contractor*), for

**{Insert details of the works from the Contract Data}**

(Provision of  
Services to Design,  
Fabricate and Install  
a Reclaimer Bypass  
System at the Port  
Elizabeth Manganese  
Terminal for  
Transnet SOC Ltd  
(Reg no.  
1990/000900/30)  
operating as  
Transnet Port  
Terminals  
(Hereinafter referred  
to as **"TPT"**) as a  
once off supply).

I/We the undersigned

on behalf of the  
Guarantor

of physical address

and duly authorised thereto do hereby bind ourselves as Guarantor and co-principal debtors in solidum for the due and faithful performance of all the terms and conditions of the Contract by the *Contractor* and for all



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losses, damages and expenses that may be suffered or incurred by the *Employer* as a result of non-performance of the Contract by the *Contractor*, subject to the following conditions:

1. The terms *Employer*, *Contractor*, *Project Manager*, *works* and Completion Certificate have the meaning as assigned to them by the *conditions of contract* stated in the Contract Data for the aforesaid Contract.
2. We renounce all benefits from the legal exceptions "Benefit of Excussion and Division", "No value received" and all other exceptions which might or could be pleaded against the validity of this bond, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted.
3. The *Employer* has the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and without being advised thereof the Guarantor shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Guarantor. Without derogating from the foregoing compromise, extension of the construction period, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this performance bond.
4. This bond will lapse on the earlier of
  - the date that the Guarantor receives a notice from the *Project Manager* stating that the Completion Certificate for the whole of the *works* has been issued, that all amounts due from the *Contractor* as certified in terms of the contract have been received by the *Employer* and that the *Contractor* has fulfilled all his obligations under the Contract, or
  - the date that the Surety issues a replacement Performance Bond for such lesser or higher amount as may be required by the *Project Manager*.
5. Always provided that this bond will not lapse in the event the Guarantor is notified by the *Project Manager*, (before the dates above), of the *Employer's* intention to institute claims and the particulars thereof, in which event this bond shall remain in force until all such claims are paid and settled.
6. The amount of the bond shall be payable to the *Employer* upon the *Employer's* demand and no later than 7 days following the submission to the Guarantor of a certificate signed by the *Project Manager* stating the amount of the *Employer's* losses, damages and expenses incurred as a result of the non-performance aforesaid. The signed certificate shall be deemed to be conclusive proof of the extent of the *Employer's* loss, damage and expense.
7. Our total liability hereunder shall not exceed the sum of:  
 (say) \_\_\_\_\_  
 R \_\_\_\_\_
8. This Performance Bond is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa, subject to the jurisdiction of the courts of the Republic of South Africa

TRANSNET PORT TERMINALS  
TENDER NUMBER: ICLM PE 747/TPT  
DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS  
SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30)  
OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER **REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY**

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Signed at \_\_\_\_\_ on this \_\_\_\_\_ day of \_\_\_\_\_ 2024

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



PART 2: PRICING DATA

Document reference	Title	No of pages
	This cover page	1
C2.1	Pricing instructions: Option A	1
C2.2	Activity Schedule	1
	Total number of pages	3



## C2.1 PRICING INSTRUCTIONS: OPTION A

### 1. The *conditions of contract*

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

Clause 11 in NEC3 Engineering and Construction Contract, April 2013 (ECC) Option A states:

- Identified and defined terms
- 11 (20) The Activity Schedule is the *activity schedule* unless later changed in accordance with this contract.
- 11.2 (22) Defined Cost is the cost of the components in the Shorter Schedule of Cost Components whether work is subcontracted or not excluding the cost of preparing quotations for compensation events.
- (27) The Price for Work Done to Date is the total of the Prices for
- each group of completed activities and
  - each completed activity which is not in a group
- A completed activity is one which is without Defects which would either delay or be covered by immediately following work.
- (30) The Prices are the lump sums for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

#### 1.2. Measurement and Payment

- 1.2.1 The Activity Schedule provides the basis of all valuations of the Price for Work Done to Date, payments in multiple currencies, price adjustments for inflation and general progress monitoring.
- 1.2.2 The amount due at each assessment date is based on completed activities and/or milestones as indicated on the Activity Schedule.
- 1.2.3 The Activity Schedule work breakdown structure provided by the *Contractor* is based on the Activity Schedule provided by the *Employer*. The activities listed by the *Employer* are the minimum activities acceptable and identify the specific activities which are required to achieve Completion. The activity schedule work breakdown structure is compiled to the satisfaction of the *Project Manager* with any additions and/or amendments deemed necessary.
- 1.2.4 The *Contractor's* detailed Activity Schedule summates back to the Activity Schedule provided by the *Employer* and is in sufficient detail to monitor completion of activities related to the Accepted Programme in order that payment of completed activities may be assessed.
- 1.2.5 The short descriptions in the Activity Schedule are for identification purposes only. All work described in the Works Information is deemed included in the activities.
- 1.2.6 The Activity Schedule is integrated with the Prices, Accepted Programme and where required the forecast rate of payment schedule.
- 1.2.7 Activities in multiple currencies are separately identified on both the Activity Schedule and the Accepted Programme for each currency.
- 1.2.8 The tendered total of the prices as stated in the Contract Data is obtained from the Activity Schedule summary. The tendered total of the prices includes for all direct and indirect costs, overheads, profits, risks, liabilities and obligations relative to the Contract.



## C2.2 Activity Schedule

The *Employer* requires at least the following activities to be priced. Each activity must be priced individually.

The price reflected below must be fixed and firm. Failure to provide a fixed and firm price will declare the Contractor nonresponsive.

**It is Transnet's preference to enter into a Rand based contract, where the contractor will hedge the** Foreign exchange (FX) risk exposure on their balance sheet at a cost acceptable to Transnet by verifying cost of hedging with Transnet Treasury before hedge execution by the contractor.

Should this not be possible and should it be required that the Employer hedge the FX risk, the Contractor will be required to re-imburse the Employer for any hedging related costs (losses that arise due to the moving of hedges), in the event that a payment cannot take place on the hedged date due to the Contractor.

It is Transnet's preference to enter into a contract on a DDP (Incoterms 2020, Port Elizabeth Container Terminal) basis. However, a DAP (Incoterms 2020, Port Elizabeth Container Terminal) will be accepted, provided the contractor agrees to reimburse the Employer in respect of any additional costs to be incurred as a result of choosing the DAP Incoterms 2020, e.g., Customs VAT, cargo dues and other cargo clearance levies relating to this contract.

The *Contractor* must obtain an advance payment guarantee (APG) in favour of the *Employer* in respect of all advance payments to be made by the *Employer*. The APG should be issued by an issuer with a minimum long term credit rating of A- (Fitch Ratings or an equivalent rating from another rating agency) and the Issuer should be acceptable to the *Employer*. Should the credit rating of the Issuer drop below the required minimum before the expiry date of the APG, the APG must be replaced by the supplier at their own cost. The APG will be cancelled once the *Employer* has taken ownership of the goods. The cost of the APG should be borne by the *Contractor*.

Item	Description	Cost
1	Detailed design	
2	Project Management	
3	Fabrication	
4	Installation/Commissioning/Handover	
TOTAL (Excl. VAT)		

Signed

Date

Name

Position

Tenderer



## PART C3: SCOPE OF WORK

Document reference	Title	No of page
	This cover page	1
C3.1	<i>Employer's Works Information</i>	22
C3.2	<i>Principal Contractor's Works</i>	1
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## C3.1 EMPLOYER'S WORKS INFORMATION

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## SECTION 1

### 1 Description of the works

#### 1.1 Executive overview

The works that the Principal Contractor is to perform involve the design, fabrication, Installation & Commission of a Reclaimer Bypass System at the Port Elizabeth Manganese Terminal.

Transnet operates three Reclaimers in the Port Elizabeth Manganese Terminal to reclaim the manganese from the sunken stockpiles to export via the ship loading route.

Recent failures and planned refurbishments have and will place strain on the export route as the stockpiles cannot be effectively reclaimed to the existing conveyor routes.

This bypass system will allow for uninterrupted throughput during machine failure and maintenance outages.

#### 1.2 Employer's objectives

The goal of the project is to ensure that the terminal continues to operate in the event of a reclaimer failure

#### 1.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
BOT	Bulk Ore Terminal
COC	Certificate of Conformance
DoL	Department of Labour
DWG	Drawings
ECC	Engineering and Construction Contract
EC&I	Electronics, Controls & Instrumentations
HAZOP	Hazard and Operability Study
HIRA	Hazard Identification & Risk Assessment
H&S	Health & Safety
IdvIR	Industrial Relations
LDV	Light duty Vehicle
Native	Original electronic file format of documentation
NEC	New England Contract
PPE	Personal Protective Equipment
PE	Port Elizabeth
QCP	Quality Control Plan
SANS	South African National Standards
SHE	Safety, Health and Environment
SHEQ	Safety, Health, Environmental and Quality
SOC	State Owned Company
SOW	Scope of Work



TIMS	Transnet Integrated Management system
TPT	Transnet Port Terminals

## 2 Engineering and the Principal Contractor's design

### 2.1 Employer's design

- 2.1.1 The bypass system is a new system and as such no designs exist.  
The Principal Contractor is to execute the project in line with the existing Manganese Terminal

### 2.2 Review and Acceptance of Principal Contractor Documentation

- 2.2.1 The Principal Contractor submits documentation as the 'Works Information' requires to the TPT Project Manager for review and acceptance.

### 2.3 Other requirements of the Principal Contractor's design

- 2.3.1 The Principal Contractor's design shall comply with Transnet specifications.

### 2.4 Use of Principal Contractor's design

- 2.4.1 The Principal 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 Principal Contractor.

### 2.5 Design of Equipment

- 2.5.1 In the event of any design, the Principal Contractor submits his design details of his proposed Equipment in terms of NEC3 ECC Clause 23 to the TPT Project Manager for his acceptance.
- 2.5.2 The Principal Contractors design may be subjected to a 3<sup>rd</sup> party review at TPT's request
- 2.5.3 The Principal Contractor design must be signed by an ECSA approved design engineer

### 2.6 As-built drawings, operating manuals and maintenance schedules

- 2.6.1 The Principal Contractor provides the following for installed equipment:
- As-built drawings (electronic [dwg and pdf format] and 4 x hard copies)
  - Operating manuals [electronic and 3 x hard copies)
  - Maintenance manuals (electronic and 3 x hard copies)
- 2.6.2 As-Built/Final Documentation



The Principal Contractor submits final documentation to the TPT Project Manager within 1-month of completing all works specific to an individual asset. This final documentation is submitted as "Certified", "As-built", or "Finally Accepted" by the TPT Project Manager or "Without Comment" documentation or documentation for which no further review is required. The final documentation is to eventually form part of the final Principal Contractor Manual(s) or Data Books.

#### **2.6.3 Installation, Maintenance and Operating Manuals and Data Books**

In undertaking the 'Works' (including all incidental services required), the Principal Contractor confirms that they will adhere to the requirements of the 'Data Books and Manuals'

### **3 Construction**

#### **3.1 Site Works**

##### **3.1.1 Temporary works, Site services & construction constraints**

Employer's Site entry and security control, permits, and Site regulations.

The Employer's requirements, which the Principal Contractor is to comply with, are stipulated in the TIMS SHEQ Guidelines

The Principal Contractor complies with the following requirements of the Employer:

- Access control procedures (Supplied after award)
- Medical and Induction procedures
- Legal appointments and training requirements

##### **3.1.2 Restrictions to access on Site, roads, walkways and barricades**

The Principal Contractor to use the roads in accordance with the Port Rules and National Road Traffic Regulations.

The battery limits for the site are depicted in the below photograph.



Figure 1 Manganese Terminal Stockpiles

### 3.1.3 People restrictions on Site; hours of work, conduct and records:

Principal Contractor to obtain approval (if required), to work the extended working hours from the Department of Labour before commencement of site establishment. Labour plan should indicate that all workmen will get enough time-off as required by Law.

### 3.1.4 The Principal Contractor keeps daily records of his people engaged on the Site and Working Areas (including Sub Contractors) with access to such daily records available for inspection by the TPT Project Manager at all reasonable times.

Principal Contractor to submit, to the TPT Project Manager, detailed weekly records indicating hours worked for all workmen/staff on site.

### 3.1.5 Cooperating with and obtaining acceptance of others

Successful completion of the contract depends on the effective interaction and co-operation of all Parties on Site. It is necessary to discuss the Principal Contractor's proposed activities and short-term programme on a day-to-day basis with the TPT Project Manager, to ensure effective co-operation and a smooth interface between the activities of the Principal Contractor and Others working and operating in this area. This is in accordance with NEC3 ECC Clause 25.

### 3.1.6 Publicity and progress photographs

Contractors must be in the possession of a valid photo permit, obtained from TPT, in order to take any project specific photographs i.e. progress photos. No photos, other than those specific to the project, are allowed to be taken.

### 3.1.7 Advertisement and Media Communication

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*.

### 3.1.8 Principal Contractor's Equipment



The Principal Contractor keeps daily records (inclusive of daily inspection reports) 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 TPT Project Manager at all reasonable times.

#### 3.1.9 Principal Contractor's Site Establishment

An area for the Principal Contractor's Site Establishment will be made available, free of charge, to the Principal Contractor for the duration of the contract.

The TPT Project Manager, or his duly appointed representative, must accept the Site establishment layout prior to erection.

#### 3.1.10 Site services and facilities:

The position of existing connection points for electricity and water are to be indicated by the TPT Project Manager to the Principal Contractor. The Principal Contractor is to make his own arrangements for the connection of such services to his Working Areas, for his use during construction.

An electrical connection point of 220V and 380/525V will be provided by the Employer within 50 m the site yard. Principal Contractor to provide cable and distribution board for welding and 220V power points. Principal Contractor to complete installation of electrical connection and provide COC. The Principal Contractor is to provide his own power in the event of a power failure, or disruptions caused by other tie-in activities effecting the greater BOT normal power supply, and is to have a generator on standby, thus not causing any delays in the execution of the works.

The Employer will provide a water point, 50m from the site yard. It is the Principal Contractors responsibility to distribute the water from this point onwards. There is no water-borne sewerage facility available. Principal Contractor to provide drinking water for all employees, inclusive sub-Contractors, under his control.

The cost of meters, connections, and all other usage costs associated with the provision of services are to the Principal Contractor's account.

The Employer does not provide any security for the works for the duration of the contract and will not be responsible for any damage and/or losses incurred by the Principal Contractor in this regard.

Wherever the Employer provides facilities (including, inter alia, temporary power, water, waste disposal, etc) for the Principal Contractors use within the Working Areas and the Principal Contractor adapts such facilities for use, then the Principal 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 Principal Contractor:

##### a) Toilets

There is no water-borne sewerage facility available. The Principal Contractor provides, maintains, moves to new positions as required and finally removes portable chemical toilets of sufficient number at his cost. Toilets are to be properly constructed and placed in suitable positions and maintained in a clean and sanitary working condition. The Principal Contractor makes his own arrangements with the Local Authority for the disposal of night soil at his cost.

##### b) Housing & Accommodation

Housing on Site, at the Principal Contractor camp or in the Port area is not permitted. The Principal Contractor is to provide suitable accommodation, off-site, for his workforce.

##### c) Offices

The Principal Contractor is to provide his own suitable temporary office facilities, to be placed within the confines of the identified site camp, for the use of his Project Team. Suitable eating/changing facilities to be provided for the Principal Contractors workforce.



d) Clearing of Site after Completion

Wherever the Principal Contractor provides facilities and all items of Equipment, involving, inter alia, offices, toilets, Materials storage, compound areas, etc, within the Working Areas, then the Principal 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.

e) Principal Contractor's responsibility

Unless expressly stated as a responsibility of the Employer in this document, Site services and facilities and all residual requirements for the provision of facilities and all items of Equipment necessary for the Principal Contractor to Provide the Works, remains the responsibility of the Principal Contractor.

- 3.1.12 The Principal Contractor inspects the existing adjoining works / premises / properties / with which the works interfaces in conjunction with the TPT Project Manager prior to starting his own work where it is considered that the Principal Contractor may be held liable for damage caused to the existing plant or equipment. A detailed photographic report will be required.
- 3.1.13 The control of noise, dust, water and waste from the activities by the Principal Contractor as part of this Contract, shall be the responsibility of the Principal Contractor.
- 3.1.14 The Principal Contractor complies with the local bylaws and other statutory regulations with regards to the control of noise, dust, water and waste control.
- 3.1.15 The Principal Contractor complies with the following constraints in the execution of the works: Full Port operations shall be maintained to the areas not affected by the Principal Contractors works. At all other times, the Principal Contractor shall ensure that he does not interfere or restrict any of the port operations at any time
- 3.1.16 The Principal Contractor shall be responsible for the commissioning of the scope of works, so that it can be handed over to BOT Engineering/Operations for them to reintegrate it in the existing BOT operational system.

## 3.2 Completion, testing, commissioning and correction of Defects

3.2.1 The work to be done by the Completion Date

On or before the Completion Date the Principal Contractor shall have done everything required to Provide the Works including the work listed below which is to be done before the Completion Date and in any case before the dates stated. The TPT Project Manager cannot certify Completion until all the work listed below has been done and is also free of Defects, which would have, in his opinion, prevented the Employer from using the works and Others from doing their work.

3.2.2 The Principal Contractor is permitted to carry out Performance testing of the works immediately after Completion.

3.2.3 Use of the works before Completion has been certified shall not be required.

3.2.4 The Principal Contractor provides the following commissioning activities to bring the works in use in liaison with the Employer,

3.2.4.1 Stage 1 – Pre-commissioning / Completion of Erection and Installation

The Stage 1 activities are all those activities that take place prior to Cold Commissioning including Mechanical/E,C&I and Physical completion ready to be subjected to functional testing, Punch listing (defect list) and completion of all Category A and B punch items. Mechanical/E, C&I and physical completion includes running the conveyor selection routes, flushing, hydro testing, pressure testing and other test necessary before being integrated into functional modules. Check direction of motors, check wiring connections, establish electrical power supplies at end users, and ensure that mechanical connections are tight and safe etc.



#### 3.2.4.2 Stage 2 – Cold Commissioning

Cold Commissioning activities are those required to bring any plant system, stream, module, unit from the status of mechanical completion to the point where Hot Commissioning may commence under the supervisory control of the relevant Contractor and the issue of Cold Commissioning Certificate. This will entail running the system, Module or Unit under no load conditions and where applicable, on automatic control with stimulations as required.

The activities cover a very wide range and include checks on electrical, motors, control and safety systems as well as running the plant under simulated conditions without load.

Perform all activities to ensure handover and issuing of Cold Commissioning certificate

#### 3.2.4.3 Stage 3 – Hot Commissioning (System Integration and Load Tests)

This stage of Commissioning consists of placing the Works into operation by BOT, Projects team, Principal Contractors and Equipment Suppliers, using the operating and maintenance personnel of BOT. Hot Commissioning includes performance testing of the Works in terms of the Contract.

- 3.2.5 The Principal Contractor shall assist with the start-up procedures required to put the works into operation.
- 3.2.6 The Employer shall take over the Plant as soon as the Works have successfully passed any required Performance/Acceptance Test with only Category 'C' Punch List Items remaining with a commitment to complete the Category 'C' Punch List Items by an agreed date during the Defects Correction/Warranty Period and following the application by Principal Contractor for a Completion Certificate, a Completion Certificate will be issued.
- 3.2.7 The Principal Contractor ensures that the TPT Project Manager has a full and accurate dossier of As-built documents that represent the combined Structural, Mechanical, Electrical and Controls & Instrumentation status of the completed works (to include Plant within the works) to present to the Employer, as appropriate at the earlier of take-over or Completion.
- 3.2.8 The Principal Contractor ensures that the TPT Project Manager has a full and accurate dossier of Maintenance and Operating Manuals as appropriate at the earlier of take-over or Completion.
- 3.2.9 Where the Principal Contractor has presented Maintenance and Operating Manuals as appropriate to the TPT Project Manager at take-over, the Principal Contractor modifies and updates As-built documents as necessary prior to Completion.
- 3.2.10 Access given by the Employer for correction of Defects shall be arranged by the TPT Project Manager, and if such correction requires the Plant and Materials be shut down, the timing and period of shutdown shall be scheduled to suit the Port Operations. For the period of shutdown to correct defects, the Principal Contractor shall take over the Plant and Materials, and accept all risks that were assumed as part of the original Contract for the period until handing over the Plant and material to the Employer after correcting defects.
- 3.2.11 The Principal Contractor complies with the following constraints and procedures of the Employer where the TPT Project Manager arranges access for the Principal Contractor after Completion: security access requirements, restrictions to areas which do not form part of the site: safety precautions that need to be taken as part of the Site Management Plan, and safety inductions of staff.
- 3.2.12 The Principal Contractor performs the following performance tests after Completion of the works:
  - Operational tests during Cold Commissioning, without material.



- Endurance/Proofing test of 40 hours, under full designed load as a complete operating system.
- Hot Commissioning Certificate will be signed-off and the project to be taken over by the BOT on completion of endurance tests.

3.2.13 The Principal Contractor facilitates training workshops with the Employer's nominated staff after Completion of the works.

## 4 Scope Of Works

### 4.1 Site Location & General Layout

See Part 4: Site Information

### 4.2 Scope of Works

The scope of work for the project can be summarised as follows and the works that the Principal Contractor is to perform involve:

- 4.2.1 Design of equipment
- 4.2.2 Fabrication of equipment as per Transnet Standards listed in Annexure A
- 4.2.3 Site establishment
- 4.2.4 Provision, transportation, off-loading and placement of any infrastructure required for execution of the works. Timeous finalizing of all training, medicals, permits and other documentation required, in order to commence with the execution works.
- 4.2.5 Execution of all SOW activities planned for the project.
- 4.2.6 Management & resources
- 4.2.7 Site Supervision, SHEQ Management, PPE, security-requirements, site equipment, craneage, vehicles, general tools, jacking tools/trestles, scaffolding, lighting and others.
- 4.2.8 Commissioning
- 4.2.9 After Pre, Cold, and Hot Commissioning, all works is handed over to the BOT in "Safe for Operation" mode. See Commissioning Plan for detailed requirements.
- 4.2.10 Project close out
- 4.2.11 Project close out to be formally documented to cover all aspects of safety, training, as-built / red-line drawings, user manuals and updated maintenance procedures. All close out documentation to be handed over to the TPT Project Manager in hard copy format, as well as in electronic format.
- 4.2.12 Site de-establishment Removal from site of all, equipment belonging to the Principal Contractor. Clear the site and hand back to the Employer
- 4.2.13 Proposed Bypass system

Figure 1 & 2 shows the reclaimer rail installed in proximity of the conveyor and the bench side. The relative height of the bottom bench to the conveyor would make it difficult to load a bin directly from the floor level of the bin. The angle of repose of the manganese ore further makes it difficult to drive front end loaders in the stockpiles to reclaim the manganese.

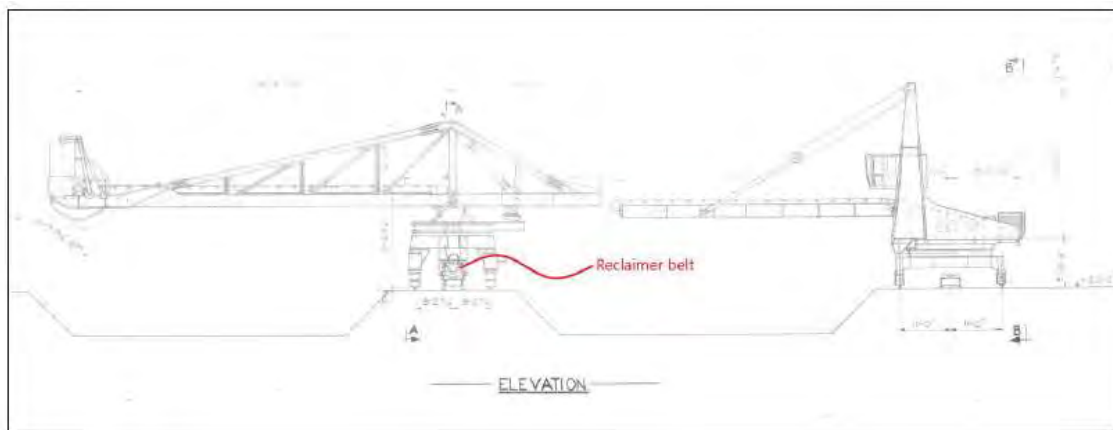
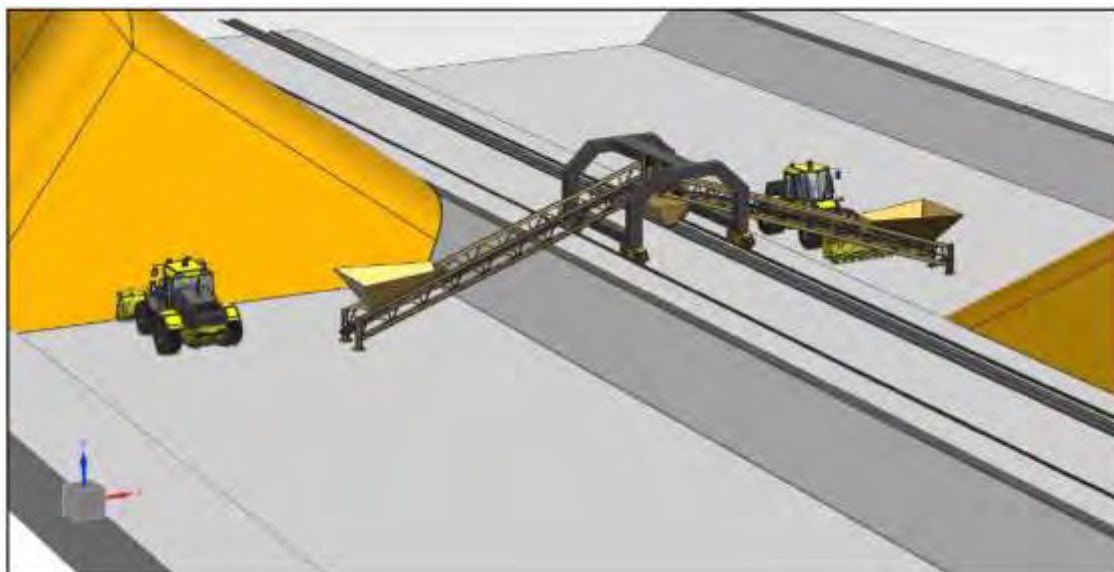


Figure 2 Bench Layout



Figure 3 Rail position and bench details

To be able to use front end loaders to reclaim the ore and feed the reclaimer belt, a retractable conveyor system is proposed which can be positioned at the foot end of the stockpile. The loaders then load a surge bin at the tail end of the retractable conveyor. Due to the incline of the bin and the conveyor and by designing a front draw bin, the feed on the incline conveyor can be controlled to reduce surges in the downstream conveyors. These surges will cause blockages and spillages on the export route conveyors. Figure 4 shows the proposed layout of the system.



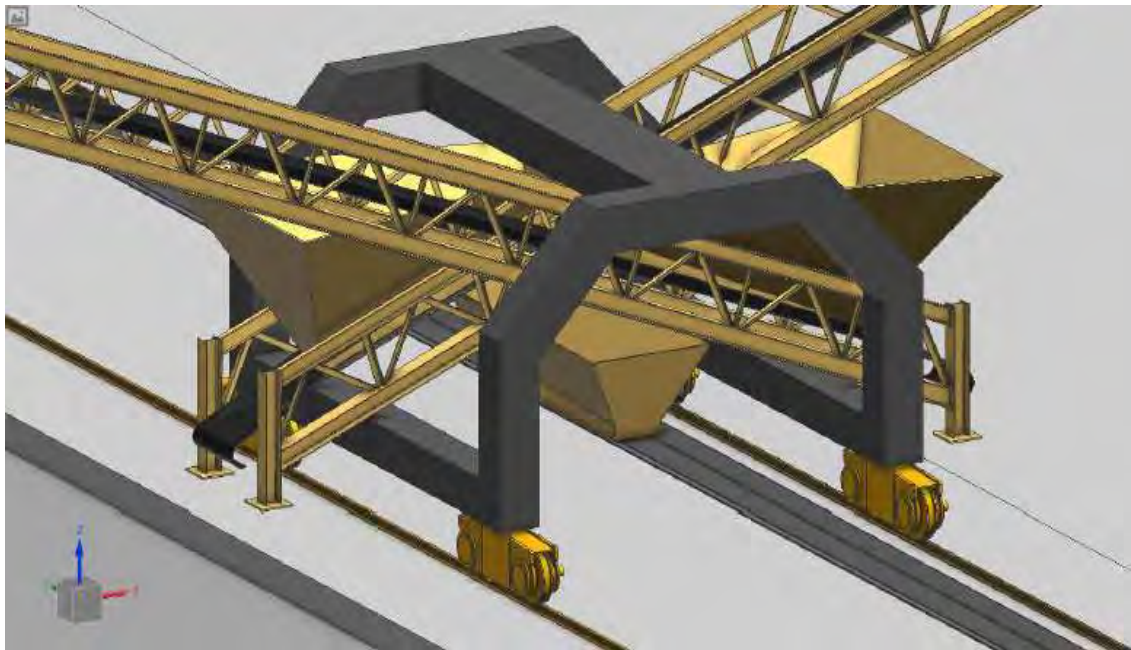
*Figure 4 Reclaimer Bypass System*

When the system must be relocated between the different stockpile areas or travelled and parked, the conveyors retracted to clear the stockpiles as shown in figure 5

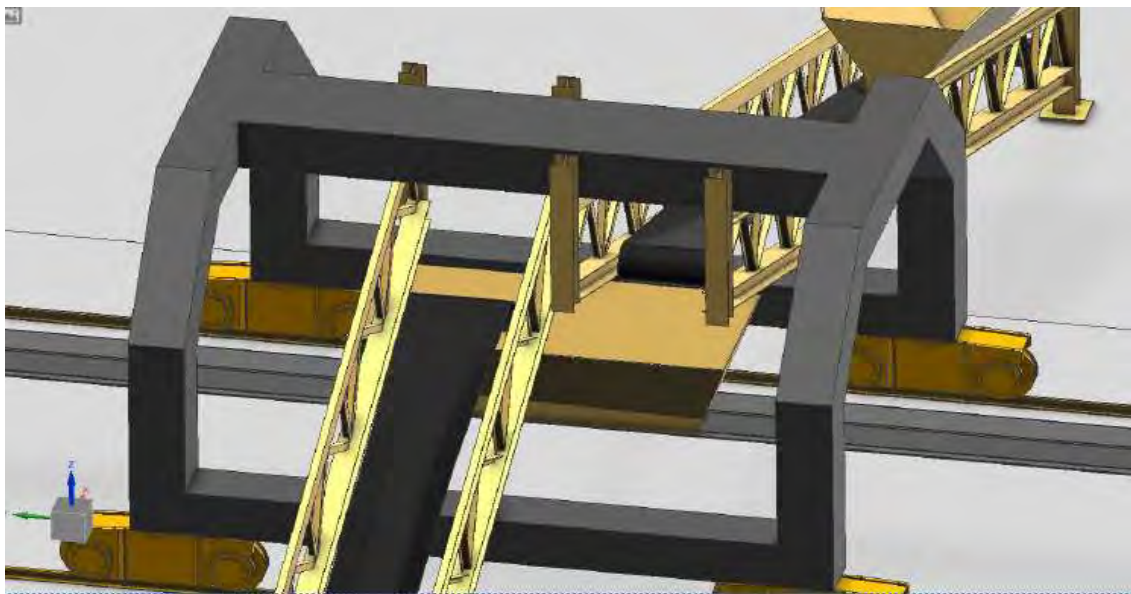


*Figure 5 Retracted conveyors clear stockpiles*

The system will be a self-driven contained unit, and the bogie and wheel assemblies to be used will be the same as the existing Reclaimer A bogies as shown in figure 6.



*Figure 6 Main Frame Structure on existing rails*



*Figure 7 Both belts feeding bin assembly*

Should it be required that the system be used at a position where only one feed line is required, one of the conveyors can be removed and the system balanced by means of counterweight masses as shown in Figure 8.

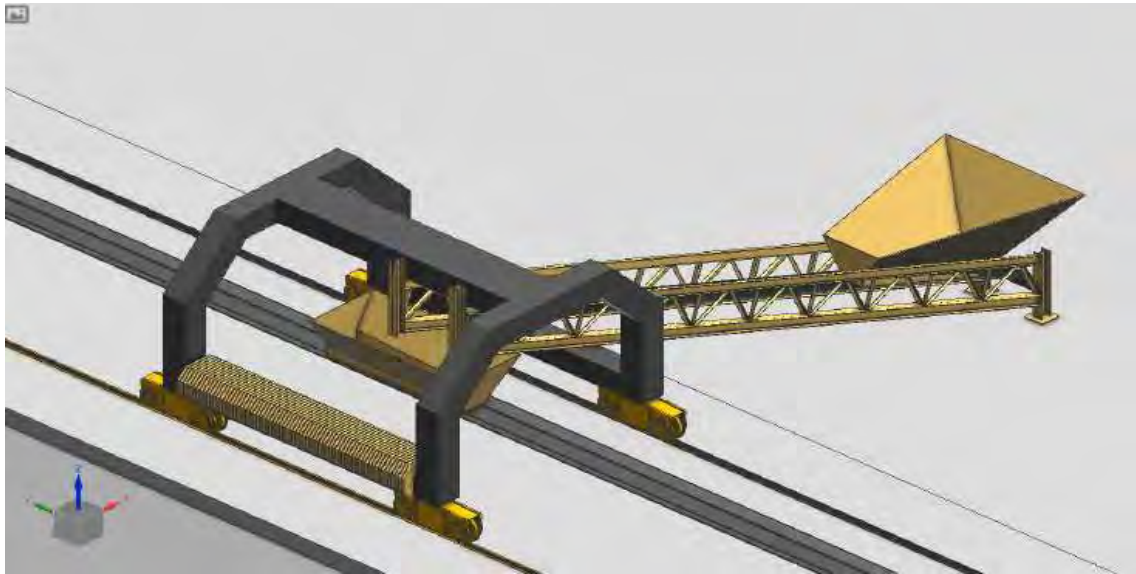


Figure 8 Single conveyor installation with counterweights

The design will be completed according to the structural requirements, as set out in the following specifications, as well as all relevant Transnet specifications.

4.2.14 The specifications listed Table 1 will be used:

Audit Element	Specifications
Load Case Calculations	SANS 10160
Structural Strength	SANS 10162-1
Weld and Weld Fatigue	BS 7608:2014
Buckling	SANS 10162-1
Bolted Connections	SANS 10162-1

Table 1 Specifications

4.2.15 General system requirements:

- The system must be equipped with two retractable hopper-conveyor systems that can be operated separately; the system must further be equipped with a centre chute that must be so designed to allow for a steady flow of the ore onto the yard conveyor.
- The system must be rail mounted with a rail gauge matching the current rail gauge and equipped with rail clamps to secure the system once positioned. Principal Contractor to measure on site.
- The system must be equipped with minimum four long travel drives.
- The system must be equipped with its own power generator sized to operate the system for a minimum of 12 hours.
- The minimum loading rate per conveyor system must be 600ton/hour with a maximum allowable load rate of 800tons/hour per conveyor system.
- Conveyor belt width must be 900mm, with a class rating of 630N/mm width with a woven fabric construction.
- The hoppers must be adequately sized to facilitate loading via either a Excavator or Frontend loader.
- The hopper must be lined with wear resistant liners which are compatible with manganese ore.
- The system must be designed in such a way that will allow the system to be relocated between bins utilizing the back-of -bin rails.



- The system must be equipped with a control station that controls all functions of operations.
- The system needs to be interlocked with the yard conveyor to ensure that the system's conveyors only operate when the yard conveyor is in operation.

#### 4.2.16 Product specification.

- Product; Manganese ore
- Ore size: 6 -75mm
- Bulk density: 1,429 to 3,125(kg/m3)
- Angle of response: 39Deg.
- Work Breakdown

4.2.17 The design process would include the following processes and the final delivery would consist of a detailed manufacturing data pack of the complete system including structural, mechanical and hydraulic details. A detailed specification for the electrical and control system would be provided.

#### 4.2.18 The design would include:

- Conveyor design and component specification.
- Bin layout and material flow analysis by means of a Discreet Element Analysis.
- Detailed structural design of bin, conveyor and main frame structure.
- Detailed design of long travel system.
- Detailed design of conveyor retraction system.
- Full structural analysis by means of Finite Element Analysis.
- Generation of detailed manufacturing data pack up to shop detailing level.
- Generation of design report summarizing the design process and all supporting information
- Generation of full operational and maintenance manuals.

### 4.3 Method Statements

Method Statements to be prepared for all major activities to be executed on site, as identified by the Principal Contractor. These method statements shall include detailed Risk Assessment, with planned mitigations to ensure safe execution, using the correct Equipment, Tools and Competent and well-trained Workforce.

## 5 List Of Drawings

On completion of the works the as-built drawings, must be submitted, by Principal Contractor, to the Employer.



## SECTION 2

### 6 Management and start up

#### 6.1 Management meetings

Regular meetings will be convened and chaired by the TPT Project Manager, as follows:

Meetings during execution phase:	Frequency	Attendance by:
Daily coordination, feedback and planning meeting during site works (Installation)	Daily	TPT and Principal Contractor
Project Meeting	Monthly	TPT and Principal Contractors
Kick off meeting	Once off	TPT and Principal Contractors
Meetings during commissioning phase:	Frequency	Attendance by:
Daily coordination and planning meeting	Daily	Commissioning teams from TPT Principal Contractor

*Table 2 Meetings*

All meetings will take place at the Port of Port Elizabeth except for cases where arrangements have been made to conduct the meetings via virtual means (e.g. MS Teams).

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 TPT Project Manager by the person convening the meeting within two days of the meeting.

#### 6.2 Documentation Control

Electronic files submitted for the Project shall be clear of known viruses and extraneous "macros". The supplier of documentation is required to have, always, the latest generation of virus protection software and up-to-date virus definitions.

Electronic files that are delivered as attachments to e-mail messages shall not exceed 5MB total file size due to limitations in the Employer's electronic mail system. Electronic files that exceed this limit must be submitted to the Employer on a memory stick delivered under cover of a transmittal.

All documentation and data created for the Project shall be numbered and named according to the requirements of the Employer.

All documentation that is submitted to the Employer for review shall be provided to the Project in "wet signature" hard copy format along with the associated corresponding electronic 'native files' and PDF renditions. All final documentation shall be provided in the same format.

#### 6.3 Safety management

- 6.3.1 The Principal Contractor and his subcontractors to comply with the TIMS SHEQ Specification.
- 6.3.2 The Principal Contractor to compile a Health and Safety Plan to cover all SHEQ legislative- and other legal requirements. Health and Safety Plan to be approved by Employer and Employer's appointed Health and Safety Agent.
- 6.3.3 Principal Contractor to prepare a detail HAZOP study and Site/Task Specific Risk Assessment (HIRA), prior to carrying out any operation on the Site and/or Working Area to the approval of TPT Project Manager.
- 6.3.4 Principal Contractor's Health & Safety Plan, method statements, HAZOP & HIRA studies and other documentation required, to be approved by Employer.



- 6.3.5 Principal Contractor to obtain timely approval, from the Department of Labour to work extended working hours (if required).
- 6.3.6 Principal Contractor to provide proof of "Medical Fitness" and "Training Certification" for all employees. The Principal Contractor's and Sub Contractor's personnel working on Site are required to undergo medical and drug tests.
- 6.3.7 Prior to site establishment all the Principal Contractor's- as well as all Sub Contractor's employees will undergo a Health and Safety induction course and other required safety training..
- 6.3.8 The Principal Contractor shall provide a full time Safety Officer on Site and in Working Areas who will cover all activities including overtime and weekend work.
- 6.3.9 The Principal Contractor shall transport personnel in a safe manner from the access boom to the Site. Walking between the main entrance gate and the Site is prohibited. No transport of employees on the back of an open LDV or vehicle is allowed.
- 6.3.10 No alcohol is permitted on Site and Transnet property. The Employer has zero tolerance on Site. Employees found under the influence will be removed from Site and will not be allowed on Site again.
- 6.3.11 All Equipment, cranes and Plant is to be inspected by the Employer before commencement of work.
- 6.3.12 Constant supervision is required on Site during execution of works. The presence of appointed supervision is therefore required on Site at all times.

## **6.4 Environmental constraints and management**

- 6.4.1 The Principal Contractor shall ensure that his management, foremen and the general workforce, as well as all suppliers and visitors to Site have attended the BOT Induction Program, prior to commencing any work on Site. If new personnel commence work on the Site during construction, the Principal Contractor shall ensure that these personnel undergo the Induction Programme and are made aware of the environmental specifications on Site.

## **6.5 Quality Management Systems**

- 6.5.1 In undertaking the works (including all incidental services required), the Principal Contractor is to follow the requirements of the items listed below.
- 6.5.2 The Principal Contractor shall execute the works in accordance with the requirements of the TIMS SHEQ Specification. Attached as Annexure B.
- 6.5.3 The Principal Contractor must submit his Quality Management System (Policy) and other documents as part of the tender documentation.
- 6.5.4 The Principal Contractor submits his Quality Management System documents to the TPT Project Manager as to include details of:
  - Quality Plan for the contract;
  - Quality Policy
  - A schedule of internal and external audits during the contract
  - A Typical Quality Control Plan (QCP) (for each task)
- 6.5.5 Due consideration must be given to the deliverables required to execute and complete the contract as per ISO 9001 Quality Management Standard or an appropriate quality management system.
- 6.5.6 The Principal Contractor is to provide QCP's and Method Statements for all scope items to the TPT Project Manager for review and approval, at least one week prior to the execution of the works.



- 6.5.7 The Principal Contractor develops and maintains a comprehensive register of documents that will be generated throughout the contract including all quality related documents as part of its Quality Plan.
- 6.5.8 The Principal Contractor shall provide a suitably qualified full-time dedicated resident Quality Manager for all aspects of the works including Site activities, with a staff adequate to perform the requirements of his Quality Plan and Quality Management System.

## 6.6 Programming constraints

- 6.6.1 The Principal Contractor shows on each programme he submits to the TPT Project Manager, the requirements of the project requirements including, H&S, environmental, quality, construction etc.
- 6.6.2 The Principal Contractor shows on each programme he submits to the TPT Project Manager, the requirements, as well as the order and timing of all operations and project activities.
- 6.6.3 The Principal Contractor presents his first programme and all subsequently revised programmes (see NEC3 ECC Clauses 31.2 and 32.1) in hard copy format and in soft copy format. (Both in PDF and MS Projects format).
- 6.6.4 The Principal Contractor uses MS Project for his programme submissions.
- 6.6.5 The Principal Contractor shows on his Accepted Programme and all subsequently revised schedules, the critical path or paths and all necessary logic demonstrating sequence of operations.
- 6.6.6 The Principal Contractor's programme shows duration of operations in working days and shall be realistic and based on quantities and applied resources. The calendars used are based on a 24 hours, 7 days operation or as prescribed by the TPT Project Manager.
- 6.6.7 The Principal Contractor's schedule/programme shall be structured in such a manner to be able to show 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
  - Level 3 Project Schedule – detailed schedules generated to demonstrate all operations identified on the programme from the starting date to Completion. The activities will be assigned a code and there will be heading describing the works to be performed. The TPT Project Manager notifies any subsequent layouts and corresponding filters on revised programmes.
  - Level 4 Project Schedule – detailed discipline speciality level developed and maintained on daily basis by the Principal Contractor relating to all operations identified on the programme representing the daily/hourly activities by each discipline. This schedule to cover 3-day look-ahead activities and to be submitted to TPT Project Manager on daily basis.
- 6.6.8 The Principal Contractor shows on each revised programme he submits to the TPT Project Manager a resource histogram showing planned progress versus actual, deviations from the Accepted Programme and any remedial actions proposed by the Principal Contractor.
- 6.6.9 The Principal Contractor submits schedule/programme report information to the TPT Project Manager at weekly intervals, or as per request from the TPT Project Manager.
- 6.6.10 The Employer (including the agents of the Employer) operates on Site 24hours per day, 7 days per week



#### 6.6.11 Employers schedule

The execution of this project will be alongside operations with no disruption to operations.

It is anticipated that this project will be executed from contract award to close out within 6 months

#### 6.6.12 Principal Contractors schedule (returnable)

The Principal Contractor is to prepare and submit together with this tender, a Level 2 schedule  
Schedule to include for commission periods.

A detailed Level 4 schedule to be submitted at execution, which show all necessary links/critical  
path, to be updated daily during shut execution period.

### 6.7 Principal Contractor's management, supervision and key people

#### 6.7.1 The Principal Contractor is to submit a detailed resource plan to cover the following:

- Organogram showing the entire planned site team, including the Sub Contractors, with line of reporting, covering all disciplines.
- Commissioning Plan including organogram, names with qualification and legal appointments; proposed commissioning schedule indicating preparation for commissioning and close out.
- List and detail on all planned Sub/Specialist Contractors. Also indicate planned/intended SOW of these sub-contractors, size of workforce, with timeframe of involvement.
- Human Resource Management plan. Principal Contractor to provide a comprehensive Human Resource Management plan to cover all industrial relations (IR) and human resource (HR) activities.
- Principal Contractor to indicate and confirm that the management team, supervisory, and execution team allocated for this project will be dedicated to this project only and will not be involved with any other work during the same time as this project. Any dual responsibilities by any of the team members, with any involvement on any other work during the shut execution, must be clearly indicated.
- List of all equipment, craneage, vehicles, tools, site infrastructure and others.

#### 6.7.2 Minimum requirements of people employed on the Site

- All statutory requirements relating to employees mobilised on site
- Health and Safety compliance as specified elsewhere

#### 6.7.3 The Principal Contractor is responsible for managing industrial relations in accordance with his Human Resource Management Plan.

### 6.8 Training workshops and technology transfer

#### 6.8.1 The Principal Contractor facilitates the following requirements for training workshops:

- A safety pre-mobilisation workshop
- Principal Contractor employee safety training programmes

## 7 Procurement

### 7.1 The Principal Contractor's Invoices

#### 7.1.1 When the TPT Project Manager certifies payment (see ECC Clause 51.1) following an assessment date, the Principal Contractor complies with the Employer's procedure for invoice submission.



7.1.2 The invoice must correspond to the TPT Project Manager's assessment of the amount due to the Principal Contractor as stated in the payment certificate.

7.1.3 The invoice states the following:

- Name of the Principal Contractor
- Invoice addressed to Transnet SOC Ltd;
- Transnet SOC Limited's VAT No: 4720103177;
- Invoice number;
- The Principal Contractor's VAT Number;
- The Purchase Order Number;
- The Tender number iCLM/HQ.../TPT, Provision of a reclaimer bypass system
- The invoices are to be accompanied by a statement of invoices,
- Escalations to be calculated on a separate sheet and presented to the TPT Project Manager for signing and acceptance,
- The amount paid to date,
- The value of the invoice split into payments as per the Activity Schedule,
- Any retention monies to be deducted,
- Any interest payable,
- Settlement discount (if applicable),
- Proof of ownership of materials provided (if required).

7.1.4 The Principal Contractor submits pro-forma copies of the invoices to the TPT Project Manager for review and acceptance with the accepted invoice submitted on or before the last working day prior to the 25th day of each month.

7.1.5 The accepted original invoice is then presented either by post or by hand delivery and emailed to GRP-TPT-ECDocControl@transnet.net.

7.1.6 Invoices submitted by post or hand are addressed to:

Finance Department  
Transnet Port Terminals  
Campanile Entrance  
Port of Port Elizabeth

Email: Khuthala.Yengeni@transnet.net

For the attention of The Contract Administrator.

7.1.7 Payment;

The Principal Contractor ensures that the Employer has their correct banking information to make the transfer. All payments are provisional and subject to audit.

The Principal Contractor preserves its records for such a period as the Department of Internal Revenue may require, but in any event for not less than five years.

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

The Principal Contractor submits original invoices complying with the Value Added Tax Act and containing specified details and information.

## 7.2 Plant and Materials

7.2.1 The Principal Contractor provides Plant and Materials for inclusion in the works in accordance with the relevant SABS / SANS / BSI / International codes, 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 TPT Project Manager.



- 7.2.2 Where Plant and Materials for inclusion in the works originate from outside the Republic of South Africa, all such Plant and Materials are new and of merchantable quality, to a recognised national standard, with all proprietary products installed to manufacturers' instructions.
- 7.2.3 The Principal 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 TPT Project Manager and the Supervisor on each occasion where replacement is required.
- 7.2.4 Principal Contractor's procurement of Plant and Materials. The delivery of the Plant and Materials shall be made to the nominated delivery address, and the TPT Project Manager shall be notified that the Plant and materials have been delivered, and are available to be inspected by the Supervisor. All equipment procured as part of this Contract shall be guaranteed against latent defects and faulty workmanship for a period of at least 12 months from date of commissioning, or 18 months from date of delivery, whichever expires first. All information relating to plant and materials procured shall be obtained from the vendor, and collated, where relevant, in the Operating and maintenance Manuals.
- 7.2.5 First fills are included in the scope of this Contract on all new components, and the Principal Contractor shall provide all lubricant, hydraulic fluids, and other fills required for the efficient operation of each equipment item as part of this Contract.
- 7.2.6 At the request of the TPT Project Manager and before commencing with the commissioning on the plant and Materials, the Principal Contractor provides a list of all critical / strategic spares to be kept by the Employer for the Plant and Materials, and the Employer shall select the specific items for purchasing as part of this Contract at the discretion of the TPT Project Manager, at the prices quoted (i.e. prices indicated in this contract document) by the Principal Contractor.

### **7.3 Tests and inspections before delivery**

- 7.3.1 The Principal Contractor submits to the Supervisor details to certify that tests and inspections have been carried out on Plant and Materials by others which include all new components, assemblies and sub-assemblies included in this Contract.
- 7.3.2 The Principal Contractor shall identify to the Supervisor all equipment items, sub-assemblies, and fully assembled sections of equipment to be tested, before it is released for shipment to site and installation. The shop testing shall be witnessed by the Supervisor or his nominee prior to releasing it for shipment, and a release certificate shall be issued by the Supervisor, once the equipment has been tested successfully.
- 7.3.3 The Principal Contractor submits to the Supervisor details to certify that tests and inspections have been carried out on Plant and Materials by others

### **7.4 Plant and Materials outside the Working Areas**

- 7.4.1 The Principal Contractor prepares and marks items of Plant and Materials outside the Working Areas, that has been paid for by the Employer, either with a metal plate, fixed to each loose equipment item, assembly, or sub-assembly, with the following words written in permanent ink on the tag, or by permanent marker written on the material as follows;
- Item: (description of item)
  - Property of Transnet Ltd
  - Project description and No.
  - The Principal Contractor is to take digital photographs for issuing to the Supervisor as proof of marking.

### **7.5 Disruption**



- 7.5.1 The Principal Contractor takes cognisance that there will be disruptions to working schedules during the Contract period. The Principal Contractor shall immediately inform the TPT Project Manager if disruptions occur, and follow up in writing within 5 days of its occurrence.
- 7.5.2 The Principal Contractor is to supply the Employer with their business continuity plan

## 7.6 Principal Contractor to familiarise

- 7.6.1 Notwithstanding anything to the contrary contained herein, the Principal Contractor shall ensure prior to the execution of the works that it and its sub-Contractors are fully familiarised with the Employers security, health, industrial relations, environmental, safety, specifications, drawings, document control and invoicing requirements, including the contents of this Contract. Should clarification be required on any of the aforementioned requirements, the Principal Contractor shall communicate this with the TPT Project Manager.

## 8 List of Annexures

### 8.1 Annexures issued by the Employer

- 8.1.1 This is the list of annexures issued by the Employer at or before the Contract Date and which apply to this contract.

Annexure	Document Name
A	<b>Transnet Standard Specifications</b>
A1	EEAM-Q-001 Belt Conveyors
A2	EEAM-Q-002 Hydraulic Equipment
A3	EEAM-Q-004 Gearing, shafts, bearings, brakes, lubrication, vee-belts, keys and key ways
A4	EEAM-Q-006 Structural Steelwork
A5	EEAM-Q-008 Corrosion Protection
A6	EEAM-Q-009 Quality Management
A7	EEAM-Q-012 General Electrical Equipment
A8	EEAM-Q-013 Commissioning & Handover
A9	EEAM-Q-014 Elec-Motors and generators
A10	EEAM-Q-016 General requirements and conditions
A11	EEAM-Q-018 Lighting on Equipment
A12	EEAM-Q-020 Tests on Electrical Equipment
A13	EEAM-Q-030 Electrical Equipment to be supplied with machinery for Ports
B	TIMS Specification



## SECTION 3

### C3.2 PRINCIPAL CONTRACTOR'S WORKS INFORMATION

Tenderers to provide separate detail scope packages for each item, listed in the "scope of works" section 4.2.7.

These scope packages should be split into the three engineering disciplines where applicable; Structural, Mechanical and EC&I Engineering and should as a minimum address the following:

- Covering page indicating the item's engineering discipline; SOW & activity item number reference; detail description, indicating all references to site report and other documents; photo of scope item.
- Detailed description of all items / components / etc included in scope item.
- All exclusions that are not included, if applicable.
- All line-diagrams; specifications, general arrangement drawings, other drawings and detail of part numbers.

**TRANSNET PORT TERMINALS**

TENDER NUMBER: ICLM PE 747/TPT

DESCRIPTION OF THE WORKS: PROVISION OF SERVICES TO DESIGN, FABRICATE AND INSTALL A RECLAIMER BYPASS SYSTEM AT THE PORT ELIZABETH MANGANESE TERMINAL FOR TRANSNET SOC LTD (REG NO. 1990/000900/30) OPERATING AS TRANSNET PORT TERMINALS (HEREINAFTER REFERRED TO AS "TPT") AS A ONCE OFF SUPPLY

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**PART 4: SITE INFORMATION**

Document reference	Title	No of pages
	This cover page	1
C4	Site Layout	5
	Total number of pages	6

## TRANSNET PORT TERMINALS

TENDER NUMBER: ICLM PE 747/TPT

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Access to site is available through the existing road network in the Port of Port Elizabeth and via the TPT Terminal control and security at the PE Manganese Terminal. All TPT security policies will be strictly adhered to. The transport of Contractors staff in open vehicle is not permitted on Transnet property.

The surrounding existing infrastructure poses a major limitation on lay down space available for storing of materials. The contractor will need to take cognisance of this fact when planning the works and delivery of materials.

The appointed Principal Contractor shall submit, as part of his Risk Management Plan, a traffic control plan for approval prior to commencement of work.

There is no anticipated major traffic disruption on the Port main route from and to the construction area.

**TRANSNET PORT TERMINALS**

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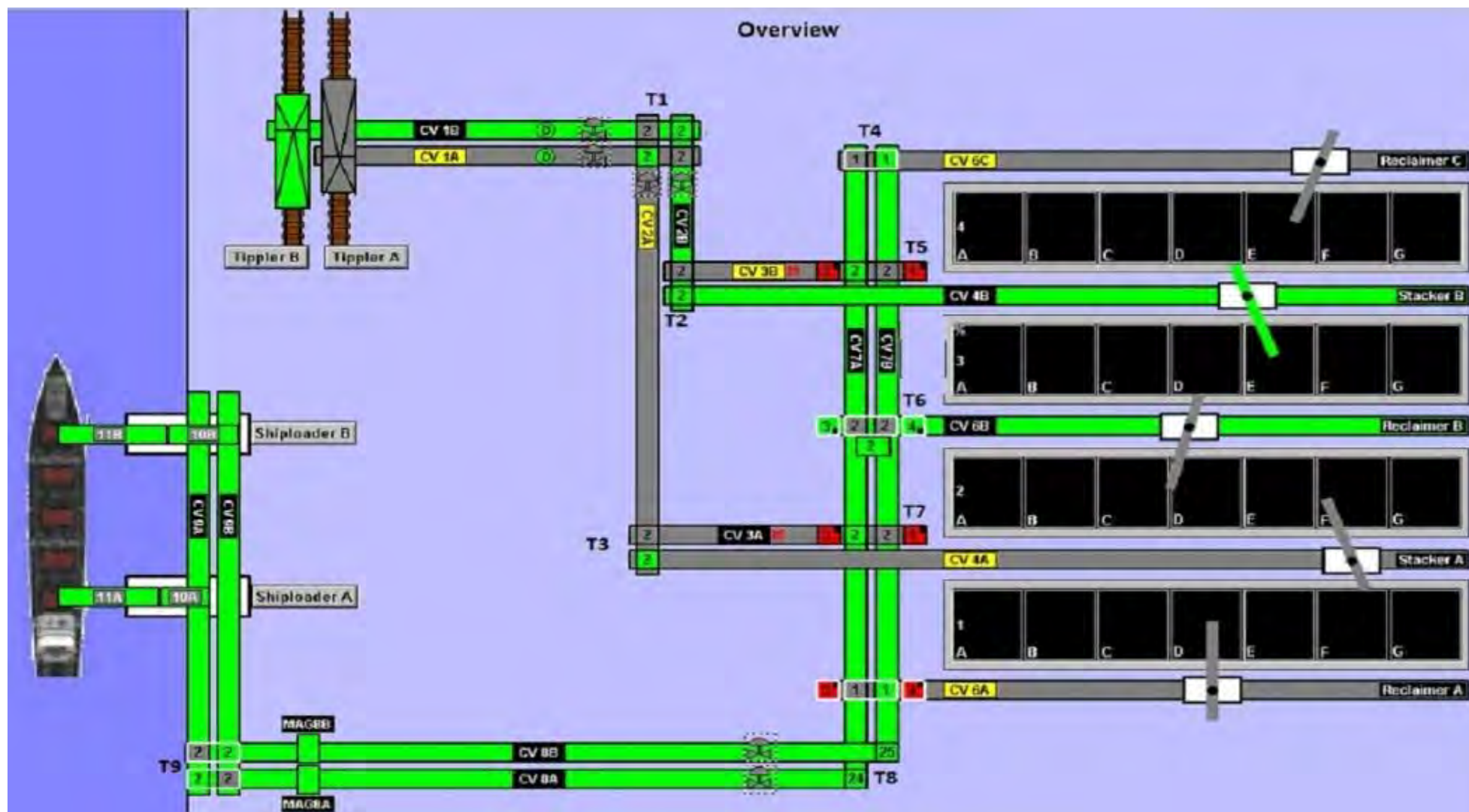
**Terminal Location**



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Schematic Representation



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### Site Access


**TRANSNET PORT TERMINALS**

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**Construction area within stockpiles**

		<b>REFERENCE</b> EEAM-Q-001		<b>REVISION</b>  0
<b>DOCUMENT TYPE</b> SPECIFICATION			<b>AUTHORISATION DATE:</b> Date signed by CEO	
<b>TITLE:</b> <b>SPECIFICATION FO BELT CONVEYORS AND ASSOCIATED EQUIPMENT</b>			PAGE   1 of 11	
<b>COMPILED BY:</b>    <b>EQUIPMENT ENGINEERING AND ASSET MANAGEMENT (GENERAL MANAGER)</b>		<b>REVIEWED BY:</b>    <b>SENIOR MANAGER (PROJECT MANAGER)</b>		<b>REVIEWED BY:</b>    <b>SENIOR MANAGER (ASSET MANAGER)</b>
<b>ACCEPTED BY:</b>   <b>CHIEF FINANCIAL OFFICER</b>		<b>AUTHORIZED BY:</b>   <b>CEO</b>		
<b>FUTURE REVISION RECORD NUMBER</b>	<b>DESCRIPTION OF REVISION</b>	<b>APPROVAL</b>	<b>DATE</b> 01/04/2003	
-1-				
<b>CONTENTS</b>				
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**KEYWORDS  
SPECIFICATION**

**DATE OF LAST REVIEW: N/A**

**DATE OF NEXT REVIEW: 01/06/05**

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**BELT CONVEYORS AND ASSOCIATED  
EQUIPMENT**

**SPECIFICATION HE 9/2/1  
[Version 5]**

**March 1999**

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**1. SCOPE**

- 1.1. This specification covers Portnet's requirements for belt conveyors and its associated equipment.

**2. GENERAL**

- 2.1. The belt conveyor supplied shall be electric motor driven. Troughed belt conveyors are to be to I.S.O. standards but designed generally in accordance with B.S. 2890 (Latest): Troughed Belt conveyors.
- 2.2. The belt conveyor and its associated equipment shall be capable of accommodating the absolute maximum handling rate specified.
- 2.3. The conveyor shall be of robust construction to meet sustained heavy duty demands.
- 2.4. Efficient and readily accessible means of adjustment shall be provided on the head and tail drum shafts for tracking the belt.
- 2.5. The belt conveyor structure shall be designed to allow for easy and simple access for maintenance and replacement of idlers.
- 2.6. An efficient type belt tensioning device shall be provided. The design must be such as to ensure correct tensioning of the belt under all conditions. Design should be for gravity feed take-up or a horizontal take-up with back weight tower.
- 2.7. Take-up travel is to be not less than 2,5 % of the tail and head pulley centres and this will have an effect on the type of belt carcass selected.

2.8. Removable protective screens or covers shall be provided around back weights and pulleys.

2.9. Back weights shall be provided with suitable stainless steel lugs for the handling of the weights.

The back weights shall be in separately removable sections of no more than 2 ton each. The actual weight shall be cast into the weights.

2.10. Protective wind boards are not required on belts provided in galleries, as these will be suitable enclosed. Where belt conveyors are not located in a gallery, protective windboards are to be provided.

2.11. Windboards must be quickly removable to ensure that effective cleaning and maintenance can be carried out on the belts.

2.12. An efficient belt cleaning device must be fitted to clean the return belt. The commodity removed from the belt must be discharged onto the flow path.

2.13. All movable head pulleys shall be provided with an intermediate belt washing position.

2.14. Wear liners in areas of high impact or where flow improvement is required, shall preferably be of the ultra high molecular weight polyethylene (UHMWPE) type.

2.15. If the belt contains vertical curves, it shall be designed such that the belt does not lift off any of the idlers when the belt is loaded to 25% or more of its capacity. Suitable rollers shall also be provided to limit the lift of unloaded belts.

2.16. Flip over return conveyors are preferred unless otherwise specified.

2.17. It shall be possible to catch waste product dumped on the belt during cleaning operations at the tail end pulley.

2.18. Maximum belt inclination shall suit the product conveyed.

### **3. CONVEYOR IDLERS**

3.1. Sufficient number of top idlers shall be provided to ensure that the belt does not sag under maximum load. The spacing must suit product mass

and density as well as particular requirements in special areas, transfer chutes, inclines, etc.

- 3.2. Sufficient number of impact absorption idlers shall be provided at all loading points.
- 3.3. Heavy duty idlers manufactured from corrosion resistant materials must be provided and Tenderers must give full details of the selected idlers.
- 3.4. Idlers with a three roll design and 35° troughing angle are preferred. Tenderers may offer a multi-roller system but details must be given as well as the reasons for their preference of the system offered.
- 3.5. Tenderers who offer covered (lagged) pulleys and/or idler rollers should note that the covering should be of non-static material.
- 3.6. Sufficient number of return idlers and guide rollers, where applicable, must be provided to prevent the belt from fouling the framework and/or dragging on the floor of the conveyor enclosure. Return idlers of the two roll, vee-design are preferred.
- 3.7. The conveyor belt shall be effectively trained by self aligning troughing idlers.
- 3.8. Belt training idlers of the vertical guide roll type or any type involving the rubbing of belt edges, shall not be used. The same provisions regarding bearings etc. applicable to troughing idlers, shall apply to training idlers.
- 3.9. Self aligning return idlers shall also be provided. All pivot bearings shall be readily accessible for lubrication.

#### **4. IDLER ROLL DESIGN**

##### **4.1. Rolls:**

- 4.1.1. The wall thickness of rolls shall be uniform. If rolls are made of tubing, the latter shall be seamless. Outer surfaces shall be perfectly smooth and corners rounded. Each assembly of roll, shaft, bearings, seals etc. shall be perfectly balanced and concentric. Rolls shall not be less than 125 mm outside diameter.

##### **4.2. Bearings:**

- 4.2.1. Bearings shall be of the high-grade, high speed, seize-resistant sealed for life type heavy duty design and so arranged that no contact with the commodity handled will be possible.
- 4.2.2. Tenderers to state on how many hours bearing (L10 life) were bearings selected.
- 4.3. Seals:
  - 4.3.1. Bearings shall be adequately sealed to retain the lubricant and effectively prevent the entrance of dirt and moisture.
- 4.4. Lubrication:
  - 4.4.1. "Lubricated for life" type idlers are preferred. If not lubricated for life, then each roll shall be lubricated individually, high pressure grease fittings shall be used and shall be easily accessible from the walkway side of the conveyor. If walkways are provided on both sides then grease fittings shall be accessible from one side only.

## **5. DRIVES AND PULLEYS**

- 5.1. Tenderers may offer floor or shaft mounted drives. Allowance must be made for belts being started from rest under maximum load. Drives shall consist of an electric motor driving through fluid couplings, helical gear reducers and flexible couplings. Gearboxes are not to be mounted directly onto shafts. All guards around fluid couplings shall be of solid plate and no mesh construction will be accepted. Wear parts of flexible coupling should be replaceable without moving the gearbox or motor.
- 5.2. Drive pulleys are to be chevron lagged with non-static material.
- 5.3. All other pulleys are to be suitably lagged with a non-static material.
- 5.4. Pulley shafts shall be fitted with dust flingers to offer protection against ingress of commodity into plummer block bearings and seals.
- 5.5. All plummer blocks to be fitted with button head grease nipples.
- 5.6. Drive pulleys to be fitted with a split bearing arrangement on the coupling side to facilitate ease of maintenance and/or replacement.

- 5.7. The entire drive system shall be designed such that belt oscillations is not set up during start-up, stopping or running.

## 6. CONVEYOR BELTING

- 6.1. In the selection of conveyor belting for the troughed belt conveyor offered cognisance must be taken of the following:-

- 6.1.1. The commodities to be handled;
- 6.1.2. Compatibility of these commodities and the possibility of contamination creating an obnoxious mixture;
- 6.1.3. Possibility of explosion and/or fire which could result from contamination or dust build up;
- 6.1.4. The heavy duties required of the belt.

- 6.2. In order to standardise as far as possible, tenderers should select suitable belting from the list of 1 350 mm belting given below and must conform to S.A.B.S. 1173/latest. Any deviation from this list should be pointed out clearly and reasons furnished with the offers.

<u>Belt Class</u>	<u>No. of plies</u>	<u>Top cover</u>	<u>Bottom cover</u>
400	4	3,2	1,6
500	4	3,2	1,6
500	4	6,3	1,6
500	5	6,3	1,6
630	4	3,2	1,6
630	4	6,3	1,6
800	4	6,3	1,6
1 000	4	6,3	1,6
1 600	4	6,3	1,6

- 6.3. An anti-static belt is required in grain silos.
- 6.4. The belting offered shall be resistant to cuts and abrasions.
- 6.5. The belting offered must be compatible with the drive and belt arrangement offered.
- 6.6. There shall be good adhesion between the carcass and outer covering.

- 6.7. The belt supplied must be free of defects.
- 6.8. It is required that the joints in the belt be properly spliced and vulcanised.
- 6.9. On mobile machines with conveyors, suitable space and a 3 phase power point shall be provided on the machine to do belt splices.

## **7. INFORMATION TO BE SUBMITTED**

- 7.1. Tenderers must submit drawings of the belt conveyor offered. Full details including the following must be given:-
- 7.2. Details of dust sealed enclosures.
- 7.3. kW rating, mass and speed of motors.
- 7.4. Details of motor to gearbox couplings.
- 7.5. Details of gearbox i.e. make, size, type, power rating, lubrication, mass, etc.
- 7.6. Details of slip detection.
- 7.7. Details of drive to head shaft.
- 7.8. Details of head and tail drums and shaft sizes.
- 7.9. Spacing of troughed idlers and return idlers in the various areas.
- 7.10. Detail of all bearings and protection against the ingress of dust and grit.
- 7.11. Details of adjustment on head and tail drum shafts for belt tracking.
- 7.12. Details of belt tensioner.
- 7.13. Detail of belt speed transducers and indicators.
- 7.14. Details of belt cleaning device.
- 7.15. Detail of pull wire switches.
- 7.16. Positions and type of emergency stop buttons.

- 7.17. Details of device for locking transfer chute in position when belt is operating.
- 7.18. Details of conveyor framework including materials used in construction.
- 7.19. Speed of belt in m/s.
- 7.20. Full details of the belt offered must be given including the following:-
  - 7.20.1. Width of belt.
  - 7.20.2. Mass per m<sup>2</sup>.
  - 7.20.3. Thickness of belt and tolerance allowed across width.
  - 7.20.4. Description of carcass i.e. materials used in construction, number of plies etc.
  - 7.20.5. Details of covering including thickness and materials used.
  - 7.20.6. Details of jointing process used.
  - 7.20.7. % Elongation of belt at full rated load.
  - 7.20.8. Breaking strength of belting.

## **8. TRANSFER CHUTES**

- 8.1. This section is applicable to all transfer chutes that may be necessary for the effective transfer of product.
- 8.2. Easily removable wear plates of a material compatible with the variety of commodities to be handled and of suitable thickness must be fitted to transfer chutes.
- 8.3. Chutes must be completely enclosed and be supplied with a dust-proof hinged inspection door for inspection and cleaning. No apertures or ridges must be present in order to prevent spillage or build-up of material.
- 8.4. The sides of chutes shall be so designed that material will not build up in the chute and cause an obstruction to material flow.
- 8.5. The design of chutes must be such that the commodity does not spill over moving parts.

- 8.6. All chutes shall be provided with blocked chute detectors and indication.
- 8.7. All chutes shall be painted internally and externally to the full paint specification prior to the fitting of the wear plates.
- 8.8. Tenderers must furnish drawings depicting all chutes offered as well as full details which must include the following:-
  - 8.8.1. Materials used in the construction of chutes.
  - 8.8.2. Total mass of chute.
  - 8.8.3. Type of seal between chute and receiving device.
  - 8.8.4. Details of wearplates and type of material.
- 8.9. Chutes must direct the flow of material such that the relative velocity of the belt and material before impact is minimised. Product degradation and dust emissions must also be minimised.
- 8.10. Where required chutes shall have removable covers for extraction of waste product off belts during cleaning operations.

## **9. RECEIVING HOPPER**

- 9.1. This section is applicable to all receiving hoppers that may be necessary for the effective receipt of product, feeding a conveyor.
- 9.2. Hoppers must be so designed and installed that no dust will escape when commodity is received in the hopper.
- 9.3. Easily removable wear plates of a material compatible with the variety of commodities to be handled and of suitable thickness must be fitted to all hoppers. No apertures or ridges must be present in order to prevent spillage or build-up of material.
- 9.4. The opening at the bottom of hoppers must be completely dust sealed on the receiving chute of the conveyor.
- 9.5. The sides of hoppers shall be so designed that material will not build up in the hopper and cause an obstruction to material flow.
- 9.6. All hoppers shall be painted internally and externally to the full paint specification prior to the fitting of wear plates.

- 9.7. Where the flow characteristics of the product might cause bridging, tunnelling or other discharge problems, aeration pads, vibratory feeders, apron feeders or other devices to prevent blockage must be fitted. Full details must be provided.
- 9.8. Tenderers must furnish drawings depicting all hoppers offered as well as full details which must include the following:-
  - 9.8.1. Materials used in the construction of the hopper.
  - 9.8.2. Method of securing hopper to structures.
  - 9.8.3. Total mass of hopper.
  - 9.8.4. Details and type of seals used between hopper and receiving chute.
  - 9.8.5. Type of material used on wear plates.


## 10. SAFETY SYSTEMS

- 10.1. Emergency stop buttons must be provided at all accessible sides of each drive end, tail end and transfer point.
- 10.2. Plastic covered stainless steel pull wires and switches shall be provided on both sides of the conveyor, along the entire length.
- 10.3. Belt tracking sensors shall be provided to monitor belt tracking and stop the belt before it can contact the structure or start to run off the pulleys.
- 10.4. Under and overspeed switches shall be provided where necessary.
- 10.5. Emergency brakes shall be provided, capable of safely stopping a fully laden belt, and keeping a fully laden belt at maximum inclination from running back.

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**END OF SPECIFICATION HE 9/2/1 [Version 5]**

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REVISION  1	REFERENCE  EEAM-Q-002  (ORIGINAL SPECIFICATION –HE9.2.2 Ver6)																														
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**1. GENERAL**

- 1.1 The Tenderer must note that the equipment will be required to work under humid and corrosive conditions and must supply details of design features. To meet these conditions over an extended service life, the maximum working pressure of the system must be limited to 20 MPa.

**2. DIAGRAMS AND MANUALS**

- 2.1 Graphical diagrams showing each piece of hydraulic equipment including all interconnecting lines, by means of graphical symbols as specified in B.S. 1917/Latest Edition or I.S.O. must be submitted with the tender.
- 2.2 Final diagrams form part of the drawings that must be supplied according to Specification HE9/2/9. Please refer to HE9/2/9 for details on the requirements for these drawings and delivery times.
- 2.3 All diagrams should bear TPT's standard drawing numbering system and should be included in the main drawing index.
- 2.4 A descriptive text shall be supplied with each diagram and should include the following:
- 2.4.1 Each item of equipment must have a distinct identification letter or number.
  - 2.4.2 Identification of all hydraulic equipment by name, catalogue number, serial or design number and manufacturer's name.
  - 2.4.3 Size of pipes (outside or inside diameter of pipes and wall thicknesses).
  - 2.4.4 Diameter of each cylinder and length or stroke.
  - 2.4.5 Pump input (kW power required) and speed.
  - 2.4.6 Pressure range and/or setting of all pressure operated components.
  - 2.4.7 The delivery at maximum working pressure for fixed displacement pumps.
  - 2.4.8 Reservoir capacity.
  - 2.4.9 Recommended fluid type and viscosity range as well as cleanliness limits.

2.4.10 Nominal capacity, speed range and torque rating of each hydraulic motor.

2.4.11 Quantity, capacity and type of strainers and/or filters.

2.4.12 Pressure test points.

2.4.13 Identification of directional control valve spool positions.

2.4.14 Flow rate and/or setting of flow controlling or operated components.

2.4.15 Clear identification of all port connections, with the same identification as that marked on the equipment.

2.4.16 Sequence of operations.

2.4.17 Bleed points.

2.5 The service requirements, details and other information for all hydraulic equipment must be incorporated into the manuals as described in HE9/2/9.

2.6 All valves and accessories shall be plainly identified with the same identification as shown on the diagram.

### **3 GENERAL DESIGN REQUIREMENTS**

3.1 All hydraulic system components shall be compatible with the hydraulic fluid used.

3.2 Under conditions of continuous operation, the pump inlet temperature of the fluid must not exceed 65°C. The equipment shall operate satisfactorily in an ambient temperature range of 5°C to 45°C. (Relative humidity 100 %).

3.3 A pressure relief valve capable of relieving the maximum flow at the outlet of the pump shall be provided on the delivery side of the pump and there shall be no other valves between the pump and this relief valve. Where control valves in a closed position or any other circumstances which could result in an excessive hydraulic pressure in any component or circuit, pressure overload must be provided.

3.4 Hydraulic equipment shall be so designed that there is no external fluid leakage or ingress of air into it.

3.4.1 Where the design is such that the ingress of moisture into the hydraulic fluid cannot be completely prevented, the design shall

ensure that moisture is extracted from the system by means of a dryer device.

- 3.4.2 Bleed points shall be provided to release air which would otherwise cause malfunctioning of the system.
- 3.5 Each individual component in a hydraulic circuit shall be capable of functioning satisfactorily after being subjected to a static pressure of 50 % in excess of the maximum working pressure.
- 3.6 Piping shall not be used to support valves or other equipment where such mounting would over stress the piping.
- 3.7 All short stroke cylinder rods shall be protected by means of suitable bellows. On longer stroke cylinders where this is not feasible, full details shall be submitted by the Tenderer on exactly what steps will be taken to minimise the effect of the aggressive environment on the cylinder rods.
- 3.8 Cylinders, motors and pumps shall be mounted in such a way that replacement of seals can be done in situ and without removing other equipment.

#### **4 GENERAL CIRCUIT DESIGN REQUIREMENTS**

- 4.1 All the hydraulic equipment and piping shall be so located or protected as to prevent damage from external forces and adverse atmospheric conditions. All piping must be insulated electrically from the structure.
- 4.1 Hydraulic circuits shall be designed so that load variations and changes in fluid temperature will not cause variations in the cycle time inconsistent with the service intended.
- 4.2 Where pressure testing points are necessary, they shall be provided in accessible positions.
- 4.3 All equipment and piping shall be accessible and shall be mounted in a position that will permit adequate maintenance and adjustment. Components must be removable without undue loss of fluid.
- 4.4 Hydraulic circuits shall be so designed that any failure of a pipe or joint in a circuit will not endanger the operation. All cylinders used for hoisting/luffing motions shall be fitted with burst pipe protection devices directly on the cylinder ports.
- 4.5 Hydraulic circuits for hoisting/luffing shall be fully redundant in terms of both the actuators and hydraulic supply. When a cylinder/pump fails, the motion must still be functional at full load but a reduced speed.

## **5 INSTALLATION REQUIREMENTS**

- 5.1 All openings in hydraulic equipment shall be sealed, and all hydraulic reservoirs shall be thoroughly cleaned prior to installation.
- 5.2 The bores of all piping and fittings shall be cleaned to ensure that all scale, swarf and foreign matter are removed prior to final assembly.
- 5.3 Hydraulic power packs shall be mounted on a common base with a drip pan fixed underneath the machine to catch leaks and spills.

## **6 PUMPS AND MOTORS**

- 6.1 Positive displacement pumps and motors are preferred.
- 6.2 Means are to be provided for filling or draining pump motor casings in accordance with the manufacturer's specifications.
- 6.3 When drive shafts of hydraulic pumps or motors are subjected to side loading, approval of the drive shall be obtained from the supplier of this equipment.

## **7 CYLINDERS**

- 7.1 Cylinder shafts shall be of high quality stainless steel and protected by bellows against dust.
- 7.2 Double seals shall be used on all cylinders.
- 7.3 The end caps of big hydraulic cylinders shall be bolted to the cylinders to enable easy replacement of the seals.
- 7.4 All valves shall be suitable for continuous use in a highly corrosive marine environment, preferably stainless steel construction. Details to be provided with tender.

## **8 VALVES**

- 8.1 Wherever possible, valves should be mounted so that their removal and replacement can be made without disconnecting pipe fittings.
- 8.2 Adjustable valves shall be such that their settings, when made, will be maintained against vibration.
- 8.3 Variable flow control valves shall show the direction of operation for increase and decrease of throughput.

- 8.4 Electrically operated control valves and other hydraulic control equipment shall be grouped and fitted in IP65 panels (as per electrical specifications). All pipes shall enter the panel from the sides or bottom only and through suitable pipe glands.

## 9 FLUID RESERVOIRS

- 9.1 The capacity of the fluid reservoirs shall be sufficient to contain all the fluid that can flow from the system into the reservoir, and maintain the fluid level at a safe working height to prevent cavitation in the pump during the operation cycle.
- 9.2 Reservoirs shall be equipped with flush mounted or protected fluid level indicators. They must be provided with markings indicating high and low levels with pump(s) running and high level with pump(s) stopped.
- 9.3 Reservoirs shall be constructed to prevent entry of foreign matter, including fluid contamination and moisture.
- 9.4 Both fluid intake and return points shall terminate sufficiently below the minimum fluid level to prevent aeration.
- 9.5 Ample and accessible provision shall be made for complete cleaning and filling of reservoirs. The bottom of the reservoir must be shaped in such a way that emptying and cleaning is easily facilitated.
- 9.6 Filler holes shall have strainers which do not unduly restrict the filling process, fixed such that hand tools are required for removal, and shall also be provided with well fitting caps. The breather hole on the reservoir must be protected by an air cleaner with replaceable filter.

## 10 FILTERS

- 10.1 The system shall have a "Rosean Tell-Tale", "Fawcett" or similar, full flow, hydraulic filter with electric light or mechanical flag indication. This filter may be fitted either in the intake, pressure or return lines (subject to the filter's limitations), and shall have a 10 $\mu$ m filtration. Hydraulic coping valves and sensitive servo valves shall be supplied with hydraulic fluid via a 5 $\mu$ m pressure line filter. A mesh, with 0,16 mm aperture (or finer), screen shall be fitted to the pump intake except when the main filter is fitted at that point.
- 10.2 Where swash-plate type hydraulic pumps are used, a 6 $\mu$ m pressure line filter shall be fitted.
- 10.3 All filters shall be easily accessible for replacement without draining the reservoir and/or system.
- 10.4 Junctions shall be provided in the hydraulic system for the testing of both the circuit and the hydraulic pump.

- 10.5 A suitable magnet should also be fitted in the bottom of the reservoir between the return side of the reservoir and the suction strainers. Magnets shall be easily removable for service.

## **11 SEALING DEVICES**

- 11.1 All sealing devices shall be of materials which are compatible with the hydraulic fluid and operating conditions.

## **12 PIPING, FITTINGS AND FASTENERS**

- 12.1 Where-ever practical, rigid piping must be used in lieu of flexible hoses.
- 12.2 Due to the corrosive conditions copper alloy, nickel alloy or stainless steel piping must be used.
  - 12.2.1 Copper alloy piping must comply with the latest version of BS 2871 Part 2.
  - 12.2.2 Nickel alloy piping must comply with the latest version of BS 3074.
  - 12.2.3 Stainless steel piping must comply with the latest version of BS 3605 Part 1.
- 12.3 Flexible hoses and couplings shall be in accordance with the requirements of B.S.2640 or B.S.3832/Latest.
- 12.4 Piping between actuating and control devices shall be as short as possible and pipes must be removable without dismantling equipment, components or adjacent piping. All rigid piping shall be securely supported to minimise vibration or movement. The length and method of supporting flexible piping shall be such as to avoid sharp flexing and straining, particularly at end fittings.
- 12.5 All hydraulic connectors and adaptors shall have dimensions complying with the latest version of BS 5200.
- 12.6 Only compression fittings must be used throughout (no capillary fittings).
- 12.7 All fittings and couplings shall be corrosion resistant, preferably brass, CUPRO-NICKEL alloy or stainless steel. Surface treated steel fittings are not acceptable.
  - 12.7.1 Copper and copper alloy fittings must conform to the latest version of BS 2051 Part 1 or Part 2.
  - 12.7.2 Braided Stainless steel fittings must conform to the latest version of BS4368.

12.8 All saddles and other accessories for fixing the hydraulic components to a structure shall be corrosion resistant and UV stabilised (where applicable). All threaded and other fasteners shall be stainless steel.

12.9 Long pipe runs shall be broken up into sections by flanged connections and manual shut-off valves where necessary.

### 13 SERVICE LIFE OF HYDRAULIC EQUIPMENT

13.1 All hydraulic equipment shall be designed to last the design life of the machines they are fitted on.

13.2 The following minimum service intervals shall be guaranteed unless otherwise specified:-

13.2.1 Filter change: 5 000h


13.2.2 Hydraulic oil changes: 10 000h

13.2.3 Overhauls of pumps, motors and cylinders: 10 000h

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**END OF SPECIFICATION HE 9/2/2 [Version6]**

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REVISION  1	REFERENCE  EEAM-Q-004		
<b>DOCUMENT TYPE    SPECIFICATION</b>			
<b>TITLE:</b> SPECIFICATION FOR GEARING, SHAFTS, BEARINGS, BRAKES, LUBRICATION, VEE-BELTS, KEYS AND KEY WAYS		<b>PAGE    0 of 5</b>	
<b>COMPILED BY:</b>    <b>PROJECT ENGINEER</b> (HARRY DICKINSON)	<b>REVIEWED BY:</b>    <b>CAPITAL PROJECTS</b> <b>MANAGER (DAN REDDY)</b>	<b>REVIEWED BY:</b>    <b>ACTING EXECUTIVE SHEQR</b> <b>MANAGER (RAYMOND Van</b> <b>ROOYEN)</b>	
<b>ACCEPTED BY:</b>    <b>CHIEF FINANCIAL OFFICER</b>		<b>AUTHORIZED BY:</b>    <b>CEO</b>	
<b>FUTURE REVISION</b> <b>RECORD NUMBER</b>	<b>DESCRIPTION OF REVISION</b>	<b>APPROVAL</b>	<b>DATE</b>  01/04/2003
-1-	OEM specified grade & availability clause 5.7		18/05/05
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<b>KEYWORDS</b> GEARING, SHAFTS, LUBRICATION VEE BELTS		<b>DATE OF LAST REVIEW: N/A</b>  <b>DATE OF NEXT REVIEW: 01/06/2005</b>	

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## 1. SCOPE

- 1.1. This specification covers TPT's requirements for gearing, shafts, bearings, brakes, lubrication, vee-belts, keys and key ways.

## 2. GENERAL

- 2.1. All spur gearing shall be straight or helical spur of standard tooth form having a 20° pressure angle of standard module, machine cut to class "B" of B.S.435, and having ample width of face for strength and wear. Other standards will be considered, but must be specified.

The pinions are to be cut from solid blanks of heat treated nickel-chrome steel of suitable composition, and the gear wheels are to be of normalised high carbon cast steel, carbon 0,4 % minimum to 0,45 % of tensile strength not less than 590 Mpa.

- 2.2. B.S. No. 436/Latest Edition, shall be worked to generally in regard to design and tolerances, in conjunction with Clause 32 of B.S. No. 2452/Latest Edition. For strength all gears shall be designed for 1,8 x full load, and for wear 0,6 x full load, with the combined speed factors Xb and Xc of charts 10 and 11 respectively, of B.S. 436, for a running time of 6 hours.
- 2.3. All gearing shall be suitably heat treated. It is desired to have the wear factor of the gearing as high as practicable in order to reduce maintenance.
- 2.4. As far as practicable, all gearing shall be totally enclosed and operated in oil baths. Sight glasses or dipsticks to indicate the oil level must be fitted. All gearing not totally enclosed shall be guarded where necessary. Where practicable, all gears must be supported between bearings, none being overhung. A full detailed specification of all gearing must be given when tendering, together with details of diametral pitch and width of all gearing. Particular care must be taken to ensure that the seals provided for the gearboxes effectively exclude grit and prevent leakage of the oil where the shafts protrude through the casing. It should be noted that helical or straight spur gearing is preferred.

- 2.5. Where it is not possible to "age" the castings for cast iron gearboxes by weathering them for an adequate period before machining, they must be stress-relieved by heat-treatment at 450/590°C. It is preferred that the boxes be rough machined before stress-relieving. Suppliers will be required to guarantee that the gearboxes supplied will not warp in service.

Dowels or fitted bolts must be used to ensure the alignment of the top and bottom halves of gearboxes.

- 2.6. All worm gearing shall have worm wheels having phosphor bronze rims and the worms are to be of 3,5 % nickel or nickel chrome case hardened steel and shall conform generally with B.S. 721/Latest Edition, in regard to design and tolerance.
- 2.7. Provision must be made to eliminate noise, as far as practicable from the motors and gearing.
- 2.8. Flexible couplings shall be provided between each motor and its extension shaft, and the tenderers must give particulars of the type they propose to supply.

### **3. SHAFTS AND BEARINGS**

- 3.1. All shafts shall be of suitable mild steel, the quality of which is to be specified by the tenderer, in accordance with the British Standard series of steels.
- 3.1.1. All shafts shall be carried on precision ball and/or roller bearings, which shall be of the self-aligning type where necessary.
- 3.2. All bearings shall be of the anti-friction ball or roller type, mounted in dust proof housings, and shall be lubricated by oil bath or grease gun.
- 3.2.1. Bearings must have a lifetime, which is compatible with the lifetime of the mechanism.

### **4. BRAKES**

- 4.1. An efficient and ample braking system for all motions, consistent with the requirements of maximum safety must be provided, full particulars of which must be furnished by tenderers. Tenderers are to note that it is desirable that the mechanical parts should not be adversely affected by the sudden application of brakes.
- 4.2. Tenderers are to note that all braking systems are to be so designed that brakes may be readily inspected, adjusted and/or removed for overhaul, without resorting to stripping of major components such as motors, etc.

## 5. LUBRICATION

- 5.1. All bearings on shafts, axles, etc., and other bearings wherever practicable, must be arranged for lubrication by a positive grease lubrication system using an efficient button type nipple which will allow the grease gun being attached by the operator to the nipple and left hanging on the nipple, so that if necessary he can use both hands in shifting his position to get better command when screwing down the grease gun in difficult positions.

Parts difficult to access should be provided with spring feed lubricators of an approved type.

- 5.2. Particular attention should be given to provide straight or angle nipples, as the case may be, making it as easy and safe as possible for the operator to grease the bearings efficiently. Full particulars shall be furnished by tenderers of what they propose to supply in this connection.
- 5.3. All lubricating nipples shall be of the hexagon type in accordance with either types Nos. 11A or 11E under Table 1 of B.S. No. 1486 Part 1/Latest Edition, and shall be spaced for the "hook-on" type of lubricating connector as reflected under Table 10 of the above mentioned specification.
- 5.4. The arrangement of the lubrication system shall be such that all greasing points are brought out to common batteries which are easily accessible.
- 5.5. Where grouped lubrication is used the diameter of the piping used must be ample and in no case shall they be less than 8 mm outside diameter.
- 5.6. Only stainless steel or copper piping and brass fittings shall be used. Copper piping must be protected from physical damage.
- 5.7. Tenderers shall supply the following information regarding all lubricants to be used on the appliance:-

Application: (E.g. crank-case hydraulic system, gearbox etc.)	Lubricant normally recommended by tenderer (Not more than 2 brands per application to be given)	
	Local available (grade –equivalent)	OEM Specified grade
1.		
2.		
3.		
4.		
5.		
6.		

**6. VEE BELTS**

- 6.1. Vee belts and pulleys shall be to an established standard and such standard stated. The sizes, code numbers, name and address of manufacturer and the source of supply ex stock in the Republic of South Africa of all vee belts offered shall be stated.


**7. KEYS AND KEYWAYS**

- 7.1. All keys and keyways shall be in accordance with B.S. 4235 : Part 1/Latest. No shimming of taper keyways will be allowed.

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***END OF SPECIFICATION HE 9/2/4 [Version 4]***

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## STRUCTURAL STEELWORK

## SPECIFICATION HE9/2/6 [Version 10] June 2008

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### 1. SCOPE

- 1.1. This specification covers Transnet Port Terminals requirements for the design, manufacture and erection of structural steelwork for dynamic structures like cranes, including associated components.

### 2. GOVERNING CODES AND STANDARDS

ANSI/AWS D1.1 :	Structural Welding Code - Steel
BS-EN 287 Part 1 :	Approval testing of welders/fusion welding
BS-EN 288 Part 3 :	Specification and approval of welding procedures for metallic materials
BS 5135 :	Metal arc welding of carbon and carbon manganese steels
BS 4360/SABS 1431:	Weldable structural steel
BS 2573 : Part 1 :	Classification, stress calculations and design of structures
BS 3923 :	Methods for ultrasonic examination of welds
BS 2600 :	Radiographic examination of fusion welded butt joints in steel
DIN 1026	Metric channels
ISO R657	Angles
SABS 094	The use of high strength friction grip bolts and nuts
SABS 135	ISO metric bolts, screws and nuts (hexagon and square) (coarse thread free fit series)
SABS 136	ISO metric precision hexagon-head bolts and screws, and hexagon nuts (coarse thread medium fit series)
SABS 435	Mild steel rivets

### 3. STRUCTURAL STEELWORK

- 3.1. The design of all structural steelwork shall be such as to provide a robust and rigid structure requiring the minimum of maintenance and providing a long service life.
- 3.2. In the design of steel structures, due cognisance shall be taken of environmental and wind load conditions as specified in the main specification.
- 3.3. Due to the highly corrosive conditions experienced in South African Ports, the permissible stresses shall not exceed those set out in British Standard No. 2573. The minimum thickness of steel for load bearing members shall be 15mm for gussets, 10mm for angles, tees, plates and flats and 9mm for webs of channels and joists. Punching of holes over and above that permitted in BS 2573, shall not be permitted. Other structural steel shall be of not less than 6 mm thickness.
- 3.4. The design of mobile structures shall be such that the induced von Mises stress (effective stress in triaxial loading) will not exceed 90% of the elastic limit strength of the steel when the equipment is travelling at maximum speed and colliding with either other stationary equipment or fixed stop blocks. In calculating von Mises stresses, due cognisance must be taken of stress concentrations. If the elastic limit strength of the steel is not known, it will be determined by using a 0,5% strain offset on the stress-strain curve of the material.
- 3.5. Where applicable, the design may be in bolted, riveted or welded box construction except that no site welding will be permitted in the final erection at the port except with the approval of TPT.
  - 3.5.1. Alternatively, a welded hollow section lattice type structure will be acceptable, subject to the following requirements:
    - 3.5.1.1. The members must be structural sections manufactured from grade 43C/grade 300W weldable structural steel complying with BS4360/SABS1431. The hollow sections can either be seamless for all sizes (BS6323HFS) or welded for sizes above 114.3mm outside diameter (BS 6323HFW).
    - 3.5.1.2. Tube wall thickness must not be less than 6mm.
    - 3.5.1.3. All joints must be completely seal welded in accordance with BS 5135. Special care must be taken to prevent the ingress of moisture into hollow section members by ensuring that each member is airtight.
    - 3.5.1.4. Bolted or screwed attachments which require drilled holes through a hollow section will not be permitted.
    - 3.5.1.5. Non-hollow structural sections and plate used on the structure, in conjunction with the hollow section framework, must comply with the relevant requirements of this specification.

- 3.6. All steel sections shall be manufactured in accordance with the following standards: -

Weldable structural steel :	BS 4360/SABS 1431
I and H sections :	BS 4 Part 1
Metric channels :	DIN 1026
Structural steel, hot rolled sections :	BS 4 Part 1
Angles :	ISO - R657
Hot finished hollow sections :	BS 4848 Part 2
Cold formed sections :	BS 6363
Forgings :	BS 29
Steel castings :	BS 3100
Cast iron :	BS 1452

- 3.7. All steel plates and rolled steel sections used in the construction of the structures shall be of steel made by the open hearth process (acid or basic) and shall comply in every respect with BS 4360, "A" quality Structural Steel for Bridges and General Building Construction, Grade 43A or Grade 50B. That is, the percentage of phosphorous and sulphur shall not exceed 0,06.

3.7.1. The above is laid down as a standard, but tenders will also be considered for rolled steel not conforming strictly to the above standard. Full particulars of the guaranteed properties of the steel tendered for should in this case be furnished, i.e. chemical composition, tensile strength, yield point, reduction in area, bend tests, etc.

- 3.8. Forgings and drop forgings shall be free from flaws and surface defects of any kind and be accurately finished to the prescribed dimensions.
- 3.9. Steel castings shall be sound, clean and free from all defects and distortion of any kind and should, except where otherwise specified, conform with the conditions and tests specified in B.S. No. 3100/Latest Edition, for grades A, B and C according to requirements. They shall be thoroughly annealed and all working parts and bearing surfaces shall be machined and turned accurately with correct finish.
- 3.10. Cast iron used throughout must be close grained, tough and free from all defects, and shall conform with the conditions and tests specified in B.S. 1452/Latest Edition, for grades 12 to 14 according to requirements.

This applies to functional components only. A lower grade is acceptable for portal and machinery house ballast. Tenderers to state grade of cast iron proposed.

- 3.11. The dimensional and out-of-square tolerance as specified in the above Standards shall also apply to built-up components. Edge preparations, welding techniques, straight beds and material fit-up shall be considered when welded joints are designed.
- 3.12. The shape of all members and connections must allow easy accessibility for maintenance painting of all surfaces. No members shall comprise a double member which cannot be painted and maintained.
- 3.13. Structural details must be so designed as to eliminate or seal off any cavities or pockets where water or condensation could collect and promote corrosion. Horizontal members with upstanding flanges require special drainage.
- 3.14. All hollow sections shall be completely closed and airtight, and all welding is to be of such size and quality as to ensure complete airtightness. No tapping or drilling of holes into sealed sections will be permitted.

#### 4. **WELDING**

- 4.1. All the provisions of BS 5135 shall be complied with as far as applicable.
- 4.2. Design of weld joints shall be such that crevices, overlaps, pockets, arc strikes and dead ends do not exist.
- 4.3. All joints shall be completely seal welded in accordance with BS 5135. Special care must be taken to prevent the ingress of moisture into the tubular members by ensuring that each such tubular member is airtight. "Stitch" welding will not be permitted. Only continuous welding will be accepted.
- 4.4. Weld cracks, undercut, or pock marks will not be accepted.
- 4.5. All welds on the load bearing frame structure, containers, piping, pipe line flanges, etc., shall be continuous and shall be visually inspected for cracks and other discontinuities.
- 4.6. Welds on the main chords must be tested ultrasonically in accordance with BS 3923 or X-rayed in accordance with BS 2600 and those on minor joints by the dye-penetrant method. The equipment required for these tests must be supplied by the Contractor and the testing done at his cost.
- 4.7. Steel, except in minor details, which has been partially heated, shall be properly annealed. (Electrically welded structural members excepted.)
- 4.8. All brackets, clamps, lugs, straps, suspenders, etc. required for attaching mechanical and electrical equipment must be welded on prior to erection and special precautions must be taken not to damage welds or puncture tubes during erection.
- 4.9. The welding of all rails shall be done by an approved method.

- 4.10. Welding shall only be carried out by a coded welder according to SABS 044, BS-EN 287 Part 1 and BS-EN 288 Part 3 or ANSI/AWS D1.1.
- 4.11. All parts to be welded shall be thoroughly cleaned and dried before welding. The welding will only be done in dry surroundings and all steps taken to prevent hydrogen embrittlement.
- 4.12. Where materials of different compositions are joined by welding, especially carbon steel to chrome steel, the filler welding method and post welding treatment shall be such that embrittlement and other degradation of both steel and filler are prevented.
- 4.13. It must be ensured that welded joints are ductile.

## 5. FASTENERS

- 5.1. All bolts, nuts and rivets shall be manufactured in accordance with the following standards: -

Commercial bolts and nuts Grade 4,6: SABS 135

Precision bolts and nuts Grade 8,8: SABS 136

Friction Grip Bolts and nuts Grade General: SABS 094

Rivets: SABS 435

- 5.2. All fasteners (excluding friction grip) shall be hot dipped galvanised (and their nuts and washers).

5.2.1. All holding down bolts and nuts and brackets, as well as all bolts, fixing studs and nuts and washers shall be of stainless steel M12 and under.

- 5.3. Bolts and setscrews shall be locked in an approved manner and shall not be stressed in tightening to beyond the recommended loads.

- 5.4. The quality of friction grip bolts, nuts and washers, bolt lengths, sizes of holes, tightening standards, surface condition of clamped components, shop and site assembling and acceptance inspection of friction grip joints shall comply with the latest edition of SABS 094. Certificates shall be supplied for all bolts of grade 8.8 and 10.9.

- 5.5. All bolt and rivet holes must be accurate to size and location, the centres of holes shall not be placed nearer the edge of a plate than 1,5 diameters with an extra allowance of 3mm for sheared edges. All holes in the structural work shall be drilled or otherwise punched to a diameter not exceeding 1,5mm less than the diameter of the finished hole on the die side, and afterward reamed out to the exact size

Where possible the adjoining parts forming a connection shall be drilled or reamed together, with holes not exceeding 1,5 mm diameter the rivet or bolt for which it is made. No rough or broken edge shall be left around any of the holes.

- 5.6. For turned and fitted bolts, the holes shall be accurately drilled or reamed, the diameter of the hole shall not exceed the finished diameter of the bolt by more than 0,25mm.
- 5.7. The holes, after assembly of the parts, shall be true throughout the thickness of all the parts and perpendicular to the axis of the member.
- 5.8. Rivets shall be cup-headed or countersunk as required, unless otherwise specified. No rivet head shall contain less metal than does a length of the rivet equal to 1,25 times its diameter. All loose and defective rivets shall be cut and replaced by sound ones; also others when required for the purpose of examining the work. Rivets shall be driven with pressure tools whenever possible and pneumatic hammers shall be used in preference to hand driving.
- 5.9. All field rivets must be supplied with shanks of suitable length for pneumatic riveting.
- 5.10. Bolts shall be of such length as to accommodate a full nut and washer when tightening up, and protrude a maximum of 3 thread pitches beyond the nut. Excessive projection of threads beyond the nut must be avoided. Bolts that are flush or under top of nut are not acceptable.
- 5.11. All bolts having countersunk heads shall have strong feathers forged on the neck and head to prevent turning and the bolt holes shall be cut to receive same. All nuts and bolts (excluding countersunk bolts) shall be furnished with circular washers of sufficient thickness, the outside diameter being at least twice the nominal diameter of the bolt, and washers fitted correctly.
- 5.12. Where bolt heads or nuts are seated on bevelled surfaces of beams or channel flanges, bevelled washers must be inserted.

## **6. JOINTS AND MATING SURFACES OF MEMBERS**

- 6.1. Mating surfaces of members to be joined by high tensile steel bolts in friction grip shall be cleaned and primed as specified for the rest of the steelwork. Mating surfaces shall lay flat against each other to eliminate gaps which may allow ingress of water. After joining, the edges shall be sealed with an approved brand of Butyl/ Rubber sealing compound by means of a suitable caulking gun, or shall be seal welded.
- 6.2. Other joints shall be formed by one of the following methods:
  - 6.2.1. The mating surfaces of members shall be blast cleaned, primed and protected prior to sub-assembly by the liberal application of caulking compound. While the compound is still wet, the members shall be bolted together and caulking compound which is squeezed out shall be completely removed.
  - 6.2.2. The mating surfaces shall be protected with the full corrosion protection system as specified, the surfaces joined together and the joint so formed shall be sealed with butyl rubber sealer.

- 6.2.3. After being cleaned and primed the surface shall be joined together and the joint so formed shall be seal welded.
- 6.3. The primer coating on mating surfaces must be applied not more than 4 hours after cleaning and the edges must be sealed within 3 weeks of assembly of the part.

## **7. FABRICATED PARTS**

- 7.1. All fabricated parts shall be properly fitted during assembly to result in properly aligned equipment having a neat appearance. Fabrications of load bearing members shall have no abrupt changes in cross section and regions of severe stress concentration. All sharp corners accessible by personnel during erection or operation shall be ground, rounded, or removed by other methods. Burrs, welding spatter and stubs of welding wire shall be removed.

## **8. BALLAST OR COUNTER MASS**

- 8.1. Tenderers must include for the supply of all necessary ballast or counter mass.
- 8.2. These must preferably be of cast iron and be removable for maintenance of structural steelwork.
- 8.3. Concrete ballast is not recommended but will be accepted provided the Tenderer satisfies Portnet that it will not cause corrosion of any steel parts.
- 8.4. Fastenings used for removable pieces must be of non-corrosive material.
- 8.5. Ballast must be in suitable shapes to be secured in position against movement but in sizes easily removable for maintenance.
- 8.6. Lifting hooks or eyes of non-corrosive material and of adequate strength must be provided in the removable ballast pieces.
- 8.7. Concrete ballast must be reinforced so as to prevent cracking or breaking, and must be coated with an approved corrosion protection system for concrete.

## **9. STAIRS, LADDERS, PLATFORMS AND WALKWAYS**

- 9.1. Platforms, stairways, walkways, hatches and ladders, shall be provided where necessary to give easy access to all parts of the equipment for inspection, maintenance and lubrication purposes (including the insides of all box sections if inspection covers are provided).
- 9.2. The hand rails and ladders shall be complete with stanchions, knee rails, back hoops, mounting brackets etc. and shall be manufactured in

sections which are hot-dipped galvanized and painted and bolted onto the structure.


- 9.2.1. The handrail shall have a minimum diameter of 25mm and shall not be less than 1 050mm above the platform level. Toe boards shall not be less than 150mm high.
- 9.3. Stairs shall be inclined at 45° to the horizontal and shall be broken at suitable intervals by platforms.
- 9.4. Stairs and walkways shall not be less than 700 mm wide ( unless approved by TPT ) and working areas around drives etc. shall be of sufficient size to allow for ease of maintenance.
- 9.5. Vertical ladders must be provided with back hoops.
- 9.6. Trap doors and hatches must be of light, but robust, construction, suitably hinged with stainless steel hinges and provided with a catch to keep them in the open position, if necessary. Trap door openings are to be protected by means of toe boards and removable handrails.
- 9.7. All external platforms, stair treads and walkways shall be hot dipped galvanised open grating construction, similar to Andrew Mentis "Rectagrid" type RS40 to allow for free drainage and avoid the accumulation of water and dust. Bearer bar thickness shall not be less than 4,5 mm. The top surface shall provide for adequate grip to avoid underfoot slipping.
- 9.8. TPT's prior approval is required for all external platforms and walkways where open grating cannot be used. This will only be permitted where the primary purpose of the walkway/platform is for maintenance purposes. All such surfaces are to be provided with a non slip surface coating.
- 9.9. No obstructions or sudden changes in levels will be permitted on walkways.

## 10. **MACHINERY AND ELECTRICAL HOUSES AND OPERATOR'S CABINS**

- 10.1. Where required, separate, self contained fully weather proof machinery and electrical houses as well as operators cabins shall be provided. The houses shall be of the steel framed metal clad type, and shall allow ample space and strength for all equipment and control panels housed therein, permitting unrestricted access to all equipment for routine service and maintenance. Headroom shall not be less than 2,13 metres. A minimum of 700mm working space must be provided around all machinery and in front of all panels.
- 10.2. The major items of machinery, electrical equipment and panels shall be so arranged that it can be removed for repairs or replacement without disturbing the walls, roof, floor or structural framework and furthermore shall be so arranged that full access to all holding down bolts is provided from inside the house.

- 10.3. For electrical houses both the inner and outer cladding must be stainless steel, unless otherwise approved. Side cladding plates are to be joined with butting joints with butt cover straps where required (no lap joints), and the plates must be in as large sizes as practicable to reduce the number of vertical joints, and to eliminate horizontal joints. Alternatively cladding may be welded to the frame and all joints completely seal welded. All angles around windows are to be suitably joggled to obtain a waterproof and flat surface butting on the side sheets. The whole of the framing shall be well stayed and fixed on its base. Air-conditioned electrical houses shall be provided with thermal insulation material of an approved type between the cladding.
- 10.4. Machinery houses must be cladded with prepainted Aluminium sheeting, minimum thickness 0.8 mm, colour coated with the appropriate colour. The profile and fastenings must be suitable for the spans and wind uplift forces corresponding to the windspeeds stated in the main specification. Flashing, corner trim, closure pieces ridge cappings etc. shall consist of prepainted Aluminium of minimum thickness 1.2mm
- 10.4.1. Sheeting fasteners shall be 6.3 mm grade 304 stainless steel self-tapping screws with hexagonal washer heads.
- 10.4.2. Galvanic isolation rubber strips shall be used between the metal frame and Aluminium cladding.
- 10.5. Both machinery and electrical houses shall be provided with two access doors, sealed to suit pressurisation and/or air-conditioning, one on each side of the house, arranged for external locking, but allowing exit from the inside without a key. Rain guards must be provided above external doors.
- 10.6. Operator's cabins shall be fully constructed from 3CR12 or similar type stainless steel. Cladding shall be welded to the frame and shall be smoothed over to provide an aesthetic appearance. The cabin shall be insulated from the heat of the sun with an approved material. A stainless steel or similar material door with a robust industrial type door lock shall be provided. The door must be lockable from the outside, but must allow exit without a key from the inside.
- 10.7 All windows shall be of solar heat reducing shatterproof safety glass.

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**END OF SPECIFICATION HE9/2/6 [Version 10]**  
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## 1. SCOPE

- 1.1. This specification covers Transnet Port Terminals requirements for protective coating of iron and steel structures, electrical motors, gear boxes etc. against corrosion and must be read in conjunction with the main specification as well as the following (latest editions):-

SABS 064	"Preparation of steel surfaces for coating"
SABS 763	"Hot-dip (galvanized) zinc coatings"
SABS 1091	"National colour standards for paint"
BS 5493	"Code of practice for protective coating of iron and steel structures against corrosion"

## 2. TYPES OF CORROSION PROTECTION TO BE USED

- 2.1. The coatings specified in this specification are chosen according to BS 5439, Table 3, part 9, to ensure that the condition of the surface will be at least RE2 on the European scale of degree of rust, after 10 years in a environment of frequent salt spray, chemicals and polluted coastal atmosphere. During the 10 years, the normal maintenance painting will be done.
- 2.2. The paint manufacturer shall guarantee the paint for at least 10 years.
- 2.3. Should a tenderer wish to offer coating systems other than those specified, as an alternative, he shall submit full technical details and a list comparing all appropriate details of the alternatives proposed, with the original specified.
- 2.4. Tenderers must ensure that the different coats they offer in their tenders are compatible with each other.
- 2.5. The coating of proprietary items must be done according to Clause 3.
- 2.6. All galvanized components including bolts and nuts but excluding walkway gratings, must be painted with the specified system, unless otherwise approved.

The following coating systems must be used unless otherwise specified in the main specification:-

Substrate	Coat No	Generic Description	Approved Brand Products	Dry Film Thickness (μm)
3CR12 steel	1	Surface tolerant epoxy primer	DULUX /SIGMA Sigmacover primer  INTERNATIONAL (PLASCON) Intergard 269  STONCOR (CHEMRITE COATINGS) Carboline 193 Primer	65-75
	2	Two component recoatable, polyurethane finish (Gloss)	DULUX / SIGMA Sigmadur gloss  INTERNATIONAL (PLASCON) Interthane 990  STONCOR (CHEMRITE COATINGS) Carboline 134	65-75
Galvanized Steel	1	Surface tolerant epoxy primer	DULUX /SIGMA- Sigmacover primer  INTERNATIONAL (PLASCON) Intergard 269  STONCOR (CHEMRITE COATINGS) Carboline 193 Primer	65-75
	2	Two component recoatable, polyurethane finish (Gloss)	DULUX /SIGMA- Sigmadur gloss  INTERNATIONAL (PLASCON) Interthane 990  STONCOR (CHEMRITE COATINGS) Carboline 134	65-75
Substrate	Coat No	Generic Description	Approved Brand Products	Dry Film Thickness (μm)
Mild steel	1	Two component self curing inorganic zinc ethyl silicate OR two component zinc rich polyamide cured	DULUX /SIGMA- Sigma MC60 OR Sigma-cover primer	65-75

		epoxy primer	INTERNATIONAL (PLASCON) Interzinc 233 OR Interzinc 52 or 53	
	2	Flexible recoatable high build polyamide cured MIO epoxy	STONCOR (CHEMRITE COATINGS) Carbo Zinc 11 OR Carbo-line 658 Primer  DULUX/SIGMA – Sigmacover CM MIO  INTERNATIONAL (PLASCON) Interseal 010 MIO  STONCOR (CHEMRITE COATINGS) Carboline 190 HB M.I.O. or Carboline 193 M.I.O.	125-150
	3	Two component recoatable, polyurethane finish (Gloss)	DULUX/SIGMA Sigmadur gloss  INTERNATIONAL (PLASCON) Interthane 990  STONCOR (CHEMRITE COATINGS) Carboline 134	65-75

- 2.7. The paint manufacturer's recommendations for the application of the different coating systems, curing time before handling or application of subsequent coats, health and safety recommendations etc. must be carefully adhered to.
- 2.8. Paint contractors must have a quality management system which must be submitted to the Engineer for approval before commencement of the work.
- 2.9. Galvanizing shall be done to SABS 763 heavy duty hot dip galvanizing to a thickness of at least 85µm. Electroplated components in zinc or cadmium are not acceptable.
- 2.10. All mounting bolts, nuts, washers and brackets as well as all fixing bolts, studs nuts and washers shall be of stainless steel. Fixing rivets shall be of either stainless steel or brass.
- 2.11. High tensile bolts for friction grip joints must not be galvanised and must be primed and painted after installation. High tensile bolts must be certified.
- 2.12. The full paint system shall be applied to all surfaces which are to be covered with wear pads, linings etc.
- 2.13. For steelwork which will be transported over long distances and erected on site the two pack epoxy primers is preferred.

### 3. PROPRIETARY ITEMS

- 3.1. Proprietary items such as gearboxes, motors, brakes etc. must either be painted according to this specification or where the coating system is equal to or exceeds this specification sufficient proof of the coating system applied must be provided. Items which are nearly equal to this specification shall be given a finishing coat according to this specification's thicknesses and final colours and to the following procedure:-
  - 3.1.1. A cross cut test must be done to SABS SM159 to determine if the original coating adheres correctly to the substrate;
  - 3.1.2. The original coating shall be rubbed down to remove any smooth finishing to form a suitable key for the finish coat and any damaged areas prepared and patch primed with a suitable primer;
  - 3.1.3. The item must then be detergent washed to remove any foreign matter, taking care that no dust, solvent etc. contaminates any working part of the item;
  - 3.1.4. A test shall be done on the existing coat to ensure that the finish coat will not react with and cause undue dissolving and lifting of the existing coat. This can be done by applying a small quantity of the finishing coat thinners.
    - 3.1.4.1. Should any undue dissolving or lifting occur, a suitable intermediate or barrier coat must be applied before the finishing coat is applied.
  - 3.1.5. Proprietary items which failed the cross cut test and which generally have inadequate protection shall be dismantled and the full corrosion protection specification applied.

#### **4. SURFACE PREPARATION**

- 4.1. All steel surfaces shall be detergent washed and fresh water rinsed to remove all oil, grease and surface contaminants before shot blasting.
- 4.2. Sharp edges shall be radiused and major roughness of welds shall be removed by grinding. Welding spatter and flux shall be removed.
- 4.3. Components manufactured from hot rolled steel sections and steel plate shall be blast cleaned to base metal in accordance with SABS 064 grade SA2½ - very thorough blast cleaning, to remove all mill scale, rust, weld spatter etc.
  - 4.3.1. "Sharp" chilled iron shot, chilled iron grit, or granular abrasive slag is to be used to produce a proper degree of surface roughness.
  - 4.3.2. Blast profile shall be determined by micrometer profile gauge, Keane-Tator surface profile comparator or Testex press-o-film.
  - 4.3.3. The profile height shall be between 40 and 50µm at any point.
- 4.4. Good quality blast cleaning and spray painting equipment shall be used. Air used for spraying and blast cleaning shall be free from all traces of oil, water and salinity. Water and oil traps must be fitted to all equipment.
- 4.5. Wheel abrading equipment shall not be used unless an angular profile the same as clause 4.3.3 is achieved.
- 4.6. When wet blasting is done the primer shall be applied before oxidization starts or surface contamination occurs.
- 4.7. Components manufactured from 3CR12 steel shall be lightly abraded. The components shall then be passivated by using a mixture of 10 - 15% nitric acid in water which is rinsed off after 10 - 15 minutes. The surface shall be neutralized to pH 7 before it is coated.
- 4.8. Hot-dip galvanized components, galvanized bolts and nuts etc. shall be lightly abraded with a galvanizing pre-cleaner. The components shall then be washed with detergent and water and washed down with clean water until a water break free surface is achieved. Allow to dry thoroughly.

#### **5. JOINTS AND MATING SURFACES OF MEMBERS**

- 5.1. Mating (faying) surfaces of members which have to be joined by high tensile steel bolts in friction grip shall be cleaned according to Clause 4 and painted with primer only.
  - 5.1.1. After being assembled joints so formed shall be seal welded and painted or after the intermediate coat was applied the edges shall be sealed with an approved brand of paintable flexible sealant or mastic (e.g. Butyl rubber, polyurethane sealer or two component epoxy), by means of a suitable caulking gun.
- 5.2. All rivets, bolts, welds, sharp edges etc. must be covered with a "stripe coat" of the primer or intermediate coat specified to ensure the correct dry film thickness on sharp edges, as well as sealing of bolt threads to head etc.
- 5.3. All other mating surfaces must be sealed with an approved brand of flexible Butyl rubber, paintable Silicone, polyurethane sealer or two component epoxy sealer, and joined while still wet. All excess compounds must be completely removed.

#### **6. PAINTING PROCEDURES**

- 6.1. Directly before the application of paint, the area to be painted shall be degreased with a suitable degreaser and left to dry.
- 6.2. Paint shall only be applied under the following conditions:-
  - 6.2.1. There is adequate light.

- 6.2.2. The steel temperature is between 5 and 50°C and at least 3°C above the dew point of the air.
- 6.2.3. The relative humidity of the air is between the limits specified by the paint supplier.
- 6.2.4. Wind does not interfere with the method used and sand and dust cannot be blown onto wet paint.
- 6.3. Steelwork shall be supported on trestles, at least 900 mm off the ground for painting purposes.
- 6.4. An adequate number of test readings shall be taken per square meter in order to determine the dry film thickness.
  - 6.4.1. The paintwork shall be acceptable if the average of the test readings taken falls within or exceeds the ranges given.
  - 6.4.2. Paintwork shall not be acceptable if any single test reading is less than the specified minimum thickness.
- 6.5. An ultrasonic or electronic magnetic flux thickness measurement gauge shall be used, but in case of dispute, destructive testing shall be applied. The painted steelwork shall present a clean, neat appearance of uniform colour and gloss as applicable to the paint used. Each coat of paint shall be applied as a continuous, even film of uniform thickness. More than one application of paint may be required to achieve the dry film thicknesses specified or to obliterate the colour of the previous coating.
- 6.6. The use of thinners or solvents at any stage of the work is prohibited, unless specified by the paint manufacturer.
- 6.7. Precautions shall be taken to prevent coatings from being applied to equipment nameplates, instrument glasses, signs etc.

## 7. COLOUR CODES

Machinery and equipment shall be painted in the following final colours:-

	Area	Colour	Code No. [SABS 1091 and International No's]
7.1.1	Mobile equipment (cranes, loaders etc.)		
	a) Structure, machinery and electrical houses, operator's cabins, chutes, hoppers etc.	Transnet Red	RAL 3020
	b) Undercarriage, travel bogies, rubber tyred rims	Transnet Red	RAL 3020
7.1.2	Industrial buildings, conveyor structures		
	a) Roofs and canopies	Pantone cool grey 10	RAL 7037 (Staubgrau)
	b) Painted walls	Pantone cool grey 3	RAL 7035 (Lightgrau) or SABS 1091 G62 (Pale grey)
	c) Steel columns, rafters, trusses	Pantone cool grey 5	RAL 7004 (Signalgrau)
7.1.3	General		
	a) Guards	Golden yellow	SABS 1091-B49 RAL 1003
	b) Sheaves	Orange	RAL 2008
	c) Cable reels (Stainless steel)	Orange	RAL 2008
	Machine buffers and parts of machine which could constitute a serious hazard	Golden Yellow (High Gloss) with Luminous green stripes in chevron pattern	SABS B49 and Luminous green

Area	Colour	Code No. [SABS 1091 and International No's]
e) Any exposed rotating part of machinery, electrical Switch-gear (other than starting and stopping devices and emergency stop control), electrical services e.g. conduit and allied fittings	Light Orange (High Gloss)	SABS 1091 B26 BS 381C-557
f) Low voltage switchgear panels where orange is not aesthetically acceptable	Light grey	SABS 1091-G29 BS 381C-631
g) Medium voltage cable trays, switchgear and motors (3,3 kV and up)	Oxford Blue	SABS FO2 BS 381C-105 RAL5003
h) Starting devices, low voltage cable trays and switchgear	Mid brunswick green (high gloss)	BS 381C-228 SABS1091-EO4 RAL6005
i) Portnet Logo	Transnet White	RAL 3012
j) Parts of stationary machinery (Electrical, motors, gearboxes, brakes, transformers, etc.)	Light Grey	SABS G29 BS 381C-631
k) Hand levers, hand wheels, oiling points, handrails on walkways, ladders	Golden Yellow (High Gloss)	SABS 1091 B49 BS 381C-356
l) Stopping devices, grease points, motor fan covers and danger signs (not symbolic safety signs for which see SABS 1186)	Signal red (High Gloss)	SABS 1091 A11 BS 381C-537 RAL3001
m) Walkways (non slip surfaces) (galvanized gratings not to be painted)	Shop floor green	
n) Informatory signs and notices (not symbolic safety signs for which see SABS 1186)	White on Emerald Green (High Gloss)	White on SABS 1091 E14 BS 381C- 228

	Area	Colour	Code No. [SABS 1091 and International No's]
7.1.4	Pipe lines  a) Reclaim water piping  b) Slurry pipe lines  c) Fire protection piping  d) Washwater drain pipes  e) Instrument air  f) Plant air  g) Potable water	Aluminium  Dark admiralty grey  Signal red  Light grey  White with Strong blue band  White with Flag blue band  Grass green	SABS 1091-G12  SABS 1091-A11  SABS 1091-G29  White and SABS 1091-F11  White and SABS 1091-FO4  SABS 1091-D14

7.1.5 Colour bands for pipes shall be 75 mm wide for pipe sizes up to 150 mm diameter and 100 mm wide for 150 mm and above. The colour bands shall be applied to the pipe flanges, valves, junctions, walls or structures etc. in such a manner that the pipe may be easily identifiable. On straight sections the maximum spacing shall be 100 x the pipe diameter.

## 8. FIELD TOUCH-UP PAINTING

8.1. Damaged and unpainted areas, fasteners, welds, etc. shall be cleaned by wire brushing with hand tool or power tool in a manner which will minimize damage to sound paint. Grinding will not be allowed. Rust spots shall be cleaned to bright metal. Thick edges of old paint abutting on bare metal surfaces shall be feathered by scraping and sanding.

8.1.1. Where welding is required on areas already coated with the coating system, the coat should be stepped back for  $\pm 30\text{mm}$  around the weld area.

8.2. The paint shall be applied to match the original coats in accordance with the manufacturer's recommendations for the specific paint system.

Note: Inorganic zinc primers shall not be re-covered with an inorganic primer, but only with an organic zinc primer.

8.3. Areas of damaged galvanizing shall be repaired with an approved cold galvanizing product or metal sprayed by the wire spraying process with Zinc, and then touched up with the specific paint system.

## 9. GENERAL

9.1. All walkways, floors, maintenance platforms etc. must be painted with a durable, non skid coating of the appropriate colour.

9.2. Exposed machined surfaces must be coated with a strippable corrosion inhibitor (e.g. Tectyl).

9.3. Where different materials will be in contact with each other and galvanic corrosion can occur the contact areas of the materials must be isolated from each other or the joints made water proof to prevent ingress of moisture.

9.4. All components must be designed with corrosion prevention in mind and specifically the following:-

- 9.4.1. No entrapment of dirt, product, moisture etc.
- 9.4.2. No areas must be inaccessible for maintenance such as too narrow gaps etc.
- 9.4.3. Large flat areas rather than complicated shapes and profiles.
- 9.4.4. No sharp corners and discontinuous welds.
- 9.5. Parts of equipment which are exposed to high temperatures must be coated with the following system:-

Coat No	Generic Description	Approved Brand Products	Dry Film Thickness (μm)
1	Two component self curing inorganic zinc ethyl silicate	DULUX /SIGMA-Sigma MC60  INTERNATIONAL (PLASCON) Interzinc 233  STONCOR (CHEMRITE COATINGS) Carbo Zinc 11	65-75
2	Single component high temperature moisture curing silicone with aluminuim flakes	DULUX/SIGMA – Sigmatherm Silicate  INTERNATIONAL (PLASCON) Intertherm 50  STONCOR (CHEMRITE COATINGS) Carboline 1248	40

## 10. MAINTENANCE PAINTING OF STRUCTURES

- 10.1. Areas which are only lightly corroded must be cleaned by means of high pressure water blasting or wire brushing by power tool and the following system applied:-

Coat No	Generic Description	Approved Brand Products	Dry Film Thickness (μm)
1	Surface tolerant two pack epoxy primer with aluminuim pigments	Dulux/SIGMA Aluprimer  STONCOR (CHEMRITE COATINGS) Carbomastic 15  INTERNATIONAL (PLASCON) Intergard 468,	125-150
2	Same as first coat OR micaceous iron oxide (MIO) epoxy	DULUX/SIGMA – Sigmacover CM MIO	125-150

		INTERNATIONAL (PLASCON) Interseal 010 MIO	
		STONCOR (CHEMRITE COATINGS) Carboline 190 HB M.I.O. or Carboline 193 M.I.O.	
3	Two component recoatable, polyurethane finish (Gloss)	DULUX/SIGMA Sigmadur gloss  INTERNATIONAL (PLASCON) Interthane 990  STONCOR (CHEMRITE COATINGS) Carboline 134	65-75

10.1.1. Alternatively, the Noxyde paint system can be used, consisting of two to three coats of water based Noxyde paint to achieve a DFT of 350 to 400 microns. Where the Noxyde system is used on areas other than slightly corroded structural areas, the following additional requirements must be observed:

- 10.1.1.1. Very smooth surfaces (e.g. 3CR12, stainless steel or hot-dip galvanized components, bolts, nuts and fittings, and HT bolts): Parts must be thoroughly degreased using OptiDegreaser, washed down with potable water, and immediately when dry, a single coat of OptiPrimeAqua applied.
- 10.1.1.2. Paintable flexible sealant/mastic: Only sealant approved by the paint manufacturer may be used, and an initial coat of OptiPrimeAqua applied over it before the further coats of Noxyde are applied.
- 10.1.1.3. Bolted/riveted connections: After blasting or and/or cleaning as required, apply a coat of OptiPrimeAqua and an additional stripe coat of Noxyde, in contrasting colour, to all bolt/nut and plate edges and crevices.


- 10.2. The adhesion of old coatings must be verified by doing a cross cut adhesion test on selected areas.
- 10.3. The compatibility of the new paint system on the old coating must be tested and guaranteed in writing by the paint supplier.
- 10.4. The work and coating system must be guaranteed for a minimum of 12 months.
- 10.5. All heavily corroded areas must be shot blasted to minimum SA2 and the three coat system indicated in clause 2.6 applied.
- 10.6. Areas where the old coating is still sound need only be high pressure cleaned with a suitable solvent and coated with one of the primers suggested in clause 10.2 (as tie coat) and then with one of the top coats suggested in clause 2.6 to get the appropriate colour and finish. The minimum dry film thickness of this tie coat must be 75 microns and top coat must be 50 microns, but the previous coating colour shall be completely obliterated to present a uniform colour.

Note: Inorganic zinc primers shall not be re-covered with an inorganic primer, but only

with an organic zinc primer.

- 10.7. Repairs to the insides of all the enclosed sections of the booms as well as the insides of the crane legs, sill beams, cross beams, pylon cross bracing members etc. shall be done as above but the top coat need not be applied.

**\*\*\* END OF SPECIFICATION HE 9/2/8 [Version 17] \*\*\***

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## 1. Introduction

This Specification outlines the minimum requirements to ensure that products and services supplied to Transnet Port Terminals are manufactured, provided, constructed or installed in accordance with all specified requirements as defined in the Contract, all associated specifications, drawings, codes and standards.

## 2. Definitions

Term, Abbreviation	Meaning
Data	All drawings/documents/data/information and DP's required to be supplied under the Contract
Data Pack (DP)	A compilation of manufacturing data, certification, inspection and testing records prepared by the Supplier/Contractor to verify compliance with the Contractual requirements.
Employer	For the purposes of this document, the term Employer has the same meaning as applied to the term Client.
Field Inspection Checklist (FIC)	A document that details the checks, requirements and test parameters for each type of equipment to permit field installation and pre- commissioning of the equipment.
TPT	Transnet Port Terminals is the Employer's Nominated Agent in terms of the Conditions of Contract.
Inspection Release Report (IRR)	A document issued to the Supplier/Contractor by TPT advising release of the Materials for shipment. This does not relieve the Supplier/Contractor of its obligations in accordance with the Terms and Conditions of the Contract.
Inspection Waiver Report (IWR)	<p>A document issued to the Supplier/Contractor by TPT advising that TPT has waived final inspection for the materials listed in this document. The issue of this Report does not preclude further inspection by TPT, is issued without prejudice and does not relieve the Supplier/ Contractor from the guarantees and obligations included in the Contract/ Contract.</p> <p>A document prepared by the Supplier/Contractor providing relevant information applicable to the installation and maintenance of the specific equipment, including consumables (eg. oils etc)</p>
Project Quality Plan (PQP)	A document that outlines the Supplier/Contractor's strategy, methodology, resources allocation, Quality Assurance and Quality Control coordination activities to ensure that Goods and Services supplied meet or exceed the requirements defined in the Contract, drawings, codes and standards.
Quality Control Plan (QCP)*	<p>A document outlining specific manufacturing / construction inspection and testing requirements, including responsibilities, test acceptance criteria, nomination of witness and hold points.</p> <p>For the purposes of this document, the term Supplier/Contractor has the same meaning as applied to the term Sub-Supplier/Sub-Contractor</p>
Supplier/Contractor	This refers to the documentation required to be submitted by the relevant Supplier / Contractor in terms of the Contract.
Supplier/Contractor Data Requirements	These requirements are generally tailored to suit the particular Scope of Work, although it also addresses the manner in which the documentation is required to be submitted, eg Hard copy, Electronic copy etc
Technical Query Note (TQN)	This refers to a document used by the Supplier/Contractor to formally clarify a Technical Query related to the scope of supply. This should not be used where a non-conformance has already been initiated.

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### **3. Applicable Documents**

#### **3.1 General**

All work performed shall comply with the requirements of this Specification, the documentation referenced in the Contract and the latest revision/edition of the relevant Codes and Standards referenced herein.

#### **3.2 Statutory Regulations**

Occupational Health & Safety Act, Act No 85, of 1993 and Regulations as amended.

#### **3.3 Codes and Standards**

<b>Document No.</b>	<b>Title</b>
ISO 9001	International Standard Series Quality Systems
EEAM-Q-013	Punch Listing Standard

### **4. Quality System**

#### **4.1 General**

The Supplier/Contractor shall be responsible for all quality activities necessary to ensure the Work meets the requirements specified in the Contract, and shall manage and coordinate all Quality aspects of Work in accordance with the requirements of this Specification, and the Supplier/Contractor's PQP and QCP's once reviewed and approved by TPT.

The Supplier/Contractor shall ensure that all Sub-Suppliers/Sub-Contractors also conform with the requirements of this Specification.

#### **4.2 Supplier/Contractor Quality System Requirements**

The Supplier/Contractor shall have, maintain and demonstrate its use to TPT, its documented Quality Management System. The Supplier/Contractors Quality Management System should be in accordance with the International Standard ISO 9001.

The Supplier/Contractor shall submit its Quality System documentation to TPT at the time of tender and at Contract Phases as detailed below:

- Project Quality Plan
- Quality Policy
- Index of Procedures to be used
- Programme of internal and external audits

#### **4.3 Supplier/Contractor Documentation Requirements**

The Supplier/Contractor shall develop and maintain a comprehensive register of documents that will be generated throughout the project, and shall include all quality related documents. The register shall be submitted to TPT for review.

TPT shall indicate those documents required to be submitted for information/review and/or acceptance and this shall be indicated in the Supplier/Contractors' Document Register. The register shall indicate the dates of issue of the documents taking into account sufficient time to allow TPT review/acceptance cycle prior to the document being required for use.

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## **5. Quality Assurance**

### **5.1 Project Quality Plan**

Where specified, the Supplier/Contractor shall submit a PQP to TPT within 28 days after the Contract start date. The PQP shall detail how the Supplier/Contractor's Quality System will be applied to the Scope of Work specified in the Contract, and shall address the following:

- Satisfying the technical and quality requirements of the Supplier/Contractor's Scope of Work, and relevant elements of the applicable ISO 9001 standard
- include all quality activities relevant to the Scope of Work, identifying all procedures, reviews, audits, controls and records used to control and verify compliance with the specified Contractual requirements

Include a listing of all special processes (eg. welding and non-destructive testing, cube testing etc) envisaged for use, including confirmation of personnel certification as required

- Include all proposed method statements (for site based work activities)
- Include a description of the Supplier/Contractor's project organisation, with key positions and responsibilities identified and individuals named. The organisation structure shall also indicate the resources committed to the management / coordination of QA / QC activities
- Include a listing of all Quality Control Plans (QCP's), and associated Field Inspection Checklists (FIC's), as applicable
- Identify in the Project Quality Plan any Sub-Supplier/Sub-Contractor work. Sub-Supplier/Sub-Contractor plans shall be approved by the Supplier/Contractor, and a copy forwarded to the TPT
- Include the proposed Authorised Inspection Authority (where applicable - for pressurised equipment and systems)
- Include a schedule of proposed quality records

The PQP shall be controlled and re-submitted for approval when required to incorporate any change necessary during the Contract duration to ensure that the document is maintained as an effective control, change management and records. The change management will be done to an agreed policy or procedure.

Note: Where the Supplier/Contractor is required to provide a PQP, no work shall commence until the PQP is approved by TPT.

### **5.2 Procedures**

The Supplier/Contractor's PQP and procedures shall address the system elements and activities appropriate to the Scope of Work, in compliance with the specified Quality Standard.

Where specified, the Supplier/Contractor shall submit copies of Quality Procedures for review. In addition, the Supplier/Contractor shall ensure that copies of all Procedures relevant to the Scope of Work are available for reference by TPT at each work location.

These will include, as applicable, the following:

#### **5.2.1 Document Control**

The Supplier/Contractor's Project Quality Plan shall provide a description of how TPT provided, Supplier/Contractor and Sub-Supplier/Sub-Contractor documents are to be managed. The description shall address as a minimum:

- Management tools and databases
- Receipt, registration and maintenance
- Internal and external distribution to Employer, third parties and Sub-Contractors
- Management of Codes, Standards and Specifications

- 
- Internal review and approval routines and authorities
  - How it is ensured that the correct revisions of documents are available at the point of use including retention periods for all documentation.

### **5.2.2 Design Control**

Where the Supplier/Contractor is responsible for any aspect of design related to their Scope of Work, the Quality Plan shall describe the Supplier/Contractor's methods and procedures for the control of these design activities.

### **5.2.3 Procurement**

Where the Supplier/Contractor is responsible for any aspect of procurement related to their Scope of Work, the Quality Plan shall describe the Supplier/Contractor's methods and procedures for the control of these activities.

## **5.3 Supplier/Contractor Audits**

The Supplier/Contractor shall:

- Carry out audits in accordance with its Quality System at its own and Sub-Supplier/Sub-Contractor's facilities to ensure project quality requirements are being achieved
- Include a QA Audit Schedule in the Supplier/Contractor PQP submitted to TPT prior to commencement of the Scope of Work. The Audit Schedule shall include all audits to be implemented by the Supplier/Contractor and Sub-Supplier/Sub-Contractor during the execution of the Contract
- Where stipulated in the Contract, perform an audit within three months after the Contract start date and thereafter at a minimum frequency of three months. Audit reports shall be submitted to TPT at the completion of each Audit. Where unsatisfactory performance is evident, additional audits shall be performed by the Supplier/Contractor as directed by TPT.

## **5.4 Transnet Port Terminals Audit**

TPT reserves the right to perform quality audits or participate as an observer in Supplier/Contractor audits to verify compliance with the Contractual requirements. The Supplier/Contractor shall within a time frame as agreed upon, correct any adverse audit finding advised by TPT.

# **6. Inspection and Testing**

## **6.1 General**

TPT may, at its discretion perform surveillance inspection at the Supplier/Contractor's premises, SubSupplier/Sub-Contractor's premises or at the location of the Scope of Work.

Dependent on the nature of the Scope of Work and the frequency of inspections TPT may elect to have inspection personnel resident at the place of manufacture, fabrication, or assembly.

The Supplier/Contractor shall ensure free entry and access is given to TPT, certifying authorities and statutory authorities to inspect the Scope of Work and review procedures and quality records at all parts of the Supplier/Contractor's and Sub-Supplier/Sub-Contractor's premises, or at the location of the Scope of Work while any work or test is in progress.

The Supplier/Contractor shall provide TPT with all necessary tools, calibrated measuring equipment, safety equipment and workspace to verify or witness tests in progress.

While TPT is at the Supplier/Contractor's premises, the Supplier/Contractor shall provide, free of charge, reasonable facilities including office facilities and reasonable access to a telephone, facsimile machine and computer connection point.

The Supplier/Contractor shall provide notice in writing in within a time frame time as agreed upon, to allow the attendance of TPT and other representatives at nominated witness and hold points.

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## 6.2 Quality Control Plans

The Supplier/Contractor shall prepare and submit QCP's to TPT for review in accordance with the requirements of the Contract and PQP.

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

The Supplier/Contractor shall not commence fabrication or manufacture prior to review and approval of the applicable QCP by the TPT.

QCP's shall include reference to all tests specified in the Contract Document.

A typical format for an QCP is shown in Appendix A. The Supplier/Contractor may use its own format providing all information shown in Appendix A is included.

## 6.3 Inspection Points

The QCP shall identify points in the fabrication, manufacturing and/or installation process that are selected for inspection and shall be denoted by the following inspection codes:

- Hold Point (H)                      Inspection point in the manufacturing cycle, beyond which work shall not proceed without the specified activity, work or function being witnessed. Holding points require written notification to TPT.
- Witness Point (W)                      An inspection point in the manufacturing cycle that will be witnessed or verified. If TPT confirms it is unable to attend after being provided with the written notification then manufacture may proceed. Witness points require written notification to TPT.
- Review Point (R)                      A point at which products and quality records are verified and endorsed. Review points are not notifiable points.
- Surveillance (S)                      An inspection point in the manufacturing cycle during which any activity, work or function is observed. No formal notification is required.

The Supplier/Contractor shall maintain the status of testing and inspection by progressively having the QCP's signed off.

## 6.4 Revision to Quality Control Plans

Revision of the QCP shall be subject to the same submission, review and acceptance routines as described for the original QCP issue

## 6.5 Kick Off Meeting

After the Contract start date, and prior to manufacture, TPT will require a Kick Off Meeting with the Supplier/Contractor to discuss fully the implications of meeting TPT quality requirements. This meeting may be held as part of the Contract kick-off meeting for each package or may be a separate meeting, subject to the critical or complex nature of the work. This requirement for a pre-inspection meeting may be repeated when sub-Supplier/Contractors of key equipment are engaged.

After mobilization of the Contractor, and prior to the commencement of any construction activities, TPT will arrange for a Quality kick-off meeting to discuss fully the implications of meeting the projects' quality requirements. This meeting may be held as part of the formal kick-off meeting for each contractor, or may be a separate meeting subject to the critical or complex nature of the work.

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## **6.6 Schedule of Inspection**

The Supplier/Contractor shall submit a Schedule showing the proposed dates for inspections and tests nominated in the QCP where witness and hold points are required. The Schedule shall be regularly updated with progress and issued to TPT to show the current inspection and test status.

## **6.7 Field Inspection Checklists**

For site installation and construction activities, the Supplier/Contractor shall prepare Field Inspection Checklists (FIC's) to permit inspection and testing of installed equipment and constructed facilities in accordance with the respective QCP's.

FIC's shall be provided to TPT for initial review, and shall be used to record the results of inspection and testing (where applicable), and on completion be submitted to TPT to confirm satisfactory completion of the tests and inspections at nominated QCP witness and hold points.

## **6.8 Inspection Notification**

The Supplier/Contractor shall notify TPT in writing at least two calendar weeks prior to the advent of inspections or tests that require witnessing.

For inspections or tests within the country, arrangements shall be confirmed at least two working days before the event. For inspection and tests outside of the country, arrangements shall be confirmed at least seven working days before the event.

Inspection notifications shall include the following essential information:

- Contract Number
- Location of Inspection or Test
- Nature of Inspection or Test
- Date and Time of Inspection or Test
- Name and telephone number of the Supplier/Contractor's Representative.

## **6.9 Inspection and Testing**

The Supplier/Contractor is responsible for the conduct of all Supplier/Contractor inspections and tests, and includes:

- Documenting inspection and tests result in the QCP's and relevant FIC's
- Progressively inspecting the quality of the Scope of Work performed, including that of all Sub-Supplier/Sub-Contractors
- Inspecting to meet all Contractual requirements, in number, type and form
- Inspecting day to day activities, material receipts, issue of material for installation, in-process inspections, and final inspections.

Completed original QCP's and FIC's shall be submitted to TPT in the DP

## **6.10 Inspection Release**

At completion of the Scope of Work, either in total or in phases, TPT may issue an Inspection Release Report (IRR) or a waiver of inspection.

The issue of either an inspection release or waiver of inspection does not relieve the Supplier/Contractor of its obligations under the Contract. The Supplier/Contractor shall ensure a copy of the release note and final expediting release note for transport, where appropriate, is attached to the delivery docket and accompanies the Work to the designated destination indicated in the Contract. Items delivered to TPT without a copy of these documents may not be accepted.

A copy of the inspection release or waiver of inspection shall be included in the DP.

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## **6.11 Special Processes**

It is the Supplier/Contractor's responsibility to ensure that all processes which require prequalified procedures and/or work methods are tested and qualified before work begins. This typically covers such activities as welding, non-destructive testing, special fabrication techniques and painting. Unless specified such procedures are the Supplier/Contractor's responsibility and do not require submission to TPT before work begins. When such procedures are requested, no work shall commence until procedures are approved by TPT.

It is the Supplier/Contractor's responsibility to ensure all operators are qualified for the processes in accordance with the procedure and/or applicable standards. Records of qualification of operators shall be maintained by the Supplier/Contractor and made available to TPT when requested.

Records of qualification of procedures and processes shall be maintained by the Supplier/Contractor in accordance with the applicable procedure or code.

## **6.12 Welding Procedures**

Where the Supplier/Contractor's Scope of Work includes fabricated weldments, Welding Procedure Specifications (WPS) defining the method, preparation and sequences to be adopted to achieve a satisfactory welded joint shall be provided for all weld types required in the execution of the Supplier/Contractor's Scope of Work. The procedure shall only be submitted to TPT when requested in the Contract.

WPS shall include all welding essential and non-essential variables for each process used, including appropriate test results and shall comply with the standard or code pertaining to welding required in the execution of the Supplier/Contractor's Scope of Work.

When requested in the Contract a suitably marked "weld map" shall be completed by the Supplier/Contractor for all items to be fabricated. A summary of WPS shall be prepared and when used, shall be identified on the weld map.

Where TPT approval is required, fabrication shall not commence until written approval of WPS and Welding Procedure Qualification Records (WPQR) is received by the Supplier/Contractor. No welding fabrication will be accepted that is not covered by an TPT approved WPS/WPQR.

Welding Procedure Qualification (WPQ) tests may be witnessed by TPT and/or an independent inspection authority. Testing of the specimens prepared during the WPQ Tests shall be carried out by an independent approved testing laboratory independent of the Supplier/Contractor. In certain instances, a certificate to EN 10204 3.1 B may be required which will be clarified at Tender review and clarification stage.

Where actual weld deposit analysis and weld metal physical properties are required for procedure qualification, the information shall be taken from the procedure qualification tests. Data listed in the catalogues of the manufacturer of welding consumables is not acceptable.

Welders/welding operators shall be qualified in accordance with the relevant welding code prior to commencing production fabrication. Specific Welder Qualifications (WQ's) records will be reviewed by TPT in the Supplier/Contractor's works and should NOT be submitted for review.

A register of welders qualified to work shall be maintained by the Supplier/Contractor.

## **6.13 Material Traceability**

Where, and to the extent that material traceability is required, the Contractor shall provide its procedures for the maintenance of material identification throughout all phases of manufacture. Methods of identification, routines for re-stamping or stencilling as appropriate shall be defined and agreed with the Employer.

Adequate records shall be maintained throughout construction enabling traceability of key materials from final product back to original material certificates. The material traceability records shall form part of the DP

The Contractor shall prepare a schedule of materials and equipment that are subject to traceability requirements.

## **6.14 Material Certification**

Where specified in the Contract the following certificates shall be provided to TPT and included in the DP.

- |         |   |
|---------|---|
| Type A: | A Supplier/Contractor's certificate of compliance with the Contract. This certifies that the goods or services are supplied in compliance with the Contract without mention of any test results (EN10204 certificate 2.1).  |
| Type B: | A certificate issued by a laboratory or test facility independent of the Supplier/Contractor's works. It shall quote test results carried out on the product supplied and state whether compliance with the relevant technical standard, code etc has been complied with. (EN 10204 certificate 3.1 B). |
| Type C: | The same as Type B, the tests are to be witnessed by a third party (EN 10204 certificate 3.1C).   |

## **7. Non Conforming Products**

### **7.1 General**

The Supplier/Contractor shall establish and maintain procedures to control material or products that do not meet the specified requirements.

All Supplier/Contractor product and/or materials identified as not conforming to requirements shall be dealt with promptly as follows:

- If the Supplier/Contractor discovers material or product which is not in accordance with the requirements of the Contract, i.e. a non conformance (NCR), the Supplier/Contractor shall promptly initiate the non-conformance procedure in terms of the Supplier/Contractor's Quality Management System, advise TPT promptly, and provide a copy of the NCR to TPT
- If TPT or its agent identifies a non conformance an TPT NCR may be raised.
- Originals of all closed out NCR's shall be included in the DP.

### **7.2 Corrective and Preventative Action**

If the Supplier/Contractor proposes a disposition of any non conforming materials or product which varies from the requirements of the Specification or Contract, such a proposal shall be submitted in writing to TPT whose decision on the proposal shall be obtained in writing before the non conforming material or product is covered up or incorporated into the Works, or is the subject of any other disposition.

The disposition of non-conformances which do not vary the requirements of the Contract, specification or drawings may be approved by the Supplier/Contractor following discussion and agreement with TPT.

## **8. Concession Requests and Technical Queries**

### **8.1 Concession Requests**

Where a Supplier/Contractor requests a Concession to deviate from the requirements of the Contract or specified requirements, the Supplier/Contractor shall raise the request with TPT using the format as shown in Annexure B.

The Concession Requests shall clearly identify all elements of the proposed deviation together with any resulting technical, commercial and/or schedule impacts.

Completed original Concession Requests shall be included in the DP.

### **8.2 Technical Queries**

For clarification of technical issues (only), Supplier/Contractor may submit a Technical Query Note (TQN) to TPT in accordance with the Contract.

The TQN shall clearly identify all elements of the query, and all supporting documentation and/or drawings shall be attached where appropriate.

Completed original TQN's shall be included in the DP.

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## **9. Inspection, Measuring and Test Equipment**

### **9.1 Calibration**

The Supplier/Contractor, including its Sub-Supplier/Sub-Contractors shall ensure the calibration of test and measuring equipment is performed and maintained in accordance with the relevant Supplier/Contractor procedures and/or the equipment manufacturer's specifications.

Where calibration is required by an external laboratory, the Supplier/Contractor shall ensure that the facility selected for calibration possesses current certification. Calibration certificates shall contain a statement that the test equipment is accurate to within specified tolerances.

The Supplier/Contractor should establish the frequency of calibration for each item of equipment (including jigs, fixtures or templates) and record the details in a 'Measuring and Test Equipment Register' (or similar).

### **9.2 Use of Inspection, Measuring and Test Equipment**

The Supplier/Contractor shall ensure that authorised equipment users:

- Use the equipment in accordance with manufacturers instructions, and accepted industry practices
- Ensure the equipment is covered by a current calibration certificate
- Conduct the measurements or tests in accordance with the equipment manufacturer's specifications or other relevant specification
- Prior to commencement of each inspection or test activities:
- Identify the measurements to be made
- Determine the accuracy required
- Select the appropriate inspection, measuring or test equipment for the scope of work.

### **9.3 Verification of Previous Test Results**

Where the calibration status of the equipment is unknown, expired or has doubtful accuracy, the equipment shall immediately be quarantined, and tagged according to Supplier/Contractor's Quality System procedures. The Supplier/Contractor shall then arrange for either in-house or external calibration, and:

- review all previous test results associated with the suspect equipment
- identify the inspections, measurements or tests required to re-validate the results
- ensure that suitable re-testing is performed with calibrated equipment
- document the results of the re-testing on the respective inspection and test documentation.

## **10. Quality Records**

Supplier/Contractors shall maintain Quality Records necessary to provide objective evidence that demonstrates and verifies achievement of the QA / QC requirements associated with the Scope of Work. All Quality Records, including original source material test certificates and non destructive test reports, shall be retained by the Supplier/Contractor during the project, and be provided to TPT at the times, and in the quantities specified in the Contract.

The Supplier/Contractor shall collate all quality records in the DP and submit the DP to TPT in accordance with the Contract and all referenced standards and specifications. This DP shall be compiled progressively, and shall be available for review at all phases of manufacture or construction activities.

The Scope of Work shall not be complete until the Supplier/Contractor's DP including the quality records from Sub-Supplier/Sub-Contractors have been reviewed and accepted by TPT.

The DP shall be compiled progressively during the execution of the Scope of Work and shall be made available for review by TPT as required.

Quality Control Plan No.:	Rev:	Date Issued:
Contract No.:	Description:	Item No.:
Supplier / Contractor:	Location:	


[illegible]

## **Annexure B - Request for Concession**

<b><i>Request for Concession</i></b> _____				<b>No:</b> ____ of 2	
<b>A.SUPPLIER/CONTRACTOR SUPPLIED INFORMATION</b>					
SUPPLIER/CONTRACTOR NAME:			CONTRACT NO.:		
SUPPLIER/CONTRACTOR CONCESSION No.:			DATE:		
Required concession applicable to: (Item/Material/Equipment/Area)					
Description of Concession — Revised Requirements:					
Justification:					
(NOTE: This concession will be rejected if the following information is not provided):					
(i) VALUE OF BENEFIT TO CLIENT  S/R	(ii) AGREE TO AN EXTENSION OF THE WARRANTY  IF "YES" WHAT PERIOD?	YES	NO	(iii) ANY IMPACT ON SCHEDULE?  CF "YES" \\\WHAT PERIOD?	NO YES
<b>References:</b>					
Original Requirements	reference: Rev.: Specification	N		Rev.:	
Drawing No.:	Rev.: Specification	O.		Rev.:	
Drawing No.:	Rev.: Specification	:		Rev.:	
Attached documentation: applicable		N			
Requested by: (Supplier/Contractor) Name:		Signature :_____ D			

Note: Sections B to F on Page 2

<b><i>Request for Concession No:</i></b>			
B. SITE ADMINISTERED CONTRACT?	Yes <input type="checkbox"/>	Nn <input type="checkbox"/>	Go to "D"
Possible QC implications:			
<input type="checkbox"/> Recommendations <input type="checkbox"/> Recommende		<input type="checkbox"/> Rejected	
Site Construction Manager:		Signature:	Date:
Site Engineer:		Signature:	Date:
C. RECOMMENDATION BY CONTRACT ADMINISTRATOR: Name:			
Signature		Date:	
D. RECOMMENDATION BY ENGINEERING:			
<input type="checkbox"/> Recommende <input type="checkbox"/> Rejected <input type="checkbox"/> Conditional, with the following			
recommendations:			
Package Engineer:		Signature:	Date:
Lead Discipline Engineer:		Signature:	Date:
Engineering Manager:		Signature:	Date:
Comments:			
E. PROJECT MANAGER DISPOSITION: Accepted <input type="checkbox"/> Rejected <input type="checkbox"/>			
Name:		Signature	Date:
F. EMPLOYER DISPOSITION: Accepted <input type="checkbox"/>		Rejected <input type="checkbox"/>	<input type="checkbox"/>

		<b>REFERENCE</b>  EEAM-Q-012		<b>REVISION</b>  0	
SA Port Operations					
<b>DOCUMENT TYPE</b>  SPECIFICATION			<b>AUTHORISATION DATE:</b> Date signed by CEO		
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<b>COMPILED BY:</b>   EQUIPMENT ENGINEERING AND ASSET MANAGEMENT (GENERAL MANAGER)		<b>REVIEWED BY:</b>   SENIOR MANAGER (PROJECT MANAGER)		<b>REVIEWED BY:</b>   SENIOR MANAGER (ASSET MANAGER)	
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				<b>DATE</b> 01/04/2003	
-1-					
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<b>KEYWORDS</b> SPECIFICATION			<b>DATE OF LAST REVIEW:</b> N/A  <b>DATE OF NEXT REVIEW</b> 01/06/2005		

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## GENERAL ELECTRICAL EQUIPMENT

## SPECIFICATION HE8/2/2 [Version 4]

February 1997

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### 1. SCOPE

- 1.1. This Specification covers SAPO's requirements for low voltage general electrical equipment and must be read in conjunction with the main specification.

### 2. FACTORY BUILT ASSEMBLIES (FBA) OF SWITCHGEAR AND CONTROL GEAR

This section shall be read in conjunction with BS 5486 Part 1 and /or IEC 439.

- 2.1. All electronic control modules, printed circuit boards, electrical control and protection equipment etc. shall be housed in robust enclosures with minimum protection of IP 55 for indoor and IP65 for outdoor usage and shall be designed to protect the equipment from mechanical damage as far as possible.

- 2.1.1. All enclosures used indoors shall be manufactured from mild steel and enclosures used outdoors shall be manufactured from 3CR12 or stainless steel, and shall be painted in accordance with Specification HE9/2/8.

- 2.2. All equipment shall be housed in a FBA in terms of the following:-

- 2.2.1. A multi-cubicle-type design shall be used;

- 2.2.2. The FBA shall be for in- or outdoor installation according to use;

- 2.2.3. The FBA shall be of the stationary type;

- 2.3. Protection against shock shall be by means of:

- 2.3.1. By using protective circuits;

- 2.3.2. By discharging of electrical devices;

- 2.3.3. Barriers or enclosures noting that:

Where it is necessary to make provision for the removal of barriers, opening of enclosures, or withdrawal of parts of enclosures (doors, casings, lids, covers and the like), this shall be in accordance with the following requirements:

2.3.3.1. Removal, opening or withdrawal shall necessitate the use of a key or tool;

2.3.3.2. All live parts which can accidentally be touched after the door has been opened shall be disconnected before the door can be opened. This shall be by interlocking the door or doors with a switch disconnecter so that they can only be opened when the disconnecter is open and that the disconnecter cannot be closed when the door or doors is/are open.

If, for reasons of operation, the FBA is fitted with a device permitting authorised persons to obtain access to live parts while the equipment is switched on, the interlock shall automatically be restored on re-closing the door or doors.

2.3.3.3. For withdrawable equipment:

The FBA shall include an internal barrier or shutter shielding all live parts in such a manner that they cannot accidentally be touched when the door is open. It shall either be fixed in place or shall slide into place the moment the door is opened. It shall not be possible to remove this barrier or shutter except by the use of a key or tool.

2.3.3.4. Where applicable, warning labels shall be used.

Where any parts beyond an enclosure need occasional handling (such as replacement of a lamp or a fuse-link), the removal, opening or withdrawal without the use of a key or tool and without switching off shall be possible only if the following conditions is fulfilled:

A second barrier shall be provided inside the enclosure so as to prevent persons from coming accidentally into contact with live parts not protected by another protective measure. However this barrier need not prevent persons from coming intentionally into contact by by-passing this barrier with the hand. It shall not be possible to remove the barrier except through the use of a key or tool.

2.4. It shall be possible for competent electrical personnel to perform the following operations while the assembly is in service and live:

Visual inspection of switching devices and other apparatus;

Adjusting and resetting of relays and releases;

Certain fault location operations, e.g. voltage and current measuring with suitably designed and insulated devices.

- 2.5. Accessibility for maintenance shall be provided by use of barrier protected sub-sections for each functional unit or group.
- 2.6. All panels shall have an internal fluorescent light as well as 230 V 3 point plug fitted.
- 2.7. Anti-condensation heaters shall be fitted when called for by the main specification.

### 3. AC CONTACTORS

- 3.1. Contactors shall comply with IEC 947-4-1/latest.
- 3.2. Contractors shall be chosen by taking the following factors into account:-
  - 3.2.1. Load to be switched;
  - 3.2.2. Utilization category, e.g. AC1, AC2, AC3, AC4, AC11;
  - 3.2.3. Electrical life (Clause 3.3);
  - 3.2.4. Short circuit immunity;
  - 3.2.5. Starting time;
  - 3.2.6. Mechanical life:- All contactors shall have a mechanical life of at least 10 million operations. (1 operation equals 1 make and 1 break).
- 3.3. The electrical life shall be not less than that laid out below for the following utilization categories:-

Utilisation Category	Electrical Life In Hours
AC 1	8 000
AC 2	6 000
AC 3	8 000
AC 4	2 500
AC 3/4	5 000

The category AC 3/4 is defined as one where the usual operation is in category AC 3 with more than 1% of total operations occurring in AC 4.

For the purpose of determining life in this category the percentage operations in category AC 4 shall be equivalent to the expected value, but shall in any case not be less than 20% of the total.

- 3.3.1. The duty class shall be at least class 3. Should the operating class exceed that of class 3, i.e. 300 cycles per hour, the actual value shall be used when computing the expected electrical life.
- 3.4. Block type contactors shall be used for all low voltage motor control applications.
- 3.5. The maximum thermal current rating shall be at least 1.25 times the rated full load current.
- 3.6. Auxiliary contacts shall be contained in a separate unit directly operated from the main armature.
- 3.7. Visual indication by means of a pin or protrusion that the contactor is energized must be provided.

#### 4. **SWITCH DISCONNECTERS**

- 4.1. Switch disconnecters shall comply to BS 5419 and/or SABS 152.
- 4.2. The rating of the disconnector shall suit the system fault level and the breaking capacity of the associated moulded case circuit breaker (where used), or fuses, and shall be rated for fault make load break operation.
- 4.3. The mechanical endurance shall not be less than:-
  - 10 000 operating cycles for rated currents between 0 and 63 A;
  - 3 000 operating cycles for rated currents between 63 and 250 A;
  - 1 000 operating cycles for rated currents exceeding 250 A.
- 4.4. The electrical endurance in the appropriate utilization category shall not be less than 20% of the mechanical endurance.
- 4.5. Where the neutral link is external to the disconnector and is removable without first opening the disconnector it shall be labelled in terms of SABS 0142.
- 4.6. The disconnector shall be interlocked with the front cover of the enclosure in a way to prevent opening of the cover if the switch is "ON". The switch must be able to be switched on with the cover open, only by a competent electrician for maintenance purposes.
- 4.7. The disconnector shall be suitable for padlocking in the off position.

## **5. INDICATING INSTRUMENTS AND PROTECTION RELAYS**

- 5.1. All indicating instruments shall be flush-mounted industrial type that comply with the relevant clauses of IEC 51-1, IEC 51-2, IEC 51-7, IEC 51-8 and IEC 51-9 and shall have a minimum accuracy of 3% or better and shall have a scale length of not less than 90 mm.
- 5.2. All scales except for thermal ammeters shall be linear and shall be marked in accordance with BS 3693 with the scale selected for the accuracy class.
- 5.3. All instrument glass shall be glare free.
- 5.4. All current operated instruments and protection relays shall be protected against continuous over current of up to 120% of the nominal value as well as short circuit currents that may be experienced.
- 5.5. Ammeters shall be marked with the ratios of the associated current transformer.
- 5.6. Ammeter full-scale deflection shall be 120% of primary current of the associated current transformer.
- 5.7. Voltmeter scales shall indicate 80%-120% of the nominal system voltage. Where 0-120% indication is needed the nominal voltage shall be approximately 75% of full scale. The nominal voltage shall be marked with a red line.
- 5.8. If required by the system or main specification ammeters shall incorporate a thermal maximum demand indicator with a time lag of 15 minutes. A built in saturation current transformer shall be provided to protect the indicator against the maximum fault currents that may be experienced. A resettable pointer shall be provided to indicate the maximum value reached.

## **6. CONTROL SWITCHES**

- 6.1. Control switches shall comply with BS 4749.
- 6.2. "Emergency-stop" push buttons shall be of red colour, shall have one normally closed and one normally open contact and shall be of the mushroom head twist lock type and be lockable in the "off" position.
- 6.3. All push buttons shall have non corrosive appropriately engraved and anodized escutcheon plates fitted.

## **7. LIMIT SWITCHES**

- 7.1. All "end" or "ultimate" limit switches (e.g. slow down, end of travel, maximum travel etc.) shall be of the rotary cam operated type, housed in an extremely rigid cast iron enclosure with a minimum protection of IP 55, with large roller levers of the spring return-to-neutral action. It is stressed that the entire limit switch must be of an extremely robust construction.
- 7.2. All limit switches shall be mounted in easily accessible positions to facilitate adjustment, maintenance and replacement.
- 7.3. Magnetic or inductive proximity type limit switches are preferred and are to be used wherever possible.

## **8. RATING PLATES AND LABELS**

- 8.1. Rating plates complying with the relevant requirements of IEC 298 showing the following information shall be provided:-
  - 8.1.1. Manufacturer's name;
  - 8.1.2. Manufacturer's type number;
  - 8.1.3. Manufacturers serial number
  - 8.1.4. Portnet contract number;
  - 8.1.5. Year of manufacture;
  - 8.1.6. Rated values, etc.
- 8.2. Identification labels is required on or adjacent to all electrical control equipment, switches, relays, instruments, meters, fuses, MCCB's, test blocks, terminal strips etc. The text shall be in black letters on a white background and shall be at least 5mm in height.
  - 8.2.1. These identification labels shall correlate with the corresponding schematic and wiring diagram and the wording shall be in English.
- 8.3. All labels shall be of a corrosion resistant material and shall be securely attached.
- 8.4. Labels shall be placed adjacent to all fuses and circuit breakers to indicate their rating.

- 8.5. All switching devices shall be provided with labels that indicate ON, OFF, EARTH, as required. These labels shall be permanently marked with characters at least 10 mm in height, and shall be visible to the operator in a normal operating position, in a fixed position or located on a moving component of the switch that is visible through an opening and shall be as follows:-

8.5.1. I - white lettering on black background for the ON position;

8.5.2. O - white lettering on a green background for the OFF position;

8.5.3. Earth symbol in black on a yellow background for earth position.

## **9. MOULDED CASE CIRCUIT BREAKERS**

- 9.1. Moulded case circuit breakers shall comply with SABS 156.

## **10. FUSES**

- 10.1. Fuse links shall be of a high rupturing capacity type complying with SABS 172 and/or BS 88. Fifty percent spare fuse links of each size shall be supplied loose at handover of the equipment.

## **11. RESISTANCE UNITS**

- 11.1. Resistance units shall be made up of standard modules (mill-banks). These shall be to Nema 26.5" dimensional standards and each bank shall be made up of grids of one size only. The grids shall be of the heavy duty stamped chromium steel or nickel chromium alloy corrosion resistant grid type. There must be a terminal tap on every second grid.
- 11.2. Modules must be easily removable without the need to dismantle any part of the enclosure.
- 11.3. All taps and terminations shall be clearly identified with relevant numbers, which must correspond to the numbering shown on the schematic and wiring diagrams.
- 11.4. The resistance banks shall be enclosed in robust well ventilated drip-proof enclosures with louvred side and rear fixed covers. All units shall be accessible from the front only by "lift-off" type doors. Exterior and interior surfaces of the enclosure shall be painted with a suitable heat-resistant paint.
- 11.5. The resistance enclosed shall be arranged for floor mounting and bottom entry of electrical cables.

- 11.6. When resistance enclosure doors are removed, all terminals on resistance tapplings, the terminal blocks, cable terminations and the individual grid banks must be readily accessible.
- 11.7. Resistance units shall be mounted in accessible positions as near to their motion panels as is practical. Cast iron, sheradized mild steel, or wire wound resistances are not acceptable. All insulation used in the construction of the resistances must be fire proof and non-hygroscopic. Soldered joints must not be used in connection to resistances.
- 11.8. The resistances must be designed to at least Nema Class 174 P rating for hoist drives and Nema Class 94 rating for permanently connected resistances and shall be capable of prolonged operation in service without overheating.

**NOTE:** Resistances mounted in or on top of the control panels will definitely not be acceptable.

- 11.9. Resistance units shall be individually designated to indicate to which motion they apply.

## **12. POWER FACTOR CORRECTION AND HARMONIC FILTERING EQUIPMENT (IF ASKED FOR IN THE MAIN SPECIFICATION)**

- 12.1. Capacitors must comply with BS 1650 or IEC 70 and shall have passed the routine tests specified.
- 12.2. Capacitors must be of the "dry" metallized film or paper "self sealing" type, impregnated with an non PCB, fully biodegradable non-toxic dielectric.
- 12.3. Each capacitor must be fitted with an external HRC fuse rated at 2 times capacitor full load current, for protection.
- 12.4. Capacitors must be fitted with discharge resistors to discharge the capacitor voltage to less than 50 V in one minute.
- 12.5. Inrush currents of capacitors must be kept to an acceptable level by using reactors or resistors. Details of actual and allowable inrush currents to be given in tender documents.

## **13. WIRING AND CABLES**

- 13.1. All cables for fixed installations must comply with SABS 1507, except where special cables have otherwise been specified.
- 13.2. Steel wire armoured cables must be used where the possibility of mechanical damage exists.

- 13.3. Armouring of cables will not be used for earthing purposes or any return circuit but shall be bonded to earth. An earth conductor shall be provided in each cable for earthing purposes. If an earth core is not provided a separate, appropriately coloured, insulated earth wire shall be run.

- 13.3.1. Metallic structures shall not be used for any return or earthing circuit under normal operating conditions but all structures shall be electrically bonded together with welding type cables..

- 13.4. Spare cores and terminals for all control cables shall be provided as follows:

<u>Number of Conductors/Cables</u>	<u>Spare Cores</u>
3 - 6	1
7 - 12	3
Over 12	4

- 13.5. The standard method for numbering small wiring shall be as indicated in NRS 003, Annex A.

- 13.6. Colour coding of cables

- 13.6.1. Unless otherwise agreed to the colour of all auxiliary and control wiring (except earth wires) shall be grey. The colour of earth wires shall be green/yellow.

- 13.6.2. All three phase supplies shall be colour coded red, white and blue.

- 13.6.3. Single phase supply cables shall be blue for neutral and brown for live.

- 13.6.4. DC supply cables to motors, fields, magnets etc. shall be orange.

- 13.6.5. If the correct colour cables are not available cable ends may be marked with "air-shrink" or "heat shrink" type insulation material for  $\pm 200$  mm. Colour coding of cables with insulation or marking tape is not acceptable.

- 13.7. Cable Installation on structures and in electrical rooms etc:

- 13.7.1. Except where otherwise specified, the entire electrical installation including the wiring, shall where applicable, be in accordance with the "Code of Practice for the Wiring of Premises" (SABS 0142-1978) or the IEEE Wiring Regulations for Electrical Installations.

13.7.2. The cables must be installed by the following methods:

- 13.7.2.1. In cable ducts or hollow floors with covers;
- 13.7.2.2. On structures, strapped to cable trays or in electrical conduits, with protection against mechanical damage where necessary.
- 13.7.2.3. No loop-in wiring shall be permitted. All limit switch and field wiring shall return to junction boxes for re-marshalling.
- 13.7.2.4. All cable glands shall be corrosion resistant glands of the "Posi" or "Pratley Envirogland", Exe type, or similar.
- 13.7.2.5. Junction and connection boxes must be manufactured in glass fibre reinforced polyester with threaded brass inserts and earthing continuity rods, and must be suitable for threaded (minimum 8 threads) glands. The minimum enclosure protection must be IP65. Pratley "EZEE-FIT" or similar boxes will be preferred.
- 13.7.2.6. The number and size of cables that may be accommodated in cable ducts, trays or conduits shall be in accordance with the manufacturer's recommendations and the temperature rise permissible for the cables used for the load that may be carried.

13.8. Internal panel wiring shall be in accordance with BS 158 and/or BS 162:

- 13.8.1. All instruments and control wiring shall be carried out in minimum size of 1.5mm<sup>2</sup> cross section, with stranded copper conductors. Wires connected to current transformers shall have a minimum cross sectional area of 4 mm<sup>2</sup>.
- 13.8.2. The communication cores of screened cable shall have a minimum area of 1 mm<sup>2</sup>.
- 13.8.3. The wiring shall be done in a neat and orderly manner using any of the two methods below:
  - 13.8.3.1. In covered switchboard type wire channels or,
  - 13.8.3.2. Suitably strapped with approved strapping material.

13.8.4. When wiring is looped from the cubicle interior to the door or to the back it must be suitably strapped and enclosed in a flexible conduit.

13.8.5. Cable Trays:

13.8.5.1. Cable trays shall be of "Unistrut" or similar and equal manufacture and shall consist of butting sections made from stainless steel of minimum thickness of 1.2 mm. Cable trays shall be painted according to Specification HE9/2/8 for colour coding purposes.

13.8.5.2. Cable trays shall be bolted to structures on both horizontal and vertical runs at centres recommended by the number and mass of cables carried. Maximum distances 1.3. metre for steel.

13.8.5.3. Each section of metal cable tray must be provided with a stainless steel connection tab/lug at each end prior to being painted, for continuous earthing purposes.

13.9. Terminals and connections:

13.9.1. All terminal connections shall be done with good quality connectors and/or lugs and each wire end shall be marked with durable tags or clips on which shall be clearly and indelibly marked, the identifying code numbers of each wire, corresponding to the wiring diagrams.

13.9.2. The system of wire and terminal numbering shall be provided in the terminal boxes for possible additional wiring.

13.9.3. A minimum of 20% but not less than 4 spare terminals shall be provided in the terminal boxes for possible additional wiring.

13.9.4. Box type rail mounted terminals complying with EN 50035 with a pressure pad between the conductor and clamping screws shall be used. Cage clamp systems may also be used except in areas where high shock forces exist, e.g. on spreader beam or headblock equipment.

13.9.5. Moulding and insulation materials shall be resistant to flame or self extinguishing as required by IEC 216.

13.9.6. Access to all terminals shall be through doors, covers etc.

13.10. Flexible Connections:

- 13.10.1. Where wiring crosses from one structure to another and relative motion between the structures is possible, a welding type cable earth bond shall interconnect the two structures.
- 13.10.2. Flexible connections shall be made with heavy duty flexible cord using watertight terminators. Where the length of cable is greater than 1.6. metres a basket type cable grip shall be provided at each end.
- 13.10.3. Flexible cables shall run in free air and shall not contact other cables or structures.


14. **PROTECTION AGAINST CORROSION**

- 14.1. All enclosures, cabinets etc. shall be manufactured from 3CR12 or similar stainless steel sheeting, as called for in the main specification and shall be painted according to Specification HE9/2/8 for identification.
- 14.2. All fixing screws, bolts, nuts, washers, clips, terminals, brackets, etc. shall be stainless steel.

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**END OF SPECIFICATION HE8/2/2 [Version 4]**

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## **1. Purpose**

The purpose of this standard is to establish the requirements for verification and documentation of completed Construction work and to establish the methods for:

1. Preparing a list of open work items on units/modules/systems that have been handed over to Cold Commissioning,
2. Disseminating this information to responsible parties and closing out completed items on the list.

The intent is to have only one integrated Punch List Process for Construction Completion and Commissioning that interfaces with the Client, nominated EPCM Team and Contractor. This master punch list will be held in an electronic database so that punch lists can be generated for any module/system in the plant as required.

## **2. Scope**

This standard is applicable to the process of construction completion leading to handover for Cold Commissioning and Hot Commissioning.

## **3. References**

- NEC 3 Engineering and Construction Contract
- EEAM-Q- 009 - Quality Management
- Occupational Health and Safety Act, Act 85 of 1993 as amended

## **4. Definitions**

### **4.1. Mechanical Completion**

Mechanical Completion is that point where a system or sub-system has been installed, erected and tested in accordance with the job specification and drawings to the extent that Cold Commissioning activities on that particular system can productively and safely begin. This is the demarcation point where ownership of the sub-system/system changes hands from the construction staff to the commissioning team.

## 5. Punch Listing Process

Prior to Mechanical Completion the *Supervisors* assigned to the various Contracts will work with the Contractor to identify items of work that is deficient and/or incomplete to ensure that the formal Punch List Process is streamlined. The items identified in this manner will not form part of the Punch List but advised to Contractor during the normal Construction Management Processes. The nature of defects during this Punch List Items are likely to be of a physical nature e.g. incomplete work, incorrect work, etc.

During Cold Commissioning, punch items can be added to the Punch List by the Commissioning Team. The Punch List Items during this process is likely to be of a functional nature e.g. belts not running fast enough, pressure not correct, etc.

During Hot Commissioning, further Punch List items could be added. The Punch List Items at this stage should be of a performance nature e.g. not enough tonnage, quality of product not correct, etc.

Defects/Deficiencies identified during the Punch List Process shall be recorded.

### 5.1. Mechanical Completion Punch list

When in the opinion of the Contractor, the Works or part of the *works* is sufficiently complete to warrant the commencement of Cold Commissioning of such *works*, the Contractor will submit a request for a joint Mechanical Completion Punch list inspection, after having punched the works himself and cleared all Category 'A' Punch list Items. Any additional Category 'A' Punch list items identified by the Transnet Port Terminals team must be rectified before proceeding to the next stage.

Once all Category A Punch List Items have been rectified a Mechanical Completion Certificate will be issued to the Contractor.

For Civil and simple building contracts, the Project Manager will certify Completion at this point and issue a Completion Certificate. The works shall also be taken over by the Employer within 2 weeks of completion and the Project Manager shall certify Take Over.

Note: Mechanical Completion also means Electrical and instrumentation Completion where relevant

## **5.2. Certification by the Designer**

In accordance with the requirements of the Construction Regulation 9.(2)(f), the Designer is required to carry out sufficient inspections at appropriate times to ensure that the works is constructed in accordance with the design. The Designer shall record such inspections. Designers Inspection Record. The Priority for Completion on the Designers Inspection Record must be tailored to suit the structure being inspected. Where the Resident Design Engineer (RDE), represents the design he shall use the same form.

Once the structure being constructed reached the stage of Mechanical Completion, the Designer shall carry out a final inspection and issue a Certificate of Compliance certifying that the structure is safe to commission, (Construction Regulation 9.(2).(h).

## **5.3. Cold Commissioning Verification**

For process type plants such as Bulk Materials Handling Plants, any functional effects/deficiencies identified during Cold Commissioning will be registered in the Deficiency Management Database for rectification and closeout. For simple projects such as Rail Tie-ins, a manual tracking system shall be implemented by the *Supervisor*.

When the Works has been Cold Commissioned, the *Contractor* will submit a request for a joint Cold Commissioning Punch list inspection to verify that all Category 'A' and 'B' punch items are completed and to ensure that damaged plant and equipment are repaired prior to the issue of a Cold Commissioning Certificate.

For all contracts, a Cold Commissioning Completion Certificate must be issued at this point.

## **5.4. Hot Commissioning Verification**

Any functional defects/deficiencies observed during Hot Commissioning will be recorded in the Deficiency Management Database and added to the project punch list for rectification and close out.

As soon as the Contract Works have successfully passed all applicable performance tests in accordance with the conditions of the relevant contract and upon completion of Hot Commissioning, Transnet Port Terminals and the Client verify that all functional defects/deficiencies recorded in the Deficiency Management Database have been investigated, resolved, closed out and have been signed off.

For design, supply and install contracts a Hot Commissioning Completion Certificate will be prepared by Transnet Port Terminals for signature by the Client.

## 5.5. Punch list Categories

Punch list items will be categorised into Category 'A', 'B' or 'C' punch items using the following criteria:

Category 'A' Punch Items:	Punch Items that affect the health of persons and safety of the Works that must be rectified before equipment can be Safety Cleared prior to the end of Stage 1.
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Listed below are examples of items that should be classed as Category 'A' Punch list items.

- Absence of Red Lined As Built" Drawings
- Safety valves/Pressure relief valves not operational
- Open Trenches
- Uncovered / Open Slots
- Floor grating missing
- Grouting outstanding
- Hand railing and Kick Plates missing
- Structural items loose / missing
- Missing or incomplete equipment
- Machine guards missing/Not fitted correctly
- Safety covers missing on Electrical equipment
- Emergency stops/Trip systems not operational
- Safe working procedures not in place
- Safety Warning Signs missing
- Lighting
- Audible warning systems not operational
- Labelling outstanding
- Colour coding outstanding
- Pipe Supports, Gaskets, Bolts, etc. on piping missing or defective
- O&M Manuals

Category 'B' Punch Items:

Punch Items that may be rectified during the Cold Commissioning phase but must be cleared before the issuing of a Cold Commissioning Certificate prior to the end of Stage 2.

Listed below are examples of items that should be classed as category B: Punch list items.

- Red Lined As Built' Drawings
- Permanent labeling not fitted
- Protection and interlocking systems not operational
- Missing/incomplete field instrumentation that supports protection and interlocking systems
- Colour coding not done
- Safe work procedures not in place

Category 'C' Punch Items:

Minor Punch Items that may be rectified during the maintenance / warranty period.

Listed below are examples of items that should be classed as Category C Punch list items.

- Cosmetic items
- Painting (other than colour coding)
- Non-critical documentation

Any Health and Safety requirements identified during Punch listing must be rectified before the issue of a Safety Clearance Certificate.

## 5.6. Additional Employer Requirements

Additional Employer requirements must be listed and handed to the *Project Manager* for a decision to implement. These items could be logged in the Punch List as Category C items for follow-up and close-out

## **5.7. Punch List Register Attributes**

The Punch list Register will, as a minimum, contain the following information:

- Transnet Port Terminals Management Area
- Description of Equipment
- Drawing Number
- Punch list ref. no.
- Punch list Originator
- Punch item number
- Punch list Date and revision

Plant number where applicable

- Description of defect
- Category 'A', 'B', 'C'
- Defect Type outstanding item, construction defect, design, wish list
- Scheduled date of completion
- Actual completion date
- Responsible Party e.g. Contractor/Transnet Port Terminals

## **5.8. Punch Listing Documentation**

All Punch lists must be registered with the Transnet Port Terminals Quality Manager.

The Quality Manager will log the punch list items into Commissioning Database and issue the compiled list to the Contractor and relevant Transnet Port Terminals Construction Supervisors.

The following requirements are compulsory during commissioning and handover:

### **Cold Commissioning**

1. Punch list (rev 1)
2. Initial Data pack
3. Operating manuals and procedures (rev 1)
4. Data pack
  - 4.1. Test certificates for ropes/twist locks/ spreader
  - 4.2. Operation and maintenance manuals
  - 4.3. Design/drawings
  - 4.4. Quality Control records.
5. Cold Commissioning certificate with punch list items category 1 and 2 complete (signed off by the project manager, maintenance manager, contractor)

### **Hot Commissioning**

6. Certificate of electrical compliance
7. Functional data pack data pack (functional) speeds/brakes
8. Load test certificates
9. Punch List (rev 2)
10. Signed off operational Handover (signed off by the Project manager,

maintenance manager, and contractor)

### **Endurance Testing**

11. Endurance test report
12. Performance test report
13. Punch list (rev 3) to include planned completion date of all items at this point
14. Provisional Handover (signed off by the project manager, maintenance manager and contractor, operations manager).

### **Final Handover**

(to occur within 30 days after provisional handover)

Final handover will occur 30 days after the provisional handover to operations. At this point, the project manager will ensure that the defects as recorded on the punch list have been completed by the contractor with the provision that operations can provide for the work to be completed. If the equipment has not been handed over to the project team within this period to close off all items then the equipment will be deemed fully handed over to the operations team.

## **5.9. Finalization of Punch List Items**

The Contractor will be responsible to ensure that all Punch list Items are cleared by the agreed date.

Each day, an updated punch list report shall be generated by the Contractor and given to the Supervisors for distribution. Weekly punch list status reports and graphs shall be generated to facilitate the management and completion of the punch effort.

A completion punch report shall be inserted into the Data Pack. This report will indicate any outstanding punch items that shall remain to be completed after handover. No category "A" items will be allowed to carry-over to the commissioning phase of the project.

When items on the punch lists are cleared, the Contractor will ensure that the punch list register is updated to reflect the status of punch list completion. Functional and performance defects and deficiencies identified during the Commissioning and Maintenance phases will be recorded by the Supervisor and handed over to the responsible Contractor for clearance.

All Punch list items, functional defects and deficiencies must be cleared before the issue of a Defects Certificate.

## **6. Roles and Responsibilities**

### **6.1. Construction**

Construction is responsible for the following:

- Identification of Punch List items
- Manage punch list progress on a daily basis to support the construction completion activities
- Issue system walk down notice based on Contractor reported status
- Ensuring that Construction personnel complete assigned Punch List items in a timely manner
- Providing the Commissioning Group with input on any open work items identified by Construction on units/modules/systems turned over to Commissioning

### **6.2. Supervisors**

Construction Supervisors are responsible for the following:

- Facilitate Contractor change and understanding of shift from work package to system completion
- Manage punch list progress on a daily basis to support the construction completion activities
- Issue System Walk-down Notices
- Work with Resident Design Engineers to complete checklist and test reports that support Commissioning activities
- Coordinate Contractor personnel for commissioning activities.

### **6.3. Resident Design Engineers**

Resident Design Engineers represent the "Designer" on Site and with respect to Punch Listing are responsible for the following:

- Participate in construction walk-downs and punch list process
- Assist in establishing system package contents, including drawings, test results, check sheets, supplier information, and other Client required documentation
- Resolve design and material issues caused by punch lists and functional deficiencies
- Resolve non-conformance reports associated with the system
- Participate in the finalization of the Data Packs
- Assume the role of commissioning engineer where no specific commissioning engineer has been appointed.

### **6.4. Contractors**

Contractors are responsible for the following:

- Completion of the works according to the drawings and job specifications and within the time constraints of the project schedules and milestones
- Handing over documentation according to the procedures.
- This includes but is not limited to quality verifying documents, marked up as-built drawings, punch list status, etc.
- Co-operating closely with Transnet Port Terminals to permit an orderly and timely completion of the entire facility
- Co-operating with the Others to facilitate the commissioning effort, especially when system / module boundaries overlap the scope of more than one Contractor

### **6.5. Equipment Vendor Representatives**

Each Vendor Representative is responsible for providing the Commissioning Group with input on

- any open work items identified on Units/Modules/systems handed over to Commissioning.

#### **6.6. QA/QC Team**

QA/QC is responsible for the following:

- Ensure Commissioning QCP's are prepared
- Ensure Commissioning Files are prepared and complete and forms part of the Data Packs
- Participate in Punch Listing process
- Coordinate the collection of quality records with Contractor and ensure Data Books are compiled as construction and commissioning work progresses
- Manage the Punch List System
- At approximately the 60% point in construction, pro-actively facilitate the change of project focus from an area approach to a systems approach for completing and handing over the facility

#### **6.7. Transnet Port Terminals Commissioning Manager**

The Transnet Port Terminals Commissioning Manager/assigned Commissioning Engineer is responsible for the following:

- Preparing, reviewing, and issuing individual system Punch Lists and Functional Deficiency Lists to the appropriate parties for rectification/resolution
- Maintaining and updating the Deficiency Management Database for process type plants
- Distributing new and updated Module Punch Lists

#### **6.8. Transnet Port Terminals Commissioning Engineers**

Each Transnet Port Terminals Commissioning Engineer is responsible for the following on their assigned systems:


- Ensuring that deficiencies and defects identified during Cold and Hot Commissioning are recorded in the Deficiency Management Database
- Expediting completion of all open Punch List and Functional Deficiency Items
- Verifying item completion
- Where no specific Commissioning Engineer has been identified, the Resident Design Engineer assumes that responsibility

## **7. Records**

All records generated are in accordance with the requirements of this procedure and retained in accordance with the requirements of the Procedure Archiving and Retention of Documents and signed over to the Client in accordance with the requirements of procedure. Document Handover to Client.

## **8. Annexure**

Annexure 1 – EEAM - Q - 009 – Quality Management

REVISION 0	REFERENCE EEAM-Q-014 (ORIGINAL SPECIFICATION –HE8.2.3 Ver5)			
DOCUMENT TYPE: SPECIFICATION				
TITLE: SPECIFICATION FOR ELECTRICAL MOTORS AND GENERATORS			PAGE 0 of 06	
COMPILED BY:  PROJECT ENGINEER ( )	REVIEWED BY:  CAPITAL PROJECTS MANAGER (DAN REDDY)	REVIEWED BY:  ASSET MANAGER/SHEQR MANAGER ( )		
AUTHORISED BY:  GENERAL MANAGER – EQUIPMENT ENGINEERING & ASSET MANAGEMENT (HAMILTON NXUMALO)				
FUTURE REVISION RECORD NUMBER	DESCRIPTION OF REVISION	APPROVAL	DATE	
-1-				
CONTENTS 1.0 SCOPE <div style="text-align: right;">Page 02</div>				
KEYWORDS DESIGN, HYDRAULICS, SERVICE		DATE OF LAST REVIEW: N/A DATE OF NEXT REVIEW: 09/2005		

## DETAIL CONTENTS

[illegible]

**1. SCOPE**

- 1.1. This Specification and Appendix covers TPT's requirements for electrical motors and generators and must be read in conjunction with the main Specification.
- 1.2. All motors offered shall have performances and dimensions complying with SABS 948, VDE 0530, or BS 4999 and BS 5000 and other relevant standards.
- 1.3. Tenderers shall furnish detailed calculations including load cycle diagrams, max. torque/ RMS comparison, service conditions, derating factors, insulation, duty type and cyclic duration factors, etc. with their tenders, indicating how they arrive at the kW rating of all machines and to support their choice of each motor. All parameters and variables used in the calculations must be clearly defined.
- 1.4. The preferred nominal voltage for AC motors under 132kW shall be 400 V 3-phase, 50 Hz.
  - 1.4.1. Motors 132 kW and above must be supplied from 3.3 kV unless otherwise approved.
- 1.5. For variable frequency variable speed drives the motor shall be correctly rated for all speeds over which it is envisaged to run the motor, and power calculations shall show the torque and kilowatts required for each speed. The highest torque needed will be determined by the power of the motor selected. The torque/speed/power relationship must be observed. The variable frequency supply unit shall have at least twice motor full load current amperage capacity.
- 1.6. The full load efficiency of electrical motors and generators shall not be less than 80%, except for motors under 3 kW in which case not less than 60%.
- 1.7. All motors shall have a minimum degree of protection of IP 54 to IEC 144, except for motors which are installed in a clean and controlled environment for which the minimum protection is IP 23.
  - 1.7.1. Suitable drain holes shall be provided at the lowest points in the machines to allow condensed moisture to escape.
  - 1.7.2. Motor frames and endshields shall be cast iron unless otherwise approved.

- 1.8. All motors shall be equipped with parallel shafts to metric standards with keyways parallel to the axis and screwed ends.
- 1.9. All motors 18,5 kW and above and all motors which can become covered with product dust, shall be fitted with the following over temperature protection equipment:-
  - 1.9.1. Positive temperature coefficient thermister (PT100) type sensors fitted to the stator windings to trip the motor overloads when the temperature reaches the maximum stipulated for class B insulation at 45°C ambient temperature;
  - 1.9.2. Bearings are to be fitted with positive temperature coefficient RTD type sensors, embedded in the bearing housing of each bearing, set to trip according to the manufacturer's specification.
- 1.10. All DC Motors must be fitted with over speed trip devices on the motor shafts.
- 1.11. All motors shall be supplied with anti-condensation heaters (unless otherwise approved), terminated in a terminal box (No loose leads).
  - 1.11.1. Low voltage heating of the stator windings may be used on small motors.
- 1.12. The insulation of all motors shall be to at least class "F". Additional impregnation shall be used for the high relative humidity conditions. Temperature rise of motors on full load shall not exceed the temperature limits as laid down for class "B" insulation.
- 1.13. The material used in construction of sliprings and brush gear shall be corrosion resistant. The insulation shall be at least class "F" and non hygroscopic and specially designed to avoid tracking due to deposition of saline moisture.
  - 1.13.1. Sliprings shall be manufactured from electrical quality brass. Brush gear shall either be brass or stainless steel.
  - 1.13.2. Sliprings shall preferably be fitted with a brush lifting and short-circuiting device.
- 1.14. Provision shall be made for easy access to sliprings, brush gear and bearings.
- 1.15. Where an electrical motor needs to be braked a suitable method shall be used e.g. mechanical, reverse current, D.C. injection, thyristor controlled etc. (Preferably electrical to 10% of rated speed, then mechanical to hold load etc.)
- 1.16. In addition to the normal data, motor name plates shall show the

following information (where applicable):-

- 1.16.1. Bearing particulars;
  - 1.16.2. Lubrication data;
  - 1.16.3. Thermostat details;
  - 1.16.4. Anti-condensation heater details;
  - 1.16.5. Grade of brush for slip rings.
- 1.17. Suppliers must state the specifications to which all motors and generators are manufactured.
- 1.18. Motor Tests and Certificates:**
- 1.18.1. Type test certificates in respect of the current design of each motor or generator shall be submitted in addition to routine test certificates. Motors or generators for which type test certificates are not available are not acceptable.
  - 1.18.2. One motor of each size for all motors over 30 kW must be subjected to a type test as well as routine tests at the manufacturer's premises. Tenderers must include for these costs in their offer.
- 1.19. Motor Starters and Controllers:**
- 1.19.1. Motor starters shall comply with BS 587 and/or BS 4941 Part 1 or other relevant standards.
  - 1.19.2. All motor starters shall generally be provided with the following:
    - 1.19.2.1. Switch disconnectors;
    - 1.19.2.2. Fuses for short circuit protection;
    - 1.19.2.3. Contactors;
    - 1.19.2.4. Overload, phase imbalance and single phasing protection devices;
    - 1.19.2.5. Earth leakage protection;
    - 1.19.2.6. Control relays;
    - 1.19.2.7. Under voltage protection. (Contractors dropping out to disconnect the motor from the supply when the supply voltage falls below 65% of the nominal value are acceptable);

- 1.19.2.8. Emergency stop buttons;
- 1.19.2.9. Overspeed trip devices where applicable;
- 1.19.2.10. Voltmeter and ammeter connected to the incoming supply side of the main contactor;
- 1.19.2.11. All motors 55 kW and above shall be fitted with capacitors to correct their power factor to at least 0,97 lagging.
- 1.19.3. All starters and controllers must be marked designating the type of starter, rating etc.
- 1.19.4. A diagram of connections of each motor and schematic diagram of the control circuits in booklet form, size A4 shall be housed in the main panel.
- 1.19.5. The operating voltage of the motor starter shall be 231 V AC which shall be supplied by means of a 400/231V transformer (which has an earthed screen between the primary and the secondary windings) for each motor starter panel.
- 1.19.6. All equipment associated with a motor starter shall be housed in the same cubicle/enclosure and control buttons and selector switches shall be fitted on the cubicle door.
- 1.19.7. Where low voltage motor starters are a considerable distance away or not visible from the motor, a remote start/stop station with a lockable switch disconnecter must be provided at the motor for maintenance purposes.
- 1.19.8. The type of starter shall be (based on an expected voltage drop of  $\pm 5\%$  of nominal supply voltage during starting).
  - 1.19.8.1. "Direct-on-line" for motors up to 30 kW.
  - 1.19.8.2. AC variable speed drives for motors of 30 to 132 kW.
  - 1.19.8.3. Motors over 132 kW will be supplied from 3.3 kV 3-phase AC and started direct-on-line unless otherwise specified.
- 1.19.9. Tenderers may alternatively tender for electronically controlled starters and solid state motor protection devices. Full details must be submitted.
- 1.19.10. All resistors used with rotor-resistance starters shall be adequately rated for normal operating duty of the machine and shall be of robust construction, suitably protected and

enclosed and not subject to fatigue or disintegration due heating or vibration.

- 1.19.11. Starters for medium voltage motors must comply with Specification HE8/2/11.

1.20. Over-load Protection:

- 1.20.1. Motor protection relays shall comply with BS 4941 Part 1, IEC 292-1, 1975, or other relevant standards.


- 1.20.2. Motor starters up to 30 kW shall have adjustable 3 phase electronic thermal overload relays with stalled overload protection, selectable tripping class, as well as ground fault protection.

- 1.20.2.1. Motor starters of 30 kW and larger shall be fitted with current-transformer operated solid state motor protection relays.

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**END OF SPECIFICATION HE8/2/3 [VERSION 5]**

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**1. SCOPE**

- 1.1. This specification covers Sapo's general requirements and conditions for the design, supply, erection and commissioning of port equipment and structures and must be read in conjunction with the main specification.

**2. GENERAL**

- 2.1. Each Tenderer shall provide Sapo with sufficient proof of having suitable experience regarding the designing and/or manufacturing of similar equipment, proven in practise and applied in circumstances similar to those intended by Sapo. To this end, complete and detailed reference lists shall be submitted with the tender.
- 2.2. The equipment in general and the intended operation of the equipment to be supplied, shall be in full compliance with the Occupational Health and Safety Act, Act 85 of 1993, as amended.
- 2.3. The tenderer must submit an offer in accordance with the main specification, and may only then submit alternative offers. Full details as requested in these tender documents should be submitted for each alternative offer. Full details of the differences or deviation from the main offer shall also be submitted.
- 2.4. The Tenderer shall submit a complete list of proposed sub-contractors and suppliers of major components with his tender.
- 2.4.1. The list of sub-contractors must contain sufficient detail to enable SAPO to grant approval for the respective sub-contracting.
- 2.5. A complete list of major components shall be submitted with the tender, containing sufficient details like make, description, rating, standard of design and manufacture, etc. to enable Sapo's Engineers to decide about its suitability in terms of local conditions, availability, past experiences, etc.
- 2.6. To enable Sapo to apply life-cycle costing in comparison of offers, a complete list of major components to be replaced during the life of the equipment shall be submitted, indicating for each item the expected mean time between failures, based on past experience, and total cost of replacement, including labour and material. Any additional material that can assist Sapo to apply life cycle costing can be submitted by the Tenderer.
- 2.7. The equipment as made and supplied shall be complete in every respect, of modern design using most advanced technology extensively supported by reputable local companies, and be designed and built to applicable recognised standards and good engineering practices.
- 2.8. All components to be fitted shall have been tested for reliability and extended lifetime in conditions to be expected.

- 2.9. The Tenderer shall complete the Schedule of Prices. The lump sum quoted for each category shall be deemed to cover all costs of the design, materials, plant and labour of each item to complete the work according to the drawings and specifications.
- 2.10. All special tools, software and devices essential for the effective operation and/or maintenance of the plant and equipment, shall be listed, detailed and quoted for separately in the Schedule of Prices.
- 2.11. Further to clause 11 of the E5M (1980), the Contractor shall comply with all Municipal regulations regarding the inspection of any portion of the Works. The Contractor shall further provide the Engineer with documented proof of compliance when so requested by the Engineer.
- 2.12. All handbooks, training manuals, wording on drawings and equipment designation labels shall be in English and the Contractor shall ensure that the correct and accurate translation of English is used throughout.
- 2.13. The works will only be accepted (and the certificate of acceptance issued) when the works has been successfully commissioned and tested, and all final drawings, manuals and other documents required in terms of the contract has been delivered to SAPO and accepted by SAPO
- 2.14. Where "tonne", "ton" or the abbreviation "t" is used, it shall be taken as meaning "metric ton" which is equivalent to 1 000kg or approximately 2 204,62 pound mass.

### **3. STATEMENT OF COMPLIANCE**

- 3.1. All tenders are to be accompanied by a separate clause by clause statement of compliance to the requirements of the main specification, as well as to all its annexures, completed and signed by the Tenderer. A general statement that equipment offered is in compliance with the specification is not acceptable.
- 3.2. Every statement of non-compliance or partial compliance shall be fully defined by the Tenderer.
- 3.3. Where a simple statement of compliance against a particular clause could be insufficient to describe exactly what is being offered, a description, fully explaining the Tenderer's offer, shall be submitted with the tender.

### **4. COPYRIGHT OF PLANS, DIAGRAMS AND DOCUMENTS**

- 4.1. The contractor will grant to Sapo a non-exclusive licence, in accordance with the provisions of section 22 of the Copyright Act 1978 (Act 98 of 1978), (a) to copy any plan, diagram, drawing, specification, bill of

quantities, design calculation or other similar document made other than under the direction or control of Sapo, by the Contractor in connection with the installation, (b) to make free and unrestricted use thereof for its own purposes, (c) to provide copies thereof to consultants to be used by them for the purpose of the consultancy and (d) to provide other parties with copies for tenders invited by it. The Contractor, further more, if any plan, diagram, drawing, specification, bill of quantities, design calculations or other similar document made, other than under the direction or control of Sapo, by any principal or sub-contractor of the Contractor, is used in connection with the installation, shall cause such principal or sub-contractor to grant to Sapo a similar non-exclusive licence in respect of such plan, diagram, drawing, specification, bill of quantities, design calculation or other similar document. The provisions of this clause shall not apply to documents made, in the case of equipment to be supplied in connection with the manufacturing process of the equipment supplied but only to the equipment supplied itself. No separate or extra payment shall be due by Sapo in respect of any non-exclusive licence granted in terms of this clause.

## **5. DESIGN CALCULATIONS**

- 5.1. Tenders must be accompanied by a preliminary design analysis and drawings for structural work. The design calculations and drawings shall be sufficiently comprehensive for Transnet Engineers to make a fair and accurate assessment of the essential details and general qualities of the scheme offered. The various loading combinations used for the analysis of the structure must be detailed and submitted with the tender.
- 5.2. At the completion of the Works, the Contractor shall supply as part of the contract, one set of clearly set out, edited and bound, final complete design, stability and stress analysis for all structural items.
- 5.3. Designs based on computer analysis must include properly drawn up, indexed and reference diagrams of all bending moments, shear and axial forces and deflections for all the loading cases. A number reference drawing to facilitate reading of computer printouts must be included.

## **6. CERTIFICATION**

- 6.1. Where applicable, the Contractor shall for each piece of equipment fully completed and taken over by Sapo, submit the necessary certificate of classification and/or certification by a recognised testing authority in compliance with requirements of applicable standards and rules.

## **7. CONTRACT MANAGEMENT**

- 7.1. The Tenderer shall submit a full set of financial statements, as required in terms of the Companies Act, for the last three financial years. This shall

include the financial statements, auditor's report and chairman's report of the Tenderer and proposed main sub-contractors.

- 7.2. The Tenderer shall submit an organogram of the company with his tender which shall show all posts down to supervisory level for all personnel who will be directly involved with this contract and down to managerial level for all other posts in the Tenderer's organisation.
- 7.3. The Tenderer shall submit a C.V. of all personnel who will be directly involved with the management and execution of this contract down to supervisory level. This shall include qualifications and past experience.
- 7.4. The successful Tenderer shall be prepared to commit himself in writing to providing Sapo with an adequate, experienced and stable project team for the duration of the contract. Every effort must be exercised by the Contractor to minimise replacement of individual project members in order to ensure optimum contract management continuity. Prior advice and full motivation must be submitted to Sapo before the replacement of any of the Contractor's key personnel involved with the project.
- 7.5. The Tenderer shall submit a detailed barchart showing all major activities and identifying all major milestones to be achieved in this contract. This barchart will be critically analysed by Sapo as it will show whether Tenderers are able to plan the project efficiently. This barchart will be taken into account when evaluating offers received.
- 7.6. The Contractor shall submit a fully detailed schedule within two weeks after the official contract showing all activities from a Work Breakdown Structure commencing from date of contract to the final commissioning and acceptance based on the initial barchart submitted with the tender.
- 7.7. The Tenderer shall submit details of resource management which will be applied to this contract for:
  - 7.7.1. Manpower
  - 7.7.2. Finance
  - 7.7.3. Equipment
  - 7.7.4. Material supply
- 7.8. This should be in sufficient detail to establish where the above resources will be obtained and how they will be managed during the duration of the contract.
- 7.9. It is a requirement of this contract that the Contractor will employ a full time, fully experienced site manager who has been delegated sufficient authority to manage the contract efficiently on site during erection and commissioning.

## **8. QUALITY MANAGEMENT**

- 8.1. The Contractor shall be required to install and operate a quality

management system which conforms to the requirements of SABS ISO 9001/9002.

- 8.2. The Tenderer must submit a detailed statement of his quality system with this tender which shall include the following:-
  - 8.2.1. Statement of quality management policy and objectives.
  - 8.2.2. Statement of the design control system with emphasis on design review procedures and customer requirements evaluation.
  - 8.2.3. Statement of the documentation and change control procedures.
  - 8.2.4. Statement of the quality control procedures that will apply to purchased materials.
  - 8.2.5. Statement of the quality control plan for all components manufactured or supplied so that inspection is carried out to ensure conformance to the specification.
  - 8.2.6. Statement of the quality control procedure that will apply to installation and painting on site.
- 8.3. The sole responsibility for ensuring that the components supplied conform to the specification shall rest with the Contractor.
- 8.4. The Contractor shall notify the Engineer of all inspections at least 3 working days in advance of such inspections. The Engineer reserves the right to have an inspector present at such inspections. The Contractor shall have the relevant quality control plans available at such inspections. The Engineer shall give the Contractor 24 hour notice in writing of his intention to attend the inspections.
  - 8.4.1. Where the contract provides for tests on the premises of the Contractor or of his sub-contractor, the Contractor shall provide such assistance, labour, materials, electricity, fuel, stores, apparatus and instruments as may be a requisite and as may be reasonable demanded to carry out such tests efficiently. All gauges, templates, tools and other equipment required to check the accuracy of the work shall be calibrated at regular intervals by a laboratory approved by the National Calibration Services of the Council for Scientific and Industrial Research of South Africa, or by the respective authority in the country of origin of the equipment
  - 8.4.2. As and when the equipment has passed these tests, the Engineer shall furnish the Contractor a certificate in writing to this effect.
  - 8.4.3. If as a result of such an inspection, examination or test the Engineer decides that such equipment is defective or not in accordance with the requirements, he shall notify the Contractor accordingly, stating in writing his objections and reasons therefore. The Contractor shall timeously make good the defect

to ensure that the equipment complies with the requirements. Thereafter, if required by the Engineer, the tests shall be repeated under the same terms and conditions save that all reasonable expenses to which Sapo may be put by the repetition of the tests will be deducted from the contract sum.

- 8.4.4. Unless the Engineer otherwise directs, no equipment or materials are to be delivered to site until the Engineer issues an inspection certificate in respect of such equipment. The Contractor shall be responsible for the reception on site of all equipment delivered for the purpose of the contract.
- 8.5. SAPO reserves the right to conduct a quality assurance audit on the Contractor's quality control system at regular intervals.
- 8.6. If required by the Engineer the Contractor shall produce evidence to show that both his welding procedures and welders have passed all the relevant tests required in terms of BS 5135 and SABS 044 Parts III and IV.
- 8.7. The Contractor shall hold design review meetings during the planning phases of this contract. This will be to establish all customer requirements and to provide approval in principle for design interfaces for all designs and specifications to ensure that quality is designed into the final product.
- 8.8. The Contractor shall not change any design or specification feature which has any of the following impacts without formal approval by the Engineer:
  - 8.8.1. Financial
  - 8.8.2. Interface with other equipment or installations
  - 8.8.3. Safety
  - 8.8.4. Departure from customer requirements

## **9. SITE SURVEY BY CONTRACTOR**

- 9.1. Immediately after award of the contract, and prior to final design, the successful Tender shall survey the complete site of final operation of the equipment tendered for. This survey shall serve to confirm dimensions and for relative positions of all items and equipment that will interface with the equipment tendered for, e.g. rail gauges, conveyor position relative to rails, location of electrical power supply points, location and dimensions of any obstacle protruding into the operations envelope, etc.
- 9.2. It will be the contractor's responsibility to ensure that equipment supplied in terms of the contract will interface successfully with existing items and equipment.
- 9.3. Any major deviation from data supplied by Sapo in the tender documents shall be brought under the attention of the Engineer. Any potential impact

of a commercial or technical nature shall be discussed and finalised with the Engineer, prior to final design of the equipment.

- 9.4. The Tenderer shall allow in all respects in his tender for this requirement to survey the operation site and confirm tender data.

## **10. DRAWINGS AND SCHEMATICS**

- 10.1. On the contract being placed, the Contractor shall at once prepare and must submit two copies of black line paper prints of the general arrangements, working drawings and schematics for approval by the Engineer. These drawings and schematics must be submitted in a systematic manner, accompanied by an index sheet of all the drawings and schematics in question. Approval in principle by the Engineer must be obtained prior to commencement of fabrication or construction. Time required for preparation and approval of these drawings must be included in the Tenderer's program.
- 10.2. Drawings which are submitted for the Engineer's formal approval shall bear the signature and designation of the Tenderer's "responsible professional Engineer".
- 10.3. General arrangement drawings shall show the complete structural layout arrangements with plan views, elevations, cross sections, location and sizes of members, erection details, cladding details, services where applicable, etc.
- 10.4. Notwithstanding any formal approval in principal of drawings and schematics submitted to Sapu, the sole responsibility for the adequacy of the design, fabrication and installation or erection as well as accuracy of workmanship and quality of all materials, shall rest entirely with the Contractor who will be required to rectify any defects.
- 10.5. The Contractor's fabrication shop drawings and detailed drawings are not required for approval except when the Engineer requests such drawings specifically for approval or to assist him in the inspection of the structure at any stage.
- 10.6. At the completion of the Works, the Contractor shall supply as part of the contract two sets of paper prints and a set of latest AUTOCAD version files in the DXF format of the general arrangement, manufacturing and detailed working drawings and schematics, showing every portion of the work as actually made for the equipment, giving all wording in English and all dimensions in Metric units.
- 10.7. The drawings and schematics shall comply with the applicable SABS, British, VDE or ISO standards. The official Sapu title block with the Sapu serial No. and numbering system must be included in the lower right hand corner.
- 10.7.1. The Contractor will be advised regarding numbering and detailing of drawings.

- 10.8. Prints and CAD files must be delivered not later than 2 months after completion of the commissioning of the equipment.

## **11. SITE BOOKS**

- 11.1. The Contractor shall supply and have available at the site office at all times, the following site books:

11.1.1. Site instruction book:

This shall be a suitable carbon copy book, size A4, with two detachable sheets for receiving and recording instructions in triplicate issued by the Engineer or his authorised representative.

11.1.2. Site diary book:

This shall be a suitable carbon copy book, size A4, with two detachable sheets for a page to a day and all events affecting the Works, such as arrivals of plans, breakdown of machinery, weather conditions etc., must be entered. The plant, labour and material on site must be recorded as well as work performed.

Entries will be made by the Contractor (or his appointed agent) and signed by both parties daily. The diary may be used to establish the validity of claims for extension of time.

- 11.2. These site books will remain the property of Sapo and will be used for reference purposes and during the guarantee period.

## **12. CO-OPERATION WITH OTHER PARTIES**

- 12.1. Departments of Transnet and other contractors may be working in the confines of the contract work site and in the general area surrounding it during the course of the contract. The Contractor shall make reasonable allowance in all tendered rates for the necessity to interface with the activities of other contractors and Transnet, and to allow for access and safe working conditions.

- 12.2. The success of the project depends on the effective co-operation of all contractors on site, and the Contractor will if necessary be required to discuss his programme on a day to day basis with the Engineer's Deputy to ensure effective co-ordination.

## **13. CUSTOMS AND PORT REGULATIONS**

- 13.1. The Works are situated within a Customs controlled area and the Contractor and his staff shall observe all Customs regulations within the

port area.

- 13.2. The Works are sited within a promulgated port area and the Contractor and his staff shall observe all Port Regulations within the port area. Copies of the Harbour Regulations are obtainable from the Port admin offices.
- 13.3. The fullest collaboration between the Contractor, Sapo and the Engineer is essential in regard to the working of the port.

#### **14. INSTRUCTION OF SAPO'S PERSONNEL**

- 14.1. Sapo's personnel concerned with operating, and maintenance will be made available for instruction by the Contractor in their various functions at the Port concerned.
- 14.2. The necessary formal lecturing on the working, adjustment, maintenance and fault finding procedures shall be arranged for at the Port concerned.
- 14.3. Details of alternative and additional official courses offered shall be specified at tender stage i.e. full procedures, duration, place of training, competence and qualifications of personnel to be trained.

#### **15. OPERATING AND MAINTENANCE INSTRUCTION MANUALS AND PARTS CATALOGUE**

- 15.1. The Contractor will be required to furnish three final copies of each manual/handbook supplied in terms of the contract.
- 15.2. One copy of the preliminary set of manuals/handbooks must be available on site one month prior to commissioning.
- 15.3. One copy of the final set of handbooks will be kept in the workshop and the Contractor must cover every page of this set with translucent plastic.
- 15.4. The following manuals shall be supplied as part of the contract:
  - 15.4.1. Maintenance Instruction Manual.
  - 15.4.2. Workshop Reference Manual.
  - 15.4.3. Operator's Manual.
  - 15.4.4. Parts Catalogue.
  - 15.4.5. Training Manual.
- 15.5. The *Maintenance Instruction Manual* shall include:
  - 15.5.1. Safety instructions to be observed by maintenance and operating personnel.

- 15.5.2. A general description with illustrations and flow diagrams of the works, indicating all major items, with a functional description of these items.
- 15.5.3. Full detail of all faultfinding procedures (electrical and mechanical).
- 15.5.4. Detailed periodic maintenance programmes in respect of the whole of the works, including electrical components and structural work.
- 15.5.5. Comprehensive data and procedure descriptions (suitably illustrated) on routine maintenance, including intervals, tasks, wear tolerances and lubrication detail.
- 15.5.6. A list of all equipment that require lubrication must be compiled under the following headings.
- 15.5.7. Name, description, location.
- 15.5.8. Recommended lubricant.
- 15.5.9. Frequency of lubrication.
- 15.5.10. A list of all PLC fault codes and their probable causes.
- 15.5.11. Diagrams of all electrical, pneumatic and hydraulic circuits.

15.6. The *Workshop Reference Manual* shall include:

- 15.6.1. Safety instructions to be observed by maintenance and operating personnel.
- 15.6.2. Complete data and procedures on the repair and overhaul of all items of the works.
- 15.6.3. Detailed diagrams of all electrical, pneumatic and hydraulic circuits.
- 15.6.4. A list of all PLC fault codes and their probable causes.
- 15.6.5. A complete listing of the PLC programs.
- 15.6.6. Data necessary for condition monitoring purposes, like the number of teeth on gears, number of balls/rollers in bearings etc.
- 15.6.7. Detailed Supplier data sheets on all standard equipment that forms part of the works.
- 15.6.8. Design, installation, inspection and performance or load test certificates as required by law (including Act 85 of 1993).
- 15.6.9. Completed commissioning document for the works.

- 15.7. The *Operator's Manual* must detail the safe and efficient operation of the works, and must include the following:
  - 15.7.1. Safety instructions to be observed by the operating personnel.
  - 15.7.2. Start-up procedure.
  - 15.7.3. Shut-down procedure.
  - 15.7.4. Storm anchoring procedure if applicable.
  - 15.7.5. Diagram showing the lay-out of controls and operator meters and displays.
  - 15.7.6. Detail of the use of the controls and interpretation of the meters and displays.
  - 15.7.7. Detailed check-lists for the daily, weekly and monthly inspections to be performed by the operator.
  - 15.7.8. A list of all fault codes that could be displayed at operator, with a description and detail of what action should be taken by operator when such a code is displayed.
- 15.8. The *Parts Catalogue* shall comprehensively list all parts of the works with full descriptions, locations, re-order numbers and supplier, and will include illustrated diagrams of assemblies showing all parts of the assembly. A list of suppliers and their contact detail shall also be included.
- 15.9. The *Training Manual*:
  - 15.9.1. Comprehensive pictures and text shall be provided to enable SAPOt Academy (NPA's division responsible for training) to compile final training manuals for operator training, including first line maintenance.
  - 15.9.2. Pictures and text shall be in digital format supplied on CD Rom to enable Sapo to edit the content.
  - 15.9.3. To assist the Contractor in compiling the necessary information, the following requirements must be complied with for all major parts of the equipment.
    - 15.9.3.1. Identify (i.e. description and picture of) the part and describe where the part can be found on the equipment.
    - 15.9.3.2. Explain the function of the part; and
    - 15.9.3.3. Describe what the operator has to do to keep the part in good working order.
- 15.10. All final manuals shall be supplied by the Contractor as soon as possible after the works has been successfully commissioned, in order for the works to be accepted (see clause 2.13).

## **16. RECOMMENDED SPARES**

- 16.1. A complete priced list of recommended mechanical and electrical spares to enable SAPO to operate and maintain the installation efficiently for its useful life and to obtain spares as required must be submitted by the Contractor not later than one month after the finalisation of the design. This list of recommended spares must include full details on the source or supplier in each and every case.
- 16.2. Spares for the equipment must be classified as:
  - 16.2.1. Initial spares which are the major assemblies and critical single items that have been established from experience as being necessary to maintain the installation fully operational after commissioning for a period of twelve months.
  - 16.2.2. Recommended maintenance spares which are the spares that the Contractor recommends as necessary for the maintenance of the installation over and above the initial spares described above, and include all wearing items and slow moving contingency (insurance) spares.
- 16.3. Each spare part must be comprehensively described, and Contractors must furnish the manufacturer's part number as well as any applicable international item number.
- 16.4. Tenderers shall state:
- 16.5. Whether all essential renewable parts for all the equipment will be readily available in the Republic of South Africa.
- 16.6. What after sales service and operational instruction can be offered to Sapo.

## **17. GUARANTEE AND GUARANTEE PERIOD**


- 17.1. The Contractor shall guarantee that all components and material supplied are new and fit the specified purpose for which they are purchased and are free from any defects in design, workmanship and material and are in strict accordance with the specifications and drawings, unless otherwise agreed in writing by Sapo.
- 17.2. The Contractor shall agree to replace without charge to Sapo any defective items discovered within 12 months from the date of acceptance, provided that the equipment has been operated and maintained in accordance with the Contractor's written operating instructions; normal wear and tear excluded.
- 17.3. During the guarantee period the Contractor shall have a branch or local agent at or near the Port with full time personnel available for guarantee

repairs. Spare parts and equipment must also be available from the branch or agent.

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***END OF SPECIFICATION HE 9/2/9 [Version 7]***

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## LIGHTING ON EQUIPMENT

## SPECIFICATION HE8/2/6 [Version 5]

October 1995

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### 1. SCOPE

- 1.1. This Specification covers TPT's requirements for lighting equipment required on equipment and must be read in conjunction with the main Specification.
- 1.2. The following fixed lighting shall be provided in each part of the machine to provide safe operation and maintenance at all times:-
  - 1.2.1. Bulkhead type luminaires over all access ways, stair ways, walk ways, maintenance platforms, electrical equipment and similar locations to give an minimum level of maintained illuminance of 50 Lux with emergency lighting facilities to provide lighting for at least 30 minutes in the event of a power failure.
  - 1.2.2. Flood lights of suitable type provided on booms, bridges, fixed structures etc. to provide over the ship's hold and the quay at all operating points below the equipment at  $\pm 6$  meters around the equipment a minimum level of maintained illuminance of 50 Lux at quay level;
    - 1.2.2.1. In addition floodlights shall be fitted to the operator's cabin to illuminate the operator's furthest/deepest working area to a minimum level of maintained illuminance of 100 Lux;
  - 1.2.3. Fluorescent luminaires for all electrical and machinery house's, operator's cabins, external electrical panels etc. to give a minimum level of maintained illuminance of 200 Lux at floor level, with emergency lighting facilities to provide emergency lighting for at least 30 minutes in the event of a power failure.
  - 1.2.4. Red aircraft warning lights at the highest point of the fixed structure of the equipment and on the seaward end of the hinged section of the boom (if the boom is higher than the highest point of the fixed structure when raised), with emergency backup facilities.

## **2. FLUORESCENT LUMINAIRES AND CONTROL GEAR**

- 2.1. All fluorescent luminaires shall comply with SABS 1119.
- 2.2. Luminaires in machinery houses etc. must be so arranged to avoid stroboscopic effect on rotating equipment.

## **3. FLOODLIGHTS**

- 3.1. All floodlights shall comply fully to SABS 1279.
- 3.2. High pressure sodium vapour discharge types is preferred.
- 3.3. The control gear shall be an integral part of the floodlight but be placed external to the luminaire in a housing separate to that of the lamp. All floodlights shall be fitted with power factor correction equipment.

## **4. AIRCRAFT WARNING LIGHTS**

- 4.1. Aircraft warning lights are to be controlled by a twilight switch with override from the operator's cabin and shall be supplied from a low voltage DC power supply with an emergency power pack (Nickel-cadmium batteries) with sufficient capacity to keep the lamp/s burning for approximately 12 hours in the event of mains power failure.
- 4.2. Warning lights with two lamps and automatic switch over facilities to the second lamp in the event of lamp failure, with alarm indication in the operator's cabin is preferred.

## **5. GENERAL**


- 5.1. All luminaries shall be mounted such that as little light as possible is "spilled" beyond the wharf or ship's edge, since any light falling on the water surface is likely to cause reflected glare difficulties and glare interference with harbour navigation. Details of all lighting must be stated by tenderers at tender stage.
  - 5.1.1. All the flood lighting on booms etc. which are raised at some stage, shall be automatically switched off when the boom is raised.
  - 5.1.2. Access lighting shall be controlled by two-way switches from the main operator's cabin and from ground level.
  - 5.1.3. Self contained luminaires incorporating Nickel-cadmium batteries and charger is preferred for emergency lighting. Emergency lighting will only switch on when the respective luminaires were energized before the break in electricity supply occurred.

- 5.1.4. All fixed lighting shall be supplied from an adequately rated 400/231V double wound air cooled transformer with the centre point of the 231 V winding solidly earthed to the structure.
  - 5.1.4.1. Primary and secondary fuses or circuit breakers must be provided in the transformer housing or electrical control cabinet.
- 5.1.5. All luminaires must be wired in PVC, armoured cable to a connection through box and from there to the luminaire with Silicon or other approved heat resistant cable.
- 5.1.6. All luminaires shall be provided with a glass visor of 4mm, heat tempered, clear armoured glass. Plastic light fittings and fittings having plastic refractors, diffusers or covers are not acceptable.
- 5.1.7. It must be stressed that all the luminaire bodies, diffusers, brackets, control gear housings etc. shall be manufactured from either stainless steel grade 304 or die-cast aluminium.
- 5.1.8. All luminaires shall be installed in positions that is readily accessible for lamp replacement and maintenance.
- 5.1.9. All luminaires shall be resiliently mounted to avoid ill effects from vibration. An anti-vibration/stabilizing support bracket is to be provided to support all luminaire which can be adjusted.
- 5.1.10. Tenderers are to state whether igniters, control gear, etc. will be suitable for all makes of British, Continental and American lamps available in South Africa.

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**END OF SPECIFICATION HE8/2/6 [Version 5]**

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## **1. SCOPE**

- 1.1. This specification covers site electrical pre-operational tests and commissioning tests required for electrical apparatus, wire, cables and other miscellaneous equipment and material as called for in the specifications and must be read in conjunction with the other specifications.

## **2. GENERAL INFORMATION**

- 2.1. Pre-operational tests and acceptance certificates as herein specified are defined as those tests and inspections required by the ENGINEER prior to equipment being energized to determine that the apparatus involved may be safely energized.
- 2.2. Calibrating tests, checks on limit switch settings, interlocking, PLC functioning etc. are so called cold commissioning or dry tests.
- 2.3. Hot commissioning tests are the tests as specified by the Engineer such as burn in tests for electronic equipment and continuous cycle tests etc. when the equipment is handling the product it was designed for.
- 2.4. Final acceptance will not only depend on equipment dependability, as determined by the subject tests, but will depend on complete operational tests on all equipment to show that the equipment will perform the functions for which it was designed.
- 2.5. These specifications intend that the workmanship methods, inspections and materials used in erection and installation of the subject equipment shall conform with accepted engineering practices, the specifications as prepared by the Engineer, Manufacturer's instructions and the relevant Standards as referred to in all the attached specifications.
- 2.6. The Contractor shall bear the costs of all tests required.

## **3. RESPONSIBILITY**

- 3.1. The testing shall be performed by and under the immediate supervision of the Contractor.
- 3.2. The Contractor shall adjust, set, co-ordinate, calibrate and test all systems and equipment furnished and/or installed by him.
- 3.3. The Contractor shall determine, and the Engineer shall approve the individuals in whom final responsibility and authority rests for carrying out these tests and

inspection procedures on particular equipment. The method to be followed in obtaining clearances on electrical equipment shall also be established and such method rigidly adhered to.

- 3.4. All testing shall be scheduled by the Contractor and cleared through the Engineer. No testing of any kind shall be done or scheduled without this clearance.
- 3.5. The Contractor shall notify in person or by letter all the interested parties at least 24 hours prior to tests, establishing the time the test is to be performed.
- 3.6. The interested parties to be informed will be determined in conjunction with the Engineer.
- 3.7. The parties notified shall be responsible for having their representatives present at the designated time. Absence of any one representative will not prohibit the test from proceeding on schedule, unless such representative is essential in doing the tests.
- 3.8. Each of the notified interested parties and the testers employed shall be individually responsible for the safety of all members of their organization during such time as the tests are performed.
- 3.9. The Contractor will coordinate all testing to ensure that all trades are prepared and that the conditions are safe.
- 3.10. Detailed testing method and equipment shall be approved by the Engineer.
- 3.11. On some tests, particularly the final inspections of important equipment, the manufacturer's Engineer or representative shall be present and perform same. The request for a manufacturer's representative shall be made sufficiently in advance to the date the test is scheduled so that satisfactory arrangements for the representative's services can be made. Frequently, the manufacturer's responsibility applies to both electrical and mechanical equipment. Where such joint responsibility exists, the request for a manufacturer's representative shall be arranged to satisfy both electrical and mechanical requirements simultaneously.
- 3.12. Manufacturer's instructions shall be carefully read for any special conditions that may be required for testing.
- 3.13. Following established procedures, equipment will be energized after certification on the relevant form by the personnel performing the tests, that equipment is ready for energizing and with the concurrence of the Engineer.

#### **4. TESTING EQUIPMENT**

- 4.1. All testing equipment for tests which are to be performed shall be furnished by the Contractor.

- 4.2 Testing equipment required to prove guarantee values shall be calibrated immediately prior to the relevant tests to be performed. The error curves shall be submitted with the report.

## **5. TESTING RECORDS**

- 5.1. Test results shall be entered in test forms provided by the Contractor or, if such forms are not available, in test forms approved by the Engineer.
- 5.2. Authorized, qualified representatives of the parties interested (see paragraph 3.0 shall be present to approve a test when made. One (1) copy of the rough draft-test report shall be given to each authorized representative at the time the test is made.
- 5.3. Formal test reports approved by the Engineer shall be supplied and prepared by the party performing the test within 48 hours, signed by the authorized representatives, and furnished to the Engineer for distribution.

## **6. SAFETY PRECAUTIONS**

- 6.1. The Contractor shall exercise extreme care in performing the tests specified so as not to jeopardize the safety of personnel and to prevent equipment damage during any tests. All exposed live parts subject to testing shall be guarded by personnel, barricades, or other practical means to ensure against personnel being injured by coming in contact or close proximity to exposed parts.
- 6.2. All equipment, exposed live parts, etc., shall be completely discharged by grounding or other accepted methods so as to eliminate the possibility of injury to personnel from electrical shock after the tests have been completed.

## **7. PROVISIONAL ACCEPTANCE**

- 7.1. The Engineer's Provisional Acceptance of any electrical installation shall be based upon the completion of tests and checks prescribed in clauses 8 through 13, submission of test data (where required), satisfactory materials and workmanship, and demonstration of satisfactory start-up.

## **8. EARTH CONTINUITY AND RESISTANCE TESTS**

### **8.1. General:**

- 8.1.1. All earthing and bonding cables must be checked for continuity and earth resistance.

### **8.2. Test procedure:**

- 8.2.1. Measuring the cable and connection resistance simultaneously with a resistance bridge or accurate multi-meter.

### **8.3. Acceptance:**

- 8.3.1. The resistance of the earthing and bonding cables and connections must be less than stated in SABS 0142/latest.
- 8.3.2. Complete and accurate records of all resistance readings of all earthing conductors of motors, transformers, power cables etc. must be made.

The records shall include the following:

- 8.3.2.1. Complete identification of the cable and connection points including its approximate length;
- 8.3.2.2. Resistance reading;
- 8.3.2.3. The approximate average cable temperature.
- 8.3.3. No electrical systems will be energized until the master copy of its test record is approved by the Engineer.

## **9. MEDIUM VOLTAGE CABLES**

### **9.1. General:**

- 9.1.1. The Contractor shall give all medium voltage cables a high potential test in compliance with the cable manufacturers specifications, after all splices and potheads or cable terminations have been made.
- 9.1.2. The medium voltage cables shall be given a complete dielectric absorption test before and after the high potential test. The cable test shall be performed prior to connections to the electrical equipment at either end.
- 9.1.3. The Contractor shall supply all instruments for testing.

9.2. Test Procedures:

- 9.2.1. Medium voltage stress cone type terminations or potheads shall remain intact but testing shall not include any bus work beyond the pothead or stress termination.
- 9.2.2. Cable continuity and phase identification shall be checked.
- 9.2.3. In setting up the test set special safety precautions should be taken regarding grounding of the test equipment. The test set, it's voltmeter and the cable shield should be grounded at the same ground.
- 9.2.4. All 4 core cables shall be tested between one conductor and ground with the other conductors and the metallic shield, metallic sheath or armour grounded to the same ground. Each conductor to be tested in this manner.
- 9.2.5. All single conductor cables shall also be tested between one conductor and ground with the other conductor in the same conduit grounded.
- 9.2.6. Each cable is to be given a full dielectric absorption test as herein specified with a suitable motor driven or electronic megger. The readings taken shall be recorded in the test record.
- 9.2.7. The dielectrical absorption megger test shall be applied for a long enough duration to fully charge the cable. Megger readings shall be taken every fifteen (15) seconds during the first three (3) minutes and at one (1) minute intervals thereafter. The test shall continue until three (3) equal readings one (1) minute apart are obtained. The cable may then be considered to be fully charged.
- 9.2.8. All cables should have approximately the same megohm reading. In the event that a cable shows an appreciably lower resistance value than the others in the same conduit or cable run, this condition shall be discussed with the Engineer prior to the application of the high potential test.
- 9.2.9. After an acceptable megger test, the Contractor shall give the cables a direct current (DC) high potential test. The test potential shall be 80% of the factory test voltage for 15 minutes. The test voltages shall be applied gradually during the first minutes in five equal steps. Leakage current readings shall be taken at each voltage increment, and at one (1) minute intervals after full test voltage has been applied for the remainder of the test. After completion of the test, cables shall be discharged slowly. No test will be accepted where there is an appreciable increase in leakage current throughout the test.

- 9.2.10. Cables shall not be subjected to more than one (1) high potential test without approval of the Engineer. During these tests a man shall be stationed at each point where the cable has exposed connections.
- 9.2.11. The successful high potential test shall be immediately followed by another megger test as heretofore specified.
- 9.3. Acceptance:
  - 9.3.1. The cable must withstand the specified high voltage without an appreciable increase in leakage current.
  - 9.3.2. Final acceptance will also depend on satisfactory results of the two megger tests. The results of the final megger test should reasonably parallel those of the first megger test and should show no evidence of permanent injury to the cable caused by the high voltage test.
  - 9.3.3. Complete and accurate records of all megger and accompanying high potential tests shall be made. The records shall include the following:-
    - 9.3.3.1. Complete identification of the cable including its approximate length;
    - 9.3.3.2. Megger readings vs time data;
    - 9.3.3.3. High potential and leakage current readings vs time data;
    - 9.3.3.4. The approximate average cable temperature.
  - 9.3.4. No cable shall be energized until the master copy of its test record is approved by the Engineer.

## **10. LOW VOLTAGE POWER CABLES**

- 10.1. General:
  - 10.1.1. All wires and cables shall be tested for continuity. Except for 60 volt services and below, all wires and cables shall be given a megger test.
  - 10.1.2. All cable connections must pass visual inspections for workmanship and conformance with standard practice.
- 10.2. Test Procedure:
  - 10.2.1. Continuity shall be checked by means of a DC test device using bell or buzzer.

- 10.2.2. Bus tie cables shall be meggered before connections to buses are made.
- 10.2.3. Each 400 volt service cable from substations shall be meggered with the cable connected to the switch gear with the corresponding breaker racked in and open. Connections at the other end of each of these cables shall be as follows:-
  - 10.2.3.1. Cables to individual motors shall be disconnected from the motor for initial tests, and followed by cables connected to motors as per specification for rotating equipment;
  - 10.2.3.2. Cables to control centres shall be connected to the control centre main breaker with breaker in the open position.
- 10.2.4. Minimum megger readings shall be 1 Me 6 ohm.
- 10.2.5. The megger test must be held until the reading reaches a constant value. For 400 volt cables the cable megger test shall be held until three (3) equal readings, each one (1) minute apart, are obtained.
- 10.2.6. A 1000 volt motor-driven or electronic megger with a value of at least twice that of the RMS voltage shall be used on all service conductors.
- 10.3. Acceptance:
  - 10.3.1. Minimum megger requirements must be met.
  - 10.3.2. Any cable having a megger reading 50% lower than average, even though meeting minimum requirements, shall await further instructions from the Engineer as to drying or other treatment to be given the cable prior to acceptance.
  - 10.3.3. Complete and accurate records of all tests and inspections shall be made.

## **11. MEDIUM VOLTAGE SWITCH GEAR AND CIRCUIT BREAKERS**

- 11.1. General:
  - 11.1.1. All switch gear shall be given operational tests. This shall include mechanical operation, as well as operation by control circuits, relays and tripping devices. All breakers and busbars shall be given a megger test.
- 11.2. Test Procedures:
  - 11.2.1. Megger tests on the medium voltage bus shall be applied between each phase separately and ground with other phases tied to ground. All breakers shall be racked-out.

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- 11.2.2. In addition each breaker shall be given a megger test in the racked-out and closed position. Megger tests shall be applied between each phase to ground and to each other phase.
  - 11.2.3. A suitable motor driven or electronic megger shall be used. Each test shall be held until a constant reading is obtained. Minimum test values shall be as specified in specifications.
  - 11.2.4. All test readings shall be recorded.
  - 11.2.5. All circuit breakers shall be operated through at least three (3) open-close-open cycles in both the rack-in and test positions by manual operation and by control circuits from each control point. All indication lights, annunciators, alarms and targets shall be observed to determine correct operation and breaker mechanism shall be observed for correct alignment, freedom of binding and good contact. All breakers shall be checked for ease of rack-in and rack-out and checked to determine that the breaker cannot be moved out of operation position while the breaker is closed.
  - 11.2.6. The interchangeability of the circuit breakers shall be demonstrated.
  - 11.2.7. PT and CT data shall be recorded and PT and CT circuits shall be checked with a multi-tester.
  - 11.2.8. Protective relays shall be adjusted and calibrated with an injection type test arrangement (multi-amp or equal). Results shall be recorded and the co-ordination of the protective relaying shall be proved.
  - 11.2.9. After initial energization, switch gear shall be checked for correct phase sequence.
  - 11.3. Acceptance:
    - 11.3.1. Minimum megger requirements must be met;
    - 11.3.2. Proper mechanical and electrical operation of switch gear must be assured;
    - 11.3.3. Correct protective relaying operation must be proven;
    - 11.3.4. Complete and accurate records of all tests and inspections shall be made.

## **12. POWER TRANSFORMERS**

- 12.1. General:
  - 12.1.1. Before testing, all transformers shall be inspected for cleanliness, damage, moisture (blue coloured silica gel), oil leaks and phase identification. Each transformer winding shall be given megger tests.

- 12.1.2. Oil filled transformers shall have the oil checked for dielectric strength.
- 12.1.3. Accessories and auxiliary circuits to switchgear and alarm panels shall be checked.

12.2. Test Procedures:

- 12.2.1. Transformer windings shall be meggered with cables disconnected. (The cables have to be disconnected anyhow for cable high potential tests). See clause 9.0.
- 12.2.2. The 400 volt connection to the switchgear does not have to be opened, but the secondary isolator shall be racked out.
- 12.2.3. The transformer neutral has to be disconnected from ground.
- 12.2.4. When meggering the primary side, the secondary winding has to be grounded and vice versa.
- 12.2.5. The minimum values of the specified megger tests shall be as specified in the standard specification.
- 12.2.6. All 2500 V megger tests shall be held at least five (5) minutes and until three (3) consecutive equal readings one (1) minute apart are obtained. Readings shall be taken every thirty (30) seconds during the first two (2) minutes and every minute thereafter. 1000 V Megger readings must be held until the reading reaches a constant value and until three (3) consecutive equal readings one (1) minute apart are obtained.
- 12.2.7. The oil samples for the dielectric strength test shall be taken from the bottom of the transformer tank and tested in accordance with SABS Specifications.
- 12.2.8. Oil temperature indicator, level gauge and pressure relief devices must be manually actuated to check operation of auxiliary circuits.
- 12.2.9. To check the Bucholz relay, air shall be injected at the test connection.

12.3. Acceptance:

- 12.3.1. Minimum megger requirements must be met.
- 12.3.2. Oil dielectric strength shall be above the minimum specified by the manufacturer.
- 12.3.3. Auxiliary circuits shall be fully operational.

### **13. LOW VOLTAGE SWITCH GEAR**

#### **13.1. General:**

- 13.1.1. The 400 volt switch gear bus shall be given a phase-to phase and phase-to-ground megger test.
- 13.1.2. All switch gear, relays and control devices shall be given complete operational tests to show that the equipment performs all design functions and meets design and equipment procurement specifications.

#### **13.2. Test Procedures:**

- 13.2.1. With transformer secondary breaker and load breakers open, all current transformers shorted, all potential transformer fuses removed and all 400 volt feeder breaker load terminals grounded, the 400 volt bus shall be given a phase-to-phase and phase-to-ground megger test.
- 13.2.2. Megger tests on the 400 volt bus shall be applied between each phase and ground with phases not under test also grounded.
- 13.2.3. All circuit breakers shall be operated through at least three (3) open-close-open cycles in both the rack-in and test position by manual operation and by control circuits from each control point (draw out breakers only). All indicating lights, annunciators, and breaker mechanisms shall be observed for correct alignment, freedom of binding and good contact. Draw out breakers shall be checked for ease of rack-in and rack-out and checked to determine that the breaker cannot be moved out of operating position while the breaker is closed.
- 13.2.4. PT and CT data shall be recorded and PT and CT circuits shall be checked with a multi-tester.
- 13.2.5. Protective relays shall be adjusted and calibrated with an injection type test arrangement (multi-amp or equal). Results shall be recorded and the co-ordination of the protective relaying shall be proved.
- 13.2.6. After initial energization, switch gear shall be checked for correct phase sequence.

#### **13.3. Acceptance:**

- 13.3.1. Minimum megger requirements must be met.
- 13.3.2. Proper mechanical and electrical operation of switch gear must be assured.
- 13.3.3. Correct protective relaying operation must be proven.

- 13.3.4. Complete and accurate records of all tests and inspections shall be made.

## **14. ROTATING EQUIPMENT - 400V AND LOWER**

### **14.1. General:**

- 14.1.1. All rotating equipment, large and small, rated 400 volt and lower shall pass a minimum megger reading at room temperature. Any machine not passing this test shall be dried and retested until it either passes or is found unsatisfactory.
- 14.1.2. Prior to testing, all rotating equipment shall be inspected for cleanliness, damages, moisture, alignment, proper lubrication, oil leaks and phase identification.
- 14.1.3. For motors fed from main control panels or motor control centres, the setting of the protective equipment shall be checked.
- 14.1.4. For motors fed directly from 400 volt, switchgear setting of the protective relays is covered by clause 13.0.

### **14.2. Test Procedures:**

- 14.2.1. The circuit breaker is to be racked in, but in the open position. Where magnetic contractors are used, the contactor shall be in the open position so that the section of conductor between the contactor and terminals is included in the test. Control circuit conductors shall be isolated.
- 14.2.2. Megger tests shall be applied between all phases tied together and ground.
- 14.2.3. Megger tests shall be taken with the motor winding temperature at room temperature.
- 14.2.4. All 400 volt motor cables shall be tested before connections are made at the motor in accordance with clause 10.0. Megger tests for each 400 volt motor shall include the cables feeding it.
- 14.2.5. A motor-driven or electronic megger with a service voltage of at least twice the RMS voltage shall be used on all motors.
- 14.2.6. Minimum megger readings shall be 1 Meg ohms.
- 14.2.7. The megger test must be held until the reading reaches a constant value and until three (3) consecutive equal readings one (1) minute apart are obtained.

- 14.2.8. For motors fed from main control panels or motor control centres, overload- and instantaneous over-current protection has to be set to suit the particular drives.
- 14.2.9. After successful performance of mechanical and insulation tests and after the electrical starter protection have been adjusted, the motor may be "bumped" to check for proper rotation.
- 14.3. Acceptance:
  - 14.3.1. All rotating equipment must pass the megger insulation tests as specified and satisfy all representatives as to cleanliness and neatness of the installation.
  - 14.3.2. Complete and accurate records of all tests shall be made. Final acceptance of rotating equipment cannot be made until the equipment is operated during hot commissioning. The equipment shall prove proper rotation, lubrication, alignment and freedom from excessive vibration to the satisfaction of the Engineer.

## **15. COLD COMMISSIONING**

- 15.1. The programmable logic control system shall only be tested once the LV switchboard and other control panels have been tested in the manual mode and been provisionally accepted by the Engineer.
- 15.2. The control system shall firstly be tested DRY, i.e. all motor fuses shall be removed or circuit breakers shall be in the OPEN positions.
- 15.3. All plant/external inputs to the PLC shall be individually checked in the field or motor control centre by operating the required field limit switch, relays etc. and checked on the programmer monitor if the status indication of the correct input reference alters.
- 15.4. All plant/external outputs shall be checked individually by forcing the PLC output coil by means of the programming unit and checking the field, motor control or mimic display panel if the correct relay, indication lamp or contactor has operated.
- 15.5. A signed test record showing all input/ output references and reference to which field, motor control centre or mimic panel device was initiated or was operated shall be made and handed to the Engineer before the second part of the DRY test commences.
- 15.6. The second part of the DRY test shall be by carrying out drive selections, route start ups and route stops for all possible drives as listed. All inputs which cannot be present because of the absence of any plant movement shall be simulated by a plant input simulator to be provided by the Contractor.

- 15.7. Upon completion of the tests, a signed test record showing all route selections, starts and stops simulated for every route and a list of all simulated inputs/outputs used shall be made and handed to the Engineer.
- 15.8. The Contractor shall then call upon the Engineer to witness a repetition of all previous DRY tests.


## **16. HOT COMMISSIONING**

- 16.1. Commissioning of the whole installation shall not commence until all work which is essential for safe operation has been completed.
- 16.2. First, the electrical equipment and circuitry shall be checked and tested in each Motor Control Board and shall be rendered "healthy" and fully operational before any other part of the installation is commissioned.
- 16.3. The settings of all protective, instrument and timing devices are to be correctly based on the manufacturer's characteristic curves.
- 16.4. The operation of all equipment and motors shall be tested on the "manual" sequence first prior to attempting "automatic" sequence control.
- 16.5. Commissioning shall follow the electrical testing procedures necessary prior to start-up of the equipment.
- 16.6. The start-up of each system or plant shall be done in the presence of the authorized representatives of the machine suppliers, the mechanical contractors, the electrical suppliers of the boards, the Electrical Contractor and the Engineer, unless otherwise arranged by the Engineer.
- 16.7. During hot commissioning the temperature rise of all motors will be calculated using the resistance method.
- 16.8. For a period determined elsewhere in this document, after completion of the foregoing operations, the Electrical Contractor shall arrange for a competent representative to remain on site to test-run the installation to the satisfaction of the Engineer.

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***END OF SPECIFICATION HE8/2/8 [Version 4]***

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This Specification covers Transnet Port Terminals requirements for low voltage general electrical equipment to be supplied with machinery and plant for Ports and must be read in conjunction with the main specification governing the mechanical requirements of the equipment.

## **2.0 STANDARDS**

The following standards are referred to in this specification:-

### **2.1 South African Bureau of Standards (SABS)**

SABS 064	Code of practice for the preparation of steel surfaces for coating
SABS 086	Electrical equipment in explosive atmospheres
SABS 0108	Classification of hazardous locations
SABS 0111	Engineering drawings
SABS 0142	Code of practice for the wiring of premises
SABS 152	Air break isolators
SABS 172	Cartridge
SABS 314	Enclosures for electrical apparatus for hazardous locations
SABS 743	Low voltage isolating transformers
SABS 948	3 Phase induction motors
SABS 1092	Contactors
SABS 1274	Coatings applied by the powder coating process
SABS 1507	Cables

### **2.2 British Standards (BS)**

BS 89	Indicating instruments
BS 308	Engineering drawing practise
BS 587	Motor starters and controllers
BS 3939	Graphical symbols for electrical power diagrams
BS 4749	Control switches
BS 5419	Combination fuse switches

### **2.3 International Electrotechnical Commission (IEC)**

IEC 51	Indicating instruments
IEC 117	Recommended graphical symbols
IEC 144	Enclosures

Users of this specification must ensure that they are in possession of the latest issues of the above-mentioned standards.

Where equipment offered complies with the recognised standards of the country of manufacture and not specifically with the standards required by this specification, such equipment will be considered by Transnet Port Terminals. Tenderers shall however

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state the standards to which the equipment is manufactured and supply TPT (on request) with the relevant specification in English.

## 2.4 Annexures

The following annexures form part of this specification:-

Annexure 1 - Schedule of requirements

Details specific requirements and/or deviations to this specification

Annexure 2 - Technical data sheet

Calls for specific information to be submitted with tenders.

## 2.5 Service conditions

All electrical equipment shall be suitable for service under the following conditions:-

Environmental conditions:-

Altitude - sea level

Ambient temperature - minus [-] 5°C to plus [+] 45°C

Relative humidity - frequently 100%

Air pollution - industrial fumes, dust laden  
and heavy saline

## 2.6 Electrical conditions

Voltage - 220V  $\pm$  5% single phase AC  
or 380V  $\pm$  5% three phases  
AC, 4 wire, earthed neutral

Frequency - 50 Hz  $\pm$  2Hz

Interference -severe switching surges and  
noise typical of heavy industrial  
environment

Wave form distortion -high percentage harmonic  
content

Phase imbalance - up to 2.5% transient

## 2.7 Environmental requirements

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All electrical equipment shall be suitably treated for use in a tropical environment where rapid changes in weather conditions produce severe moisture condensation problems. The equipment shall also be capable of withstanding the high corrosive effects of moist saline and dust-laden atmosphere, which is also contaminated with sulphurous smoke. All electrical equipment used indoors shall be housed in enclosures with minimum degree of protection of IP44 and equipment to be used outdoors at least IP 55 unless otherwise stated in the schedule of requirements.

## **2.8 Hazardous locations**

Where the electrical equipment is required to operate in hazardous locations the details of locations and the type of enclosure protection for use in such location shall be in terms of SABS 0108 or as stated in Annexure 1. The equipment shall be certified by a recognised testing authority. Details of the testing authority and the relevant test certificates shall be submitted.

Equipment in hazardous locations shall be installed in accordance with SABS 086.

Where flame proof equipment is required it shall be in accordance with SABS 314.

## **2.9 Electrical installation**

The tenderer shall guarantee that the rating and size etc. of the electrical equipment offered will be adequate to perform the duties required by the machine.

Installation of the electrical equipment offered shall comply with SABS 0142, Code of practice for the wiring of premises.

## **2.10 Spares and accessories**

Tenders shall submit separate quotations for the following spares and accessories (as applicable):

Servicing aids such as printed circuit board extender and special tools recommended by the manufacturer of the equipment:

Special test instruments essential for testing/calibrating of the equipment which are not normally considered as standard maintenance test equipment in the electronics industry;

Non standard semi-conductor devices and control equipment not freely available in the local market and from more than one source of supply;

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All printed circuit boards and modules.

### **2.11 Training of TPT's maintenance staff**

Tenderers shall submit proposals and indicate their preparedness to undertake training of TPT's maintenance staff in the principles of operation, maintenance and fault finding of the equipment. Tenderers may quote separate costs in respect of such training. This applies to complex equipment only.

### **2.12 Drawings**

All electrical drawings must conform to specifications SABS 0111, BS 308, BS 3939 or IEC 117.

Drawings must be supplied in printed A3 versions as well as one set of microfilms.

Drawings shall be prepared on ISO "A" series size sheets and shall not be bigger than A3 in size.

### **2.13 Technical support facilities available from tenderers.**

Tenderes shall state the following: -

The address of their nearest servicing centre to the point of installation/use of the equipment on tender;

To what extent complete electronic and electrical maintenance and repairs to the equipment under consideration can be carried out by their own maintenance staff at the service centres mentioned:

Whether all electronic and electrical spares for the equipment under consideration are kept as local spares holding.

### **2.14 Electronic equipment**

The production standard of all electronic equipment shall be in accordance with the relevant and recognised standards and recommendations for the electronics industry such as contained IEC Publications, British standards Din specifications SBS specifications and other standards recommended by the Electronics Industries Association or other pertinent and widely accepted standards and recommendations.

Anti-condensation heaters shall be fitted when called for by the main specification.

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### 3. AC CONTACTORS

Contactors shall comply with IEC 947-4-1/latest.

Contactors shall be chosen by taking the following factors into account:-

Load to be switched:

Utilization category, e.g. AC1, AC2, AC3, AC4, AC11;

Electrical life (Clause 3.3);

Short circuit immunity;

Starting time;

Mechanical life:- All contactors shall have a mechanical life of at least 10 million operations. (1 operation equals 1 make and 1 break).

The electrical life shall be not less than that laid out below for the following utilization categories:-

Utilisation Category	Electrical Life In Hours
AC 1	8 000
AC 2	6 000
AC 3	8 000
AC 4	2 500
AC 3/4	5 000

The category AC 3/4 is defined as one where the usual operation is in category AC 3 with more than 1% of total operations occurring in AC 4.

For the purpose of determining life in this category the percentage operations in category AC 4 shall be equivalent to the expected value, but shall in any case not be less than 20% of the total.

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The duty class shall be at least class 3. Should the operating class exceed that of class 3, i.e. 300 cycles per hour, the actual value shall be used when computing the expected electrical life.

Block type contactors shall be used for all low voltage motor control applications.

The maximum thermal current rating shall be at least 1.25 times the rated full load current.

Auxiliary contacts shall be contained in a separate unit directly operated from the main armature.

Visual indication by means of a pin or protrusion that the contactor is energized must be provided.

#### **4. SWITCH DISCONNECTERS**

Switch disconnecters shall comply to BS 5419 and/or SABS 152.

The rating of the disconnector shall suit the system fault level and the breaking capacity of the associated moulded case circuit breaker (where used), or fuses, and shall be rated for fault make load break operation.

The mechanical endurance shall not be less than:-

10 000 operating cycles for rated currents between 0 and 63 A;

3 000 operating cycles for rated currents between 63 and 250 A;

1 000 operating cycles for rated currents exceeding 250 A.

The electrical endurance in the appropriate utilization category shall not be less than 20% of the mechanical endurance.

Where the neutral link is external to the disconnector and is removable without first opening the disconnector it shall be labelled in terms of SABS 0142.

The disconnector shall be interlocked with the front cover of the enclosure in a way to prevent opening of the cover if the switch is "ON". The switch must be able to be switched on with the cover open, only by a competent electrician for maintenance purposes.

The disconnector shall be suitable for padlocking in the off position.

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## 5. INDICATING INSTRUMENTS AND PROTECTION RELAYS

All indicating instruments shall be flush-mounted industrial type that comply with the relevant clauses of IEC 51-1, IEC 51-2, IEC 51-7, IEC 51-8 and IEC 51-9 and shall have a minimum accuracy of 3% or better and shall have a scale length of not less than 90 mm.

All scales except for thermal ammeters shall be linear and shall be marked in accordance with BS 3693 with the scale selected for the accuracy class.

All instrument glass shall be glare free.

All current operated instruments and protection relays shall be protected against continuous over current of up to 120% of the nominal value as well as short circuit currents that may be experienced.

Ammeters shall be marked with the ratios of the associated current transformer.

Ammeter full-scale deflection shall be 120% of primary current of the associated current transformer.

Voltmeter scales shall indicate 80%-120% of the nominal system voltage. Where 0-120% indication is needed the nominal voltage shall be approximately 75% of full scale. The nominal voltage shall be marked with a red line.

If required by the system or main specification ammeters shall incorporate a thermal maximum demand indicator with a time lag of 15 minutes. A built in saturation current transformer shall be provided to protect the indicator against the maximum fault currents that may be experienced. A resettable pointer shall be provided to indicate the maximum value reached.

## 6. CONTROL SWITCHES

Control switches shall comply with BS 4749.

"Emergency-stop" push buttons shall be of red colour, shall have one normally closed and one normally open contact and shall be of the mushroom head twist lock type and be lockable in the "off" position.

All push buttons shall have non corrosive appropriately engraved and anodised escutcheon plates fitted.

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## **7. RATING PLATES AND LABELS**

Rating plates complying with the relevant requirements of IEC 298 showing the following information shall be provided:-

Manufacturer's name;

Manufacturer's type number;

Manufacturers serial number

TPT contract number;

Year of manufacture;

Rated values, etc.

Identification labels is required on or adjacent to all electrical control equipment, switches, relays, instruments, meters, fuses, MCCB's, test blocks, terminal strips etc. The text shall be in black letters on a white background and shall be at least 5mm in height.

These identification labels shall correlate with the corresponding schematic and wiring diagram and the wording shall be in English.

All labels shall be of a corrosion resistant material and shall be securely attached.

Labels shall be placed adjacent to all fuses and circuit breakers to indicate their rating.

All switching devices shall be provided with labels that indicate ON, OFF, EARTH, as required. These labels shall be permanently marked with characters at least 10 mm in height, and shall be visible to the operator in a normal operating position, in a fixed position or located on a moving component of the switch that is visible through an opening and shall be as follows:-

I - white lettering on black background for the ON position;

O - white lettering on a green background for the OFF position:

Earth symbol in black on a yellow background for earth position.

## **8. MOULDED CASE CIRCUIT BREAKERS**

Moulded case circuit breakers shall comply with SABS 156.

## **9. FUSES**

Fuse links shall be of a high rupturing capacity type complying with SABS 172 and/or BS 88. Fifty percent spare fuse links of each size shall be supplied loose at handover of the equipment.

## 10. WIRING AND CABLES

All cables for fixed installations must comply with SABS 1507, except where special cables have otherwise been specified.

Steel wire armoured cables must be used where the possibility of mechanical damage exists.

Armouring of cables will not be used for earthing purposes or any return circuit but shall be bonded to earth. An earth conductor shall be provided in each cable for earthing purposes. If an earth core is not provided a separate, appropriately coloured, insulated earth wire shall be run.

Metallic structures shall not be used for any return or earthing circuit under normal operating conditions but all structures shall be electrically bonded together with welding type cables.

Spare cores and terminals for all control cables shall be provided as follows:

<u>Number of Conductors/Cables</u>	<u>Spare Cores</u>
3 - 6	1
7 - 12	3
Over 12	4

The standard method for numbering small wiring shall be as indicated in NRS 003, Annex A.

### 10.1 Colour coding of cables

Unless otherwise agreed to the colour of all auxiliary and control wiring (except earth wires) shall be grey. The colour of earth wires shall be green/yellow.

All three phase supplies shall be colour coded red, white and blue.

Single-phase supply cables shall be blue for neutral and brown for live.

DC supply cables to motors, fields, magnets etc. shall be orange.

If the correct colour cables are not available cable ends may be marked with "air-shrink" or "heat shrink" type insulation material for

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± 200 mm. Colour coding of cables with insulation or marking tape is not acceptable.

### **10.2 Cable Installation on structures and in electrical rooms etc:**

Except where otherwise specified, the entire electrical installation including the wiring, shall where applicable, be in accordance with the "Code of Practice for the Wiring of Premises" (SABS 0142-1978) or the IEEE Wiring Regulations for Electrical Installations.

## **11. PROTECTION AGAINST CORROSION**

All enclosures, cabinets etc. shall be manufactured from 2 mm mild steel or 3CR12 sheeting, as called for in the main specification and shall be painted according to Specification HE9/2/8.

All fixing screws, bolts, nuts, washers, clips, terminals, brackets, etc. shall be stainless steel. Bolts and nuts above 12 mm may be hot dipped galvanized steel bolts.

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END OF SPECIFICATION HE8/2/1 [Version 1]

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